FM 7-22

HOLISTIC HEALTH AND FITNESS

OCTOBER 2020

DISTRIBUTION RESTRICTION:

Approved for public release; distribution is unlimited.

This publication supersedes chapters 1–6 and appendix D of FM 7-22, dated 26 October 2012.

HEADQUARTERS, DEPARTMENT OF THE ARMY

FM 7-22

Change No. 1

Headquarters
Department of the Army
Washington, D.C., 8 October 2020

Holistic Health and Fitness

1. This publication changed to incorporate spiritual doctrine.
2. A plus sign (+) denotes changed material.
3. FM 7-22, 1 October 2020, is changed as follows:

Remove Old Pages	Insert New Pages
pages iii through vii	pages iii through vii
pages 1-3 through 1-6	pages 1-3 through 1-6
pages 3-5 through 3-6	pages 3-5 through 3-6
pages 10-1 through 10-10	pages 10-1 through 10-7
pages 13-5 through 13-7	pages 13-5 through 13-7
page Source Notes-1	page Source Notes-1
pages Glossary-7 through Glossary-8	pages Glossary-7 through Glossary-8
pages References-1 through References-5	pages References-1 through References-5
pages Index-1 through Index-5	pages Index-1 through Index-5

3. File this transmittal sheet in front of the publication for reference purposes.

FM 7-22, C1
8 October 2020

By Order of the Secretary of the Army:

JAMES C. MCCONVILLE
General, United States Army
Chief of Staff

Official:

KATHLEEN S. MILLER
Administrative Assistant
to the Secretary of the Army
2028102

DISTRIBUTION:

Active Army, Army National Guard, and United States Army Reserve: To be distributed in accordance with the initial distrubution number (IDN) 110165, requirements for FM 7-22.

Field Manual
No. 7-22

Headquarters
Department of the Army
Washington, D.C., 1 October 2020

HOLISTIC HEALTH AND FITNESS

Contents

*This publication supersedes chapters 1-6 and appendix D of FM 7-22, dated 26 October 2012.

Figures

Tables

This page intentionally left blank.

Preface

FM 7-22, *Holistic Health and Fitness*, establishes the Army's doctrine for the readiness training of Soldiers. It is a full revision and expansion on physical readiness training doctrine. FM 7-22 presents individualized training and testing that builds peak performance in all Soldiers. It is the foundation of unit readiness. In an era of multi-domain operations all Soldiers must be able to fight and win in both defensive and offensive operations that occur without notice. The goal of the Holistic Health and Fitness (H2F) System is to build physical lethality and mental toughness to win quickly and return home healthy. See ATP 7-22.01 for H2F testing, and ATP 7-22.02 for H2F drills and exercises.

The principal audience for FM 7-22 is leaders at all organizational levels. All leaders are trainers. Leaders include officers, warrant officers, noncommissioned officers, and those Department of the Army (DA) Civilians in leadership positions. Trainers and educators throughout the Army will also use this publication.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers operate in accordance with the law of war and the rules of engagement. (See FM 6-27/MCTP 11-10C.)

This FM is derived from DODD 1308.1 and DODI 1308.3. AR 350-1 directs the Army's mandatory training requirements. Commanders and staff will establish training programs consistent with AR 350-1 and FM 7-22 and in consultation with their H2F teams and master fitness trainers (MFTs). Training that addresses both the physical and nonphysical aspects of Soldier readiness is considered by senior Department of Defense (DOD) leadership to be essential to mission success.

This publication comprises the strategic underpinning of the Army's H2F System.

Terms included in the glossary are not codified Army terms. They are included only for clarity for the reader. This publication is not a proponent for any Army doctrine terms.

For emphasis, the names of specific drills and exercises are title cased in this publication only.

This doctrine and the regulations that support it apply to the Active Army, the Army National Guard/Army National Guard of the United States and the United States Army Reserve, unless otherwise stated.

The proponent for this publication is the United States Army Center for Initial Military Training (USACIMT), Training and Doctrine Command (TRADOC). Submit comments and recommendations for improvement of this field manual on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*). To contact USACIMT:

Commander, Center for Initial Military Training
ATTN: Director Research and Analysis
210 Dillon Circle
Fort Eustis, VA 23604

This page intentionally left blank.

Acknowledgements

The copyright owners listed here have granted permission to reproduce material from their works. The Source Notes lists other sources of information.

Photos developed by the U.S. Army Center for Initial Military Training and produced at the Enterprise Media Center in Fort Eustis, Virginia.

Running drills discussed in chapter 7 courtesy Dr. Nicholas Romanov and Severin Romanov, Pose Method, Inc. Copyright © 2020 Pose Method Publishing, Inc.

Portions of chapter 8's nutritional details with permission from Patricia A. Deuster, et al.'s *The Special Operations Forces Nutrition Guide*. https://navyseals.com/wp-content/uploads/2012/12/special-operations-nutrition-guide.pdf.

This page intentionally left blank.

Introduction

This field manual fully revises the previous Army's physical readiness training (known as PRT) doctrine. The Holistic Health and Fitness (H2F) System directed by this doctrine is designed to address the readiness of every Soldier. Performance readiness experts of the H2F System will assess each Soldier's physical and mental status and design programs to sustain or improve that Soldier's ability to meet the demands of their military occupational specialties (MOSs), duty assignments, and combat-specific tasks. This individualized approach is sustained across the Soldier's Army career. It represents a cultural shift from the industrial scale approaches of the past where massed formations received the same training in a one-size-fits-all approach—often with no equipment or expertise required to lead the training. It also represents a shift from expecting individual Soldiers who often train remote from their units to independently develop and implement a performance training program. The H2F System addresses those individual Soldiers' needs, too. Figure introduction-1 illustrates the H2F System.

Figure Introduction-1. The Holistic Health and Fitness System

This doctrine directs leaders and Soldiers to use unit-level experts, facilities, and equipment to develop the physical and nonphysical components of Soldier readiness. This doctrine has evolved from the lessons learned, Soldier feedback, and Soldier testing throughout a prolonged period of ground combat. Lessons learned in that period are combined with the best performance and medical science to prepare Soldiers for a wide range of threats in complex operational environments. The H2F System is an immersive, comprehensive approach to readiness centered on brigade-owned H2F facilities and personnel.

In the initial phase of H2F, recruits and new Soldiers will train to perform the Occupational Physical Assessment Test (OPAT) and prepare to conduct warrior tasks and battle drills (WTBD), high physical demand tasks (HPDTs), and the Army Combat Fitness Test (ACFT). In the sustaining phase of H2F, Soldiers will continue to build readiness. From their first units of assignment (FUAs) to separation from the Army, they optimize and mitigate the rate of loss of physical and mental preparedness for any mission at any time.

Using this doctrine, Soldiers will sustain high levels of foundational performance for extended periods. They will know how to quickly develop peak physical performance along with the mental toughness required of operational assignments. They will be ready to deliver collective overmatch in multi-domain operations, win quickly, and return home healthy.

The H2F doctrine is divided into four parts: system, design, build, and deliver.

PART ONE: SYSTEM

The H2F System has five critical elements: governance, program, equipment and facilities, personnel, and leadership education. These elements are distilled from careful doctrine, organization, training, materiel, leadership and education, personnel, and facilities (known as DOTMLPF) analysis and research into past and present H2F-related initiatives. Each element is critical to creating a system for Soldier readiness.

GOVERNANCE

In the H2F System, the governance element is defined as the command and control, regulations, policies, evaluation and resourcing provided by DA H2F leadership. For the H2F System to work it must be implemented properly. Governance at the senior leader levels ensures consistent adoption, application and compliance.

H2F System governance includes an Army H2F steering committee, an Army H2F Capability Development Integration Directorate, and an Army H2F Program Manager. These groups work with existing Army organizations and industry, inform science and technology efforts, and integrate H2F programs and initiatives.

Other key components of the governance element are surveillance and quality control, enabling leaders to track program execution and program results to hold subordinate leaders and trainers accountable. Governance allows the H2F System to be rapidly modified based on outcomes and lessons learned.

PROGRAM

The program element for the H2F System is the doctrinal description of how leaders will implement the H2F System in their units. The program includes the five domains of physical readiness, nutritional readiness, spiritual readiness, mental readiness, and sleep readiness. The doctrine provides the foundation for all Soldier readiness programs. It is the standard to optimize Soldiers' performance as they move about the Army and the battlefield. The physical programming includes a much broader range of physical readiness training modalities than has previously been described in doctrine. It includes programs such as Army Water Survival Training, Running Skill, and Pregnancy and Postpartum Physical Training. The program also includes nonphysical domains of readiness. Nutritional readiness emphasizes eating for performance in garrison and operational settings. Spiritual readiness is contextualized for all Soldiers and their leaders against the Army's moral and ethical fabric without regard for specific religious beliefs or traditions. Mental readiness includes techniques to improve cognitive thinking skills, emotional control, and interpersonal skills. Sleep readiness directs Soldiers on the proper dosing and techniques for maintaining the health of their most important body part—the brain.

PERSONNEL

The personnel element in the H2F System are those Soldiers, government service and contracted performance experts who are assigned to brigade-sized units. They have been validated by the Army as experts in H2F programs and know how to synchronize each domain to optimize Soldier readiness. These personnel form the commander's H2F performance team—a team dedicated to performance readiness. They include individuals such as physical therapists, registered dietitians, occupational therapists, and strength and conditioning specialist and athletic trainers. These highly qualified experts work with the brigade chain of command, unit-level H2F trainers, master fitness trainer (MFT) instructors, and ACFT graders, as well as unit medical and installation personnel to develop and coordinate performance readiness.

EQUIPMENT AND FACILITIES

The equipment and facilities element in the H2F System refers to the world-class, standardized training equipment and facilities organic to the unit. The facility, known as the Soldier Performance Readiness Center (SPRC), houses the unit's H2F personnel in a space open all day on a schedule that accommodates the unit's physical and nonphysical training, readiness education, and performance coaching. The SPRC keeps Soldiers focused and motivated to build their personal readiness in a setting in which they can safely progress alongside all members of their unit—including new Soldiers and those who are pregnant, deconditioned, ill, or injured. The SPRC provides a supportive individually-focused environment where comprehensive, integrated, and immersive physical and nonphysical programming is delivered. In locations in which a unit has not contracted or adopted a SPRC, leaders will adapt existing facilities and other programming modalities to meet the intent of the command.

LEADER EDUCATION

The fifth H2F element, leader education, describes H2F education that Soldiers receive across their career. Soldiers and their leaders must understand the foundations, standards, and rationale for the H2F System and requisite resources. Leaders must understand their roles as trainers, resource providers, role models, and coaches. These roles depend on their grade and assignment. Their professional military education must contain more than a casual understanding of this doctrine. Leaders must fully understand all H2F topics to include the physiological and psychological foundations of the H2F programs in their units. Command teams and their Soldiers must know and understand the tasks, conditions, and standards described in this doctrine and how to develop and execute periodized programs on the training field and in the SPRC. Leader education—delivered through professional military education (known as PME), cadre and pre-command courses—self-development settings, and civilian education programs will be contextualized for rank and mission.

PART TWO: DESIGN

Part Two explains the scientific basis of Soldier performance and how the H2F training program is designed. Soldier physiology, periodization, and program design approaches describe the "why" of H2F—the basic science and rationale behind the program. This foundational information helps leaders understand how to build health and fitness programs for individual Soldiers and collective unit readiness and deployability.

PART THREE: BUILD

The Army builds Soldier H2F performance in two phases using the programs described in this doctrine: initial phase and sustaining phase. Both phases prepare Soldiers for a lifetime of optimized health and fitness. As a Soldier's understanding of his or her potential matures, the H2F System will consistently build the most effective training to leverage his or her best performance.

INITIAL PHASE

The initial phase lasts from accession to FUA and builds foundational and fundamental skills. Most of these skills will be acquired in the time between recruiting station and the completion of initial military training (IMT). Recruiters administer the OPAT to certify that a recruit is ready for the rigors of training. Physical and nonphysical training prior to IMT is conducted by the individual recruit in the Future Soldier Program (FSP), guided by information in this doctrine. OPAT competencies are progressed and further validated during IMT with HPDT assessments and the ACFT. Training in IMT is conducted mostly in collective settings with relatively limited access to individualized H2F programming when compared to sustaining phase training.

SUSTAINING PHASE

Sustaining phase prepares Soldiers for mastery of the physical and nonphysical attributes of their occupational tasks, duty positions, and combat. Individualized programming is the norm in the sustaining phase. Each brigade is the center of gravity for the H2F System. For Reserve and National Guard Soldiers,

regional H2Fperformance team members develop and implement H2F training across the states or within each state. For remotely-located Soldiers, H2F programming is available through other modalities, including novel future platforms—such as mobile applications and health and fitness information websites and videos—that tailor programs to a remotely located Soldier's resources and his or her readiness goals.

PART FOUR: DELIVER

Part Four provides examples of schedules and content of the H2F programs that leaders can use to help develop unit physical and nonphysical readiness training.

PART ONE

System

The Holistic Health and Fitness (H2F) System is the organizational structure required to implement H2F doctrine across the Army to optimize Soldier lethality.

Chapter 1

Principles and Elements

The H2F System is comprised of five critical elements: governance, program, equipment and facilities, personnel, and leader education. These elements are essential to the future success of Army readiness. They ensure and sustain Soldier readiness. These elements are driven by three governing principles: optimization, individualization, and immersion. This chapter discusses the principles and elements of the H2F System.

PRINCIPLES

1-1. The H2F System formalizes the way the Army trains, develops, and cares for Soldiers. This shift marks a change that will continue to evolve over the next twenty to thirty years. The H2F System builds both the underlying capability and capacity within the Soldier. Similar to professional athletes, Soldiers will optimize their individual performance potential and well-being by becoming stronger, faster, and more ready in both the physical and nonphysical domains. Stronger individuals ultimately produce stronger teams.

1-2. It integrates the domains of H2F into tactics, techniques, and procedures that represent a cultural shift from a focus on physical readiness to an expanded readiness paradigm that includes how Soldiers think, feel, and interact with their environment. An understanding of the Soldier has always been essential in the history of warfare. This doctrine describes the system of training and testing that prepares the Soldier for 21st century warfare. The H2F System directs the training of the whole Soldier—the body and the brain—using the most modern and best methods. This doctrine explains the "how" and the "why" of the Army's approach to developing Soldier readiness—the foundation of every unit's ability to deliver overmatch on the battlefield. It combines the sciences of health and fitness with the art of coaching and mentoring for individual program development, goal setting, motivation, and team building—the capabilities that provide the basis for collective proficiency.

1-3. Commanders and other leaders ensure adherence to H2F doctrine through unit training plans and the priorities and execution of collective training to maximize the operational readiness of the unit. The principles that drive the H2F System are optimization, individualization, and immersion.

OPTIMIZATION

1-4. Optimization of the training program leads to the most rapid improvement in foundational Soldier readiness in the initial phase and the building of high levels operational readiness in the sustaining phase.

Throughout a Soldier's career, optimal programming has the secondary effect of preventing degradation in performance and behavior that might negatively impact readiness.

1-5. H2F doctrine recognizes that Soldier readiness depends on the proper combinations of physical fitness (such as strength, speed, and endurance) and foundational health (such as the cardiovascular, respiratory, immune, and hormonal systems) that are optimized through careful attention to nutritional readiness, mental readiness, spiritual readiness, and sleep readiness. Nutrition—the food, beverages, and supplements in a Soldier's diet—provides the nutrients needed to meet the physical demands of training and combat. Soldiers must also maintain mental readiness—the exceptional mental flexibility and endurance, outstanding self-initiative and superior judgment required in combat. Spiritual readiness supports individual and collective readiness as Soldiers negotiate challenging moral and ethical situations in training or operational environments. Finally, proper sleep sustains brain function, cognition (thought processing), the immune system, and recovery after physical activity.

INDIVIDUALIZATION

1-6. For most of its history, the Army has used an industrial-scale approach to physically train its formations. The optimal physical fitness of the individual was constrained by the need to raise the fitness of the whole. H2F doctrine shifts the focus to individualized training programs with continuance of training in a collective setting. From 2020, the Army will train the whole of each individual Soldier to ensure the readiness of the Army. The H2F System supports that approach with expert H2F performance teams, equipment, and facilities. It uses the best exercise science and best coaching practices to assess each Soldier and customize to his or her needs. Each Soldier, regardless of physical condition, has his or her own program. A periodized, purposeful physical training program implemented across the enterprise allows Soldiers to move from one duty station to another without interruption in their readiness training progression.

1-7. Training schedule development for individual Soldiers and units is a complex process. Several variables impact the ability to apply one training schedule across all of the Army. These variables include how units fill, the length of the training cycle, time until deployment, cadre-to-Soldier ratios, shift work, availability of H2F personnel, equipment and facilities, military occupational specialty (MOS)-specific training, and environmental (austere, hot, cold, and seasonal) considerations. The H2F System will provide the best training approaches to accommodate these variables and implement rational, optimized programs.

IMMERSION

1-8. Immersive programming owned by and delivered in the unit builds cohesion, ésprit de corps, and trust. Within a standardized system (where unit readiness resources and outcomes are similar across the enterprise), different unit needs drive variations in the training program to meet the demands of resource constraints, organizational changes, and new mission sets. H2F doctrine links physical and mental training domains, and does so in a system staffed and equipped at levels equivalent to those found in elite performance settings. The facilities, equipment, personnel, and leader education elements described in this doctrine make the performance readiness training experience an immersive one. Immersive training makes the best choice the only choice. It provides the most comprehensive pathway to optimize lethality and ensure overmatch in multi-domain operations.

ELEMENTS

1-9. The H2F System is comprised of five critical elements: governance, program, equipment and facilities, personnel and leader education. These elements are essential to the success of Army readiness. They ensure and sustain Soldier readiness. See figure 1-1.

GOVERNANCE

1-10. The Army's strategic leaders are responsible for the readiness of the Army and the overall governance of the H2F System. Strategic leaders establish the policies and regulations, define objectives, allocate resources, and implement quality controls to deliver performance readiness. This is the governance process.

1-11. The H2F System aligns and integrates numerous health and fitness programs in the Army under a single governance structure. The governance process ensures efficient and effective H2F programming, provides the necessary emphasis and support to secure resources, and prioritizes effort based on strategic objectives. All performance optimization efforts coalesce under the single governance of the H2F System to integrate evidence-based approaches for optimized performance readiness.

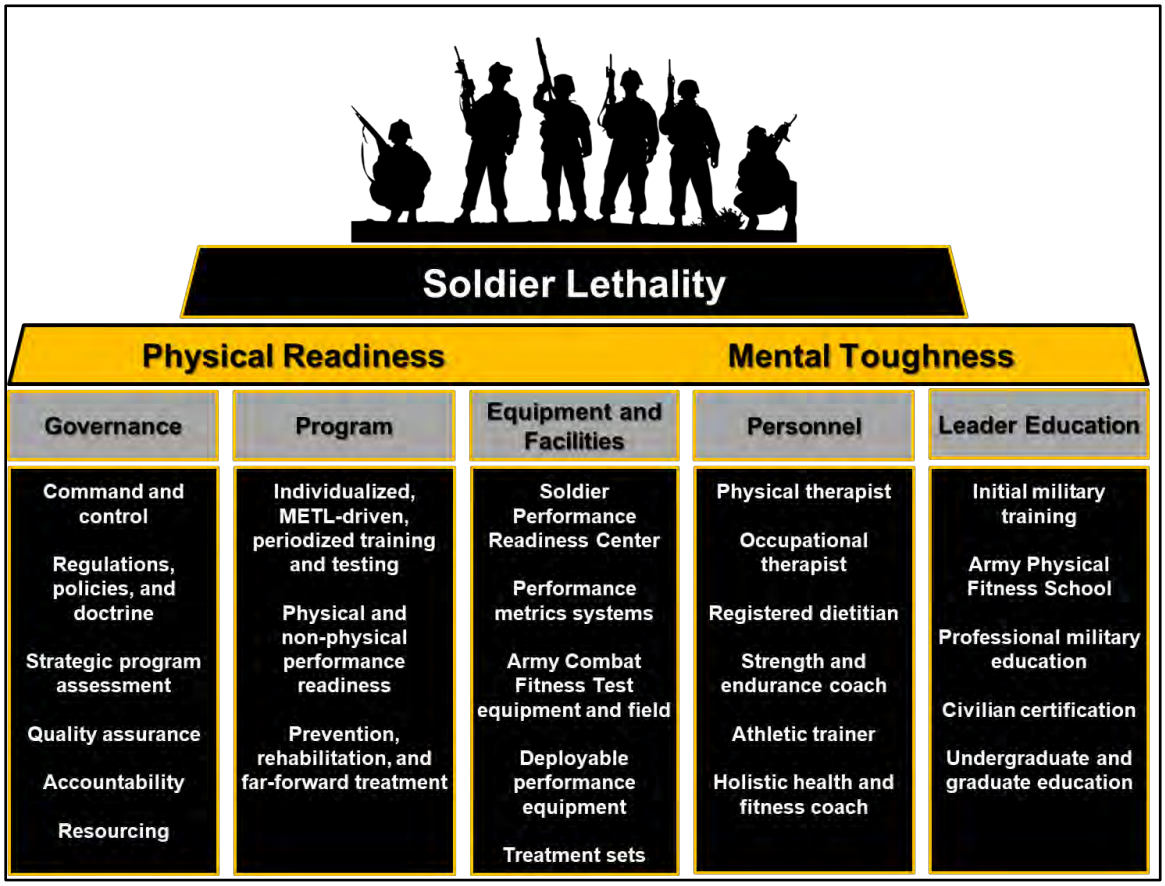


Figure 1-1. The elements of the Holistic Health and Fitness System

1-12. When properly designed, governed, and adopted, the H2F System creates a performance readiness platform that prevents physical and nonphysical stress from overwhelming the Soldier. The most important component of the governance process is compliance. Leaders at all levels must comply with policy, regulation, doctrine, and intent of H2F to enable Soldiers to reach the goal of H2F: optimized performance.

1-13. Volatility in programming, disparate approaches, and deviations from the standard become evident in units very early in training cycles. In the H2F System, high performing units are encouraged to share their best practices. The Army's H2F leadership, Centers of Excellence, and H2F schoolhouse will disseminate the training doctrine across the enterprise and professional military education. This approach will reduce the unpredictability in readiness training that Soldiers currently experience as they move among units and across operational environments.

1-14. The ability to provide oversight and support, collect and disseminate best practices, develop funding requests, and conduct assessments depends upon the H2F personnel in the unit and their unit leadership. However, without command authority, no accountability exists to assess and reset H2F initiatives, effectiveness, or redundancy. This Army's H2F special staff provides strategic leadership and future direction for H2F doctrine, policy, personnel training, and development.

1-15. The United States Army Center for Initial Military Training (USACIMT) is the Army lead for Holistic Health and Fitness. USACIMT's H2F Directorate is responsible for doctrine and training development. The

H2F Directorate coordinates H2F personnel, equipment, facilities, and services contracts. The H2F Directorate collects and analyzes data relating to H2F operations across all locations and with all supported elements. USACIMT develops and promulgates lessons learned and best practices as well as provides technical expertise and quality control for the H2F System.

1-16. Governance includes providing program standards, surveillance, analysis, research and evaluation of the H2F System. This is a critical priority. It informs leaders on the status of the force as well as readiness of the Army. Effective assessment and analysis of the system outcomes prevents the diversion of resources and energy into ineffective programming that does not support the continuous progress of a Soldier's readiness from unit to unit, installation to installation, across his or her Army career.

STANDARDS

1-17. As described in Army and Department of Defense (DOD) regulations, commanders and other leaders are responsible for training to regulatory and doctrinal standards. They execute the planned training described in this doctrine. Standards remain constant as performance levels increase, but the conditions become more demanding.

SURVEILLANCE

1-18. The H2F surveillance system aims to develop tangible, results-oriented, actionable information designed to answer the commander's critical information requirements: "What forces do I have, what is my surge capability, what is my risk if I reallocate force, what is the readiness of my force, and do all my subordinate commands have the same readiness picture?"

BIOMETRIC DATA

1-19. Centralized collection and analysis of data from wearable technology, H2F personnel observation, and Soldier inputs or surveys allows coaches and mentors to set training goals, develop training programs, track the effects of training, and adjust training to improve performance. Examples of H2F biometric data points include sleep efficiency and duration, foot time, training intensity and duration, exercise heart rate, and power output.

SURVEY DATA

1-20. Survey data focus on the individual Soldier's health and fitness outcomes to direct changes to improve his or her deployability. Surveys conducted by H2F performance experts and Soldier self-reports identify the early onset of physical and psychological dysfunction.

INSPECTION DATA

1-21. Staff assistance visits and unit inspections give commanders real-time knowledge of the unit's program and readiness status. See AR 1-201 for details on inspections.

RESEARCH AND ANALYSIS

1-22. Analysis informs decisions about changes to individual Soldier and collective programming. Regularly conducted, empirical research and analysis allows for immediate adjustments to training cycles. These data permit adjustments to training and testing standards as well as development of unbiased health and fitness recommendations to improve readiness.

PROGRAM

+ 1-23. FM 7-22 is the overarching program for the H2F System—the authoritative doctrine for the way the Army conducts physical and nonphysical readiness training for individual Soldiers and units. This four-part doctrinal publication and its two Army techniques publications describe how to design, build, deliver, and test the individual Soldier and unit H2F program. It explains the basics of human anatomy and performance physiology that are the foundation for program design. It includes detailed guidance on nutritional and sleep

strategies for all Soldiers in garrison and deployed settings. Sleep and nutrition are critical in the performance of physical and mental tasks. Special programs are included for water survival training, running skills, free weight training, and pregnancy and postpartum training. Mental readiness is addressed through training on cognitive, emotional, and interpersonal skills. Spiritual readiness addresses the development of qualities derived from a person's worldview—religious, philosophical, or human values—needed to endure times of stress, hardship, and tragedy.

1-24. The H2F System uses deliberate and purposeful training to build Soldier performance. Deliberate training uses proven methods and standards. Purposeful training uses the proper training volume, intensity, and frequency while targeting goals based on Soldier-specific tasks. Soldier training is never static. Soldiers benefit from positively revising their training approach and finding the best strategy to improve performance. The H2F System will provide a strength and conditioning specialist to ensure Soldiers conduct purposeful training sessions in support of rational longer-term goals. This adherence to a professionally-designed and supervised training program will facilitate compliance and rapid progress during the initial phase of training, and more incremental gains in the sustaining phase. The sustaining phase is the vast majority of the Soldier's career span.

1-25. Because of H2F, Soldiers tend to make better readiness choices when training and garrison life reflect an environment that makes proper behavior and decision making the most likely choice. The program is immersive; it does not depend upon appointments away from the unit or online, nor on self-management training systems. It does not pull Soldiers away from their work environment nor push them to complete training elsewhere. The architecture in the unit—both the fixed facility architecture and the framework of training concepts—supports choices that support H2F goals. It is a face-to-face daily program of instruction conducted by the primary H2F personnel. Individual weaknesses are addressed in real time by a professional team of unit-owned personnel in a unit-owned facility. Unit leaders, who also have their own individual H2F programs, understand the tenets of the system and are accountable for their unit's results.

1-26. The doctrine includes training templates to cover a variety of conditions and constraints. This doctrine recognizes that Soldiers and units in remote locations may not have the full complement of H2F trainers, facilities, and equipment. Templates provide examples to speed execution of and compliance with the H2F approach anywhere in the world. They provide a foundation to address the programming needs of the unit. See Part Four beginning on page 13-1 for templates for training programs such as initial entry training, first unit of assignment (FUA), and pre-deployment periods.

1-27. Basic combat training templates incorporate progressive resistance and strength training for the Army Combat Fitness Test (ACFT). Seven-day schedules include active recovery, strength, endurance and speed training sessions conducted in the Army physical fitness uniform (known as APFU) and Army combat uniform (ACU). In the 10-week block of basic combat training, the ability to complete several different periods of training is limited and maximal performance potential will have to be realized in the sustaining phase.

PERSONNEL

1-28. Personnel in the H2F System are located in units across the Army—all Components, all geographic regions.

1-29. The H2F School is a future capability that will optimize existing competencies within the U.S. Army Physical Fitness School with emergent H2F capabilities to become the Army's premier teaching facility for performance readiness. The H2F School will be staffed with Regular Army and Army civilian instructors who are qualified to train and certify unit-level H2F personnel in Army-specific requirements. For professionally-credentialed personnel, H2F instructors will conduct resident courses as well as installation-based courses across the Army via mobile training teams. Sister schools in the One Army School System (known as OASS) will provide trained H2F personnel to National Guard and Reserve Soldiers. At a minimum, graduates from the H2F School will receive the H2F additional skill identifier (known as ASI). As the H2F System matures and the skills needed for H2F trainers expand, noncommissioned officers (NCOs) will be selected for MOS training at the H2F School.

1-30. The H2F Performance Team Program Director serves as special staff to the brigade commander. The H2F performance team is owned by the unit. H2F performance team leaders have backgrounds and occupational specialties in exercise and rehabilitation sciences. They serve in operational units and in United States Training and Doctrine Command (TRADOC) units at the Army's training centers.

1-31. H2F performance teams will advise their commanders on performance readiness issues to integrate H2F in mission planning and personnel decisions. Serving as special staff to the commander, these advisors, educators, and training leaders ensure that standardized H2F programming is implemented. H2F leaders will possess the knowledge to provide feedback on preventable H2F threats to the Soldier readiness mission. They lead the implementation of the appropriate countermeasures through Soldier training and education in coordination with other members of the H2F performance team and unit leadership.

1-32. The H2F performance team of experts and administrators designs, builds, delivers and tests the unit's H2F program. With command support, the H2F performance team and Soldier Performance Readiness Center (SPRC) promote an optimal readiness mindset—a culture of readiness that flows from meticulous attention to detail and compliance with the H2F program. H2F permeates every military operation no matter what size and scale. For example, H2F occupational and physical therapists move with their command teams circulating during combat training center rotations to eliminate medical evacuations from field training exercises (FTXs). In a special operations unit in Afghanistan, a quick reaction team's physical therapist and performance psychologist move out to a mountain team coming off a tough mission. Their presence demonstrates that the unit cares about the team. The team rules out the need to evacuate, reviews reconditioning and recovery exercises, checks exercise equipment, and reassures Soldiers about minor aches. This biological, psychological, and sociological approach facilitates the healing process and a quick return to the fight. Soldier lethality is sustained by the deployed H2F performance team.

1-33. The H2F performance team assigned to a brigade-sized element generally consists of the personnel specialties described below and outlined in figure 1-2:

- The H2F Program Director advises commanders on performance readiness issues and integrates H2F into mission planning and personnel decisions.
- The H2F Facility Manager maintains functionality and readiness of the unit's SPRC facility.
- The Nutrition Programs section coordinates nutrition education and training programs, providing individual and group performance nutrition counseling and education to enhance the combat performance of Soldiers in training and missions.
- The injury control section consists of physical therapists and athletic trainers:
  - The physical therapy team provides a full range of professional injury screening, evaluation, diagnosis, and treatment in close proximity to where Soldiers train.
  - Athletic trainers provide evaluation, diagnosis, and treatment of acute musculoskeletal conditions before, during, and after physical readiness training.
- The Physical Training Programs section consists of physical strength and conditioning specialist who develop, coordinate, execute, and manage individualized strength and conditioning programs focused on unit mission and individual Soldier tasks.
- The Cognitive Enhancement Programs section includes occupational therapists and a cognitive enhancement specialist:
  - Occupational therapists focus on improving cognitive performance skills, mental and emotional skills, and interpersonal skills to optimize individual, team and unit cohesion and performance.
  - The cognitive enhancement specialist manages and provides cognitive enhancement education and tailored training programs for individuals and teams by operationalizing resilience core competencies and addressing mental barriers to physical performance.

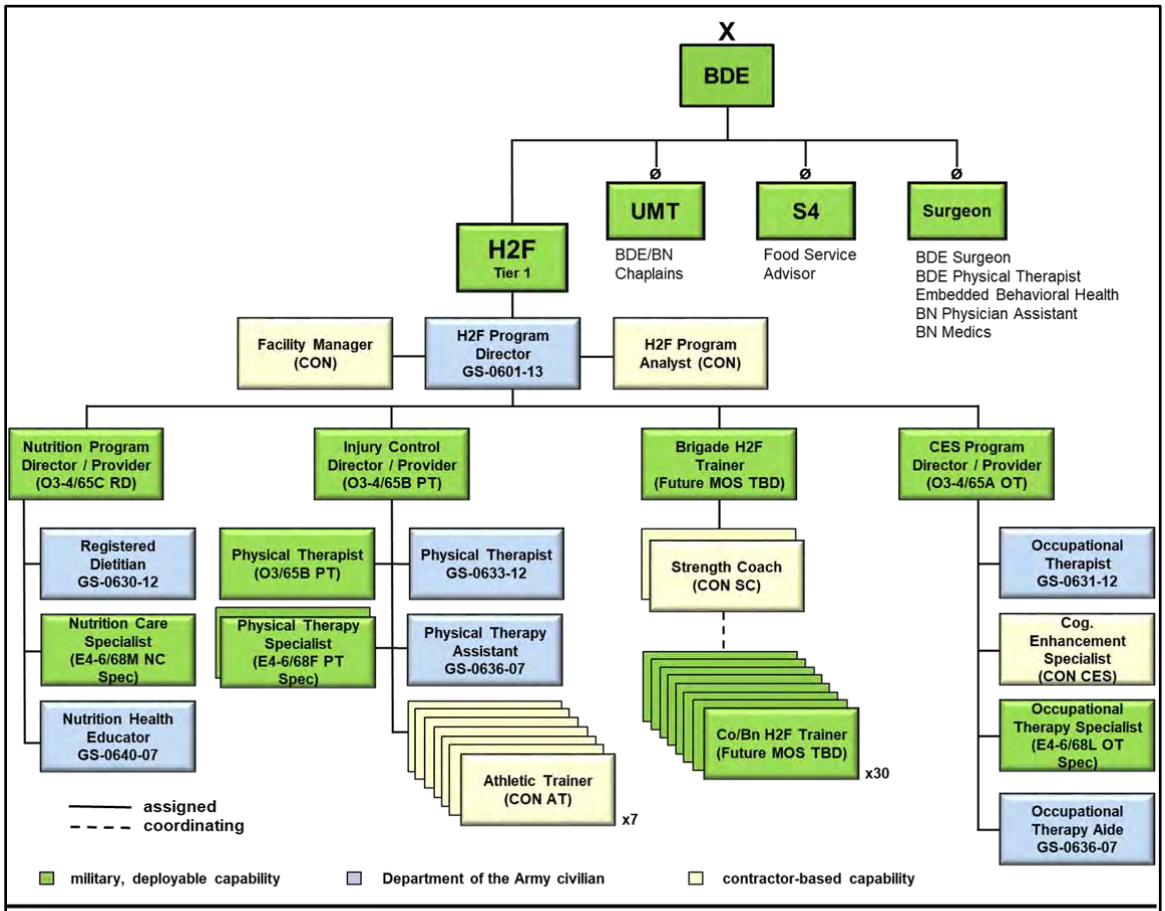
1-34. In addition to H2F performance team, the brigade has the following resources assigned to augment H2F programming:

- Brigade unit ministry team (UMT):
  - Chaplain.
  - Religious affairs specialist.

- Brigade surgeon's office:
  - Brigade surgeon.
  - Brigade physical therapist.
  - Embedded behavioral health expert.
- Brigade logistics staff officer (S-4) food service advisor.

1-35. Additional H2F personnel reside below brigade level as indicated:

- Battalion UMT.
  - Chaplain.
  - Religious affairs specialist.
- Battalion physician assistant.
- Battalion medics
- Four master fitness trainer (MFT) instructors (E-6 and E-7) per battalion support physical training.
- 40 H2F master trainers (E-5 and E-6) per battalion (8 per company).



AT	athletic trainer	H2F	holistic health and fitness	S4	unit logistics office
BDE	brigade	MOS	military occupational specialty	SC	strength coach
BN	battalion	NC	nutrition care	Spec	specialist
CES	cognitive enhancement specialist	OT	occupational therapist	TBD	to be determined
CON	contractor	PT	physical therapy	UMT	unit ministry team
GS	general schedule	RD	registered dietitian		

Figure 1-2. H2F performance team structure—tier 1 brigade

1-36. Training brigade H2F performance teams are responsible for educating Soldiers about physical readiness, nutritional readiness, mental readiness, spiritual readiness, and sleep readiness as well as the importance of these domains in building and maintaining Soldier readiness. It is during initial entry training that Soldiers receive the fundamentals for establishing and maintaining their personal H2F.

1-37. Army Reserve and National Guard H2F personnel are controlled and supported by their headquarters or the state where they work. They are certified in the same One Army School System as their Regular Army colleagues. Once certified, these Soldiers work full-time in their unit or state providing H2F training either to a pre-determined number of Soldiers within a geographical area (city, county, region, or district) or to Soldiers attending training at a reserve training center, armory, regional training institute or professional education center, or SPRC equivalent.

1-38. Like their Regular Army Soldiers, Army Reserve and National Guard H2F master trainers have civilian or Army certification or licensure in the exercise sciences. They have prior experience in military and collegiate performance settings. When daily individual and collective training is not feasible, Army Reserve and National Guard H2F trainers use face-to-face assessments and needs analyses to develop individual programs they can conduct remotely. Follow-up appointments and small group training sessions, complemented by online performance platforms for remote and deployed Soldiers are used to build and deliver Army Reserve and National Guard Soldier readiness. H2F trainer instructors mentor, test, monitor, and report compliance of Army Reserve and National Guard Soldiers. In partnership with recruiters, they prepare National Guard recruits for the Occupational Physical Assessment Test (OPAT) and Future Soldier Program (FSP).

1-39. The manning solutions for Army Reserve and National Guard depend upon the state and unit size and the geographic distribution of Soldiers. In a typical scenario, the state's H2F performance team consists of—

- One H2F State Coordinator (physical therapist, strength and conditioning specialist, certified mental performance consultant, general schedule [GS]-13 or contractor) with the following credentials:
  - Graduate degree in health professions (administration or treatment) or exercises sciences.
  - Certification as H2F master trainer instructor by and instructed previously in H2F School.
  - Management of state H2F performance team.
  - Coordination of physical and nonphysical programming with partner institutions (Military Entrance Processing Command [known as MEPCOM], United States Army Recruiting Command [USAREC], colleges and universities, commercial partners, Veterans Administration, and nongovernmental organizations).
- Six H2F master trainers (strength and conditioning specialist, sergeant first class [SFC], GS-11, or contractor) with the following credentials:
  - Bachelor's degree in exercise science.
  - Completed coursework in sport or performance psychology.
  - Strength and conditioning specialist.
  - Certification in cardiopulmonary resuscitation (known as CPR) and automatic electronic defibrillator (known as AED).
  - Certification H2F master trainer by H2F School.
- 1 Registered Dietitian (GS-12 or contractor) with the following credentials:
  - Coordination of nutrition services.
  - Army Body Composition Program (ABCP) trainer and subject matter expert for the state.
  - Master's degree in nutrition.
  - Board certified specialist in sports dietetics (known as CSSD).

EQUIPMENT AND FACILITIES

1-40. Equipment and facilities are essential to the success of the H2F System. H2F programming is delivered via the SPRC. The Army standard for a brigade-sized unit is a 40,000 square foot SPRC. The SPRC serves

as the unit-owned, fixed facility hub that delivers a comprehensive, immersive training experience for the individual Soldier. See figure 1-3 for a prototype of the Performance Readiness Center.

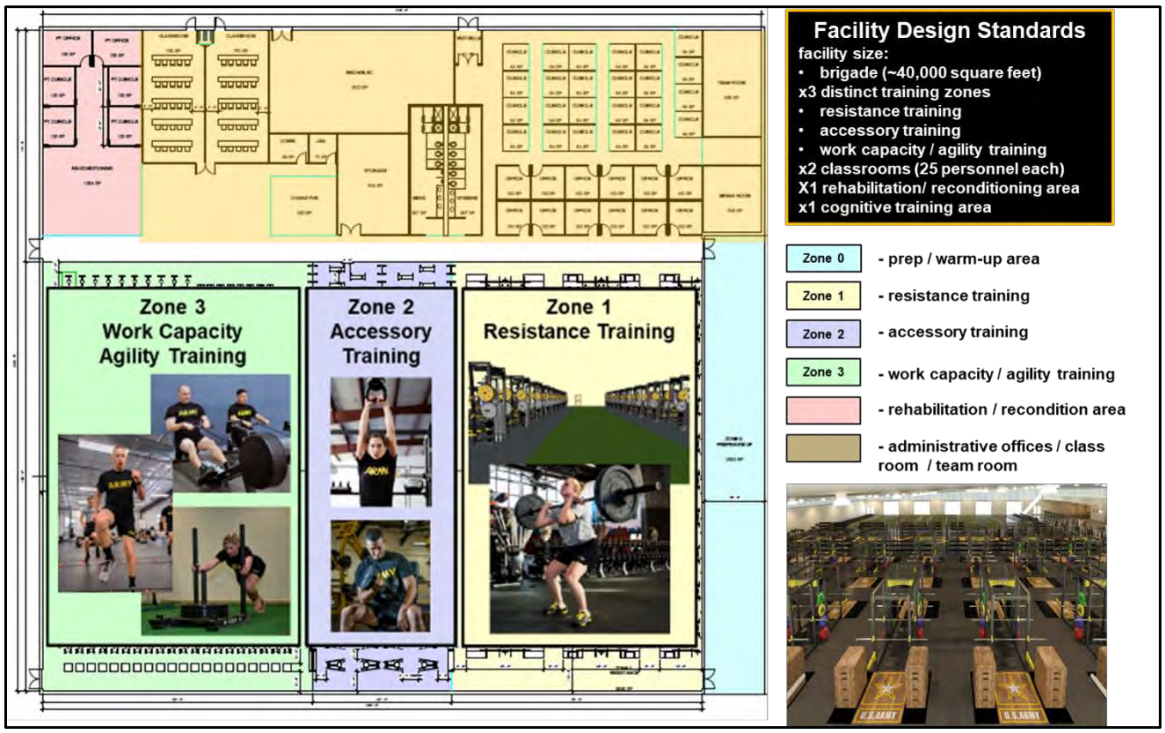


Figure 1-3. Prototype brigade-sized Soldier Performance Readiness Center

1-41. The SPRC houses the offices and treatment, teaching, and counseling spaces for the H2F performance team. It is open on a schedule that accommodates the unit's H2F training and workplace needs. Company- or platoon-sized units rotate into the building several times per week to receive H2F education, individual programming, specialized training and coaching from H2F performance team members.

1-42. The SPRC's outdoor training areas include an obstacle course, ACFT testing lanes and track, terrain running course, sheltered strength training racks, containerized strength equipment, physical training fields, and climbing pods. In an ideal H2F community of practice, this life support area includes medical treatment, barracks, Army and Air Force Exchange Service (known as AAFES) and morale, welfare, and recreation (known as MWR) facilities that comply with the H2F approach to optimizing readiness. They create environments of exclusively healthy choices. See figures 1-4 and 1-5 on page 1-10 for illustrations of training areas.

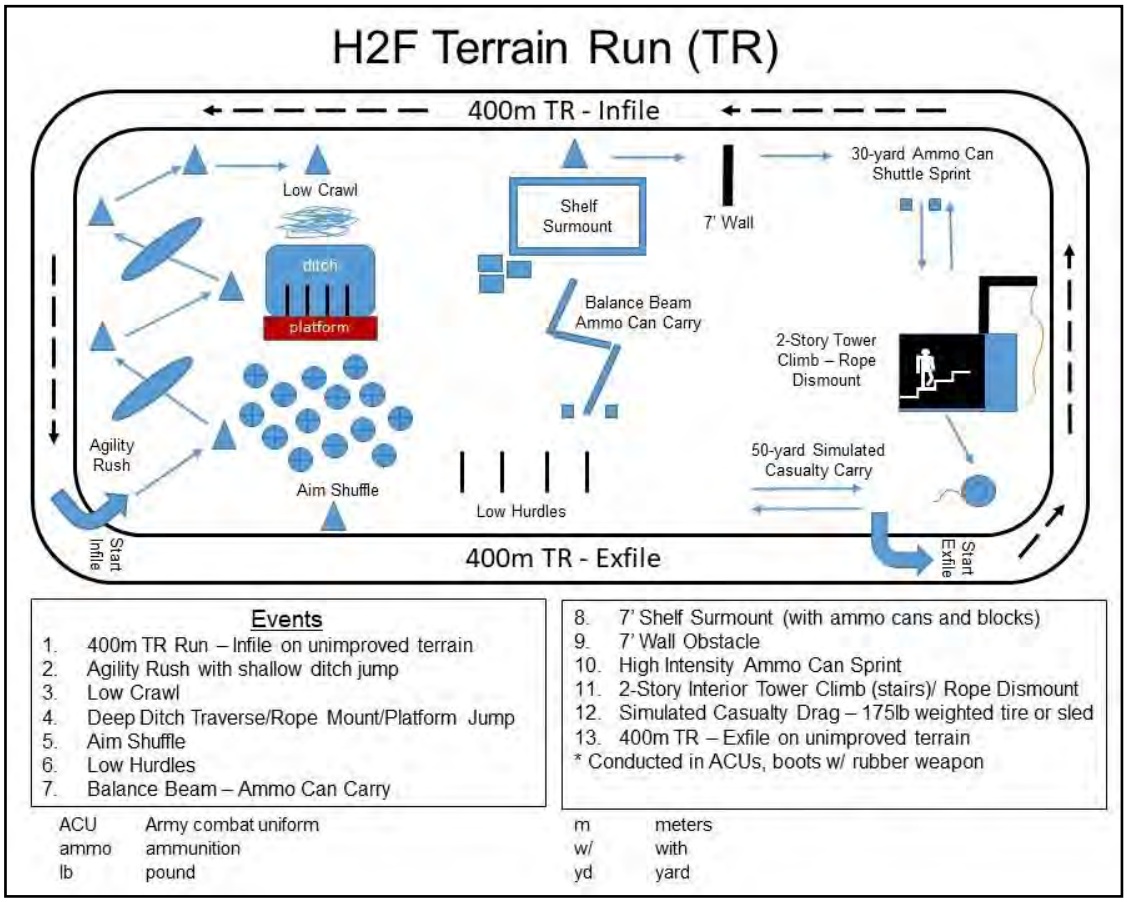


Figure 1-4. Sample terrain run and obstacle course

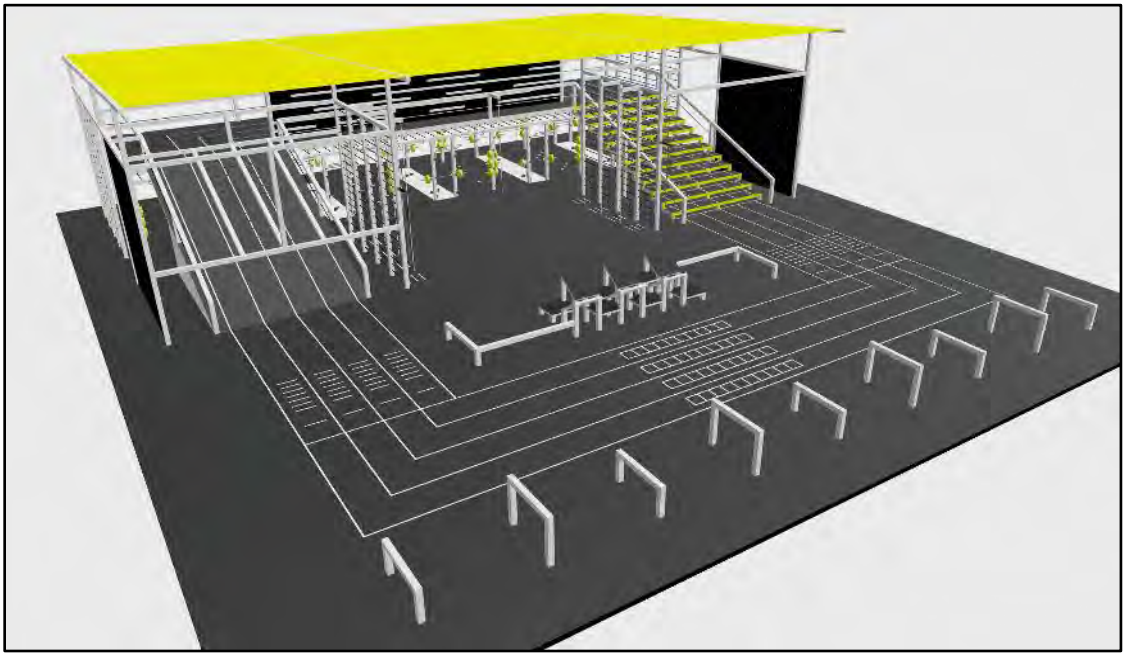


Figure 1-5. Schematic of an outdoor strength training area

LEADER EDUCATION

1-43. Leader investment is essential to promote, train, prioritize, and improve the readiness of Soldiers and units. Leaders drive cultural change by providing the resources for that change. The success or failure of the H2F System depends upon the quality of its leadership. Leadership is the process of influencing Soldiers by providing purpose, direction, and motivation. Unit leaders are responsible for the success of the H2F System and are accountable for their unit's results. They have to be highly aware of how the H2F System works, which requires much more than scheduling and supervising the training. New knowledge acquisition is required by leaders at all levels of the Army. H2F encompasses knowledge domains that are not typically owned by one expert. However, because these domains impact the success of the Soldier in the garrison and on the battlefield, Army leaders must understand these domains.

1-44. The goal of H2F leadership education is to prepare leaders to communicate, understand, establish, and support H2F within their organizations. Leaders must understand their organizational role from supervising to training to resourcing. Whether in command or not, Army leaders possess the knowledge of best practices. The result of this leader education is improved compliance with H2F programming, a reduction in the disparity of readiness programming, and a marshalling of resources. There will be a reduction in the likelihood and severity of physical and psychological injury or disease. These outcomes occur when leaders understand the value and utility of the H2F System.

1-45. The leadership education element of the H2F System builds awareness and sustains mastery so that leaders can set the example of optimal readiness across the physical and nonphysical domains. When leaders extend themselves completely in strenuous training, Soldiers more often follow their example. When Soldiers feel their chain of command believes in H2F to the extent that the chain of command regularly engages in the activities, Soldiers are motivated to greater effort. The unprepared, hesitant leader loses the confidence and trust of Soldiers almost immediately. The well-prepared, confident leader gains the respect and cooperation of all Soldiers at the outset and builds greater ésprit de corps.

INSTITUTIONAL TRAINING DOMAIN

1-46. The Army's institutional training domain includes Army training centers, functional schools, and professional military education. This domain includes the centers of excellence and schools in TRADOC. H2F instruction is embedded in institutional training and other leader development schools. Examples might include—

- Basic combat training (BCT): training for Soldiers to learn to fully cooperate with their leaders and fellow Soldiers. Orderly movement of Soldiers requires a precise and unified effort. A Soldier learns that a team works smoothly when every Soldier does his and her part. Each Soldier learns to respond to commands and learns what fellow Soldiers must do. This teamwork is established through the medium of drills. Drills teach Soldiers where to place their feet and arms during exercises, how to march, and how to handle a weapon. Over the course of BCT, Soldiers find pride in their teams' unified response to command.
- United States Army Medical Center of Excellence contextualized training for enlisted Soldiers and officers in medical professional military education and MOS-specialty coursework to enable better, rapid H2F support to the units they serve. Examples include H2F master trainer certification for occupational therapists, behavioral health providers, physical therapists, and physical therapy specialists.
- United States Military Academy: H2F master trainer certification as course requirement prior to commissioning.
- Reserve Officer Training Corps: H2F master trainer certification as a course requirement prior to commissioning.
- Uniformed Services University of the Health Sciences: applied human performance optimization courses for medical providers in the Army's medical system.
- Integration into officer initial military training (IMT) and professional military education to develop leader H2F skills at each echelon.

OPERATIONAL TRAINING DOMAIN

1-47. The Army's operational training domain is the training that units perform while at home station, at maneuver combat training centers, during joint exercises, at mobilization centers, and while operationally deployed. In preparation for managing these operational training situations, H2F leader education occurs in unit professional development classes. Examples include the following:

- NCO basic, advanced, and senior leader courses.
- Squad-level H2F leader course taught by a battalion's H2F performance team.
- Phase II of the H2F master trainer certification course.

SELF-DEVELOPMENT TRAINING DOMAIN

1-48. The Army's self-development training domain is the planned and deliberate learning that reinforces and expands the individual Soldier's H2F knowledge. It complements institutional and operational training and enhances understanding of the H2F System's principles and best practices. Examples include:

- Distributed learning (Phase I of the H2F master trainer course)
- Civilian and commercial certifications.
- College-level classes in exercise and sports sciences and human performance optimization.

Holistic Health and Fitness System

Holistic health and fitness (H2F) is the Army's Soldier readiness system for physical and nonphysical training. The Army enables it with the five enduring elements of governance, program, personnel, equipment and facilities, and leadership education. The H2F program must meet the commander's training goals to develop and maintain a high level of readiness appropriate to the unit's mission-essential task list, individual Soldier duty positions, and challenges of multi-domain operations.

Chapter 2

Phases

The Army builds H2F training and testing across a Soldier's career span in two phases: initial and sustaining. The training is based on an assessment of the needs of the Soldier and the unit. The testing validates that training has met the readiness needs of the Soldier and by extension his or her unit. This part of the doctrine discusses the two phases of the H2F System.

INITIAL PHASE

2-1. Initial phase training builds foundational and fundamental skill in Soldiering tasks: shoot, move communicate, survive and protect or treat. Within these tasks are physical and mental skills that Soldiers must acquire before the completion of IMT. Training prior to IMT is driven by the individual recruit in the FSP guided by information in this doctrine and the recruiter. Drill sergeants and their fellow cadre (who include H2F performance team members) conduct training in IMT in large, collective formations using H2F facilities and equipment.

2-2. Initial phase training includes the FSP, BCT, advanced individual training (AIT), one station unit training (OSUT), Warrant Officer Candidate School (known as WOCS), Warrant Officer Basic Course (known as WOBC), basic officer leader courses, and the time spent acclimating to the FUA. Due to the varying lengths of these IMT programs, some Soldiers who finish sooner may stay in the initial phase after moving to their FUA until they are physiologically ready to move to sustaining phase activities. By the time Soldiers have completed six months of IMT, they are ready to move to the sustaining phase. H2F performance teams provide individual training and testing for those Soldiers who need more time to adapt.

2-3. If a Soldier reaches the sustaining phase standards during AIT or OSUT, he or she can begin sustaining phase training. Progression to sustaining phase activity should not be an automatic expectation. Soldiers will arrive at their FUA medically ready, physically fit, disciplined, and lethal with their weapons. The variety of time spent in IMT means that some Soldiers' physiological preparedness may not be at the same level as others. As discussed in Chapter 12, new Soldiers may have to modify training until they can safely join sustaining phase training.

2-4. Initial phase training is much more prescriptive than sustaining phase training for these important reasons:

- Untrained and deconditioned individuals must adhere to a training program that mitigates the relatively high risk of injury.
- Initial phase Soldiers must learn the standard movements required for Soldiering.
- Prescriptive, collective training is most feasible when there is a high trainee-to-cadre ratio.
- Shared training experiences instill cohesion and improve the Soldierization process.

FUTURE SOLDIER PROGRAM

2-5. The FSP prepares individuals for the OPAT and the rigors of IMT. Detailed information for commanders in charge of preparing individuals and recruits for the physical demands of IMT is found in Part Four.

BASIC COMBAT TRAINING

2-6. The 10-week H2F program for BCT provides foundational readiness and fundamental physical and mental skills. New Soldiers report to BCT with various levels of potential. The first weeks of training focus on general progression of physical readiness. To minimize the risk of injury, Soldiers must perform exercises correctly, precisely, and with gradually increasing intensity. To imprint the motor skills required for fundamental physical demand tasks, Soldiers repeat the exercises and drills, like the common Soldier tasks, as frequently and with as much attention to detail as possible. The schedules in this doctrine, when executed to standard, provide the proper training intensity and volume to improve training and testing outcomes and control attrition.

2-7. H2F performance team in BCT includes physical therapists, registered dietitians, athletic trainers, strength and conditioning specialists, and H2F master trainers. The H2F performance team can train large formations using this doctrine and can evaluate Soldiers who fall below BCT and H2F goals. The H2F performance team gives Soldiers conditioning programs that improve their performance. Conditioning accounts for adaptive physiological changes that take longer than ten weeks. Soldiers who require longer than this to meet Army standards to progress to AIT will move to the fitness training unit (FTU).

2-8. H2F physical training for BCT incorporates the following:

- Weight training.
- Seven-day schedules to include active recovery sessions to maximize response to training.
- Strength, endurance and sprint training ability groups.
- Sessions conducted in the ACU.
- Running skill training.
- Soft-tissue and joint mobilization techniques for recovery.
- The ACFT.

2-9. The nonphysical domains of H2F:

- Nutritional readiness.
- Mental readiness.
- Spiritual readiness.
- Sleep readiness.

ADVANCED INDIVIDUAL TRAINING

2-10. AIT focuses on technical and MOS-oriented subjects. Therefore, H2F training should prepare these Soldiers to meet the physical and nonphysical requirements of their FUA. H2F performance teams continue to conduct initial phase training until Soldiers meet Army standards before transitioning to sustaining phase activities. A 14-week AIT schedule is included in Part Four beginning on page 14-21.

ONE STATION UNIT TRAINING

2-11. OSUT follows similar progression as BCT for the first 10 weeks and then continues initial phase activities until Soldiers have met the Army's standards for sustaining phase. Sustaining phase activities are more complex and prepare Soldiers to perform the requirements of their MOS assignments and multiple domain operations. MOSs with 22-week OSUT will be programmed by the H2F performance team in those schools. A 22-week OSUT schedule is included in Part Four beginning on page 14-27.

FIRST UNIT OF ASSIGNMENT

2-12. After completing IMT, Soldiers arrive at their first unit within a few days or weeks. The break between departure from IMT and arrival at the first unit may cause Soldiers' readiness to degrade. Significant losses in strength, endurance, and mobility occur after 14 days of little or no training. The degradation is more significant in newly trained Soldiers who do not already have high levels of physical readiness. IMT leaders and H2F performance teams understand this and encourage and motivate Soldiers to accept responsibility to maintain their own readiness. H2F performance team members and unit leaders at the Soldiers' first

assignment are also aware of this. They design and organize conditioning programs that expedite the new Soldiers' acclimatization to the unit and movement into sustaining phase training. These programs may last from a few days to several weeks.

SUSTAINING PHASE

2-13. Sustaining phase H2F training builds upon the foundation established in initial phase. The sustaining phase creates mastery of the physical and mental attributes of occupational and combat tasks. Developing individualized programs for Soldiers will be the norm in sustaining phase. This is possible in sustaining phase because each unit or installation will have the requisite H2F System. For National Guard and remotely located Soldiers, regional H2F performance team members within each state (available as consultants to individuals and units) develop and implement H2F training. Equipment and facility support will be through unit facilities and other training venues.

WARRANT OFFICER CANDIDATE SCHOOL

2-14. H2F training and testing in Warrant Officer Candidate School employs sustaining phase programming that prepares warrant officer candidates for their FUAs.

WARRANT OFFICER BASIC COURSE

2-15. The Warrant Officer Basic Course will continue requirements established in Warrant Officer Candidate School for the various durations of Warrant Officer Basic Course. These may include and are not limited to physical and nonphysical training domains.

BASIC OFFICER LEADER COURSES

2-16. Cadets and officer candidates report to an accessions basic officer leader course with various levels of physical and nonphysical readiness. They will have passed the OPAT. The first weeks of training focus on progressive training of the whole body. Similar to BCT, cadets and officer candidates in an accessions basic officer leader course perform initial phase training. They learn fundamental physical skills as well as the drill and ceremony that they will use to lead Soldiers. Officers in a branch basic officer level course transition to sustaining phase activities once they have passed the ACFT.

2-17. To minimize the risk of injury and overtraining, the intensity and volume of training progresses gradually. Commanders, cadre, and H2F performance teams should evaluate each new cadet or officer candidate who falls below an accessions basic officer leader course standards and should give special assistance to improve performance. More training is not necessarily better. The quality and quantity of training should be assessed with an understanding that some cadets and officer candidates may require additional time to make the improvements required to meet Army standards.

ACTIVE COMPONENT

2-18. The goal of H2F is to improve each Soldier's physical and nonphysical readiness to survive and win in any operational environment. The H2F System enables the Army to provide campaign-capable, expeditionary forces. Commanders are responsible for the training, performance and readiness of their Soldiers, and use the training management cycle and resources to meet H2F objectives. See ADP 7-0 for training.

2-19. The Army's unit training plan discussed in ADP 7-0 provides the framework for commanders to achieve proficiency in their units' mission-essential task lists (METLs). The unit METL drives training. Key to the success of this process is the inclusion of bottom-up feedback. This approach applies mission command to the training process. Mission command is the Army's approach to command and control that empower subordinate decision making and decentralizes execution. With this approach, senior leaders provide training focus, direction, and resources. Subordinate leaders develop training objectives and training requirements specific to the unit and provide feedback on training proficiency.

2-20. At each level of a unit's hierarchy above the squad or team, H2F performance team members starting with H2F master trainers are available to advise on and implement H2F training. These members identify unit needs and train to standard according to the unit training plan or the published training schedule. They analyze tasks and identify both collective and individual tasks that support the higher headquarters METL—the bottom-up feedback. Over time, structured, recurring periods of H2F training increases unit readiness.

2-21. Commanders should establish H2F program goals based on the physical and nonphysical requirements of the unit's METL or mission. Commanders use this process and H2F performance team personnel to identify training requirements for the unit's mission and to subsequently plan, prepare, execute, and assess all H2F training. This is the process for effective H2F governance within the unit. This process is critical to ensure proper readiness outcomes of the unit's H2F program.

RESERVE COMPONENT

2-22. With operational deployments increasing in recent times, United States Army Reserve (USAR) and Army National Guard of the United States (ARNG) Soldiers have made up about half of the personnel engaged in current conflicts. In this increasingly busy operational period, and with civilian occupational demands further restraining time to train, Army Reserve and Army National Guard Soldiers understand the critical importance of time to optimize individual readiness well above and beyond physical fitness test standards. It is critical that Reserve Component commanders use the Army training management cycle to support their units' METLs.

2-23. Army Reserve and Army National Guard Soldiers typically perform occupational and operational tasks that are the same as their Regular Army counterparts. However, they may have lower fitness levels because they conduct mandated physical readiness training less frequently throughout the year. As such, some Reserve Component Soldiers may be at greater risk of injury and have physical performance deficits.

2-24. The H2F program gives Soldiers the motivation and knowledge they need to conduct their own quality training sessions between unit collective training or when they are off-base or in remote locations. H2F performance teams at unit assemblies incorporate H2F activities from this field manual into individual schedule for drill (inactive duty training) periods. Most of the activities support Reserve Component unit METLs. Therefore, during assemblies, H2F personnel teach one aspect of a high-priority domain—for example, Running Drill 2 for strength improvement—for Soldiers to practice on their own. Many of the exercises in require no or very little equipment, so Soldiers can practice individually if facilities are not readily available. When Soldiers require equipment, for weight training for example, most military and civilian physical training facilities commonly have it.

2-25. Given the restraints on training Reserve Component personnel, the H2F System provides a program to monitor and motivate regular, systematic training of these Soldiers. Monitoring is important—especially if the Army pays Soldiers to maintain standards or awards them promotion points for success on fitness tests. Monitoring compliance with training is accomplished in the future applications (mobile applications). The application details each training session conducted remotely by capturing a mix of automatic monitoring (heart rate, elevation change, step cadence, and Global Positioning System) and self-reporting rating of perceived exertion (RPE), satisfaction with the workout, and self-reported readiness level. The application sends results to H2F performance team personnel and the unit command. The application adjusts programs to raise the Soldier's self-reported readiness level and to meet the unit's mission. The mobile application can connect Soldiers to unit and partner training sessions, which improves teamwork, cohesion, and aspiration to do well.

INDIVIDUAL TRAINING

2-26. Soldiers in the Army Reserve Troop Program Unit and Army National Guard, and many Soldiers in the Regular Army (such as recruiters, shift workers, criminal investigators, Army school cadre, foreign area officers, and defense attaches) depend on information in this doctrine for H2F programming. The H2F System supplies them with the knowledge and support they need to prepare for their occupational and combat tasks. Soldiers who work and train on their own must make every effort to conduct H2F physical and nonphysical training throughout their work weeks. The program works best when it becomes a normal way of daily life,

incorporating and complying with the best nutritional readiness, mental readiness, spiritual readiness, and sleep readiness as well as physical readiness training techniques and procedures.

2-27. All Soldiers must understand that it is their personal responsibility to achieve and sustain a high level of readiness. Individual H2F training is designed to improve each Soldier's contribution to the unit's readiness. Strength and conditioning drills, movement skill, mental training drills, mindfulness exercises, sleep readiness, and performance nutritional practices can be mastered individually or with a partner. The Soldier who immerses individually in the practices builds readiness equivalent to any Soldier doing the same in a collective setting.

CONDENSED TRAINING

2-28. When scheduled training requirements, environmental considerations, or FTXs conflict with the designated time available for H2F training, leaders may condense the sessions. This applies in both initial and sustaining phases. These sessions, while being shorter and therefore less likely to meet unit readiness goals, may still have a focus to them. Table 2-1 illustrates two examples of condensed physical training sessions. One session focuses on strength and one focuses on endurance.

Table 2-1. Condensed holistic health and fitness sessions

Session	*RPE*	*Sustaining Phase*	*Time*
Strength	6	Preparation: PD (5 reps) Activities: GD (1 rep); CD1 & CD2 (5 reps), or deadlift. Recovery: RD (20 secs)	30'
Endurance	6	Preparation: PD (5 reps) Activities: MMD2; 60-120s (4 reps) Recovery: RD (20 secs)	30'

CD	conditioning drill	RD	recovery drill
GD	guerilla drill	rep	repetition
MMD	military movement drill	RPE	rating of perceived exertion
PD	preparation drill	secs	seconds

Phases

The two phases of the Holistic Health and Fitness (H2F) System, the initial phase and the sustaining phase, cover the Total Army. From the start of the initial phase as a new recruit until completion of the sustaining phase when Soldiers become Army careerists, they will be immersed in a comprehensive H2F System that optimizes their readiness.

This page intentionally left blank.

Chapter 3
Domains

The overarching goal of the H2F System is Soldier readiness. This goal is met when training in the five domains of H2F is optimized. These domains are physical readiness, nutritional readiness, mental readiness, spiritual readiness, and sleep readiness. To conduct rigorous, demanding training that inspires Army pride, imbues the Soldier ethos, and maximizes common task competence, Soldiers must be physically and mentally motivated and engaged.

PHYSICAL READINESS

3-1. If the overarching goal of H2F is Soldier readiness, then the overarching physical training goal is movement lethality—the ability to physically engage with and destroy the enemy. Movement lethality is the ability to apply and sustain the right amount of strength, endurance, and speed to meet the demands of training and combat physical tasks. This physical goal is supported by optimal mental function. The goal and the function are inseparable, linked together. The ability to tolerate physical duress is a function of mental toughness. It is generated by training the critical components of physical readiness and the tasks they support (see table 3-1).

Table 3-1. Physical components and occupational tasks

Physical Component	***Occupational Tasks***
Muscular strength	Lift, drag, and carry heavy loads
Muscular endurance	Execute sustained bouts of low intensity resistance
Aerobic endurance	Execute sustained bouts of low intensity movement
Anaerobic endurance	Execute short-duration, high intensity movement
Power	Complete short-duration, explosive movements with heavy loads

3-2. Figure 3-1 on page 3-2 illustrates the prerequisites for movement lethality. Components of fitness, energy systems, occupational skills, and physical skills required for movement lethality must be carefully combined over time with a Soldier's structural capabilities. Structural capabilities are the intrinsic capabilities that allow a Soldier to perform physically. See table 3-2.

Table 3-2. Structural capabilities

Structural Capability	***Description***
Load tolerance	The ability of the skeletal system to bear weight.
Flexibility	The range of motion across single or multiple joints that allows the body to be positioned for optimal movement.
Static balance	The ability to maintain a stable position over a base of support.
Body composition	The percentage of lean muscle and other body tissues.
Bone density	The thickness and quality of the bone that provides its strength.

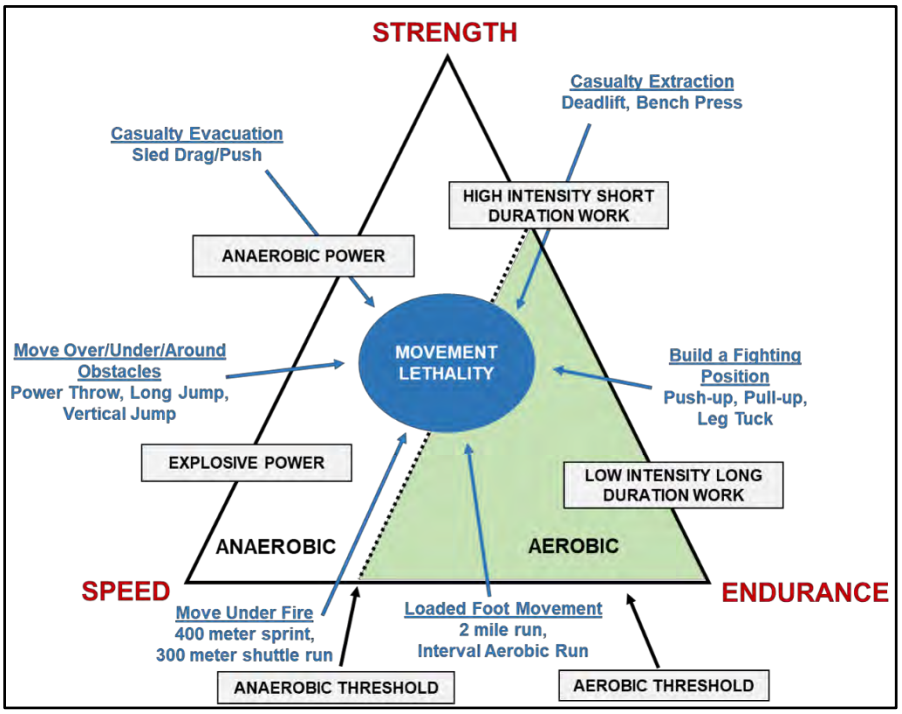


Figure 3-1. Tasks and physical components of movement lethality

3-3. Structural capabilities support the training and improvement of the movement skills. See table 3-3.

Table 3-3. Movement skills

Movement Skill	***Description***
Agility	The ability to bend, rotate and twist in the frontal, transverse, and sagittal planes and use that ability to change direction.
Coordination	The ability to synchronize limb, torso and head movements at varying speeds of motion.
Dynamic balance	The ability to move under control at speed and under load.
Kinesthesia	The perception of the body's position in space during movement.
Pace	The ability to set the correct speed of an activity to manage fatigue.
Perception	The understanding of correct technique and effort that builds skill.
Reaction time	The interval between an external stimuli and the Soldier's response.

3-4. Movement lethality has to be taught and learned with meticulous attention to the precise replication of the movements required in occupational tasks and combat. Movement skill must be deliberately and purposely progressed until it becomes a natural part of Soldier performance in training and in contact with the enemy.

3-5. One characteristic of movement—speed—serves as an example. Speed improves with the proper development of aerobic and anaerobic energy systems along with muscular strength and endurance. Drills and exercises are the means to cultivate this improved end state. Speed is a word often associated with "fast." Some drills such as 30:60s, 300 Meter Shuttle Runs, and Hill Repeats promote fast speed. Others such as the Lateral, the Lunge Walk, and the Soldier Carry develop precise, slower movement competencies. The movement skill associated with speed, therefore, is pace—the ability to control the rate at which you move. Pace can be deliberately progressed by ensuring that a Soldier is exerting himself or herself correctly. This requires an understanding of effort. Soldiers can train and measure effort while executing these drills by using

the RPE scale—a Soldier's estimate of how hard he or she is working. This training integrates into the Soldier's ability to avoid fatigue, or arrive too soon at an objective.

Physical Readiness

Physical readiness is the ability to meet the physical demands of any duty or combat position, move lethally on the battlefield, accomplish the mission and continue to fight, win, and come home healthy.

NUTRITIONAL READINESS

3-6. Nutritional readiness has evolved over the past four decades from a series of disjointed ideas and one-size-fits-all guidelines into an evidence-based science promoting integrated and personalized practices. Whereas earlier efforts were based on static recommendations focused on the fuel needs for endurance sports, contemporary performance dietary guidelines are mission- and individual-driven and periodized to enhance readiness.

3-7. The goal of nutritional readiness is to promote optimal performance readiness. For Soldiers to perform optimally throughout their careers in assignments with varying levels of mental and physical difficulty, they must place as much emphasis on nutrition programming to support that performance as they do on physical and mental health. Nutritional readiness intertwines with the other readiness domains since it promotes and is supported by optimal physical readiness, mental readiness, spiritual readiness, and sleep readiness.

3-8. A comprehensive performance nutrition program is proactive, active, and reactive:

- Proactive. Proactive nutrition provides the foundation for baseline health and homeostasis (physiological equilibrium)—the proactive prevention of nutrition deficiency, chronic disease and immune system compromise.
- Active. Active nutrition fuels the arduous activities and events Soldiers perform as part of their occupations and covers fueling before during and after these events. It comprises the largest portion of this section.
- Reactive. Reactive nutrition centers on specific dietary interventions to treat illness, injury, or medical conditions and spans hospitalization through rehabilitation to return to full duty.

Nutritional Readiness

Nutritional readiness is the ability to recognize, select, and consume the requisite food and drink to meet the physical and nonphysical demands of any duty or combat position, accomplish the mission and come home healthy.

MENTAL READINESS

3-9. Mental readiness is the capacity to adapt successfully in the presence of risk and adversity. It can be seen as a set of personality traits, an assortment of skills or ways of behaving and thinking, or a combination of both personality traits and behaviors. Whether Soldiers think of mental readiness as something they have (such as a personality trait or disposition), something they do (such as a plan, strategy, or way of behaving), or something they believe (such as a faith, positive outlook, or neutral outlook), it will help Soldiers better understand uncertain situations and will make them aware of their own mental processes.

3-10. Under extreme duress, mental readiness is the ability to create a sense of total control and confidence. In the presence of chaos and uncertainty, possibility for flawed judgment increases. Mental readiness reduces miscalculation and errors of judgment. Soldiers who are mentally ready can manage severe stress and grow mentally tougher in the process.

3-11. Mental readiness depends on a range of the following factors:

- Character.
- Behavior.
- Resilience.
- Cognitive skill.
- Social acuity.

CHARACTER

> *Intrinsically, character is one's true nature including identity, sense of purpose, values, virtues, morals, and conscience. Character, in an operational sense, is an Army professional's dedication and adherence to the Army Ethic, including the Army Values, as consistently and faithfully demonstrated in decisions and actions*.
>
> AR 600-100, The Army Profession and Leadership Policy

3-12. Character is a complex, multi-factorial construct. It is a Soldier's true nature including identity, sense of purpose, values, virtues, morals and conscience. These personal qualities help the Soldier to determine what is right and to become more dedicated and adherent to the Army ethic and Army Values. A Soldier of character is an honorable servant, an Army expert, and a steward of the Soldier profession—his or her way of life. A Soldier who demonstrates strength of character becomes, most essentially, a trusted leader.

3-13. The process of character development in the Army starts during the accessions process. The civilian's transformational experience, his or her Soldierization, continues in IMT. Through deliberate, career-long professional education and experience, leaders and H2F performance teams who interact with Soldiers reinforce character strength every day. They coach, counsel, mentor, and influence Soldiers during physical and nonphysical training. Soldiers model ethical reasoning and decision making that reflect the attitudes and behaviors of their leaders.

BEHAVIOR

3-14. Behavior is the outward expression of character. It combines a Soldier's verbal and nonverbal actions, writings, photos, and videos that inform the world about that Soldier. No matter what background and set of values a Soldier brings to the Army, all Soldiers understand that they are required to adhere to the Army's policies, regulations, doctrine, and values. The extent that Soldiers are open to and committed to these values and ethics is reflected in their behavior.

RESILIENCE

3-15. Resilience is the ability to face and cope with adversity; adapt to change; and recover, learn, and grow from setbacks. Resilient Soldiers can better leverage mental and emotional skills and behaviors that promote enhanced performance and optimize their long-term health.

3-16. The Army considers resilience to be a key component of Soldier and unit readiness. Resilient leaders can recover quickly from setbacks, shock, injuries, adversity, and stress while maintaining their mission and organizational focus. They can foster this capacity in their Soldiers through leading by example and with tough, realistic training. Leaders who learn in the presence of stress and grow from it build resilience. Resilience helps leaders and their units fight and win and continue to fight and win. Resilient leaders carry difficult missions to their conclusion.

COGNITIVE SKILL

3-17. Cognitive skill is the ability to expand and integrate knowledge into decisions. It drives the ability to make sound decisions. It is built through the instruction and absorption of personal and professional experience and education, values, and beliefs. It should not be difficult for Soldiers and leaders to understand the link between high levels of cognitive skill and optimal performance on the battlefield. Low cognitive skill leads to poor decision making and misconduct behaviors.

3-18. Key measures for Soldiers and leaders to use in assessing cognitive skill include the following:

- Attention or attentiveness, memory or recall.
- Integration of concepts, data, inputs, and orders.
- Reasoning: problem solving and decision making.
- Understanding.

SOCIAL ACUITY

3-19. Social acuity is the awareness of, control over, and ability to manage interactions with others. High social acuity or social intelligence is the ability to read other people's cues and then act appropriately. Emotionally intelligent Soldiers can interact with others with an awareness of, control over, and an ability to appropriately express their own emotions.

3-20. Three useful measures of Soldier social acuity are task cohesiveness, Army identification, and social cohesiveness.

- Task cohesiveness is the motivation to achieve the Army's goals and objectives, which leaders generally assess at the Soldier level and aggregate at the unit level. In other words, each Soldier's commitment to the unit's goals is assessed and aggregated across the unit as a measure of the group's task cohesiveness. A higher level of task cohesiveness directly correlates with increased morale, operational effectiveness, and ultimately improved odds of survival.
- Army identification and commitment is the extent to which a Soldier feels that he or she is similar to and can relate to the Army. It is the extent to which a Soldier feels a part of the Army and finds the Army personally meaningful or fulfilling.
- Social cohesiveness is the motivation to develop and maintain social relationships within the unit. Like task cohesiveness, leaders generally assess it at the Soldier level and aggregate it at the unit level.

Mental Readiness

Mental readiness is the ability to meet the mental demands of any combat or duty position, adapt successfully in the presence of extreme risk and adversity, accomplish the mission, and continue to fight and win.

+ SPIRITUAL READINESS

3-21. Spiritual readiness is the ability to endure and overcome times of stress, hardship, and tragedy by making meaning of life experiences. Individuals find meaning as they exercise beliefs, principles, ethics, and morals arising from religious, philosophical, and human values. Soldiers who successfully develop, sustain, and repair their state of being while facing adversity demonstrate spiritual readiness. Leaders who understand spiritual readiness can encourage personal spiritual readiness by creating a climate of mutual respect and dignity that promotes dialogue, fosters team cohesion, and enables healthy free exercise of religion or no religion. This approach enables collective and individual readiness.

3-22. Spiritual readiness strengthens as individuals identify their spiritual dimension—their purpose, core values, beliefs, identity, and life vision. The spiritual dimension draws on an individual's core religious, philosophical, or human values to develop an individual's sense of motivation, character, and integrity. The spiritual dimension defines the essence of a person by enabling one to build inner strength, make meaning of experiences, behave ethically, persevere through challenges, and be resilient when faced with adversity.

Spiritual Readiness

Spiritual readiness includes the development of the personal qualities needed to sustain a person in times of stress, hardship, and tragedy. These qualities come from religious, philosophical, or human values and form the basis for character, disposition, decision making, and integrity.

SLEEP READINESS

3-23. To achieve optimal readiness, Soldiers must have sleep and the more sleep obtained the better. Inadequate sleep weakens Soldier performance and jeopardizes the mission. Sleep readiness consists of three components:

- Duration because the health and functioning of the brain depend on the amount of sleep obtained.
- Timing because the ability to initiate and maintain sleep (and thus maximize the amount of sleep obtained) is strongly influenced by the brain's internal clock.
- Continuity because the extent to which sleep is undisturbed by arousals and awakenings influences both the duration and the depth of sleep. Deeper sleep is more restorative.

3-24. The goal of sleep readiness ensures that the Soldier's brain and body have adequately recovered so that he or she can tolerate repeated exposure to physical and mental stress. Like the rest of the body (muscles, skin, and internal organs), the brain has physiological needs for food, water, and oxygen—basic needs that must be met not only to ensure proper brain functioning, but also to sustain life itself. However, unlike the rest of the body, the brain has one additional physiological need: sleep. The brain requires sleep to maintain normal function. Sleep is necessary to sustain not only alertness, but also higher order cognitive abilities such as judgment, decision making, and situational awareness. In short, sleep makes Soldiers better at being Soldiers.

Sleep Readiness

Sleep is the critical requirement for brain health and function. Sleep readiness is the ability to recognize and implement the requisite sleep principles and behaviors to support optimal brain function. In turn, sleep readiness underpins a Soldier's ability to meet the physical and nonphysical demands of any duty or combat position, accomplish the mission, and continue to fight and win.

Domains

The five domains of the holistic health and fitness (H2F) program build the Army's readiness goals and are based on the principles of optimization, individualization, and immersion. The goal is to improve each Soldier's physical lethality and mental toughness through the linking of physical readiness, nutritional readiness, mental readiness, spiritual readiness, and sleep readiness.

PART TWO

Design

Part Two explains the scientific basis of Soldier performance and how the H2F training program is designed. Training approaches described in Part Two address the "why" of H2F—the science and rationale behind the program. The principles discussed in Part Two form the approaches used in Part Three to build H2F program content for individual Soldiers and collective unit readiness and deployability.

Chapter 4

Physiology

The effectiveness of Soldiers depends largely on their physical condition. Combat places a premium on the Soldier's strength, endurance, and lethality. Victory depends on these physical attributes. Leaders also recognize that the mind controls the body. Therefore, to persevere in battle and thrive afterward requires an equal measure of psychological health—mental toughness, stamina, emotional fortitude, intellect, judgment, strength of character, and spirituality. The requirement to train all these domains—physical readiness, nutritional readiness, mental readiness, spiritual readiness, and sleep readiness—has become more urgent. The inputs that Soldiers and units will be required to process, and the time to process and act upon them will be inversely proportional. Therefore, the capacity of the unit to be successful rests upon every Soldier's ability to respond effectively in the absence of complete information or on short notice. Collective capacity depends on this individual ability. Underpinning all is an understanding of how the human body works—its anatomy and physiology.

SOLDIER PHYSIOLOGY

4-1. Physiology is the study of the functions and parts of a living organism. This section describes the physiological and anatomical foundation of Soldier performance.

4-2. When the predecessor to the ACFT, the three-event Army Physical Fitness Test (known as the APFT) was developed in the midst of the Cold War, some senior Army leaders felt ground combat was no longer a force imperative. As a result, the Army replaced rigorous physical training and assessment linked to the performance of occupational warfighter tasks with more general fitness training and assessments. This approach mirrored civilian trends with aerobics and jogging driving the popularity of endurance-centric fitness. The three-event Army Physical Fitness Test along with the Army Weight Control Program were developed to ensure a high level of health-related fitness and appropriate body mass.

4-3. The lessons learned over three decades of combat operations renewed the Army's focus on the strength and power requirements for ground combat. In 2013, under HQDA directions, the Army began two major physical fitness assessment studies: (1) Army Required Actions in Support of the Elimination of the Direct Ground Combat Assignment Rule (DGCAR), and (2) Comprehensive Study to Determine Baseline Soldier

Physical Readiness Requirements and a Standardized, Baseline Physical Readiness Test. The United States Army Research Institute of Environmental Medicine (USARIEM) conducted extensive physical demands studies to determine the reliability of simulated physical soldiering tasks relevant to combat arms Soldiers. The studies demonstrated that muscular strength and power drove 60 percent of the variability in physical demands. In other words, endurance-centric approaches to training and testing did not support all of the baseline requirements of being a Soldier.

4-4. As part of the analysis, USARIEM identified five domains of combat physical fitness: muscular strength, muscular endurance, aerobic endurance, explosive power, and anaerobic endurance. These five domains were independently confirmed in the physical fitness assessment studies conducted by the USACIMT. The Army Physical Fitness Test assessed only two of the five domains of combat physical fitness, aerobic endurance and muscular endurance.

4-5. The second objective of the physical fitness assessment studies was to determine common field-expedient physical fitness test events that predicted a Soldier's success on the high physical demand warrior tasks and battle drills (WTBD). After surveying MOS schools and several thousand combat veterans on the physical demands of Soldering, 1,000 Soldiers performed WTBD simulations. Their performance validated the selection of the six events that became the ACFT.

ENERGY PATHWAY

4-6. Energy to move the human skeleton derives from a series of chemical and biological reactions that involve the respiratory system (lungs), cardiovascular system (heart, blood vessels, and blood), the neuromuscular system (nerve and muscle system), and the neuroendocrine system (nerve and hormone system). Energy is produced through three pathways—phosphagen, glycolytic, and oxidative phosphorylation—that convert calories into energy. The body can use the resulting energy later in physiological processes, including but not limited to movement. The onset of exercise activates all three pathways, with each one predominating after different durations and levels of effort. Energy is produced in the form of a chemical called adenosine triphosphate. Adenosine triphosphate is a large molecule comprised of adenosine and three phosphate groups. When this molecule is broken down by chemical reactions in the muscle, the energy released by this reaction is used for movement.

PHOSPHAGEN PATHWAY

4-7. In the phosphagen pathway, adenosine triphosphate stored in the muscle and another molecule called phosphocreatine provide the energy for very short duration (5-10 seconds), high intensity or high power activities. These might include three to five second sprints, the Seated or Standing Power Throw, or maximum repetition lifts. This type of training rapidly depletes energy available in the muscle cells that require long rest periods to re-energize. If Soldiers do not rest enough or are forced to keep going at this level of intensity, the loss of adenosine triphosphate causes degraded performance. Depletion of the phosphagen pathway will force the use of other energy pathways and those pathways will begin to predominate. Rest intervals between bouts of high-intensity exercises should be 2 to 5 minutes to support molecule restoration.

GLYCOLYTIC PATHWAY

4-8. The glycolytic pathway is the predominant source of energy for high-intensity exercise lasting up to 90 seconds. As its name suggests, this pathway breaks down glucose (sugar) in the blood and glycogen (sugar deposit) stored in the muscle cells. The chemical reactions in this system happen without the need for oxygen (anaerobic reactions). These reactions produce pyruvate or lactate depending on exercise intensity. Pyruvate is a component in the release of stored energy; lactate is a source of stored energy that can be converted back into glucose or glycogen during exercise. The lactate threshold is the point at which lactate production exceeds its clearance from, or utilization by, the muscle. Soldiers who are more fit have higher lactate thresholds. Across the training period, multiple sets of heavy lifts, Climbing Drills, the Strength Training Circuit, and sprint intervals result in greater overload of the glycolytic pathway and a higher lactate threshold. Precise measurement of this threshold occurs with an exercise stress test in a laboratory.

OXIDATIVE PHOSPHORYLATION

4-9. This pathway is the predominant source of energy for low-intensity, sustained exercise lasting for more than three minutes. This pathway supports aerobic performance. The presence of oxygen allows pyruvate in the muscle cell to be converted into much more adenosine triphosphate than the other two energy systems. Both fat and carbohydrate are converted into energy in this system. The process for fat metabolism is called beta oxidation. Leaders typically use prolonged, low-intensity training such as Foot Marches, Release Runs, and Ability Group Runs to increase aerobic endurance. This type of training encourages the metabolism of fat for fuel. Its use of training uses much shorter rest intervals than the phosphagen pathway. Rests of as little as 5 to 10 seconds are common during low-intensity intervals.

4-10. Carbohydrates, the body's main fuel source, are broken down into glucose and stored as glycogen. Glycogen stores supply about 3,000 kcal in the typical Soldier and are rapidly depleted as exercise intensity increases. Soldiers may burn 1–3 grams of glycogen per minute during exercise and most will run out of glycogen after 1 1/2–2 hours of activity. When glycogen stores are depleted, it results in the condition sometimes called "hitting the wall." Soldiers must pay careful attention to nutrition before and during prolonged aerobic activity. For example, to avoid degrading their performance on the 2-Mile Run event, Soldiers avoid depleting glycogen caused by the anaerobic effort of the Sprint-Drag-Carry.

VO_2 MAX

4-11. The highest amount of oxygen that can be used during maximal aerobic effort—endurance training—is called the maximal oxygen consumption, or VO_2 max. It is measured as volume (V) in milliliters of oxygen (O_2) consumed per kilogram of body weight per minute, abbreviated to mL/kg/min. A recruit who scores black on the OPAT has a predicted VO_2 max of 33 mL/kg/min. Over time and with progressive training, that recruit could improve his or her maximal aerobic capacity. Strength training typically results in little or no change in VO_2 max unless the Soldier uses longer sessions of circuit-type strength training with shorter rest intervals between exercises. Strength training improves physical performance by increasing relative work capacity through increases in muscle mass and the improved strength of support structures (see paragraph 4-23). Strength training coupled with circuit training directly increases muscular strength and power, while supporting the further development of aerobic endurance, anaerobic speed, and muscular endurance.

ANATOMY

4-12. Anatomy refers to the physical structure of the body. Understanding the bones, muscles, and different systems that form the body helps Soldiers and leaders build better training programs that improve performance while preventing injuries.

BONE

4-13. The 206 bones in the human skeleton form both a chassis for muscles to attach to and enclosures to protect vital structures such as the brain, heart, and spinal cord. Bones store deposits of minerals such as calcium and phosphorus. Although bones vary in size and shape, some typical features compose a bone's function and bone injury. The outer, hard surface of the bone is the cortex. This strong and stiff tissue is lined by a fibrous layer called periosteum ("around the bone"). The periosteum conveys blood vessels and nerves to the bone and signals pain when bumped or irritated and excruciating pain when fractured.

4-14. The softer inner tissue of the bone is the marrow. Bone marrow generates red and white blood cells and platelets. Wherever two bones meet to form a moveable joint in the body (an articulation), the contact surface of the bone is covered in cartilage. Cartilage is a softer, more fibrous material than the bone cortex and is made of cells that produce collagen. Its purpose is to cushion the bones, especially in weight-bearing joints like the hip, knee, and ankle, and to allow the bones to move more smoothly against each other. Cartilage does not have nerve supply, nor as many blood vessels as the rest of the bone. Once it is damaged, it does not repair well. This can lead to pain and inflammation in the joint, otherwise known as arthritis.

4-15. Bones are living tissue. They grow larger and longer up to adulthood. Throughout adulthood bones remodel when physical activity stimulates the bone to thicken and strengthen. In response to physical stress,

cells called osteoblasts lay down new bone tissue to strengthen the bone, while other cells called osteoclasts reabsorb bone tissue. So long as these two processes are in balance, bone continues to strengthen and remain healthy.

4-16. Poor nutrition and excessive physical training can overwhelm the remodeling process and lead to bone stress injury. Although bone stress injury is less disabling than a traumatic fracture, bone stress injury is an avoidable misuse injury often characterized by pain. Doctors treat these injuries with modified physical activity, rest, and adequate and appropriate nutrition. They occur most often in the metatarsal, tibia, femur and ilium (pelvic bones). Occurring more often in Soldiers in the initial phase of training, bone stress injury resolves as the remodeling process catches up with bone absorption. In some cases, stress injury can progress to a fracture such as a tibial stress fracture. Certain types of stress fractures, particularly to the neck of the femur, can be medical emergencies with disabling consequences if not immediately stabilized with surgery.

MUSCLE

4-17. When muscles contract, they pull on bones and cause movement around joints. For example, a biceps muscle contraction repositions the forearm toward the shoulder as the forearm hinges around the elbow joint as a bicep curl. The resulting force is called torque. When the whole body moves across a marching surface, torque is created around the point where the foot meets the ground. So long as the body keeps being repositioned successfully, it will continue to move. If muscles fail to reposition the body's segments, the body will lose balance and fall. The body will not move efficiently in the desired direction and it will eventually fatigue or become injured—either by misuse or by traumatic contact with the ground or another object.

4-18. Purposeful movement is a function of repeated coordination of forces generated within the body with forces outside the body—intrinsic and extrinsic forces. Practice and coaching builds perception of how to better perform basic movements, and subsequently assists with progression to more advanced movements.

MUSCLE FIBER

4-19. In contrast to the spherical shape of other cells in the body, a muscle cell or fiber is a relatively long, cylindrical microscopic structure. Muscle fibers are packed together in progressively larger groups called muscle fascicles that form the whole muscle. Muscles have different roles. Some muscles stabilize body segments, others create large limb movements, or and some create small movements of the hands and fingers. These small movements are referred to as fine motor control. The function of the muscle will be driven by the fiber type. There are three muscle fiber types. They are described in paragraphs 4-20 through 4-22 and in figure 4-1.

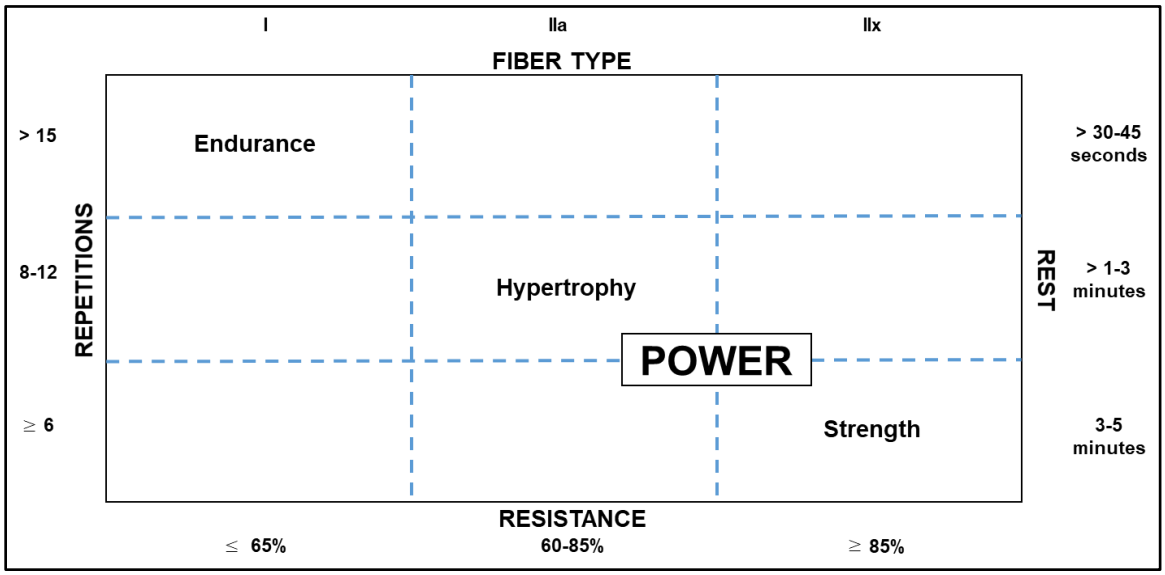


Figure 4-1. Fiber type training

Type I

4-20. Muscle contractions during low-intensity endurance efforts are mainly assigned to Type I or slow oxidative (known as SO) fibers. These fibers are smaller with more mitochondria (parts of the cell that assist with energy production) and capillaries (blood vessels) surrounding them to deliver more oxygen to the fiber. Type I fibers are more resistant to fatigue than the others, but Type I fibers have a slower contractile speed and generate less force.

Type IIa

4-21. During moderate-intensity effort such as one mile runs, Type IIa or fast oxidative-glycolytic (known as FOG) fibers are the main determinants of performance. These fibers' size, contractile ability, and resistance to fatigue make them the main ones Soldiers should target in their training. Training to build muscle size (hypertrophy) and strength or using moderate to moderate hard intensity (RPE 8/10) when performing endurance training recruits more Type IIa fibers. This type of training also encourages the conversion of Type IIx fibers to Type IIa.

Type IIx

4-22. During brief, maximal intensity bouts of exercise (RPE 10/10), Type IIx or as fast glycolytic (known as FG) fibers are recruited. These larger muscle fibers with fast contractile speeds depend on glycogen and have poor resistance to fatigue. Once Type IIx fibers are recruited, lactate can no longer be cleared from the blood and the lactate threshold is reached.

Muscle Strengthening

4-23. Heavy resistance training is included in physical readiness training so that a Soldier is ready to perform baseline occupational tasks. This type of training prepares Soldiers for the unplanned extreme load and intensity tasks that he or she might encounter in training, deployment, or everyday life such as responding to a motor vehicle accident or moving furniture. A specific real-life example is the case of Army medics at the Pentagon who had no notice of the physical and nonphysical demands that would be placed on them on September 11, 2001.

4-24. Physical readiness training that stimulates Type II fiber development is necessary for the strength and power development that supports anaerobic tasks—such as heavy lifting, heavy load carriage, fast sprints

under load, and casualty extraction. Low-load resistance training using body weight across relatively long periods with high repetitions will not permit this type of muscle fiber development. In fact, strength training begins with a measurement of one repetition maximum—the maximum amount of weight that a Soldier can lift, squat, pull, or push one time. Therefore, Soldiers must train and be tested with weighted resistance above their own body weight. Once Soldiers develop new strength, they must sustain it with consistent, repeated exposure to the same or progressive levels of resistance. In some cases, detraining of maximal strength can occur after a three to four week pause in training.

4-25. The development of strength training flows from the one repetition maximum measure. As the one repetition maximum increases over the duration of the Soldier's career, so will the weight. If the goal of a set is 6 repetitions and the Soldier completes 12, the weight should be increased until no more than 6 repetitions can be completed in one set. To reduce the amount of trial and error required to hit these targets, the repetition maximum formula for calculating one repetition maximum can be used: one repetition maximum = (0.033 x repetitions x weight lifted) + weight lifted. Using the repetition maximum formula, if the three repetition maximum was 100 pounds, then the one repetition maximum would be 110 pounds. The three repetition maximum is 90 percent of the one repetition maximum. As the Soldier's one repetition maximum improves, then the three repetition maximum increases. A new one repetition maximum of 150 pounds would translate to a three repetition maximum of 135 pounds. If the Soldier was able to deadlift 250 pounds five times in one set, then the one repetition maximum would be 291 pounds.

4-26. When preparing to engage in high physical demand tasks (HPDTs), Soldiers must understand the difference between "absolute" and "relative" workloads. An absolute workload is the work required to complete a physical task. For example, to perform a casualty evacuation or to lift a 95-pound (lb) artillery shell into a rack requires a specific and measurable amount of strength; a long distance foot movement with a 100-lb ruck, requires a fixed amount of endurance as well as the muscular strength to carry the load. These tasks represent absolute workloads. Higher absolute workloads require higher physiological capacity. In establishing training goals an individual must know his or her physiological capabilities and the absolute workload of the task. The goal should be to increase the rate-limiting physiological capacities (for example, strength, speed, and endurance) to be able to accomplish higher absolute workloads.

4-27. The second aspect of physical work is the "relative workload." The relative workload compares a given task or absolute workload to an individual's maximal physiological capacity. In other words, relative to the maximum amount an individual could do, how much of that individual's potential is needed. Relative workload is defined as "percent of maximum;" it is a way to calculate the "strain" on the physiological systems. If an individual needs to lift a 100-pound object, and his or her maximal strength or lifting capacity is 200 pounds, the relative workload for this task would equal 50 percent. If performing a foot march with a loaded pack requires an oxygen consumption of 2.0 liters per minute and the individual's VO_2 max is 3.0 liters per minute, the relative workload would equal 66 percent. Therefore, improving absolute workload lowers the relative workload for fixed-demand tasks and reduces the risk of injury. Musculoskeletal injuries are often linked to repeated physical exercise at higher relative workloads.

4-28. Soldiers need to know the relative workload, especially for the endurance tasks. Relative workload is directly related to "time to fatigue." The higher the relative workload, the sooner an individual will fatigue. For an endurance event, if a person is working at 50–70 percent relative workload (of VO_2 max), he or she will be able to continue this work for a prolonged period. If the relative workload is greater than 70 percent, an individual will not be able to continue this task for long, and the time needed to recover will increase. Since a higher relative workload may be associated with an increased potential for musculoskeletal injuries, leaders need to extend the Soldier's rest/recovery time after very high intensity workouts. As Soldiers train and increase their physiological capacities, their increased absolute workload will result in a lower relative workload.

NERVOUS SYSTEM

4-29. The nervous system consists of the brain and the spinal cord (the central nervous system) and the nerves branching from them (peripheral nervous system). The nervous system is the body's master system that governs the activities of all the other systems including movement, thought, emotions, sensation, illness, and health. Through this system the Soldier senses and responds to the world. Workload accumulates across the training day if, for example, a Soldier does Squats in the morning and then stands all day in body armor

as a range safety. If the Soldier cannot recover properly from the acute training load (the Squat), then the training load will accumulate and not be absorbed. The continued volume and intensity of the workload becomes chronic. This failure to properly progress the workload increases risk of underperformance and tissue damage.

CENTRAL NERVOUS SYSTEM

4-30. The right and left halves of the brain, called hemispheres, are divided into lobes. The lobes form an integrated system that supports all conscious and unconscious functions. The following descriptions of each lobe impact these Soldier function:

- Frontal lobe contains the premotor cortex and motor cortex, which are the areas that plan and perform movements and contains the Broca's area for speech production.
- Parietal lobe processes sensory information, sensory discrimination, and body orientation.
- Occipital lobe processes signals for visual reception and interpretation.
- Cerebellum coordinates of voluntary movement, to include walking in a straight line.
- Brain stem controls breathing, digestion, heart control, blood vessel control, and alertness.
- Temporal lobe processes auditory reception, expressed behavior, receptive speech, and memory information retrieval; it contains Wernicke's area for speech comprehension.

4-31. The size and anatomy of the adult brain is fully developed by age 26. However, this does not mean that learning ceases. When awake, people are constantly learning. The 12 pairs of peripheral nerves that branch directly from the brain but remain largely inside the skull are called cranial nerves. They innervate (such as supply with nerves) the muscles and sensory organs of the face and head. The sensory input that the cranial nerves transmit to the brain during daily activities and training become memory. Most of the information about these activities becomes short-term memory, stored for a few seconds to allow understanding of immediate or near-term events and then discarded.

4-32. A fair amount of information is stored as long-term memory. Storage is particularly efficient after sleeping for more than 6 hours the night after the event. These memories last for a few minutes or as far into the past as it is possible to remember allowing the conscious recall of episodes and facts. Other memories (sometimes called skills) help with the repetition of tasks performed subconsciously such as walking, eating, and driving. Fundamental physical training develops fundamental Soldier skills—move, shoot, communicate, survive, and protect or treat—and the long-term memories to support them. Soldiers who have highly developed motor skills will have very extensive "neural wiring" in their brains related to those activities. In the well-trained Soldier, particularly the ones who practice the fundamentals, the motions and continual decision making needed to perform these combat functions happen without conscious awareness.

4-33. Deep in the two lobes of the brain sits the limbic system. This collective term for the structures near the middle of the brain includes the hippocampus and amygdala. This connection allows the limbic system to impact the endocrine and autonomic motor systems. The limbic system may affect motivation and mood.

4-34. The spinal cord is the other major anatomical part of the central nervous system. This thick bundle of nerve fibers connects the brain to the peripheral nerves. It originates in the brain stem and ends in the lumbar spine, protected by the vertebrae.

PERIPHERAL NERVOUS SYSTEM

4-35. At each level of the spine, smaller bundles of nerve fibers split off to form the peripheral nervous system. After leaving the spine, the peripheral nerves split and re-form into major nerves such as the median and radial nerve in the arms and the sciatic and femoral nerves in the legs. The peripheral nerves branch into progressively smaller bundles until a single nerve fiber meets with the part of the body it innervates. If the nerve supplies a muscle cell it is a motor neuron. Where the nerve ending meets the muscle, the connection or synapse is called a neuromuscular junction (known as an NMJ). The types and size of the chemical reactions that occur at the junction drive the amount of force the muscle can generate.

4-36. The peripheral nerves originating in the neck (cervical spine) supply sensation and muscle control to the shoulders, arms, and hands. The largest of these upper extremity nerves are the median, radial, and ulnar nerves. The nerves that supply sensation and muscle control to the legs originate in the lower back. The

sciatic nerves pass behind the buttocks and backs of the thighs before dividing to innervate parts of the calf and foot. The femoral nerve courses through the front of the hip and innervates the quadriceps muscle on the front of the thigh.

4-37. Motor neurons regulate how much force is generated by each muscle fiber. If the motor neuron is severed, the signal from the brain cannot travel along the motor neuron to the muscle. No force will be generated. The muscle is said to be paralyzed. Any interruption of the signal along the nerve's path from the brain to the muscle due to injury, fatigue, or lack of training will impact the amount of force generated. If the nerve is intact, signals can be sent at increasing speeds to excite the muscle fibers innervated by that nerve. Faster signaling causes more frequent muscle fiber contraction and more force to be generated. Some motor neurons innervate more muscle fibers than others. Those motor neurons involved in large movements or gross motor patterns may innervate a dozen muscle fibers. If a muscle produces complex, small movements or fine motor patterns, its motor neurons may contact several hundred fibers.

NEUROENDOCRINE SYSTEM

4-38. The neuroendocrine system coordinates the response to exercise across multiple organs and hormone systems. The neuro part of this system is the autonomic nervous system. The endocrine part is the collective name for glands that can release hormones into the bloodstream. Hormones are chemicals that can alter the way an organ functions. For example, the body releases epinephrine (adrenaline that affects the heart) and norepinephrine (affects the blood vessels) in response to physical stress.

4-39. Like the peripheral nervous system, the autonomic nervous system also lies outside the central nervous system. As its names suggests, the autonomic system functions without conscious input to stimulate and control the muscle tissue in the heart, organs, glands, and blood vessels. It therefore impacts the respiratory system (lungs), cardiovascular system (the heart, blood vessels, and blood), and organs (kidneys, liver, and stomach), endocrine system, and lymphatic system. The autonomic system has two parts: the sympathetic and parasympathetic systems.

4-40. The sympathetic system stimulates cardiac muscle to increase heart rate, whereas the parasympathetic slows it down. Both systems impact the same tissue at the same time to maintain homeostasis, but either can be turned up to cause a change in response. When the body reaches a resting state, the parasympathetic system is dominant. In this state, the Soldier can better digest calories more efficiently, repair muscle tissue, and sleep.

4-41. When the sympathetic nervous system is stimulated by increased activity or threat (physical and psychological stress), it reacts with the fight or flight response. The sympathetic nerves signal—

- The adrenal gland to release epinephrine and norepinephrine causing the arteries to the heart and muscles to dilate.
- The liver to secrete glucose and fatty acids into the blood for quick energy.
- The pupils to dilate.
- An increase in sweat to reduce a raised body temperature.

CARDIORESPIRATORY SYSTEM

4-42. The cardiorespiratory system includes the heart, lungs, and blood vessels. This system takes oxygen from small air sacs in the lungs and delivers it through the blood to the muscles so that they can perform work. The amount of oxygen consumed or metabolized is a measure of how well the respiratory and cardiovascular systems are working during exercise—or how well they are trained. Oxygen is used in chemical reactions inside cells to produce energy. If oxygen is available, muscles can do more work.

4-43. During prolonged exercise, the heart must pump more blood to supply and maintain the high levels of oxygen required by the working muscles. The frequency of heart beats is referred to as the heart rate. The frequency of heart beats at rest is called the resting heart rate which is normally about 70 beats per minute (bpm). The resting heart rate for Soldiers with high levels of physical readiness may be well below 70 bpm. Frequency of heart beats during exercise is called exercise heart rate. The exercise heart rate can more than double in young adults during maximal effort with a maximum approaching 200 bpm.

4-44. The amount of blood pumped (in liters) per beat is the stroke volume (SV) and the cardiac output (Q) is the liters of blood pumped per minute. Q = heart rate (100 bpm) x SV (0.1 liters per beat). Q can be as much as 25 to 30 liters of blood per minute in healthy, young Soldiers. As Soldiers become better trained, exercise heart rate goes down and stroke volume goes up, which means Soldiers can work at a higher rate or work longer at a constant rate with less effort. The Soldiers are fitter. Their relative workload is less and therefore, the work is easier for them to perform. An example would be, when a Soldier finds it much easier to dig a foxhole after a period of training.

Physiology

Balanced training has, at its core, an appreciation for how the human body works—its anatomy and physiology. Knowledge of these sciences supports training that is rational, scientific, and most effectively enhances physical performance while minimizing injury risk.

This page intentionally left blank.

Chapter 5
Periodization

Aspects of and approaches to training that were developed in the twentieth century included components of fitness, principles of training, and new training methods such as intervals, circuits, and periodization. Periodization is the division of training into blocks of time (periods) that focus on building readiness. This chapter describes how all the domains of readiness are included in the periodized approach to training of the H2F System.

FUNDAMENTALS OF PERIODIZATION

5-1. Periodization is the systematic planning of long- and short-term readiness training and testing in preparation for combat. This logical method of planning training maximizes training outcomes at specific periods or points in time. In the H2F System, periodization integrates the domains beyond physical readiness—mental readiness, spiritual readiness, nutritional readiness, and sleep readiness—that prepare a Soldier for combat. The idea of integrating more than just physical training in the periodized model is a more recent development, especially when applied to team or collective preparation for physical tests or events.

5-2. Periodized training divides physical training into logical time periods. Each period—base, build, taper, combat, and recovery—has a specific training goal that builds on the preceding period. Periods can be weeks to months long with an individual's periodized plan lasting for a year or more. Progress is measured across the different domains of readiness, energy systems, and components of fitness. Adjustments are made to avoid plateaus or reversals in fitness due to injury, illness, and unplanned life events. In a periodized plan, goals change over time from general fitness to a narrower focus on specific task performance.

5-3. Sometimes, to help understand a concept like periodization, it helps to describe its opposite. In an unplanned or random training program, the Soldier does whatever he or she feels like. The workout is based on intuition, gut feel, tradition, and the time available to train, not the standard for the training. There is no attention to a written, individualized plan that has sequenced, structured targeting of fitness components. Performance goals center around getting the workout done and are performed with little attention to achieving peak performance. Test proficiency, not task proficiency, drives training choices and the culture of fitness. Hard effort tends to dominate the level of exertion. Work-to-rest ratios seldom follow validated approaches. This approach is common among novices. There is no attempt to assess the needs of each individual Soldier and design a program to meet those needs. This approach leads to varied, non-standardized programming and suboptimal outcomes.

5-4. In the sustaining phase, the duration of the Soldier's physical training plan and training session length should prepare Soldiers for expected deployment duration and the specific physical tasks of combat. If these are not known or scheduled, then staffs use previous deployment experience to guide planning. In the previous version of FM 7-22, phases of deployment preparation were divided into six-month segments. These can still be useful, but more flexible approaches are possible with periodized programming.

5-5. Periodized blocks of training can last from several days to several months. They can be progressed over several years. This long-term approach suits the different lengths of Soldier careers. The H2F training phases—initial and sustaining—contain training cycles that last from a few days (microcycles) to several months or more (macrocycles). The H2F System facilitates more deliberate, customized, and comprehensive approaches to readiness training for smaller groups and individual Soldiers.

5-6. The challenge for commanders is optimizing readiness in spite of the frequent changes in the unit's training schedule, Soldier population, and deployment timeline. See Part Four beginning on page 13-1 for

different training scenarios that provide a basis for specific unit and individual training programs. For all these templates, the performance objective has success in combat.

5-7. Across a Soldier's career span, periodization will guide optimal medical and performance readiness. This approach to building the Soldier promises to avoid costly, unprogrammed attrition and suboptimal readiness measures such as undertraining, excessive fatigue, overtraining, illness, and injury.

TRAINING CYCLES

5-8. Peak performance is attained and maintained by scheduling training through deployments with varying periods or cycles of maximal and submaximal training. If the Soldier has no scheduled combat deployment, the cycles can repeat at sub-peak levels to build or sustain very high foundational readiness. These cycles cause changes in the Soldier's physiological and psychological statuses that lead to improved readiness. Training schedules are built on the following progressively longer periods of micro-, meso- and macrocycles.

MICROCYCLE

5-9. The microcycle consists of the detailed daily training structure across two to fourteen days. The days in the microcycle alternate between endurance and strength sessions as well as between training and recovery sessions. Leaders develop these training cycles in conjunction with the operations planning process described in FM 7-0. FM 7-0 uses the operations process conducting training events in a step-by-step approach to help commanders and other unit leaders train their Soldiers. With a focus on readiness and high levels of training proficiency, FM 7-0 provides the how-to processes of unit training along with practical applications. Leaders complete this meticulous planning well prior to the start of training. For subordinate units to develop their own training plans, each headquarters publishes their unit training plan well in advance. This is done not just for subordinates to plan training, but to allow time for leaders to get certified and to reserve the necessary training resources. For training to be effective, the necessary resources must be available at the right point in the training cycle. Prior to the start of training, detailed planning for each training event must occur. The company commander refers back to each event's training objectives and uses weekly training meetings to assess the training that has occurred and to coordinate activities for future events. There is little difference between unit training plan development and building a physical readiness plan.

MESOCYCLE

5-10. Within the macrocycle, shorter periods of training called mesocycles are the main, medium-sized building blocks of training. The mesocycle lasts from two to six weeks. Each mesocycle aims to establish a new level of physical readiness—residual fitness—that carries over into the next cycle. As the training is accumulated and absorbed, the Soldier gets fitter. As deployment nears, physical readiness begins to peak and mesocycles are structured to allow accumulated fatigue to dissipate without a loss of residual fitness. This pre-deployment period of one to two weeks, often known as a taper, keeps the intensity and specificity of exercise high while reducing frequency and duration of training. The physiological response is called supercompensation.

MACROCYCLE

5-11. The longest period, usually lasting a year or more, is referred to as a macrocycle. This duration of training builds readiness towards a single peak within that time span. A twenty-year Army career would include multiple macrocycles. The goal for all Soldiers should be to complete their service in peak condition.

5-12. Training periods described in this doctrine feature base period characterized by higher training volume and more training variety. Base periods transition to build periods and then to pre-combat and combat cycles that feature much less volume and higher intensity. These later periods feature training specific to the essential physical and nonphysical tasks required in the combat mission (see table 5-1).

Table 5-1. Training periods

Period	*Characteristics*
Base	High volume, low intensity training
Build	Moderate to high volume training at high intensity
Taper / Peak 1	Low volume training at high intensity and high levels of skill
Combat / Peak 2	Peak levels of skill with low levels of volume; for example deployment
Recovery	Reconditioning after prolonged absence from H2F System or as a deload after Peak 2

H2F holistic health and fitness

INTEGRATED PERIODIZATION

5-13. Integrated periodization allows the coordinated inclusion of multiple domains of readiness into multiple phases of a Soldier's physical training program. This approach allows better management of the training load required to optimize performance and control the fatigue, injury risk and misconduct behaviors associated with high operational tempo and high physical and nonphysical demands (see table 5-2). Integrated periodization prepares Soldiers in ways similar to high-performance, competitive athletes who also have to sustain peak fitness over athletic careers that span several decades.

Table 5-2. Features of training periods by domains of readiness

	Base (4–12 weeks)	*Build (4–8 weeks)*	*Peak 1 (2–3 weeks)*	*Combat / Peak 2 (2 weeks +)*	*Recovery (4–8 weeks)*
Physical	High volume Low intensity General strength, endurance and movement skill Needs assessment	Moderate to high volume High Intensity Specific strength, endurance and movement skill	Low volume High intensity High skill	Peak skill Low volume Multi-hour, day, week or month operations	Active rest Physical rehabilitation Goal assessment
Nutritional	Needs assessment Periodized energy and macronutrient intakes for body composition Energy availability Education for strategic timing of nutrient intake around training sessions Macronutrient availability training to stimulate metabolic efficiency	Energy intake adapted to changes in training Specific support for key sessions or environmental conditions (heat, cold, altitude) Body composition refinement Practice of field training, operational or combat nutritional strategy	Energy intake adapted for high intensity training to avoid weight gain Monitoring for optimal body composition prior to combat	Support or fueling for combat including recovery between varying lengths of engagements and patrols and varying environmental conditions Nutrition supplementation practices Nutritional strategies for travel across multiple time zones	Goal assessment Nutrition adapted for light activity levels Minimal weight gain Elimination of supplements and ergogenic aids and performance enhancers Active nutrition for recovery or rehabilitation

Table 5-2. Features of training periods by domains of readiness (*continued*)

	***Base* (4–12 weeks)**	***Build* (4–8 weeks)**	***Peak 1* (2–3 weeks)**	***Combat / Peak 2* (2 weeks +)**	***Recovery* (4–8 weeks)**
Mental	Needs assessment Purposeful motivational skill training Biopsychosocial pain control skill training Values-based self-assessment Technique practice (mental rehearsal, arousal control, deliberate breathing)	Perception work Video biofeedback for physical and physiological control Daily self-awareness log	Optimal arousal Concentration or focus Maximized emotional self-management Occupational and combat-specific mental rehearsal	Maximal trust, confidence and adaptability Written combat coping plan Spiritual justification self-talk Mindfulness (See Chapter 13)	Goal review and new goal setting Deliberate, effective re-evaluation of self, self-identity Counseling to mitigate or treat posttraumatic stress Reachback or counseling to review, accommodate, assimilate experiences
Spiritual	Needs assessment Understand the spectrum of options that individuals have to observe free exercise of spiritual fitness or not Emphasize basis or basics of spiritual fitness Rehearse individual spiritual fitness practices	Refine individual spiritual fitness practices to build individual strength. Understand shared practices to build mutual respect and group cohesion	Sustain group and individual spiritual fitness practices Review spiritual fitness topics before and after stressful training events	Support unit members spiritual fitness needs in challenging and stressful conditions	Goal assessment Self-assessment Repair spiritual fitness
Sleep	Needs assessment Appropriate sleep to maximize base period training adaptations May involve withholding sleep to maximize adaptation	Practice of field training, operational or combat sleep strategies Specific sleep strategies to maximize absorption of training and improve recovery	Increased sleep to maximize recovery from previous build period and the high-intensity training of the taper period.	Implementation of sleep strategies to manage recovery and preparation for travel, jet lag and high operational load	Goal assessment of short and long-term sleep strategy—what worked?

5-14. The training period is best developed by identifying the objective (deployment, field training, or test for example) and working back from that point. The pattern of preparation to reach that goal can then be broken down into commonly used periods—base, build, peak 1, combat and peak 2, and recovery. Foundational abilities are maintained across these periods while each new period builds on the previous ones. Each domain is integrated in order to reach optimal readiness as the objective nears. For example, nutritional readiness manages the intake of calories in each period to match the energy expenditure of that period, knowing in advance what the ideal body weight is for optimal performance during the mission.

5-15. Strict adherence to the periodized approach should not drive training. The prescription of periods should not be so rigorously enforced that Soldiers adhere to the schedule above all else.

5-16. Effective H2F performance teams and Soldiers prepare to adapt readiness training in the light of new training data and new mission sets. Situation-specific, individualized training accounts for the Soldier's own strengths and vulnerabilities. Like an athlete with specific position skills, the individual Soldier may respond to stress by recruiting a range of biological, sociological, and psychological (known as BSP) skills. These significantly influence physical training adaptations. If physical and nonphysical stress exceeds these skills, the Soldier and leaders should anticipate degradation in performance and medical readiness. Responding will require the insight of the H2F performance team and the modification of the periodized plan.

BASE

5-17. This is the period when the basic abilities of endurance, strength, speed, and movement skill are emphasized. This period is the longest of all the periods lasting up to twelve weeks. As most training in this period is relatively low intensity, it may be predominate in Soldier populations that do not have any pending primary missions, deployments, or high-intensity schooling.

BUILD

5-18. This is the four to eight week period when the abilities from the base period are built upon with higher intensity and increased volume of training. Training effort begins to mimic the primary goal or mission and the period ends with a simulation of the mission or a test. Leaders might implement a FTX or a practice ACFT.

PEAK 1

5-19. This is the two- to three-week period immediately before a primary mission when leaders deliberately reduce training volume while maintaining or increasing the intensity. This period is designed to create a peak level of physiological and psychological readiness while reducing the potential for injuries and stagnation. Maximum effort testing or mission simulation is appropriate during this period. Recovery from the most intense sessions of the training will take longer; therefore, the volume of training may be reduced by 50 percent when compared to the later weeks of the build period.

COMBAT AND PEAK 2

5-20. This is the two-week to multi-month period of the primary mission or highest intensity training when the goal is to reach peak levels of readiness and sustain these levels for the duration of the mission or training event. Arriving fresh and ready to perform requires focused attention on recovery during this period. Training mistakes that lead to illness and injury during this period become more critical since time before the primary mission is reduced and will therefore lead to a degradation in readiness.

RECOVERY

5-21. This is the period of four to eight weeks when the Soldier is in recovery from the primary mission. It is characterized by low workloads and general adaptation and recovery. This period precedes a return to the base period and is where recovery occurs that allows the absorption of higher volumes and intensity of training later in the macrocycle. In the Soldier lifespan, this would equate to the FSP period as the civilian begins the physical and mental transition to becoming a Soldier. It would also be the period of recovery after a deployment, injury, or illness or following a demanding functional course, such as Ranger School.

5-22. Low volume and easy-to-moderate intensity endurance exercise is designed to improve aerobic endurance. Movement skill training is developed through shorter Running Drills and strength training sessions. Total body strength is improved through various resistance training modalities (body weight, medicine ball, landmine, suspension training, and free weights) that target muscular endurance. Maximal effort testing and training should be delayed until later in the base period to avoid overtraining, illness, and injury.

Integrated Periodization

Integrated periodization allows the coordinated inclusion of multiple domains of readiness into multiple phases of a Soldier's H2F program. This approach allows better management of the fatigue and injury risk associated with high operational tempo and high physical demands. Each period emphasizes different levels of volume, intensity, frequency, and time for training. Physical and nonphysical domains of readiness can be integrated and balanced to train the whole Soldier.

Chapter 6

Program Design

Program design is completed by H2F performance teams and approved by the unit's command. The design must address the unit's METL in accordance with the commander's guidance. The program must be designed to assist Soldiers with their individual performance needs. Individualization is the principle that drives programming. The training cycle is dictated by an individual needs analysis and by follow-up assessments of the Soldier's training objectives, performance level, proximity to combat, and ability to recover.

SOLDIER ASSESSMENT

6-1. There is no single unified assessment that works for every Soldier. Designing a program will depend on the current status of the Soldier and an evaluation of the physical and nonphysical demands of his or her job. At a minimum, the assessment includes movement analysis, physiological analysis, training status, physical testing and injury screening, nutrition strategies, sleep history, spiritual needs, and mental readiness.

COMPONENTS OF PHYSICAL FITNESS

6-2. Fitness is often broken down into and measured by commonly accepted parts often labeled components. These components have evolved with advances in exercise science and technology. The H2F System's physical readiness training enhances the components of physical fitness and measures them in the OPAT and ACFT. Higher raw scores due to improved performance on the ACFT give commanders information about the absolute capacity of each of their Soldiers' components of fitness. Leaders who know about fitness components understand how to regulate and apply training intensity. Soldiers need to train across all components to meet an infinite range of operational challenges and physiological demands.

STRUCTURAL REQUIREMENTS

6-3. Structural requirements are the physical and cognitive characteristics that provide the foundation for increased work capacity. They allow work capacity to increase through regular systematic participation in physical training that creates a healthy body composition, optimal weight to height ratios, strong bone density, good static flexibility and balance, quick reaction time, and perception. In short, Soldiers need these structural requirements to start and complete more work. Without structural integrity, training cannot commence or proceed. Table 6-1 on page 6-2 lists structural requirements.

PHYSIOLOGICAL CAPACITY

6-4. The H2F System is designed to progress a Soldier through regular and progressive training that builds movement lethality and mental toughness. Soldiers should aspire to achieve their absolute best. Some may achieve world-class performance levels and will inspire others to do the same, but it is the maximal physiological capacity (strength and endurance) of the whole formation that primarily concerns the commander, not the exemplary performance of a single Soldier.

6-5. A lift that requires movement of 150 pounds is relatively easy for a Soldier who can carry 350 pounds—his or her absolute workload. This high level of strength allows the Soldier to use relatively less effort to complete the task so that he or she can conserve energy for next effort. That same lift is harder and much more intense for someone whose absolute workload is 200 pounds. As relative work capacity approaches a Soldier's absolute workload, the risk of injury is much higher. Leaders have to differ—

individualize—the training program to improve absolute workload to avoid injury. Commanders who understand and apply the concepts of absolute workload and relative workload can better direct their H2F personnel and align resources to meet their units' missions.

Table 6-1. Structural requirements

Structural Requirement	*Description*
Agility	The ability to bend, rotate and twist in the frontal, transverse and sagittal planes and use that ability to change direction.
Coordination	The accuracy and speed of limb and trunk movement.
Dynamic balance	The ability to move under control at speed and with varying load.
Kinesthesia	The perception of the body's position in space during movement.
Pace	The ability to set the correct speed of an activity to manage fatigue.
Load tolerance	The ability of the skeletal system to bear weight.
Flexibility	The range of motion across single or multiple joints that allows the body to be positioned for optimal movement.
Static balance	The ability to maintain a stable position over a base of support.
Body composition	The percentage of lean muscle and other body tissues.
Bone density	The thickness and quality of the bone that provides its strength.
Perception	The understanding of correct technique and effort that builds skill.
Frontal plane	Divides the body front and back.
Transverse plane	Divides the top and bottom.
Sagittal plane	Divides the body left and right.

PHYSICAL COMPONENTS

6-6. Physical readiness includes the following components:

- Muscular strength.
- Hypertrophy.
- Muscular endurance.
- Aerobic endurance.
- Anaerobic endurance.
- Power.

6-7. Muscular strength is the amount of force a muscle or a group of muscles can generate. Examples include a Flexed Arm Hang for fifteen seconds, one repetition of a Bench Press at maximum weight, or extracting a casualty from a turret. The gold standard for measuring muscular strength is the one repetition maximum. It is the heaviest weight a Soldier can lift and is best calculated with weight training exercises such as the Bench Press, Squat, or Deadlift. High levels of strength that support the mission can certainly be achieved without lifting this amount of weight. In fact, leaders need to use the one repetition maximum approach sparingly. Leaders can use the repetition maximum formula (paragraph 4-25) to calculate one repetition maximum without complete a one repetition maximum testing. The heaviest weight a Soldier can lift 3 times or 10 times would be a three repetition maximum or ten repetition maximum, respectively.

6-8. Hypertrophy is increase in muscle size, which can be achieved through a blending of muscular strength and muscular endurance training. When Soldiers use moderate to heavy loads (65–85 percent of one repetition maximum), a greater number of repetitions and a variety of speeds, they are building muscle mass.

6-9. Muscular endurance is the ability of a muscle or muscle group to repetitively perform work for an extended period. Examples include lifting duffel bags onto truck beds, loading 155-millimeter rounds, or performing Climbing Drill 1. Muscular endurance, in combination with aerobic and anaerobic endurance, is required to tolerate carrying progressively heavier loads over greater distances on uneven and steeper terrain and at faster speeds.

6-10. Aerobic endurance is the ability to exercise large muscle groups for sustained durations of time longer than a few minutes. At this level of effort, slow-twitch muscle fibers use oxygen to produce energy while conserving glycogen and glucose through greater metabolism of fat (fatty acids or triglycerides) for energy needs. Examples include long-distance triathlons, long Foot Marches, patrols, and Unit Formation Runs. Although aerobic training is low intensity, high volumes of aerobic training without the proper progression and balance of strength training can cause overtraining. High loads carried during aerobic activity tend to shift the fitness component from aerobic to anaerobic if the same pace is maintained. Soldiers, first the untrained and then the trained, will begin to slow down when carrying heavier loads. This significantly decreases the aerobic training effect and increases injury risk.

6-11. Anaerobic endurance is the ability to tolerate short bursts of high-intensity activity. At this level of effort, fast-twitch muscles are the greatest contributors. Examples include moving rapidly with a heavy ruck, sprinting, heavy lifting, and combatives. Fuel for this level of intense exercise is primarily derived from glycogen. Anaerobic endurance is finite and therefore associated with complete fatigue. High levels of anaerobic endurance are essential for carrying heavy loads.

6-12. Power is the application of strength over time. Muscular power is a result of both the strength and speed requirements of an activity, which is also described as the rate of work per unit of time. The duration of power training is in seconds, or fraction of seconds, and is characterized by maximal effort. Power workouts include five to six repetitions of short, explosive work against high levels of resistance followed by long rest intervals—broad jumps, heavy sled drags, or the Seated Power Throw. Other examples that require power include casualty evacuation or pushing a vehicle stuck in mud.

TRAINING SESSIONS

6-13. Army training is organized into deliberate actions, or training sessions, that clearly define goals as well as the activities required to accomplish them. H2F programs follow the same logic, incorporating proven civilian and military training strategies and approaches to both physical and nonphysical domains of H2F.

STRATEGIES

6-14. Physical readiness training has evolved over decades based on military and civilian approaches to physical fitness. This historical record as well as contemporary concepts influence H2F programming. As described in the preceding chapters, H2F programs are designed to meet the readiness goals of the Soldier, the unit, and by extension the Army. While there are parallels to civilian fitness programs in the H2F System, the combat specificity and hazards of the profession demand a different approach. This approach is called readiness. This approach integrates legacy training concepts such as—

- Low-intensity steady state: once intensity is achieved, the exercise can continue as long as the Soldier can maintain his or her heart rate within a prescribed zone and energy continues to be available.
- Pace/tempo training: exercising at lactate threshold, lasting between twenty and thirty minutes. Intermittent pace/tempo is similar to interval training.
- Circuit training: a combination of resistance and aerobic training activity used for active recovery sessions.
- Cross training: rotating different exercises throughout the week or rotating different exercise modes in a training session.
- Interval training: short periods of high-intensity endurance training separated by longer rest periods.
- Push-pull: strength training sessions that alternate between agonist and antagonist muscles exercises such as chest and upper back muscles.
- Upper-lower: strength training sessions that alternate between upper body and lower body exercises such as Squat and Bench Press.
- Superset: strength training sessions that work two opposing muscle groups.

EXERCISE SELECTION

6-15. Depending on the phase of training, leaders select exercises based either on the collective needs of the unit or on the needs of the individual Soldier. Exercise selection for strength training should include upper body pushing, upper body pulling, lower body pulling, lower body pushing, resisted trunk rotation, and loaded carry. Once fundamental movement competency has been achieved in the initial phase through instruction and training on the Strength Training Circuit, Climbing Drills, and Guerilla Drills, Soldiers will be properly prepared to progress to heavier free weights in the sustaining phase.

6-16. Lifting routines in the H2F System use Squat, Deadlifts, and Bench Press as core exercises with emphasis on precise movement technique over the number of repetitions completed. These free weight core (known as FWC) exercises are programmed to target large muscle groups across multiple joints. These exercises are selected to support specific occupational tasks, especially those that have a high physical demand. A Free Weight session may include a weight goal for a core lift that is the primary goal of that session. Soldiers will be properly prepared to progress to heavier load, higher volume and increased intensity free-weight training in the sustaining phase.

6-17. Assistive exercises for resistance training target single muscles or limbs, or small muscle groups that move single joints. These free weight assistive (known as FWA) exercises complement and prepare for the Core Free Weight sessions. They involve lighter weight than the Soldier's maximum capacity and a larger number of repetitions.

6-18. Endurance activities are selected based on the results of aerobic and anaerobic tests. Aerobic tests include the Interval Aerobic Run and the 2-Mile Run. Anaerobic activities include agility tests, sprints, and shuttle runs.

6-19. There are 38 Drills with a total of 201 exercises in the H2F physical training domain (see table 6-2). Modifications in weight, numbers of repetitions, distances and range of motion provide an even greater variety to accommodate the widest range of Soldier physical readiness. See ATP 7-22.02 for the standards, modifications, and illustrations for each drill.

TRAINING FREQUENCY

6-20. Training frequency, the number of training sessions over time, depends on intrinsic factors including age, training experience, and health status of each Soldier. The H2F performance team also considers extrinsic factors. These include time available to train, the planned intensity of the session, occupational tasks, unit mission, the environment, nutrition options, and access to H2F resources. Soldiers can change or modify some factors such as nutrition and sleep habits. A six-day training schedule with one to two sessions per day that is appropriate for one group of Soldiers may not be appropriate for another. Leaders will have to modify the schedule to accommodate intrinsic and extrinsic factors. In some cases the factors that are modifiable will have to change in order to optimize performance.

6-21. This doctrine has schedules for Soldiers who can tolerate almost daily training. This frequency is high. Therefore, recovery days are programmed with shorter sessions, lower RPE goals, and less intense drills and exercises. Most of the Army's conventional force is categorized as able to tolerate moderate levels of physical tasks associated with each MOS. Units with significant or heavy levels of physical tasks associated with MOSs, such as combat arms, use significant or heavy training—higher intensity and higher frequency.

EXERCISE ORDER

6-22. The order of exercises and activities in a training session focus on properly preparing for the main activity of the session before performing proper recovery from those activities. The duration of the session depends on time available to train, the assessment of the Soldier, and the targeted component of fitness. For example, in a session focused on hypertrophy, Soldiers should try to maintain a 1:1 ratio of preparation and recovery to the activity. For example, in a one-hour session, preparation and recovery lasts for fifteen minutes each and the main activity lasts for thirty minutes. In a thirty minute session focused on muscular strength, the preparation for a close-to-maximum effort takes a larger proportion of the session, perhaps twenty minutes before the main activity. A 3 repetition maximum Bench Press set uses ten minutes of a thirty-minute session. Post-session recovery would have to happen throughout the rest of the day.

Table 6-2. H2F drills

Drill (Exercises)	*Physical Component*
Preparation Drill (10)	Muscular Endurance
Four for the Core (4)	Muscular Endurance
Shoulder Stability Drill (5)	Muscular Endurance
Hip Stability Drill (5)	Muscular Endurance
Conditioning Drill 1-3 (20)	Anaerobic Endurance
Suspension Training Drill 1 and 2 (10)	Muscular Strength
30:60s and 60:120s (2)	Anaerobic Endurance
Guerilla Drill (3)	Anaerobic Endurance
Climbing Drill 1 and 2 (10)	Muscular Strength
300 Meter Shuttle Run (1)	Anaerobic Endurance
Military Movement Drill 1 and 2 (6)	Aerobic Endurance
Medicine Ball Drill 1 and 2 (10)	Muscular Strength
Strength Training Circuit (10)	Power
Running Drill 1–7 (45)	Aerobic Endurance
Landmine Drill 1 and 2 (10)	Muscular Strength
Release Run (1)	Aerobic Endurance
Terrain Run (1)	Aerobic Endurance
Hill Repeats (Up and Down) (2)	Anaerobic Endurance
Recovery Drill (8)	Muscular Endurance
Preventive Maintenance Checks and Services (6)	Muscular Endurance
Foot March (1)	Aerobic Endurance
Free Weight Core and Assistive (18)	Power
Army Water Survival Training (7)	Muscular Endurance
Pregnancy and Postpartum (6)	Muscular Endurance

PREPARATION

6-23. Preparation includes the Preparation Drill, Stability Drill, Military Movement Drill, and other dynamic warm-up activity that appropriately prepares Soldiers for more intense physical activities. The exercises use body weight, on-ground and off-ground (jumping) activity, and all three planes of movement. Soldiers conduct exercises at a cadence that permits full range of movement, precise execution, and gradual increase in heart rate and RPE. Paying attention to the timing, intensity, repetitions, and range of motion during preparation is the best way to get ready for the main activities. If the main activity requires specific physiological demands, then Soldiers should use less intense, assistive movements, and exercises in preparation.

ACTIVITIES

6-24. Physical readiness activities address specific physical training goals across all components of fitness. They take up most of the time in the session. Weekly schedules alternate days of endurance-focused and strength-focused activities. To balance both endurance and strength activities, schedules cover at least ten days. Chapter 14 provides sample multi-week schedules to illustrate the training required for physiological adaptation and periodized training approaches. In the future, platforms provide modifiable physical training schedules that integrate the other domains of readiness. These serve to guide Soldiers remote from H2F personnel and facilities for ten days or for a single microcyle.

6-25. When the main activity of the session focuses on strength training, the order of the exercises are—

- Power exercises before multi-joint exercises.
- Multi-joint before single joint exercises.
- Larger muscles before smaller muscles.

RECOVERY

6-26. Recovery includes all the rest intervals between exercises and the time between exercise sessions. Recovery includes walking after performing running activity and continues with the performance of the stretches in Recovery Drill or the checking for joint stiffness and soreness in preventive maintenance checks and services (PMCS). See ATP 7-22.02 for exercises. The Central Army Registry website provides CIMT demonstration drills at https://atiam.train.army.mil/catalog/dashboard. The Army Combat Fitness Test website at https://www.army.mil/acft/ provides detailed descriptions and instructional videos for each testing event.

INTENSITY OF TRAINING

6-27. Using RPE expediently gauges the intensity of effort in strength and endurance training programs. RPE describes how intense the workout should feel as a Soldier completes it. It allows exercise leaders to properly dose intensity across the training session and period. Sticking to the recommended levels of perceived exertion allow effort to be more properly dosed across a training period to avoid overtraining and injury. RPE works on a 10-point scale with the higher rating representing more intense effort. Table 6-3 includes another expedient measure of effort that applies in strength training—repetitions in reserve (known as RIR). This number represents how many repetitions of a movement or lift a Soldier could perform before having to stop. Easier efforts have higher repetitions in reserve. A one-repetition maximum lift, by definition, should have a repetitions in reserve of zero—the Soldier should be unable to perform any more repetitions. Prescribed RPE and repetitions in reserve let a Soldier know what effort is required in advance of the workout so that he or she can better prepare mentally.

Table 6-3. Rating of perceived exertion and repetitions in reserve scales

RPE	*Intensity*	*Activity Description*	*RIR*
1	No effort at all	Sitting, lying down or stretching	20
2	Extremely little	Intermittent walking with little effort	15
3	Very easy	Sustained walking, light carrying—could maintain the effort all day	10
4	Easy	Marching, running slowly, light lifting—could maintain the effort for hours	8
5	Moderate	Running long, ruck marching—breathing heavily as challenge increases	6
6	Somewhat hard	Sustained circuit training, running above aerobic endurance—feeling it	4
7	Hard	Short of breath—using short sentences to speak. Approaching maximum weight.	3
8	Very hard	Pushing limits of weight, pace and distance—cannot maintain the pace	2
9	Very, very hard	Close to maximum—can barely breathe to speak	1
10	Maximum effort	Reached maximum weight, reps, distance or pace—cannot do any more	0
RIR repetitions in reserve		RPE rating of perceived exertion	

STRENGTH TRAINING LOAD, REPETITIONS, SETS AND REST PERIODS

6-28. Training load, sometimes called training stress, refers to either the weight lifted or the amount of work performed over time. As load accumulates across a short-term of one session or one day (acute load), the physical and nonphysical stress on the Soldier builds. This longer-term or chronic load occurs over days or weeks and has to be monitored and adjusted to include all other physical activity in the Soldier's schedule in order to avoid overload.

6-29. If Soldiers use Free Weight exercises, the Strength Training Circuit, Strength Training Machines, Landmine Drills, and Medicine Ball Drills, the amount of load depends on the component of fitness they are targeting—muscular endurance, muscular strength, hypertrophy, or power. The load for strength training is described as a percentage of the maximum weight a Soldier can lift one time—his or her one repetition maximum. As a general rule, starting a strengthening program with an emphasis on muscular endurance or hypertrophy will safely develop a Soldier's foundational strength and allow progression to heavier training loads (see table 6-4).

Table 6-4. Training load as a percentage of one repetition maximum for strength training goals

Goal	*Load*	*Repetitions*	*Sets*	*Rest*	*Recovery*
Muscular endurance	60%	12 or more	2 to 3	Up to 30 secs	24 hours
Hypertrophy	70–85%	6 to12	3 to 6	30 to 90 secs	48 hours
Muscular strength	85–100%	Up to 6	2 to 6	2 to 5 mins	48 hours
Power (repeat efforts)	90%	3 to 5	3 to 5	2 to 5 mins	48 hours
Power (single effort)	80%	1 to 2	3 to 5	2 to 5 mins	48 hours
mins minutes			secs seconds		

6-30. Assigning rest during sets of strength training exercises depends on the fitness component being targeted, the percent of maximum weight being lifted (one repetition maximum), the size of the muscle group, the number of joints and regions of the body being exercised, the period of training, and the current physical readiness of the Soldier. In general, the heavier the weight, the fewer the repetitions, and the longer the rest interval. The amount of rest between sets drives the onset of fatigue, and therefore is an important consideration when performance degrades or when injury occurs. In general, the principle of precision suffers in the presence of fatigue.

ENDURANCE TRAINING LOAD

6-31. The type of endurance training chosen is driven by the targeted type of cardiovascular fitness component. Endurance training load is built aerobically or anaerobically.

6-32. Aerobic endurance is built with sustained activity of more than 3 minutes at submaximal levels of intensity. Soldiers can sustain training at this pace for minutes or hours. This type of training recruits slow twitch or type I muscle fibers and is the primary means of recruiting fat for fuel. Over time, this type of activity reduces the Soldier's lean muscle. Because common Soldier tasks and HPDTs require more power and strength than endurance, sustained endurance training should not comprise the majority of a Soldier's physical training program.

6-33. Anaerobic training recruits type II muscle fibers and uses glucose (sugar) for fuel from 30 seconds to three minutes. During this time, glycolysis predominates over oxidative phosphorylation. This type of training is for very short bouts of effort. Leaders can identify the crossover when a Soldier begins to slow down after sprinting at maximum effort beyond 150 meters.

6-34. The intensity of training heavily impacts the ability to recover. For example, following the Army Ten Miler, an event many Soldiers train intensely for, it may take three to five days to recover before re-restarting a training program. Besides RPE, Soldiers can measure the endurance training load by using devices such as power and heart rate monitors. Power monitors often come with road and mountain bicycles and stationary bikes. Newer chest and wrist monitors provide running power. Although appropriate in some special programs and laboratory settings in the Army, they are not feasible for training large groups. Other biometric devices or heart rate monitors with wrist or chest-straps provide simple ways to track intensity.

6-35. When Soldiers monitor heart rate, they can control the level of effort to keep the heart rate at a desired level. These levels, or zones, do not tell much about movement skill but can indicate which energy system is being utilized. Table 6-5 lists targeted heart rate zones and their associated physical fitness components.

Table 6-5. Endurance heart rate zones, fitness components, and levels of effort

Zone	*% HRmax*	*Fitness Component*	*Level of Effort*	*% of Total Endurance Training*	*Distance / Time*
5	90–100	Anaerobic explosive speed	Maximum	10	200 m / 0:30
4	80–90	Anaerobic endurance	Very Hard	30	400 m / 1:15
3	70–80	Aerobic endurance	Hard	10	800 m / 3:45
2	60–70	Aerobic endurance	Moderate	40	1MR / 7:30
1	50–60	Active recovery	Easy	10	2MR / 20:00

HRmax heart rate maximum m meter MR mile run

6-36. Resting heart rate monitoring can be a good way to measure recovery period immediately after a workout and again the following morning. Consistent monitoring upon waking over several months is an easy way for a Soldier to know his or her state of recovery each day. Resting heart rate should be lower over time in well-trained Soldiers. Daily spikes above the normal range may be an indicator of overtraining or of the need to reduce intensity of the next session. Poor sleep, nutrition, hydration, and stress control will all negatively impact the daily results, causing the resting heart rate to increase.

6-37. Heart rate monitoring during endurance exercise depends not only on the measurement device, but also on knowing the target heart rate for the workout and unit training plan. Using the Karvonen formula, which is based on predicted maximum heart rate, a zone of 60–80 percent effort in a 30-year-old Soldier is between 138 to 164 bpm (see table 6-6). As with the monitoring of the resting heart rate, the best results often come from consistent self-monitoring and repeated testing over many months and years.

Table 6-6. Target heart rates using maximal heart rate formulas

30 year old Soldier with a RHR of 60 beats per minute has a target heart rate of 60% to 80% of age-predicted MHR
Karvonen Formula
220 - age - RHR = 220 - 30 - 60 = 130
MHR = 130 bpm
60–80% of 130 = 138 to 164 bpm
Target is 151 bpm

bpm beats per minute MHR maximum heart rate RHR resting heart rate

Program Design

Program design is completed by holistic health and fitness (H2F) performance readiness experts and approved by the unit's command. The design must address the unit's mission-essential task list (METL) in accordance with the commander's guidance. The program must assist Soldiers with their individual needs. Individualization is the principle that drives programming. The training cycle is dictated by initial needs analysis and follow-up assessments of a Soldier's level of development, ability to recover and training objectives.

PART THREE

Build

This part describes the details of each of the five domains used to build the physical and nonphysical training programs of H2F. The domains are physical readiness, nutritional readiness, mental readiness, spiritual readiness, and sleep readiness. It also discusses the special conditioning requirements.

Chapter 7

Physical Readiness

Physical readiness is a critical component of Soldier readiness, unit readiness, and Army readiness. Effective Soldiers can overcome ever-changing and complex challenges in both strategic and operational environments. They must possess the physical and nonphysical capabilities to fight and win in multi-domain operations. The chapter describes the principles of physical readiness, as well as the fundamentals of movement for the execution of Army physical training. Ruck marching, running and swimming serve as the foundations of physical readiness and enable Soldiers to perform their occupational tasks and endure the physical demands of combat.

PRINCIPLES OF PHYSICAL READINESS

7-1. The principles of physical readiness training are precision, progression, and integration. Effective Soldiers can precisely execute the program's exercises and drills. These Soldiers progress from physical proficiency in WTBD to being able to integrate those skills into tasks required for their MOSs and combat.

PRECISION

7-2. Precise movement depends on having the structural capabilities, proper flexibility, tolerance of extra weight, body composition, and the connection of the brain to muscles—motor patterns—that allow Soldiers to learn the standard and perceive the difference between correct and incorrect techniques. The quality of the movement is as important as the weight lifted, repetitions performed, or speed of the movement. Movement skill develops through the repeated execution and deliberate practice of foundational drills and exercises. Rehearsal using mental imagery can assist in refining precise movement patterns without the cost of physical exertion. The principle of precision ensures the development of perception and awareness of the body's position in space—kinesthesia—to improve training, testing, and battlefield performance. See ATP 7-22.01 for H2F testing, and ATP 7-22.02 for drills and exercises.

PROGRESSION

7-3. Progression refers to the proper dose of frequency, intensity, duration, and type of exercise required to overload the body without causing overtraining, plateauing, or reversal of fitness. The goal is to develop physical capacity to support the mastery of occupational and combat-specific tasks. Task analysis includes

the physiological demands of the task and potential performance and injury issues the Soldier might have. Proper progression of the weight, repetitions, speed, and variety of exercises builds from the initial phase to sustaining phase. Initial phase training creates foundational fitness that Soldiers use to safely progress from the sustaining phase to higher levels of operational physical capacity. It is important to remember that all movement skill requires consistent revisiting of the basics before and after progressing to higher levels.

INTEGRATION

7-4. The integration principle focuses on tasks and drills Soldiers perform that enable them to fight and win. The Army trains Soldiers and units to fight and win in combat using a specific list of WTBD. Warrior tasks are a collection of individual skills linked to a Soldier's ability to shoot, move, communicate, survive, and protect and treat. Examples include weapons training, tactical communications, urban operations, and first aid. Battle drills are group skills designed to teach a unit to react and survive in common combat situations. WTBD establish a minimum standard for all Soldiers independent of age, sex, and MOS. All commanders ensure that their Soldiers can execute all WTBD. Soldiers demonstrate this ability by regularly training and testing on the tasks to ensure they have been integrated into the Soldiers' skill sets.

7-5. Soldiers following this doctrine will become more physically fit, but it is not a prescription for recreational fitness or for fitness for fitness' sake. This fitness aims to develop physical capacity to support the mastery of MOS and combat-specific tasks. Once Soldiers reach high foundational readiness standards in the initial phase, they continue to build foundational fitness and METL-specific physical capabilities.

7-6. This doctrine integrates physical training with nonphysical training. Leaders consider the nonphysical domains integrating with the physical training plan. Training goals need to account for Soldiers' ability to physically and mentally perform in extreme environments of heat, cold, and humidity, and while carrying heavy personal protective equipment. Recovery between training sessions must also be trained, measured, and scheduled. Leaders also manage obstacles to goal achievement. For example, a unit will not gain much from having 24-hour access to a gym if an assessment of the unit's sleep readiness shows an average of below six hours per night. Similarly, if a unit readiness measure is a reduction in ABCP enrollees, then unhealthy fast food options in the unit's life support area contradicts that goal.

7-7. H2F drills and exercises balance different energy systems and components of fitness for each Soldier. That Soldier's movement skill and physical capacity create the unit's ability to deliver force. The Soldier's goal for readiness will include the demands of the MOS, the unit's METL, and the likely environmental, physical, and nonphysical challenges of the unit's deployment mission. The physical activities of combat may include more than those listed in WTBD and must be trained for. Examples include repeated forcible entries, quick pursuits, close combat, sustained mountain patrolling, and sustained load carriage.

7-8. A fully integrated Soldier can complete 16-mile ruck marches, load gun turrets, replace large tires, extract and evacuate casualties, move over and around obstacles, react to man-to-man contact, and load 155-millimeter rounds onto a bustle rack. Table 7-1 illustrates the integration of H2F physical training and test events into critical combat tasks. The training activity and the test events are reverse-engineered from the combat tasks. Therefore, H2F training takes care of those test events as well.

Table 7-1. Integrating combat tasks into physical training and testing

Combat Task	*Physical Movement*	*Physical Training Drill*	*Physical Test Event*
Casualty evacuation	Squat, lunge, flex, extend, rotate, walk, run, lift and carry	PD, 4C, CD1/2/3, GD, CL1 & CL2, STC, MB1 & MB2, LM1 & LM2, FW, MMD1 & MMD2, 30:60s, 60:120s, 300SR, RR, TR, HR, FM, RD	SDL, IAR, MDL, SDC
Casualty extraction	Pull, lift, carry, squat, lunge, flex, extend	PD, SSD, CD1/2/3, GD, CL1 & CL2, STC, FW, RD	MDL, SPT, LTK
Movement under fire	Run fast under load, jump, bound, crawl, push, pull, squat, roll, stop, start, change direction, and get up and down	PD, HSD, CD1/2/3, GD, CL1 & CL2, STC, FW, RUD1–6, MMD1 & MMD2, 300SR, 30:60s, 60:120s, TR, HR, RD	SLJ, IAR, HRP, SDC,
Movement over obstacles	March and run under load, jump, bound, high and low crawl, climb, crawl, pull, squat, jump, land, roll, stop, start, change directions, get up and down	PD, 4C, SSD, CD1/2/3, GD, CL1 & CL2, STC, FW, MMD1 & MMD2, RUD 1–6, 300SR, 30:60s, 60:120s, AGR, RR, TR, HR, FM, RD	IAR, HRP, SDC, LTK
Construct a fighting position	Squat, lift, carry, pull, push, flex, extend,	PD, 4C, SSD, CD1/2/3, GD, CL1 & CL2, STC, FW, RD	SDL, MDL, HRP, LTK
Assess and respond to threats	React to man-to-man contact: push, pull, run, roll, throw, land, manipulate body weight, squat, lunge, rotate, bend, block, strike, kick, stop, start, change direction, and get up and down.	PD, CD1/2/3, GD, CL1 & CL2, STC, FW, MMD1 & MMD2, RUD 1–6, 30:60s, 60:120s, TR, HR, RD	SPT, SDL, MDL, HRP, SDC
Navigate from point to point	March and run under load, jump, bound, high and low crawl, push, pull, squat, roll, stop, start, change direction, and get up and down.	PD, CD1/2/3, GD, CL1 & CL2, STC, FW, MMD1 & MMD2, RUD1–6, 60:120s, AGR, UFR, RR, TR, HR, FM, RD	SPT, SLJ, SDL, HRP, MDL, LTK, 2MR
Employ hand grenades	Run under load, jump, bound, high/low crawl, climb, push, pull, squat, lunge roll, stop, start, change direction, get up/down and throw	PD, CD1/2/3, GD, CL1 & CL2, STC, FW, RUD1–6, MMD1 & MMD2, 300SR, 30:60s, 60:120s, TR, HR, RD	SDL, HRP, MDL, SPT

Physical Training Abbreviations

4C	four for the core	HR	hill repeats	RUD1	running drill 1
30:60	30 second sprint: 60 second walk	HSD	hip stability drill	RUD2	running drill 2
60:120	60 second sprint: 120 second walk	LM1	landmine drill 1	RUD3	running drill 3
300SR	300-meter shuttle run	LM2	landmine drill 2	RUD4	running drill 4
AGR	ability group run	MB1	medicine ball drill 1	RUD5	running drill 5
AWST	Army water survival training	MB2	medicine ball drill 2	RUD6	running drill 6
CD1	conditioning drill 1	MMD1	military movement drill 1	RUD7	running drill 7
CD2	conditioning drill 2	MMD2	military movement drill 2	SSD	shoulder stability drill
CD3	conditioning drill 3	PD	preparation drill	STC	strength training circuit
CL1	climbing drill 1	PMCS	preventive maintenance checks and services	ST1	suspension training drill 1
CL2	climbing drill 2			ST2	suspension training drill 2
FM	foot march	RD	recovery drill	TR	terrain run
FW	free weight training	RR	release run	UFR	unit formation run
GD	guerilla drill				

Occupational Physical Assessment Test (OPAT) and Army Combat Fitness Test (ACFT) abbreviations

2MR	2-mile run	MDL	maximum deadlift (3 repetitions)	SDL	strength deadlift
HRP	hand-release push-up			SLJ	standing long jump
IAR	interval aerobic run	PWT	seated power throw	SPT	standing power throw
LTK	leg tuck	SDC	sprint-drag-carry		

RUCK MARCHING

7-9. This section illustrates how to develop a program to train for the occupational task of ruck marching. A combat arms unit preparing for dismounted operations during an upcoming deployment uses the following principles and template to develop a training approach. The four-week ruck marching program outlined in table 7-2 and table 7-3 uses the following considerations to develop the first mesocycle in a longer training schedule:

- Once per week progressive ruck march: progress one factor each week of either weight of the load, distance of the march, speed of the march, gradient of the terrain or roughness of the terrain.
- Loads above 30 percent of body weight should be increased with caution.
- Do not do long marches, endurance runs, or heavy leg strength workouts on consecutive days.
- Strength training performed with free weights and strength training machines (STMs) at least three days per week, moving from high repetitions (12+) with less weight (muscular endurance) and RPE of 6–7 to lower repetitions (3–6 reps) with heavier weight and RPE of 8 and working up to 3 sets per core exercise (Bench, Deadlift, Squat) and complementary exercises (for example Overhead Push Press, Lat Pull Downs, Leg Press).
- Aerobic endurance training with progressive increases in distance (running 20-30 minutes based on RPE, pace, and or heart rate) and running skill drills, along with interval training with progressive decreases in rest (60:120s progressing to 30:60s; or 2 x 300-meter shuttle run [known as 300SR] in 3 minutes progressing to 4 x 300-meter shuttle run in 1 minute).
- Adhere precisely to pace, effort, and movement goals with each road march and across each session.
- Progressively integrate terrain, loads, and distances that replicate conditions likely to be encountered in combat environments. To do this—
  - Vary the time of day of the march and training sessions.
  - Replicate the nutrition and hydration plan (timing and choices) available in combat.
  - During the ruck march, include short, unplanned physical activity such as 3–5 second rushes, Shoulder Stability Drill, or 5 repetitions of the 8-count T Push-up (to replicate getting into and out of prone firing positions).
  - Change directions or move to cover.
  - Skip rest breaks.
  - Rotate or remove squad leadership.
  - Incorporate proper nutrition and sleep strategies to be able to consistently train.

Table 7-2. Ruck marching training template

	Monday	***Tuesday***	***Wednesday***	***Thursday***	***Friday***	***Saturday***	***Sunday***
Week 1	Upper body push	Rest	Upper body pull	Aerobic endurance	Lower body push/pull	Rest	Aerobic endurance
Week 2	Ruck march	Rest	Loaded carry	Aerobic endurance	Resisted trunk rotation	Rest	Aerobic endurance
Week 3	Upper body push	Rest	Upper body pull	Aerobic endurance	Lower body push/pull	Rest	Aerobic endurance
Week 4	Ruck march	Rest	Loaded carry	Aerobic endurance	Resisted trunk rotation	Rest	Aerobic endurance

Table 7-3. 20-week ruck marching progression

Week	*Recommended Load*	*Distance (miles)*	*Time Standard*	*Pace*
1-2	15–20 lb	2	35 min +/- 5 min	3 mph
4	25–30 lb	4	65 min +/- 5 min	3 mph
6	30–35 lb	4	90 min +/- 5 min	3 mph
8	50–60 lb	6	None	3 mph
12	60–70 lb	6	None	3 mph
16	60–80 lb	6	None	3.5 mph
20	60–80 lb	8	None	3.5 mph
lb pounds		mins minutes	mph miles per hour	

RUNNING SKILL

7-10. Running instruction has challenged the U.S. Army for the last decade. It has been one of the most common concerns of Soldiers leaving IMT. Numerous individual variations in running skill exist, however, some common principles can help Soldiers run better and reduce injuries. Various running instructional models and programs exist. This publication and ATP 7-22.02 use the Pose Method® as a method for the running skill program and drills. Scientific literature does not explicitly support a single running style that is optimal for all individuals. Many other running technique instructional methods exist through commercial organizations and sanctioned governing bodies. Instructors can use other techniques they deem more suitable for the population they are instructing.

7-11. Soldiers who need foundational running skill or who want to improve their running performance may benefit from standardized drills that develop running skill. Soldiers understand that standards and skill development are key factors in the optimal performance of any physical readiness activity and any Soldier task. Running is no different. The amount and variety of running activity are controlled in the H2F System to provide time to improve running and other movement skills, and to prevent misuse injuries that arise from poor skill combined with too much run frequency and intensity. A balanced approach applies to running just as it does to the other skills across the H2F System. Commanders who control the amount of running can spend more time developing strength and the other skills that further enhance readiness domains. Figure 7-1 depicts the discrete elements of running skill: the dominant position/pose, fall and pull.

Figure 7-1. Running skill—the dominant position/ pose, fall, pull

7-12. In the H2F performance team, MFTs develop training plans and lead physical training sessions that incorporate Running Drills. MFTs teach the running skill in the classroom as well as on the training field.

THE RUNNING PARADIGM

7-13. Paragraphs 7-14 through 7-25 describe the paradigm behind the Running Drills. A paradigm describes a way of thinking about an issue or problem. It provides a useful way to analyze and understand a problem and usually includes common language or terms. The running skill paradigm described in figure 7-2 supports the concept that leaders can teach running skill as a technique using drills and exercises.

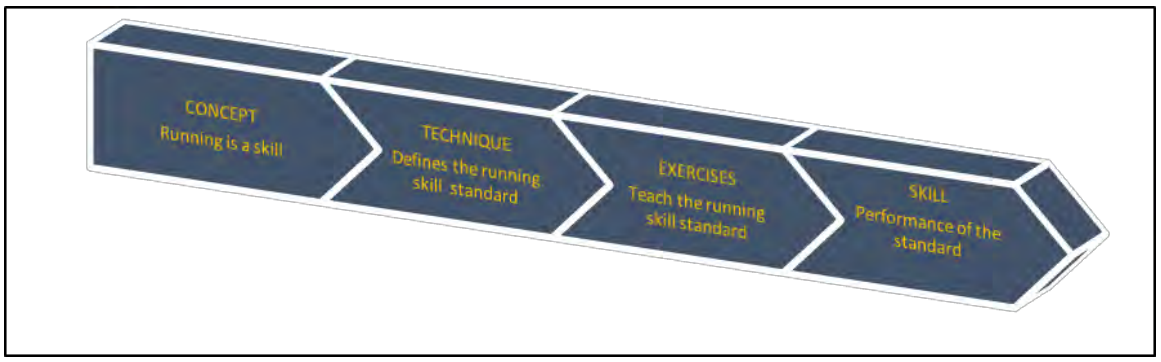


Figure 7-2. The running skill paradigm

7-14. Just like any skill position in a team or individual sport (swimming, baseball, soccer, cycling), any lift in the gym, Soldiers develop technique—the applied skill of the movement—over time by purposeful and deliberate practice. Movement skills such as switching from rifle to pistol or close quarters combat requires a skilled coach as well as repeated practice. High-level skill in running is no different. Running drills and exercises aim to progressively build and correct running skill. They build the physical capacity and mental awareness of the position of the body while running.

7-15. Gravity is the arbiter of movement. Although not seen, Soldiers can see and feel its effects. They stay at rest because of it and lose balance because of it. All forces on Earth are derivatives of gravity. As a force of nature, it cannot be overcome. Gravity is the one force that allows Soldiers to go from standing still to moving forward. As a pencil falls from a desk, a rocket arcs towards its target, and a Soldier trips through the Sprint-Drag-Carry, gravity is predominant.

7-16. During running, as the body moves, it rotates around its point of support on the ground—where the foot meets the ground. The angle between the body starting position as the foot contacts the ground and the new angle of the body as the foot leaves the ground can be measured. The greater the angle, the greater the speed of the movement. Using classical geometry and mechanics, this angular velocity can be translated into forward or linear velocity in two equations. In the first, $v = r\omega$ where v is linear velocity, r is the radius of rotation (leg length), and ω is the angular velocity of a given rotation. In the second equation,

$$\omega = \frac{\theta}{t}$$

where θ is the angle of deviation of the body from the vertical and t is the time of passing through that angle.

7-17. Therefore, $v = r\,\theta/t$. The Soldier's running speed depends on his or her angle of fall—the greater the angle, the greater the speed. Keeping the center of mass over and then moving it ahead of the base of support requires maintaining the dominant running position, which requires muscles to be strong enough to maintain the body's position during the fall. Changing support from one foot to the other requires an active pull of the foot from the ground to increase the speed of movement through the fall angle. Running Drills increase the specific strength required to do this. If the fall angle is greater, so will be the acceleration and subsequent speed of the body over the ground. Acceleration is $a = g \cdot \sin\theta$, where g is gravity, and sin is sine (ratio of the shortest to the longest sides of the angle). A larger angle generates an increase in acceleration. Figure 7-3 illustrates the body's translation of angular velocity into horizontal velocity.

Figure 7-3. Translation of angular velocity of the body into horizontal velocity

7-18. In the case of human movement, gravity has to be worked with. When standing still, muscles support body weight, maintain a state of rest, and balance under the influence of the downward force of gravity. The muscle works to maintain the balanced position or to reposition the body to be able to change support. Unless an external force acts upon the body's weight or muscles reposition that weight, the body remains at rest. If Soldiers lose balance, either because muscles have relaxed or an external force acted upon them, they begin to fall—they move. Classical mechanics and geometry give a mathematical explanation of how this movement happens. Figure 7-4 describes the effect of gravity on movement.

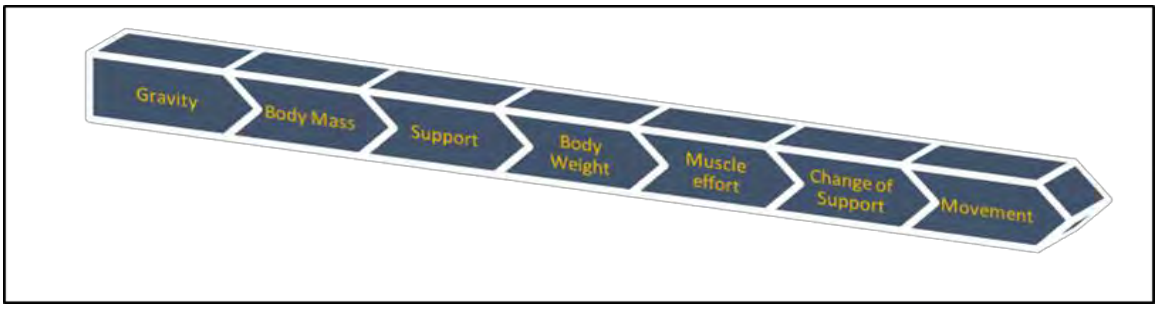


Figure 7-4. A schematic demonstrating gravity's influence on movement

7-19. Like the rocket example, our movement is initially in the horizontal plane—forward—via gravitational torque. The body becomes a lever as its mass pivots around the base of support—the foot. The pivot ends as the toes are pulled from the ground. If the front of the foot is used as the base of support throughout the duration of contact with the ground, less time will be spent pivoting on the ground, allowing an earlier pull. The point is not to simply land on a specific part of the foot, the point is to reach a position to continue moving forward as efficiently as possible. The movement forward—the fall—can conclude only when the foot no longer supports the body's weight. Falling over can be prevented only by rapidly reestablishing balance—a new base to support the body's weight. To move forward from this new base of support, the body must reach a position where it can pull the foot from the ground to fall again. Repeating this action at higher frequencies increases speed.

7-20. Similar to the command "STARTING POSITION, *MOVE*," in Conditioning Drills, or the predominant poses taught in ballet and dance, or ready positions in martial arts, Soldiers can master the dominant running position, or pose, through drills and exercises. They can also master the action required to move quickly in and out of this position. The action of the hamstring as it contracts to pull the support foot from the ground and under the hip, positions the body for the next fall. The three words—pose, fall, pull—concisely describe the "how" of "how to run." These are the essential elements of running skill. They form a standard against which a Soldier's running skill can be measured.

Running

Running is a recurring change of support from one foot to the other.
This change begins as the runner's center of mass falls forward of the support foot that the runner then pulls from the ground.
The foot is pulled up toward the hip by the hamstring muscles while the opposite foot moves to the ground to provide a new support.
As the pulled leg passes the support leg, the body reaches a new position from where it can continue acceleration.

RUNNING MEASUREMENT

7-21. Measurement of this standard using readily available video feedback does not take much time. The H2F performance team can quickly analyze a Soldier's running stride to show the Soldier his or her deviation from the standard. This visual and verbal feedback, like any coaching, increases the Soldier's perception of how he or she is running. Leaders can prescribe drills and exercises for the Soldier based on specific deviations from the standard. Such drills and exercises reduce excess strain on the body and increase running speed and distance (see figure 7-5).

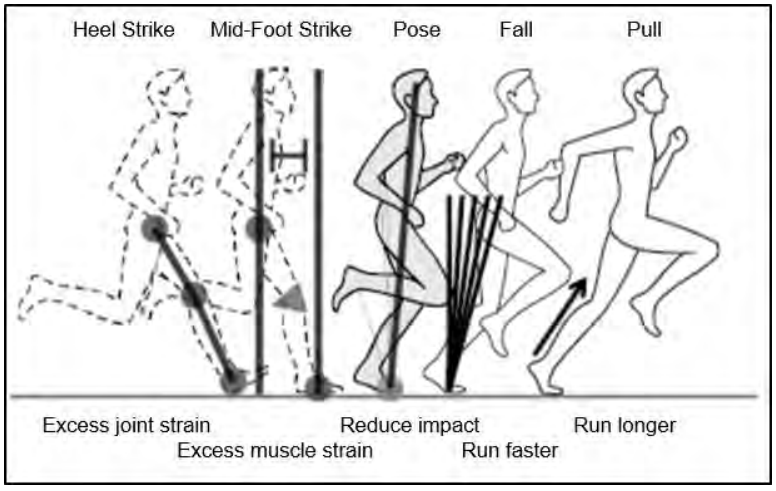


Figure 7-5. The anatomy of a running stride

7-22. Running Drills may be performed collectively or individually. Table 7-4 summarizes Running Drills used to develop running skill. ATP 7-22.02 discusses and illustrates the purpose and execution of all seven Running Drills in detail. Soldiers perform the drills at least once per week to develop proper form. As with all physical training exercises, consistent adherence to precise execution provides optimal results.

7-23. After conducting a block of instruction, commanders who want to progress running skills should schedule Running Drills two times per week for fifteen to twenty minutes during endurance activities. Running Drills should precede or follow running activities. Running Drill 1 is used to increase awareness of improper running form. Leaders do not have to use Running Drills in order. They may be prescribed to address individual and unit deficits in running skill.

7-24. The Soldier's perception of any movement—whether it be running, weightlifting, or shooting—is developed through physical repetition and attention to form. Repetition improves skill by connecting the brain to the body part. By asking questions about perception, performance experts, MFTs, and unit leaders promote faster adoption of improved skill.

Table 7-4. Running drills

Type	*Description*
Running Drill 1: Foot Strike	These exercises enhance perception of the forces generated when the foot hits the ground.
Running Drill 2: Strength	Develops the specific strength needed to prepare the body properly to run or sustain running.
Running Drill 3: Pose	Every runner goes through the Pose position on every step. The Pose precedes a fall that is necessary to initiate forward motion.
Running Drill 4: Fall	As the runner falls, gravity accelerates the runner forward from the Pose position.
Running Drill 5: Pull	In order to increase efficiency and reduce impact force, the foot is quickly pulled from the ground and back into the Pose position.
Running Drill 6: Combinations	This drill challenges the runner's ability to incorporate lessons of the previous running drills into a smooth, sustained run.
Running Drill 7: Corrections	After feedback from MFTs or H2F performance team, Correction Drills are used to improve proper form.

H2F holistic health and fitness MFT master fitness trainer

ARMY WATER SURVIVAL TRAINING

7-25. H2F physical readiness training builds skills that help Soldiers survive in water. Water survival skills are critical Soldier combat tasks. Commanders can incorporate these skills into physical training schedules, or treated as special training events and programmed accordingly. The inclusion of pool or aquatics training in special conditioning requires that commanders know whether their Soldiers can swim and have completed drown-proofing. Paragraphs 7-26 through 7-47 discuss Army Water Survival Training (AWST). See ATP 7-22.01 for more details.

7-26. Soldiers who successfully complete AWST identifies possess the requisite swimming skills to complete more advanced waterborne training and testing. When AWST is conducted to standard, Soldier safety is ensured while performance is enhanced. AWST builds Soldier confidence prior to special conditioning pool workouts and increases survivability in operations in and around water.

7-27. Two levels of classification in the AWST program inform the commander the water survivability levels of his or her Soldiers: basic survival swimmer (known as BSS) and combat survival swimmer (known as CSS). All Soldiers complete combat survival swimmer annually. Qualification at the combat survival swimmer level is necessary only for units that anticipate extensive operations in and around water. These units conduct operations over the shore, maritime transportation, and the Army diver program.

7-28. The Combat Water Survival Test (CWST) accurately records a Soldier's ability to safely function in a water environment. The CWST certifies Soldiers who intend to lead AWST and for other trainers in the H2F System. AWST trainers must be certified annually in the CWST. Soldiers who wish to maintain the validation must re-certify on the CWST every two years.

SAFETY

7-29. Safety is the first concern when training Soldiers in and around water. Unit standard operating procedures for swim instruction, aquatic rehabilitation, and water survival training must be developed to ensure safe and effective training. SOPs describe the training area, uniform, personal equipment, formation, leadership, commands, and safety. Leaders use, review, and rehearse written safety and emergency action plans prior to conducting training. AWST trainers and assistant instructors perform risk management following installation policy and DA Pam 385-30. Qualified lifeguards attend and have standard sets of pool safety and rescue equipment on hand at all times. A standard set of equipment consists of—

- Shepherd's crook and reaching poles.
- Heaving line.
- Ring buoy with rope.

- Back board with tie down straps and cervical collar.
- Whistles.
- First aid kit.
- Automatic electronic defibrillator (known as AED).

7-30. Lifeguards must have a current American Red Cross Lifeguard Training certificate and must be certified in first aid and cardiopulmonary resuscitation (known as CPR). Lead and assistant instructors should be strong swimmers. Ideally all instructors have cardiopulmonary resuscitation training and Water Safety Instructor certificates and have passed the CWST.

7-31. Non-swimmers require extra training time. Those who do not self-declare as non-swimmers should be given extra swim training if they fail the two minute buoyancy test—treading water and sculling for two minutes in ACUs and boots without going underwater or touching the bottom of the pool. Extra swim training time provides Soldiers training to perform the two strokes necessary to pass the basic survival swimmer—the sidestroke and breaststroke.

BASIC SURVIVAL SWIMMER

7-32. Soldiers must successfully complete the following three training tasks to for basic survival swimmer. Soldiers will wear ACUs, boots, and improved outer tactical vest (IOTV) without plates. Soldiers will carry an M16 or M4 series training aid for tasks 2 and 3:

- Task 1: Trouser inflation and float.
- Task 2: Bob and travel.
- Task 3: Two-Stroke test (sidestroke and breaststroke).

TASK 1: TROUSER INFLATION AND FLOAT

7-33. Task 1, trouser inflation and float, consists of the following four steps:

- Perform stride entry by leaping off the edge of the pool deck into the water with the trunk leaning forward, the head up, the legs spread in a stride position (one forward, the other back), and the arms extended sideward (palms facing downward). Immediately upon entry, the legs move together and the arms move vigorously downward slapping the water upon entry. This technique keeps the head above water and allows the Soldier to maintain visibility.
- Use the emergency pull strap on the IOTV to release it, allowing the parts IOTV to fall to the bottom of the pool. Soldiers collect the IOTV after completing Task 3.
- Perform a hanging float and remove one boot at a time. Place the first boot under an arm while untying the other boot. Tie the laces together and put the boots around the neck, resting each boot on each side of the chest. Remove trousers, button the fly, and tie-off each trouser leg individually using an overhand knot.
- Inflate the trousers using the sling or splash method. Once the trousers are inflated, gather-in the waist band and twist to seal the air inside the trousers. While grasping the twisted waist band, climb in between the trouser legs and place one leg under each arm. Float for two minutes.

Sling Method

7-34. The sling method consists of the following steps:

- Place the trousers on top of the water as if they are to be put on.
- Grasp the waistband, forming a circular opening on the surface of the water.
- Maintaining hold of the waistband, cross the right arm over the left, then rotate the trousers counter clockwise above and behind the head.
- Maintain the circular opening of the waistband with both hands.
- Perform a large scissor kick while forcibly extending the arms overhead.
- Sling the trousers quickly forward and downward, trapping air under the water.
- Immediately gather in the waistband to maintain inflation of each trouser leg.

- Continue to hold the waistband together with one hand, while bringing the opposite arm around and over the same side trouser leg.
- Change hands continuing to hold the waistband together with the other hand while bringing the opposite arm around and over the other trouser leg.

Splash Method

7-35. The splash method consists of the following steps:

- Place trousers in front and hold the waistband open at the fly with one hand.
- While using the scissors of frog kick to stay afloat, splash water and air toward the waistband opening with a downward motion of the hand, stopping the stroke at the opening.
- Immediately gather in the waistband to maintain inflation of each trouser leg.
- Continue to hold the waistband together with one hand, while bringing the opposite arm around and over the same side trouser leg.
- Change hands while continuing to hold the waistband together with the other hand, bringing the opposite arm around and over the other trouser leg.

TASK 2: BOB AND TRAVEL

7-36. Task 2, bob and travel, consists of the following steps:

- Sling weapon over the right shoulder, grasping the sling close to the sling clamp with the left hand at the chest and the weapon butt plate with the right hand. The weapon is then pulled tight to the back. Stand with toes on the edge of the pool deck and face toward the water. Step off the edge of the pool deck into the water, with the knees slightly flexed to absorb the impact upon hitting the bottom of the pool. Submerge to the bottom of the pool, slowly exhaling air through the nose while maintaining control of the weapon. Place the weapon on the pool floor.
- Assume a squatting position and push off the bottom of the pool with both feet, extending the arms overhead and hands together, traveling forward at a 45-degree angle toward the surface (travel). Upon reaching the surface, take a full breath and rotate the hips forward, drawing the knees toward the chest (bob). Re-submerge to the bottom of the pool by straightening the legs and bringing the arms forcefully overhead with the palms turned inward, slowly exhaling air through the nose. Repeat the travel action, continuing to bob and travel for fifteen meters.

TASK 3: TWO-STROKE TEST

7-37. When performed correctly, the sidestroke and breaststroke enable the Soldier to move through the water quickly and efficiently. The sidestroke is one of the most efficient strokes because it allows the Soldier the ability to rest on top of the water. It is also the stroke used in the Collar Tow. The breaststroke is the most useful stroke for military swimming. It is efficient when swimming through debris and in full clothing and gear, and it provides good visibility.

7-38. Soldiers enter the water at the deep end of the pool using the stride entry. They swim for the length of the pool or 25 meters using the sidestroke. Soldiers exit the shallow end of the pool and walk back to the deep end starting point. They then re-enter the water at the deep end using the stride entry, and swim the length of the pool performing the breaststroke. Soldiers exit the shallow end of the pool.

COMBAT SURVIVAL SWIMMER

7-39. Soldiers must successfully complete the following four tasks to become classified as combat survival swimmers. Uniform is ACUs, boots, and IOTV without plates. Soldiers carry an M16 or M4 series training aid for all four tasks:

- Task 1: Equipment removal.
- Task 2: Collar tow.
- Task 3: 15 Meter underwater swim.
- Task 4: 3 Meter drop and pool exit.

7-40. AWST leaders select a location on the deep end of the pool where the water is a minimum of nine feet deep. Soldiers wear ACUs with boots, IOTV, and M16 or M4 training aid slung over their back. A safety line may be attached to the Soldier and controlled by the AWST leader or assistant instructor. A shepherd's crook will also be available. If at any time the Soldier shows signs of undue fear, stress, panic, or fatigue, the AWST leader or assistant instructor will use the safety line or crook to pull the Soldier from the water.

TASK 1: EQUIPMENT REMOVAL

7-41. Soldiers will practice equipment removal while on the deck prior to entering the water using the following steps:

- The Soldier moves to starting point at the deep end of the pool. The Soldier moves to the entry line with his or her back facing the water and slings the weapon over the left shoulder, grasping the sling close to the sling clamp with the right hand at the chest and the weapon butt plate with the left hand. The Soldier pulls the weapon tight to the back.
- The Soldier stands with heels on the edge of the pool deck and back toward the water. He or she then performs a rear water entry bending forward slightly at the waist, transferring body weight to the heels, and falling rearward into the water while maintaining control of the slung weapon. He or she then breaks the water with the rear of the thighs and buttocks.
- After performing the rear entry, the Soldier submerges to the bottom of the pool while exhaling through the nose and mouth. Upon reaching the bottom of the pool, the Soldier removes his or her weapon from its slung position and places it on the bottom of the pool.
- The Soldier then removes the IOTV and places it on the bottom of the pool. The Soldier surfaces and continues to swim any stroke to the side of the pool and exit. If the Soldier shows signs of panic, the assistant instructor pulls the Soldier to the side of the pool using the safety line or shepherd's crook.

TASK 2: COLLAR TOW

7-42. The collar tow is used to help swimmers who are tired, but not struggling. For this task, one Soldier acts as rescuer while a partner acts as victim. The Soldiers then reverse roles using the following steps:

- AWST leaders select a location on the deep end of the pool where the water is a minimum of nine feet deep. The Soldiers perform this task wearing ACU, boots, IOTV, and M16 or M4 training aid slung over the back. Soldiers are paired with a partner. Prior to entering the water, Soldiers practice a dry run of the event including the stroke mechanics for the sidestroke while on the pool deck.
- The rescuer slings weapon over the left shoulder, grasping the sling close to the sling clamp with the right hand at the chest and the weapon butt plate with the left hand. The Soldier pulls the weapon tight to the back. The rescuer stands with toes on the edge of the pool deck while facing toward the water. The rescuer performs stride entry by stepping off the pool deck into the water with trunk leaning forward, head up, legs spread in a stride position (one forward, the other back), and weapon slung across the back. Immediately upon entry, the rescuer moves legs together. This technique keeps the head above water and allows the rescuer to maintain visibility. The rescuer will stabilize buoyancy, roll onto left side, and breaststroke toward the victim.
- The rescuer grabs the tired swimmer's collar at the back of the neck and pulls him or her to a horizontal position on his or her back. The rescuer maintains hold of the victim's collar, keeping his or her arm fully extended. The rescuer uses a modified sidestroke while towing, swimming on the side that feels most natural, using a sidearm pull and scissor kick. The Soldier should aim to master the stroke on both sides.
- Following the sidestroke sequence, rescuers exit the pool in the deep end by placing their rifle on the deck while maintaining contact with the victim on the side of the pool. This is best accomplished by securing one or both arms of the tired swimmer against the pool deck while exiting the pool. Once on the pool deck, the rescuer squats and grasps the tired swimmer's IOTV and rotates him or her so their back is against the side of the pool. The rescuer simultaneously stands up from the squat position and lays the tired swimmer onto the pool deck.

TASK 3: UNDERWATER SWIM

7-43. The underwater swim measures Soldiers' confidence and ability to enter the water, submerge to the bottom of the pool, successfully swim fifteen meters underwater with their equipment, surface, and exit the pool. They use the following steps:

- AWST leaders select a location on the deep end of the pool where the water is a minimum of nine feet deep. The Soldier performs this task wearing ACUs, boots, IOTV, and M16 or M4 training aid slung over the back. Prior to entering the water, Soldiers should practice breaststroke mechanics while on the pool deck.
- The Soldier slings weapon over the left shoulder, grasping the sling close to the sling clamp with the right hand at the chest and the weapon butt plate with the left hand. The Soldier pulls the weapon tight to the back. The Soldier stands with heels on the edge of the pool deck and back toward the water.
- The Soldier performs a rear water entry by bending forward at the waist, transferring body weight to the heels, and falling rearward into the water while maintaining control of the slung weapon. The Soldier breaks the water with the rear of the thighs and buttocks. The Soldier submerges to the bottom of the pool and slowly exhales air through the mouth and nose.
- The Soldier pushes off the bottom of the pool with both feet, bobs to the surface, and grasps the edge of the pool deck. Upon command of the AWST leader, the Soldier rotates facing the pool, takes a full breath, and drops under the surface of the water. Immediately pushes off the wall and begins the underwater swim with arm and leg movements used in the breaststroke.
- The Soldier remembers to slowly exhale air through the mouth and nose while underwater swimming to the opposite side of the pool. Upon reaching the opposite pool wall, the Soldier surfaces and performs a pool exit.

TASK 4: 3-METER DROP AND POOL EXIT

7-44. The 3-meter drop with rifle and equipment measures a Soldier's ability to enter the water, swim to the side of the pool, and exit with weapon and equipment.

7-45. AWST leaders select a location on the side of the pool where the water is a minimum of nine feet deep. The Soldier performs this task wearing ACUs, boots, IOTV, and M16 or M4 training aid. A shepherd's crook or safety line will be attached to Soldier and controlled by AWST leader or assistant instructor. If the Soldier shows signs of undue fear, stress, panic, or fatigue, the AWST leader or assistant instructor will use the safety line or crook to pull the Soldier from the water.

7-46. The Soldier performs a stride entry by stepping off the 3-meter diving board or platform into the water with the trunk leaning forward, the head up, the legs spread in a stride position (one forward, the other back), and the arms extended overhead holding the M16 or M4 training aid. Immediately upon entry, the Soldier moves legs together and the arms vigorously downward slapping the water with the weapon. This technique keeps the head above water and allows the Soldier to maintain visibility.

7-47. Upon entry into the water, the Soldier will stabilize buoyancy and simultaneously transfer weapon to the right side of the body grasping the sling close to the forward sling clamp with the right hand. The Soldier places the weapon near the lower sling clamp onto the right hip while rolling onto left side. The Soldier performs the sidestroke to the edge of the pool and exits.

This page intentionally left blank.

Chapter 8
Nutritional Readiness

The demands imposed by Army training, combat, and contingency operations are unique and challenging. Nutritional readiness is the attainment of an individual nutritional strategy that supports optimal physical and cognitive function as well as lifelong disease and injury prevention. Nutritional readiness is a critical component of holistic health, and contributes greatly to mission success. The development of a comprehensive performance nutrition program, tailored to organizational requirements, can improve individual Soldier performance, overall unit readiness, and mission success. This chapter describes basic nutrition concepts and integrates them into performance nutrition plans and practical nutrition recommendations for the Soldier.

FOUNDATIONAL NUTRITION

8-1. The Army's comprehensive performance nutrition program concept and framework encompasses three components—proactive, active, and reactive. The proactive component, or foundational nutrition, entails chronic disease prevention and immune system enhancement. The active component, or operational (occupational and environmental task-specific performance) nutrition, focuses on event fueling and post-event recovery and arduous environment preparedness. The reactive component, or therapeutic nutrition, centers on specific nutritional interventions to treat (as opposed to prevent) an illness, injury, or condition. When tailored to organizational requirements, unit- and culture-specific nutrition education and services can optimize individual Soldier performance, overall unit readiness, and ultimately, mission success.

8-2. For Soldiers to perform optimally throughout their careers in assignments with varying levels of mental and physical requirements, they must be proactive and place as much emphasis on foundational health as they do on task-specific performance. This entails chronic disease prevention and immune system enhancement.

HEALTH PROMOTION AND CHRONIC DISEASE PREVENTION

8-3. The nutritional foundation established by a Soldier's usual dietary intake, or "everyday diet," can greatly reduce preventable future disease. More than 60 years of peer-reviewed research has demonstrated the importance of the everyday diet to the health and longevity of an individual. Soldiers can capitalize on these findings by consuming more whole-grain products, fruits and vegetables, legumes, nuts, seeds, dairy products, and fish, and less processed grains, added sugars, and processed meats.

DIETARY GUIDELINES FOR AMERICANS

8-4. The United States Department of Health and Human Services (known as HHS) and the United States Department of Agriculture (known as USDA) jointly publish the *Dietary Guidelines for Americans* every 5 years. The *Dietary Guidelines for Americans* provides evidence-based food and beverage recommendations for Americans ages 2 and older. These recommendations aim to promote health, prevent chronic disease, and help people reach and maintain a healthy weight, and should be used to develop the Soldier's baseline healthy eating pattern.

8-5. An eating pattern represents all foods and beverages consumed. All foods consumed as part of a healthful eating pattern unite to meet nutritional needs that promote a healthy weight, enhance performance, and prevent chronic disease. Soldiers aim to meet their nutrient needs through healthful eating patterns

comprised of primarily nutrient-dense (such as essential vitamins and minerals, complex carbohydrates, lean protein, and healthy fats) whole foods. A healthy eating pattern includes the following:

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), and starchy (potatoes, corn, and winter squash).
- Fruits, especially whole fruits.
- Grains, at least half of which are whole grains.
- Fat-free or low-fat (1 percent) diary, including milk, yogurt, cheese, fortified soy beverages, or combination of these.
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products.
- Oils high in polyunsaturated and monounsaturated fats.

A HEALTHY EATING PATTERN

8-6. A healthy eating pattern limits—

- Added sugar—consume less than 10 percent calories per day from added sugar.
- Saturated and trans fats—less than 10 percent calories per day from saturated fats.
- Sodium—consume less than 2300 milligrams per day from sodium.

Importance of calorie balance within a healthy eating pattern

Managing calorie intake is fundamental to achieving and maintaining calorie balance—the balance between the calories taken in from foods and the calories expended from metabolic processes and physical activity.

KEY COMPONENTS OF HEALTHY EATING PATTERNS

8-7. All foods and many beverages contain calories, and the total number of calories varies depending on their macronutrients. On average, carbohydrates and protein contain 4 calories per gram, fats contain 9 calories per gram, and alcohol has 7 calories per gram. The total number of calories a person needs each day varies on factors including the person's age, sex, height, weight, and level of physical activity. A need to lose, maintain, or gain weight and other factors such as recent injury or illness affect how many calories to consume each day.

8-8. Eat a variety of vegetables that meets the following requirements:

- Recommended intake: Vegetables from all of the subgroups—dark green (for example, spinach, kale, and broccoli), red and orange (for example, bell pepper, carrot, and sweet potato), legumes (for example, beans and peas). These include fresh, frozen, canned, and dried options in cooked or raw forms, including vegetable juices.
- Key nutrients: Vegetables are important sources of many nutrients, including dietary fiber, potassium, vitamin A, vitamin C, vitamin K, copper, magnesium, vitamin E, vitamin B6, folate, iron manganese, thiamin, niacin, and choline. Each vegetable subgroup contributes different combinations of nutrients, making it important for Soldiers to consume vegetables from all the subgroups. For example, dark-green vegetables provide the most vitamin K, red and orange vegetables the most vitamin A, legumes the most dietary fiber, and starchy vegetables, the most potassium. Vegetables in the "other" vegetable subgroup provide a wide range of nutrients in varying amounts. Include each vegetable subgroup weekly to meet nutrient needs because each subgroup provides different nutrients.
- Considerations: Soldiers consume vegetables with limited additions such as salt, butter, or creamy sauces. When selecting frozen or canned vegetables, choose those lower in sodium. At every meal, strive to make half of the plate fruit and vegetables.

8-9. Eat fruits that meet the following requirements:

- Recommended intake: The fruit group includes whole fruits and 100 percent fruit juice. Whole fruits include fresh, canned, frozen, and dried forms. One cup (8 ounces) of 100 percent fruit juice counts as 1 cup of fruit. Although fruit juice can be part of healthy eating patterns, it is lower than whole fruit in dietary fiber, and when consumed in excess can contribute extra calories. When juices are consumed, they should be 100 percent juice, without added sugars. Also, when selecting canned fruit, choose options that are lowest in added sugars. One-half cup of dried fruit counts as one cup-equivalent of fruit. Similar to juice, when consumed in excess, dried fruits can contribute extra calories.
- Key nutrients: Fruits provide nutrients that include dietary fiber, potassium, and vitamin C. Include each fruit subgroup weekly to meet nutrient needs because each subgroup provides different nutrients.
- Considerations: At every meal, strive to make half of the plate fruit and vegetables.

8-10. Eat grains, especially whole grains, that meet the following requirements:

- Recommended intake: At least half the grains Soldiers consume should be whole grains. Healthy eating patterns include whole grains and limit the intake of products made with refined grains, especially those high in saturated fats, added sugars, and sodium, such as cookies, cakes, and some snack foods. The grains food group includes grains as single foods (for example, rice, oatmeal, and popcorn), as well as products that include grains as an ingredient (for example, breads, cereals, and pasta). Grains are either whole or refined. Whole grains (for example, brown rice, quinoa, and oats) contain the entire kernel, including the endosperm, bran, and germ. Refined grains lack bran and germ, which removes dietary fiber, iron, and other nutrients.
- Key nutrients: Whole grains are a source of nutrients, such as dietary fiber, minerals, and vitamins. Whole grains vary in their dietary fiber content. Most refined grains are enriched, a process that adds back iron and four B vitamins (thiamin, riboflavin, niacin, and folic acid). The term "enriched grains" often describes these refined grains.
- Considerations: When consuming whole grain products, the whole grain should be the first or second ingredient. For foods with multiple whole-grain ingredients, they should appear near the beginning of the ingredients list.

8-11. Consume dairy products that meet the following requirements:

- Recommended intake: This group includes milk, yogurt, cheese, and fortified soy beverages. Soy beverages fortified with calcium, vitamin A, and vitamin D are part of the dairy group because they are similar to milk based on nutrient composition and in their use in meals. Other products sold as "milks" but made from plants (for example, almond, rice, and coconut) may contain calcium and be consumed as a source of calcium. However, these plant products are not part of the dairy group because their overall nutritional content is not similar to dairy milk and fortified soy beverages. The recommended amounts of dairy are 3 cup-equivalents per day.
- Key nutrients: The dairy group contributes many nutrients, including calcium, phosphorus, vitamin A, vitamin D (in products fortified with vitamin D), riboflavin, vitamin B12, protein, potassium, zinc, choline, magnesium, and selenium.
- Considerations: Fat-free and low-fat (1 percent) dairy products provide the same nutrients, but less fat (and thus, fewer calories) than higher fat options, such as 2-percent and whole milk and regular cheese. Fat-free or low-fat milk or yogurt, in comparison to cheese, contain less saturated fats and sodium, and more potassium, vitamin A, and vitamin D. Choose fat-free or low-fat dairy foods to limit the amount of saturated fat while still benefitting from the potassium, Vitamin A and Vitamin D provided by these foods. Limit cheese as a dairy choice to further limit saturated fat and sodium intake. Soldiers who are lactose intolerant can choose low-lactose and lactose-free dairy products. Those who do not consume dairy products should consume foods that provide nutrients generally obtained from dairy, including protein, calcium, potassium, magnesium, vitamin D, and vitamin A (for example, fortified soy beverages).

8-12. Consume protein sources that meet the following requirements:

- Recommended intake: Foods in the protein group include choices from both animal and plant sources and includes several subgroups: seafood; meats, poultry, and eggs; and nuts, seeds, and soy products. Legumes may be considered part of the protein foods group, as well as the vegetables group. Protein also is found in some foods from other food groups (for example, dairy). A specific recommendation for at least 8-ounce equivalents of seafood per week is also recommended as part of a healthy eating pattern. One-half ounce of nuts or seeds counts as 1 ounce-equivalent of protein foods, and because they are high in calories, Soldiers eat them in small portions and used to replace other protein foods rather than being added to the diet.
- Key nutrients: Protein foods are important sources of nutrients in addition to protein, including B vitamins (for example, niacin, vitamin B12, vitamin B6, and riboflavin), selenium, choline, phosphorus, zinc, copper, vitamin D, and vitamin E. Nutrients provided by various types of protein foods differ. For example, meats provide the most zinc, while poultry provides the most niacin. Seafood provides the most vitamin B12 and vitamin D, in addition to heart healthy fats. Eggs provide the most choline, and nuts and seeds provide the most vitamin E. Soy products are a source of copper, manganese, and iron, as are legumes.
- Considerations: When selecting protein foods, nuts and seeds should be unsalted, and meats and poultry should be consumed in lean forms. Processed meats and processed poultry are sources of sodium and saturated fats. Processed meats are meat products that have been transformed through salting, curing, fermentation, smoking, or other processes to enhance flavor or improve preservation (for example, hot dogs, bologna, salami, pepperoni, and bacon). Saturated fats, added sugars, and total calories are within limits in the resulting eating patterns. Choose fresh meat options more often than processed meats to limit intake of sodium and saturated fats. The inclusion of protein foods from plants allows vegetarian options to be accommodated.

8-13. Consume oils that meet the following requirements:

- Recommended intake: Oils are fats that are liquid at room temperature. Although they are not a food group, oils are emphasized as part of healthy eating patterns because they are the major source of essential fatty acids and vitamin E. Commonly consumed oils extracted from plants include canola, corn, olive, peanut, safflower, soybean, and sunflower oils. Oils also are naturally present in nuts, seeds, seafood, olives, and avocados. The fat in some tropical plants, such as coconut oil, palm kernel oil, and palm oil, are not included in the oils category because they do not resemble other oils in their composition. Specifically, they contain a higher percentage of saturated (unhealthy) fats than other oils.
- Key nutrients: Oils supply calories and help absorb the fat-soluble vitamins A, D, E, and K.

OTHER DIETARY COMPONENTS

8-14. Limit consumption of added sugar. Added sugars include syrups and other caloric sweeteners. When sugars are added to foods and beverages to sweeten them, they add calories without contributing essential nutrients. Consumption of added sugars can make it difficult for Soldiers to meet their nutrient needs while staying within calorie limits. Naturally occurring sugars, such as those in fruit or milk, are not added sugars. Examples of added sugars that can be listed as an ingredient include brown sugar, corn sweetener, corn syrup, dextrose, fructose, glucose, high-fructose corn syrup, honey, lactose, molasses, raw sugar, and sucrose:

- Recommended intake: Healthy eating patterns limit added sugars to less than 10 percent of calories per day. This recommendation is a target to help Soldiers achieve a healthy eating pattern, which means meeting nutrient and food group needs through nutrient-dense food and beverage choices and staying within calorie limits. When added sugars in foods and beverages exceed 10 percent of calories, a healthy eating pattern may be difficult to achieve.
- Considerations: Replacing added sugars with high-intensity sweeteners may reduce calorie intake in the short-term, yet questions remain about their effectiveness as a long-term weight management strategy. High-intensity sweeteners approved by the United States Food and Drug Administration (FDA) include saccharin, aspartame, and sucralose. Based on the available scientific evidence, FDA determined these high-intensity sweeteners safe for the general population.

8-15. Soldiers need to limit sodium consumption. Healthy eating patterns limit sodium to less than 2,300 milligrams per day for adults. Sodium is an essential nutrient and is needed by the body in relatively small quantities, provided that substantial sweating does not occur.

8-16. Soldiers need to limit alcohol consumption. In the strictest sense, alcohol is not a performance nutrient. If Soldiers consume alcohol, it should be in moderation—up to one drink per day for women and up to two drinks per day for men—and only by adults of legal drinking age. One alcoholic drink-equivalent consists of—

- 12 fluid ounces of regular beer (5 percent alcohol).
- 5 fluid ounces of wine (12 percent alcohol).
- 1.5 fluid ounces of 80 proof distilled spirits (40 percent alcohol).

The amount of alcohol and calories in beverages varies. Soldiers account for alcohol within the limits of healthy eating patterns so that they do not exceed calorie limits.

BODY COMPOSITION

8-17. The body is comprised of water, protein, minerals, and fat. A two-compartment model of body composition divides the body into a fat component and fat-free component. The total amount of body fat consists of essential fat and storage fat. Fat in the marrow of bones, heart, lungs, liver, spleen, kidneys, intestines, muscles, and certain tissues throughout the central nervous system is called essential fat. Non-essential body fat is called storage fat. Normal bodily function requires essential fat. Women have higher essential fat than men because it includes sex-characteristic fat related to child bearing. Storage fat is located around internal organs (internal storage fat) and directly beneath the skin (subcutaneous storage fat). It provides bodily protection and serves as an insulator to conserve body heat. The relationship between subcutaneous fat and internal fat may not be the same for all individuals and may fluctuate during the life cycle.

8-18. Lean body mass represents the weight of your muscles, bones, ligaments, tendons, and internal organs. Lean body mass differs from fat-free mass (known as FFM). Since there is some essential fat in the marrow of your bones and internal organs, the lean body mass includes a small percentage of essential fat. However, with the two-component model of body composition, these sources of essential fat are estimated and subtracted from total body weight to obtain the fat-free mass. Practical methods of assessing body composition such as skinfold thickness (or caliper) testing, bioelectrical impedance analysis, air displacement plethysmograph, and hydrostatic weighing are based on the two-compartment (lean body mass and fat-free mass) model of body composition. The three-compartment model of body composition includes a third component where the fat-free mass is further divided into lean tissue mass and bone mineral content. The dual-energy X-ray absorptiometry (known as DEXA) scan is an example of a three-compartment model of body composition assessment. Soldiers should consult with a registered dietitian or the Army Wellness Center for assistance with body composition assessments and interpretation of results.

8-19. Optimal lean body mass to fat-free mass ratios for Soldiers differ depending upon their primary and secondary mission roles. Dietitians consider chronic disease risk, individual illness and injury patterns, body composition history, ethnicity, and specific mission requirements when determining their most effective task-specific body composition. Soldiers should be reminded that physical performance cannot be accurately predicted solely based on body weight and composition. A single and rigid optimal body composition should not be recommended for any physical training event or unit of Soldiers.

8-20. Following a healthy eating pattern (consuming the number of servings of carbohydrate, protein and healthy fats from the food groups to meet individual calorie needs) supports a healthy body composition. The frequency, intensity, and type of physical activity also impact body composition. To perform optimally at any physical task requires proper nutrition combined with physical training. All Soldiers are encouraged to achieve and maintain body composition. See AR 600-9 for standards for body fat.

BODY MASS INDEX

8-21. Body mass index (BMI) is a population screening measure commonly used to rapidly assess health and classify individuals as underweight, normal, overweight, or obese.

BMI = weight (in kilograms) / height (in meters) squared = kg/m2

8-22. Reference standards developed for the United States population by race and gender, so that individuals at risk for obesity can be easily identified. However, the reference value for the U.S. population does not always apply to special populations, such as Soldiers, who may have a higher BMI but acceptable body composition. BMI is a screening tool that just assesses height to weight ratio but does not indicate body composition. Leaders may refer their Soldiers to a registered dietitian or the Army Wellness Center for more accurate body composition analysis to track progress. AR 600-9 indicates the weight for height ratio screening tool for Soldiers. Leaders can use monthly weigh-ins and taping to keep track of changes in a Soldier's body composition. However, all Soldiers must adhere to the body fat guidelines outlined in AR 600-9.

WEIGHT LOSS

8-23. For some Soldiers, injury, stress, lack of time, frequent travel, or other reasons might contribute to a higher-than-optimal weight. They need to determine what might contribute to a body composition higher in body fat. It is important to evaluate the amount of food and calorie-containing beverages consumed each day and to reduce the total number of calories per day to reduce body fat. It takes dedication to make adjustments to eating habits, portion sizes, food choices, physical activity, sleep hygiene, and stress management. Nutrition goals should be realistic as weight loss does not happen overnight. Soldiers can generally sustain a weight loss of 0.5-1 pound per week. To prevent lean muscle loss and nutrient deficiencies, women should consume no less than 1200 calories per day; men should consume no less than 1500 calories per day.

8-24. Soldiers use the following tips to achieve a healthy weight:

- Track food intake using a daily food log.
- Focus on an eating plan that consists of nutrient rich, lean sources of protein—including fish, poultry, beans, nuts, and dairy products—and incorporate whole grains, fruits, and vegetables.
- Choose low calorie beverages such as water, low-fat milk (or soy milk), and unsweetened beverages with and between meals to stay hydrated.
- Be mindful of hunger and fullness cues, keeping in mind it takes 20 minutes to feel full, so eating slowly and mindfully is helpful to prevent eating more calories than intended.
- Keep a food log to stay aware of the number of calories consumed and to know whether the calorie goal is met or not. This supports understanding whether further changes in eating habits are required to support weight loss.
- Stay hydrated and do not starve yourself. There is a balance in caloric consumption and expenditure to achieve the right amount of weight loss while not affecting physical performance.

Goals change depending on work schedules. For example, trainees who struggle to have enough energy to perform the physical components in BCT should not focus on losing weight; their current goal should focus on fuel to perform. Once they have passed the physical standards, then they can shift their focus to weight loss.

WEIGHT GAIN

8-25. Combat missions and training require muscular strength and endurance. To optimize performance and prevent musculoskeletal injuries while attempting to gain weight, Soldiers need to combine an appropriate strength training program with a well-planned nutritional strategy. The most effective method to increase muscle mass is to encourage a positive energy balance, for example, by consuming more calories than required to maintain current body weight. Theoretically consuming an additional 250–500 calories per day above typical requirements would result in a gain of one half to one pound per week.

8-26. Many Soldiers may believe more protein is the best way to gain weight, when in fact, eating more protein than the established recommendation does not provide any additional benefit. To encourage lean body

mass growth, daily protein consumption should increase to 1.2–2.0 grams/kilograms (~0.55–0.9 ounces/pound) body weight.

8-27. Soldiers use the following tips to help add more calories to their eating plan:

- Eat frequently. Plan to eat or drink a food or beverage that provides nutrition to the body every few hours, especially after a workout.
- Consume protein-rich foods. The best sources of protein come from whole foods such as lean meats, poultry, fish, beans, nuts, eggs, and low-fat dairy.
- Try smoothies, shakes, or soups. Liquids can be an easy way to load up on calories in a small volume. However, these food items should be nutrient dense, meaning they have a high amount of beneficial nutrients (for example, vitamins, minerals, fiber, and lean protein) in relation to their weight and low in added sugars. Add Greek yogurt, milk, soymilk, powdered milk, flaxseeds, or chia seeds to smoothies, shakes, and soups.
- Add healthful fats. Use avocado or nut butter in sandwiches or smoothies, and add a little extra olive oil, canola oil, or oil-based spreads during meal preparation.

OPERATIONAL NUTRITION

8-28. With a focus on foundational health through a deliberate everyday diet, Soldiers are better positioned to optimize task-specific performance nutrition through event fueling and post-event recovery, and arduous environment preparedness.

EVENT FUELING AND POST-EVENT RECOVERY

8-29. Soldiers consider some factors when choosing pre-event, during, and post-event fueling and recovery nutritional strategies. Although not all-inclusive, these factors include—

- Usual macronutrient intake (such as carbohydrate, protein, and fat).
- Time lapse between macronutrient intake and start of physical activity.
- Duration and intensity of physical activity.
- Environmental conditions.
- Individual gut tolerance.
- Personal taste preference.
- Duration of fueling.
- Body composition goals impact performance.

8-30. Energy or calorie needs increase with increases in exercise frequency, intensity, time, and type. Soldiers should adjust needs based on the type of exercise completed. These four variables are often referred to as the F.I.T.T. principle. Energy needs will fluctuate as changes in frequency, intensity, time, and type occur, therefore Soldiers should consult with a registered dietitian to determine their energy needs and how to adjust for alterations in physical activity, physical demands of duty, or both.

NUTRIENT TIMING

8-31. Nutrient timing involves proper fueling strategies before, during, and after physical training sessions and other strenuous activity. If done correctly, solid strategies can help to prevent energy deficits and aid in adequate recovery. When Soldiers consume nutrients is just as important as what nutrients they consume. Each and every body functions differently in response to fueling for training, so it is recommended that each Soldier practice with nutrient timing while training. Dietitians do not recommend applying recommendations for nutrient timing right before an ACFT or a performance event. Remember to train like you fight. The *Warfighter Nutrition Guide* contains strategies and recommendations for all aspects of performance nutrition for Soldiers.

Before Exercise

8-32. Before strenuous activities, consuming carbohydrate-rich foods and fluids in the 2-4 hours before exercise helps to restore liver glycogen, increase muscle glycogen stores, and prevent hunger. Soldiers who lose appetite or feel nauseated shortly before training or ACFT should allow at least 3-4 hours between a meal and performance. Eating before gastric distress occurs allows the athlete to get the calories needed and can prevent vomiting related to nervousness. The same guidance applies to Soldiers who get diarrhea shortly before or during training. Anxiety increases gastric contractions that move food through the gastrointestinal tract. Eating can stimulate the bowls even more, so dietitians recommend eating well ahead of a physical event.

8-33. Research suggests a pre-exercise meal containing 1 to 4 grams of carbohydrate per kilogram of body weight, consumed 1 to 4 hours prior to exercise provides improved performance. Table 8-1 provides examples of pre-exercise meals. If unable to consume a meal prior to early morning exercise, consuming approximately 30 grams of easily digested carbohydrate-rich food or fluid (for example, banana, applesauce, or toast with peanut butter) one hour prior to exercise is beneficial.

Table 8-1. Examples of pre-exercise meals

Time Between Eating and Performance	*Suggested Pre-Exercise Meals*
1 hour or less before exercise	Choice of: Fresh fruit such as apples, watermelon, peaches, grapes, oranges, or a sports energy bar *and/or* ½–1 ½ cups (4–12 ounces) of carbohydrate electrolyte beverage
2–3 hours before exercise	Choice of: Fresh fruit, 100-percent fruit or vegetable juices *and/or* Breads, bagels, English muffins with limited amounts of butter or margarine or cream cheese, yogurt, oatmeal, pancakes with limited amounts of butter and syrup, or a sports energy bar *and/or* 2–4 cups (16–32 ounces) of carbohydrate electrolyte beverage
3–4 hours before exercise	Choice of: Fresh fruit, 100-percent fruit or vegetable juices *and/or* Breads, bagels, baked potatoes, cereal with milk, yogurt, sandwiches with a small amount of peanut butter, lean meat, or cheese, spaghetti with a tomato sauce *and/or* 4–7 ½ cups (32–60 ounces) of carbohydrate electrolyte beverage

During Exercise

8-34. Consuming carbohydrates during exercise lasting greater than 60 minutes can delay the onset of fatigue and improve endurance capacity by maintaining blood glucose levels. Table 8-2 outlines the recommended carbohydrate intake during exercise.

Table 8-2. Recommended carbohydrate intake during exercise

Type of Activity	*Recommended Carbohydrate Intake*
Exercise lasting less than 45 minutes	None necessary or practical
High-intensity exercise lasting 45 to 75 minutes	Small amounts of sports drink or carbohydrate-rich snacks or foods
Endurance and intermittent, high intensity exercise lasting 1 to 2.5 hours	30–60 grams per hour
Endurance and ultra-endurance exercise lasting 2.5 to 3 hours or longer	80–90 grams per hour

After Exercise

8-35. Using an effective refueling strategy after exercise can help to optimize recovery and promote the desired adaptations to training. Replenishment of glycogen occurs faster after exercise due to the increased blood flow to the muscles, the increased ability of the muscle cell to take in glucose, and the muscle cells sensitivity to the effects of insulin during this period. As such, exercise promotes glycogen synthesis (restoring glycogen in the liver and muscle).

8-36. It is critical to provide the body with 50–100 grams of carbohydrate (2 grams of carbohydrates per kilogram of body weight) and 15–25 grams of high-quality protein (5–9 grams protein per 100 grams of carbohydrates) within 30–60 minutes after exercise. This protein helps replenish muscle glycogen stores, stimulate muscle protein synthesis, and repair damage caused by intense exercise. If unable to eat a meal within 60 minutes of completing exercise, Soldiers might snack on 8 ounces (1 cup) low-fat chocolate milk, 8 ounces (1 cup) 100-percent fruit juice and a handful of nuts (about ¼ cup), 2 slices whole grain bread with peanut butter and a banana, or 8 ounces (1 cup) low-fat yogurt and a piece of fresh fruit (for example, 1 medium apple, 1 medium orange, 1 banana). When refueling, Soldier should eat a combination of foods and fluids with carbohydrates and protein to refuel targets.

HYDRATION

8-37. It does not take much water loss for performance to suffer. A mild dehydration (as measured by a change in body weight) of less than 1 percent can have a slightly negative influence on cognitive function. This involves slowed working memory, increased tension or anxiety and fatigue, and increased error-related to visual vigilance. A 2-percent dehydration more severely impacts mental function, mood, and energy level.

Fluid Recommendations

8-38. Fluid requirements can vary from 2–16 liters per day depending on workload, level of heat stress, and sweat rate. Sweat loss varies depending on age, training, and acclimation status, exercise intensity and duration, air temperature, humidity, wind velocity, cloud cover, clothing, and individual sweat rates.

8-39. On average, 20–25 percent of fluid intake comes from food and 75–80 percent from beverages. Plain water, coffee, tea, soups, fruits, and vegetables provide fluids to support hydration. A small amount of caffeine in tea or coffee (< 200 milligrams) should not negatively affect hydration status, but if Soldiers drink more caffeine, their fluid balance may be negatively affected.

8-40. Typically, voluntary consumption of fluids—drinking to thirst—restores only some lost fluid. Whenever possible, dietitians should use weight loss to quantify fluid loss during physical activity. Table 8-3 shows fluid recommendations before, during, and after exercise. TB MED 507 provides a comprehensive guide for fluid replacement and work/rest guidelines for warm weather training conditions.

Table 8-3. Fluid recommendation before, during, and after exercise

	Recommendation
Before	Drink at least 8–16 oz. (1–2 cups) of fluid 2 hours prior to exercise. Drink at least 4–8 oz. (1/2–1 cup) of fluid immediately prior to exercise. Drink 1–2 mL per pound body weight (for example, 2/3—1 ¼ cups for 150 lb.) 2 hours prior to exercise.
During	Drink at least 4–8 oz. (1/2–1 cup) of fluid every 15–20 minutes during exercise. Do not exceed 1.5 liter (~6 cups) per hour.
After	Drink at least 8–16 oz. (1–2 cups) of fluid after exercise. For rapid rehydration, drink ~3 cups of fluid per lb. of body weight lost.
L liter	lb pound mL milliliter oz ounce

Electrolyte Recommendations

8-41. Electrolytes control the fluid balance of the body and are important in muscle contraction, among many other essential functions. Electrolytes (such as sodium, potassium, calcium, magnesium, and chloride) come

from food and fluids. The loss of sodium and potassium in sweat can be quite high during prolonged physical activity, especially in warm weather. Replacing these elements is an important part of the recovery process. Most commercially available fluid replacement beverages contain electrolytes. Roughly, 1–2 grams of sodium per liter of fluid (0.25 teaspoons per quart—32 ounces) effectively replaces the sodium lost during exercise or a mission. Also, sodium is widely present in various foods and fluids, such as bagels, tomato juice, sports drinks, and milk.

Carbohydrate and Electrolyte Beverages ("Sports Drinks")

8-42. Fluids providing carbohydrate, electrolytes, sodium, and potassium can sustain athletic performance. The drinks aim to—

- Maintain hydration during exercise.
- Ensure rehydration after exercise.
- Replace electrolytes lost during sweating.
- Supplement carbohydrate stores and provide fuel for the working muscles during exercise.
- Minimize muscle fatigue from strenuous workouts.
- Protect the immune system.

8-43. Although sports drinks containing electrolytes enhance endurance performance, many Soldiers use these drinks as a recreational fluid. This only adds calories, artificial coloring and flavors to their dietary intake. Dietitians recommend sports drinks when exercise lasts longer than 60 minutes and then, Soldiers should only ingest 237 milliliters (eight ounces or one cup) every 15 minutes. For activities less than one hour, water is the best choice for hydration needs. Short, low intensity workouts do not lose minimal sodium and potassium through sweat and do not deplete glycogen stores. The ideal sports drink contains—

- 82–163 milligrams sodium per 237 milliliters (8 ounce) serving.
- 18–46 milligrams potassium per 237 milliliters (8 ounce) serving.
- 12–24 grams carbohydrate per 237 milliliters (8 ounce) serving.

8-44. Soldiers should drink sports drinks if a training event is strenuous and takes place greater than 4 hours before or after a meal (such as before breakfast or at night). These recommendations are especially important for personnel not acclimatized to the environment and for activity with heavy sweating. Dietitians encourage Soldiers to consume salty foods at meal time, choose foods high in water content (such as fruits and vegetables), and not restrict carbohydrate intake. If Soldiers choose to drink juice, they dilute the juice with water to 50/50 solution which dilutes the sugar content to prevent diarrhea.

Oral Rehydration Solutions

8-45. Oral rehydration solutions (known as ORS) are classified as medical materiel by the FDA and are available as subsistence supply (Class VIII) items. Dietitians use these solutions to treat and prevent dehydration due to diarrhea. These solutions contain approximately three to five times the amount of sodium and potassium found in typical carbohydrate-electrolyte beverages. If used improperly, oral rehydration solutions may lead to various adverse health effects. Leaders do not use rehydration solutions for IMT trainees for routine hydration to prevent heat illness or heat injury. However, for training that includes purposeful food restriction (for example, Ranger or Special Forces), unit surgeons decide to supplement intake with rehydration solutions. Regular consumption of meals and recommended drinking protocols adequately provides a Soldier with a good electrolyte-sodium balance for most physical training activities. Leaders can use sports drinks or rehydration solutions if the training situation dictates the need for such products in the prevention or treatment of heat illness, and most especially hyponatremia incidents.

OVERHYDRATING

Overhydrating can cause excessive dilution of sodium in the blood, a potentially life-threatening condition called hyponatremia. In situations where Soldiers are drinking to a schedule or regimen over prolonged periods of less intense physical activity, it is important to consider risk factors, signs, and ways to mitigate this condition.

RISK FACTORS:

- **Cool and less humid conditions that make fluid loss considerably less than expected**
- **Overconsumption of beverages that have low sodium content**
- **Inadequate food consumption along with over hydration**

SIGNS:

- **Swollen fingers**
- **Disorientation**
- **Abdominal bloating**
- **Reduced urine output**

MITIGATION STRATEGIES:

- **Adequate food consumption**
- **Carbohydrate–electrolyte beverage consumption after more than 60 minutes of activity**

DIETARY SUPPLEMENTS (CAFFEINE, SPORTS DRINKS, ENERGY DRINKS, ELECTROLYTE DRINKS)

8-46. The most common reasons military personnel give for using dietary supplements include improving performance, increasing muscle mass, enhancing energy level, accelerating recovery, increasing alertness, boosting the immune system, and improving joint function. The best sources of information on dietary supplements are dietitians, certified specialists in sports dietetics, health care providers, or pharmacists.

8-47. Soldiers who purchase supplements should be aware that these products target our human desire for health and performance shortcuts. Some may be damaging and dangerous: if a product or claim sounds too good to be true, it probably is. Soldiers need to consider the consequences of taking various supplements, either alone or in combination. They also need to check that the source of the information obtained for making that decision is trustworthy.

Dietary Supplements and the Law

8-48. Well over 50 percent of the U.S. population takes some type of dietary supplement. To understand why dietary supplements use is a concern, one must appreciate the history. In 1994 the Dietary Supplement Health and Education Act (DSHEA) was passed by Congress to—

- Limit barriers to marketing and promoting dietary supplements.
- Provide for wide availability of supplements to consumers.
- Enhance information available to consumers.

8-49. The passing of DSHEA gave the FDA regulatory control over dietary supplements, and the law required that the label of a dietary supplements provide the name and quantity of each ingredient. It is the role of the manufacturer to provide this information; however, this is often not the case. (See discussion beginning in paragraph 8-53 for guidance on informed selection of supplements.)

8-50. The FDA also regulates whether new ingredients can enter the marketplace or existing ones should be removed for safety reasons. However, federal rules do not require dietary supplement makers to test supplement ingredients. The FDA also regulates what claims may (or may not) be made, but it does not monitor claims. The regulations within DSHEA contain many gaps. Some of the concerns include—

- The responsibility of ensuring products are properly labeled lies with the manufacturer.
- Supplement ingredients sold in the United States before October 15, 1994 are presumed safe and are therefore not subject to review by the FDA for safety.
- The responsibility of providing evidence of safety lies with the manufacturer.
- If a product is already on the market, the FDA must provide evidence that it is not safe.
- Government resources to check dietary supplement quality are limited.

8-51. In June 2007, FDA imposed new regulations that had been mandated by DSHEA. The FDA established regulations that dietary supplements must be produced in a quality manner, do not contain contaminants or impurities, and are accurately labeled. Supplement manufacturers are now required to test all the ingredients in their products to make sure they are not contaminated but that does not mean the ingredients are safe.

Combining and Stacking Supplements

8-52. Once dietitians know what a supplement contains, they consider what might happen when multiple supplements are combined, or "stacked." The concept of "stacking" is a concern. The number of potential stacking combinations is staggering and the effects of combinations of ingredients are, for the most part, unknown. One stacking approach that has proven deadly is the "EAC" stack, with ephedra, aspirin, and caffeine. Now that the FDA has banned ephedra, Soldiers use ephedra-free products (promoted as safe) despite the fact that they are as unsafe as ephedra-based supplements. Ephedra-free supplements are dangerous because—

- The supplements contain high levels of stimulants often in combination with caffeine.
- FDA does not require the makers of the supplements to list the quantity or amount of the stimulants in their products.

Consumer Safety Tips

8-53. Operation Supplement Safety (known as OPSS) is a joint initiative between the Human Performance Resources Center (known as HPRC) and the DOD to educate Service members, retirees, their family members, leaders, healthcare providers, and DOD civilians about dietary supplements and how to choose supplements wisely. The Operation Supplement Safety website at https://www.opss.org/ provides easy access to materials and databases for Soldiers to stay informed and make healthy dietary supplement choices. The Army Public Health Center site at https://phc.amedd.army.mil/topics/healthyliving/n/Pages/default.aspx also has information on nutrition and dietary supplements.

8-54. FDA requires manufacturers to list all product ingredients on the "Supplement Facts" panel of a dietary supplement label as well as the amount of each by weight, except when the ingredients are part of a "proprietary blend." A proprietary blend is a collection of ingredients often unique to a particular product and sometimes given a special name on a product's Supplement Facts panel. A proprietary blend might be listed as a "blend," "complex," "matrix," or "proprietary formulation." Many proprietary blends contains stimulant (or stimulant-like) ingredients. Stimulants found in supplements can include caffeine, yohimbe, and phenethylamines, as well as illegal ingredients such as DMAA (1,3-dimethylamylamine), DMBA (1,3-dimethylbutylamine), BMPEA (beta-methyl-phenethylamine), and methylsynephrine. Laboratory testing is the only way to know contents in any particular dietary supplement product, which is why Soldiers need to look for third-party certification.

8-55. Soldiers identify third-party certification by seals that appear on some supplement products. These seals confirm independent testing and evaluation of dietary supplements and their ingredients and ensure that manufacturing and storage facilities comply with good manufacturing practices requirements. The companies that conduct such reviews vary widely in how they certify and how they test products. Certification seals confirm that a product contains the ingredients listed on the label, but they do not ensure a product's effectiveness or safety.

8-56. The Natural Medicines database, a resource accessed through the Operation Supplement Safety website, is free for Soldiers. It provides in-depth information about dietary supplement products and ingredients based on the best available scientific evidence.

ENVIRONMENT

8-57. Nutritional requirements largely depend on environmental conditions. Hot or dry environments require different levels and types of nutrition than cool or moist environments. High altitudes demand different nutritional requirements than low altitudes, and so on. This section describes how nutritional requirements vary between environments as well as the conditions in those environments that drive specific nutritional needs.

NUTRITION FOR MISSIONS IN THE HEAT

8-58. Repetitive movement along difficult terrain with heavy gear, such as during land warfare operations, is challenging under any environmental condition, but is particularly grueling with extreme heat and humidity. Land warfare scenarios where Soldiers carry heavy loads or injured comrades increase overall effort and energy expenditure, as well as fluid and electrolyte needs. The major concerns during operations in a warm or hot environment are fluid and electrolyte balance.

8-59. Working or exercising in the heat intensifies water and electrolyte loss through sweating. The amount of sweat and fluid lost depends on—

- Environmental temperature and humidity.
- Work rate.
- Fitness level and acclimatization.
- Volume and rate of fluid replacement.

8-60. When the same task carried out in thermo-neutral environment (such as a range of temperatures of the immediate environment in which a standard healthy adult can maintain normal body temperature) is performed in a hot environment, energy requirements increase slightly due to the increased work to maintain thermal balance. When living or working in temperatures ranging from 86–104° F (30–40°C), energy intakes typically increase by 2.5–10 percent unless activity level decreased accordingly. However, heat-acclimated individuals likely will not have an increase in energy requirements.

8-61. High work rates in hot, humid surroundings can significantly increase fluid and electrolyte losses. Losses of one to two quarts per hour or even more are likely when special clothing, such as chemical protective gear, body armor, or both are worn. The highest sweat rates reported exceed over five quarts (160 ounces) per hour.

8-62. Soldiers need fluids and need to drink early and drink often. Starting any operation without being adequately hydrated may increase the risk of performance mishaps. Some believe that relying on thirst is adequate for sustaining hydration, whereas others believe that thirst itself is an indicator of dehydration. For certain, failure to replace lost fluids from sweating results in dehydration and possibly heat injury.

8-63. Leaders avoid forcing Soldiers to drink throughout training in a warm environment to ensure adequate fluid replacement. Too much water can result in hyponatremia. Effective leaders have a pre-determined drinking schedule to ensure Soldiers consume enough fluids. Soldiers ideally drink ¼–½ quart or liter (8–16 ounces or 1–2 cups) of fluid every 30 minutes, and no more than 1 quart or liter (32 ounces or 4 cups) per hour.

8-64. Obtaining body weights before and after activity can help determine fluid replacement needs. One kilogram weight loss requires 1,000 milliliters of fluid to restore fluid balance (or 16 ounces per pound weight loss). A fluid loss of 2-percent body weight can impair physical performance and mood, decrease appetite, and increase the risk of heat injuries. A 5-percent loss of body weight can decrease work performance by 30 percent.

8-65. Soldiers monitor their hydration in the field. In the field when it is difficult, if not impossible, to obtain a body weight, Soldiers use their urine color and smell to gauge hydration status. Dark yellow or smelly urine suggests some degree of dehydration. Soldiers then increase fluid consumption until urine becomes pale

yellow. If taking B vitamins, Soldiers may have bright yellow urine, not pale, regardless of hydration status. Another method for assessing hydration is frequency and volume of urination with a goal of urinating every 2–3 hours.

8-66. Excessive loss of electrolytes from sweating can lead to muscle cramping or severe medical problems. Being in excellent physical condition helps minimize electrolyte losses, but Soldiers given free access to water when exercising in the heat replace only one half to two thirds of their fluid losses. Additionally, electrolyte balance may be compromised due to the use of hydration packs which provide only water. Soldiers may need to consume snacks, fluids, or both with electrolytes during and after missions or periods of grueling and prolonged training. Due to limits to how much sodium and potassium should be provided in sports beverages, fluid replacement alone may not be adequate for restoring or maintaining electrolyte balance.

8-67. Foods that naturally provide sodium and potassium should be selected. Dried fruits are optimal food choices for potassium. Even if heat acclimatization has occurred, leaders must understand the importance of salt: 200–400 milligrams of sodium can be lost per pound of sweat, along with sodium excreted in the urine. Adding salt to foods (1/2 teaspoon provides 1,200 milligrams) or including sodium-rich foods in the diet helps retain water and avoid a sodium deficit. Sodium is the most critical electrolyte for maintain fluid balance.

NUTRITION FOR MISSIONS IN THE COLD

8-68. Exposure to a cold environment seriously challenges the human body. Blood vessels tighten to conserve heat and shivering is initiated to generate heat and guard against hypothermia. Side effects of these responses are an increase in urine output and an increase in energy metabolism. Therefore, the most important nutritional considerations for a cold environments are—

- Energy intake.
- Glycogen stores.
- Fluid status.
- Vitamin and mineral needs.

See also ATP 3-90.97 for guidance on nutritional requirements in cold weather and high-altitude environments.

Energy Intake

8-69. Energy requirements can increase 25–50 percent during cold weather operations as compared to warm weather operations. Even mildly cold temperatures (32–57° F) can increase energy requirements 5–10 percent. Factors that increase caloric intake include—

- Added exertion due to wearing heavy gear.
- Shivering, which can increase resting metabolic rate by two to four times the normal level.
- Increased activity associated with traveling over snow and icy terrain.
- Increased activity to keep warm.

8-70. Many studies have shown Soldiers tend to progressively lose weight when conducting two- to three-week field exercises in the cold. Because significant weight loss can result in fatigue and declined performance, energy intake should meet the increased energy demands.

8-71. Energy expenditure for Soldiers during periods of physical exertion in the cold may range between 4,200 to 5,000 calories per day. When temperatures justify high levels of cold-weather protection (for example, Extreme Cold Weather Clothing System and the Vapor Barrier Boot), energy requirements may increase to approximately 54 calories per kilogram of body weight. Energy needs are higher (approximately 62 calories per kilogram of body weight) when Soldiers maneuver for prolonged periods (2 hours or more) with heavy gear on their feet (for example, snowshoes and skis) over snow- and ice-covered terrain. These increased energy requirements do not apply to troops located in cold climates with limited exposure to outdoor temperatures.

8-72. Although carbohydrate consumption is critical, a diet that provides 35 percent of the energy as fat may be necessary to match energy needs. Ideally, during cold weather operations, 50–60 percent of energy should

come from carbohydrate, 30–35 percent from fat, and 10–20 percent from protein, high carbohydrate snacks should be eaten between meals. Both fat and carbohydrate are important energy sources in a cold environment. A high protein diet is not advised as it may increase fluid requirements.

8-73. Missions in cold weather require foods that produce heat. Foods high in carbohydrate produce more heat through digestion than either fat or protein. Hot beverages, such as cocoa, provide carbohydrate and other warm beverages, to include coffee, teas, and broth, increase body temperature, enhance mental awareness and provide comfort.

Glycogen Stores

8-74. Prior to deploying to a cold environment, the pre-mission diet should ensure that glycogen stores are optimized. Likewise, a high carbohydrate diet is preferred during cold exposure, as carbohydrates are needed to replenish glycogen being used to maintain core temperature. A minimum of 400 grams of carbohydrate are necessary in the cold. Thus, Soldiers should eat regular meals and snacks providing carbohydrate to maintain carbohydrate intake. Including a liquid or solid carbohydrate supplement may be critical for maintaining energy balance and performance.

Fluid Status

8-75. Becoming dehydrated in cold environments is easy because of the cold-induced increases in urine output, increased fluid losses through breathing, involuntary reduction in fluid intake, and sweating. Because dehydration decreases performance and potentially may lead to various medical problems, maintaining fluid status by drinking plenty of fluids and monitoring hydration is absolutely critical. Table 8-4 provides tips for maintaining fluid status in cold environments.

Table 8-4. Tips for maintaining fluid status

Force yourself to drink 480–960 mL (16–32 ounces) of warm fluid at hourly intervals (240–480 mL or 8–16 ounces per 30 minutes).
Avoid alcoholic beverages: alcohol tends to increase heat and urine losses.
Drink beverages with CHO to increase energy intake (5-8% CHO and some electrolytes is best).
Do not eat snow without first melting and purifying it.
Moderate caffeine consumption.
CHO carbohydrate mL milliliter

Vitamin and Mineral Needs

8-76. The requirements for some vitamins and minerals increase when working in the cold due to increases in energy metabolism and urinary losses. The amount of daily vitamin and mineral needs may increase during cold weather operations. In most cases, Soldiers can meet energy requirements and vitamin and mineral needs by eating all ration components.

NUTRITION FOR MISSIONS AT HIGH ALTITUDE

8-77. High altitude missions, to include flying, can cause bodily distress. Adequate nutrition is crucial for maintaining performance. The major nutritional concerns at high altitude are—

- Weight loss.
- Carbohydrate intake.
- Dehydration.
- Oxidative stress.

8-78. Virtually all people who perform at high altitudes experience weight loss and loss of lean body mass. At altitudes below 5,000 meters, Soldiers can prevent weight loss by vigilantly eating on a regular basis. Above 5,000 meters, a 5–10 percent weight loss is inevitable. The only way to minimize weight loss is by being vigilant about maintaining energy intake. Energy intakes should range from 3,500–6,000 calories per day, which is equivalent to eating at least four Meals, Ready-to-Eat (known as MREs) or two high-calorie

individual rations daily. The latter is a compact, eat-on-the-move individual ration intended to be consumed during initial stages of intense conflict. Leaders should consider using high-calorie individual rations for short duration (for example, 1–3 days), highly-mobile dismounted missions. Leaders may also consider augmenting (not replacing) operational rations with modular operational ration enhancement (known as MORE) Type I for high altitude or cold weather (Type II for hot weather) training events. Leaders should consider using the modular operational ration enhancement when missions require extra calories due to heavy activity in extreme environments. Some reasons for weight loss at high altitude include the following:

- Increased energy requirements to 115–150 percent of sea-level requirements.
- Decreased sense of taste, which causes a reduction in food intake.
- Changes in metabolism of fat and carbohydrate.
- Loss of body water from increased breathing rate and dry air.
- Impaired absorption of nutrients.
- Acute mountain sickness, which can cause nausea, vomiting, headache and decreased appetite.

Carbohydrate Intake

8-79. High carbohydrate foods are the preferred energy source at altitude and in flight because they—

- Restore glycogen.
- Require less oxygen to produce energy than fat.
- Are the most efficient energy source.
- Can diminish and delay the progression or severity of acute mountain sickness symptoms.
- Maintain blood glucose.

Diets should provide at least 400 grams of carbohydrate and carbohydrate should contribute 50–70 percent of total energy. This can be accomplished by eating high carbohydrate snacks between meals and drinking beverages containing carbohydrate during strenuous activity, long flights, and recovery.

Dehydration

8-80. Exposure to high altitude is associated with significant levels of dehydration because water losses are increased. If Soldiers do not replace these losses, dehydration will result. Some studies suggest that vigorous hydration may decrease the incidence and severity of acute mountain sickness. The reasons dehydration occurs at high altitude include the following:

- Increased respiratory losses due to increased ventilation (such as increased supply of air to the lungs).
- Increased urine output due to altitude and cold temperatures.
- Possible diarrheal fluid losses.
- Failure to drink water.
- Poor access to water.

8-81. Fluid requirements may be greater than 3700 milliliters (4 quarts or 128 ounces) per day at high altitude. To avoid acute mountain sickness, Soldiers maintain a drinking schedule and monitor hydration status daily.

NUTRITION FOR MISSIONS IN WATER AND AT DEPTH

8-82. Like exposure to altitude and cold environments, water operations, especially cold water operations, are associated with increased energy expenditure and fluid losses. Thus nutritional concerns for diving are maintaining—

- Energy intake.
- Fluid intake.
- Mineral balance.
- Antioxidant balance.

Energy Intake

8-83. When working at the same rate in water as on land, the energy expenditure to accomplish the same task is greater in water. The reasons for this increased energy expenditure during water operations include—

- Greater resistance offered by water.
- Decreased efficiency of movement when thermal protective clothing are worn.

8-84. Soldiers rapidly use glycogen stores when performing hard work in cold water. They must replace these stores between operations to prevent performance decrements. Increasing carbohydrate intake before an anticipated dive has been shown to improve and extend exercise performance during prolonged dives.

Fluid Intake

8-85. Immersion in water increases urinary excretion by 2–10 times above normal. Without adequate hydration, a diver can quickly become dehydrated and suffer from decline in performance. For example, immersion during a single dive for 3–6 hours can result in a 2–8 pound loss in body weight by urination; this is equivalent to losing 1–3 quarts of fluid. Importantly, a diver must drink fluids with carbohydrate whenever possible to maintain blood glucose. A decline in blood glucose is known to negatively affect performance.

Mineral Balance

8-86. Immersion in water, especially cold water, increases urinary losses of magnesium, calcium, zinc, and chromium. Soldiers need to consume foods high in these important minerals to restore immersion-included losses.

THERAPEUTIC NUTRITION

8-87. Fundamental risks associated with mission requirements, and the environments in which Soldiers' operate, increase the potential for medical treatment over a Soldier's career. Medical nutrition therapy is the use of specific nutritional interventions to treat an illness, injury, or nutrition-related condition. Continuous nutrition support from the time of diagnosis, to management or remission, is essential for rapid return to duty.

INJURIES

8-88. Good nutrition aids in recovery. Management of calories and essential nutrients—based on pre-injury nutrition status and severity or type of trauma suffered—helps the treatment of common combat- and training-related injuries. These injuries include burns, minor and traumatic wounds, and traumatic brain injuries.

8-89. Though wound healing often increases calorie and protein needs, dietitians need to balance these requirements with decreased needs associated with long periods of injury-induced reductions in physical activity. If body fat and muscle mass changes are not monitored closely by a registered dietitian throughout the rehabilitation process, the Soldier's return to full duty may be delayed. Soldiers should seek nutrition counseling from a registered dietitian for wound healing, delayed rehabilitation outcomes, and unintentional body composition changes related to recovery.

MEDICAL CONDITIONS

8-90. Beyond acute injuries and illnesses, medical nutrition therapy for the treatment of familial-and lifestyle-associated conditions also contribute to a Soldier's readiness and longevity. These conditions can include hypertension (high blood pressure), insulin resistance (high blood sugar), and dyslipidemia (high cholesterol and/or triglyceride (fats) in the blood). Soldiers should seek nutrition counseling from a registered dietitian for the treatment of familial- and lifestyle-associated conditions.

This page intentionally left blank.

Chapter 9
Mental Readiness

Soldiers must be capable of overcoming adversaries at a moment's notice. To do this, Soldiers must be mentally as well as physically ready. They must possess the physical, cognitive, emotional, and interpersonal capabilities to fight and win in multi-domain operations. This chapter provides tools, techniques, and resources for leaders and individuals to maximize Soldier and team performance through the development, sustainment, or restoration of mental readiness. This chapter discusses the purpose, impact and the components of mental readiness as well as strategies for mental readiness development.

MENTAL READINESS CONCEPTS

9-1. Mental readiness is an individual's or team's ability to think, feel, and act in a manner that optimizes performance in a demanding environment or with occupational and combat-specific tasks. Mental readiness includes the ability to integrate cognitive, emotional and interpersonal capabilities. Mental readiness, like physical readiness can be improved and requires intentional training to achieve peak levels of performance. Optimizing Soldier readiness requires maximizing the mental and physical readiness of the Soldier and his or her team. Many organizations, from professional sports teams to special operations groups, value mental readiness. Leaders in these organizations play an active role in creating and sustaining a climate that encourages individual and team mental readiness in accordance with unit needs.

9-2. Unlike physical, sleep, and nutritional readiness, mental readiness is difficult to standardize and measure. Conceptual notions of what makes a mentally ready Soldier often differ with empirical findings. Moreover, reconciling stable personality traits with fluid Army roles and assignments is a daunting task. For example, what might appear to be the perfect mental readiness profile for success in BCT might not be appropriate for the operational force or a specific MOS.

9-3. Soldiers' roles and jobs change, complicating the requirements for sustained character and psychological training across a Soldier's lifecycle. Individualized intervention has enormous value in crisis situations such as the prevention of drug and alcohol abuse, misconduct behavior, safety violations, and suicide. Therefore, commanders must consider this doctrine as providing best solutions and messaging for the collective mental health of the unit—procedures and tactics that allow Soldiers to prepare for, thrive in, and recover from the ordinary and extraordinary stressors that might degrade readiness.

9-4. Mental readiness doctrine provides tools, techniques, and resources for Soldiers and teams engaged in the development, sustainment, or restoration of mental readiness. Soldiers must possess exceptional mental flexibility and endurance, morals and ethics, self-initiative, and an ability to operate within the commander's intent. Mental readiness is a foundational consideration in the H2F System. It includes the integration of cognitive, emotional, and interpersonal capabilities. Leaders must incorporate individual and unit mental readiness training into the unit's battle rhythm.

9-5. Within the H2F System, teams are staffed and resourced to support leaders and individuals in the training of mental readiness. Leaders should seek their assistance to enable them to focus time and energy on primary functions while mental readiness improvement can be trained by experts in an appropriate, effective, and efficient manner.

9-6. Optimal mental readiness is required for optimal team or unit cohesion. Mentally ready Soldiers can leverage protective factors against physical and environmental stressors typically encountered in complex military environments.

9-7. Mental readiness is required to achieve capabilities the Army must possess to win in multi-domain operations. These capabilities include, but are not limited to—

- Train Soldiers and leaders to ensure they are prepared to accomplish the mission across the range of military operations while operating in complex environments against determined and adaptive enemy organizations.
- Develop resilient Soldiers, adaptive leaders, and cohesive teams committed to the Army professional ethic who can accomplish the mission in environments of uncertainty and persistent danger.
- Develop agile, adaptive, and innovative leaders who thrive in conditions of uncertainty and chaos, and are capable of visualizing, describing, directing, leading, and assessing operations in complex environments and against adaptive enemies.
- Understand, visualize, describe, direct, lead, and assess operations consistent with the philosophy of mission command to seize the initiative over the enemy and accomplish the mission across the range of military operations.

MENTAL READINESS CAPABILITIES

9-8. Mental readiness includes three interrelated capabilities—cognitive, emotional and interpersonal. Just as physical readiness requires training and integration of a variety of components (for example, muscular endurance, muscular strength, balance, flexibility, and agility), optimizing mental readiness requires the training and integration of a variety of capabilities. See figure 9-1.

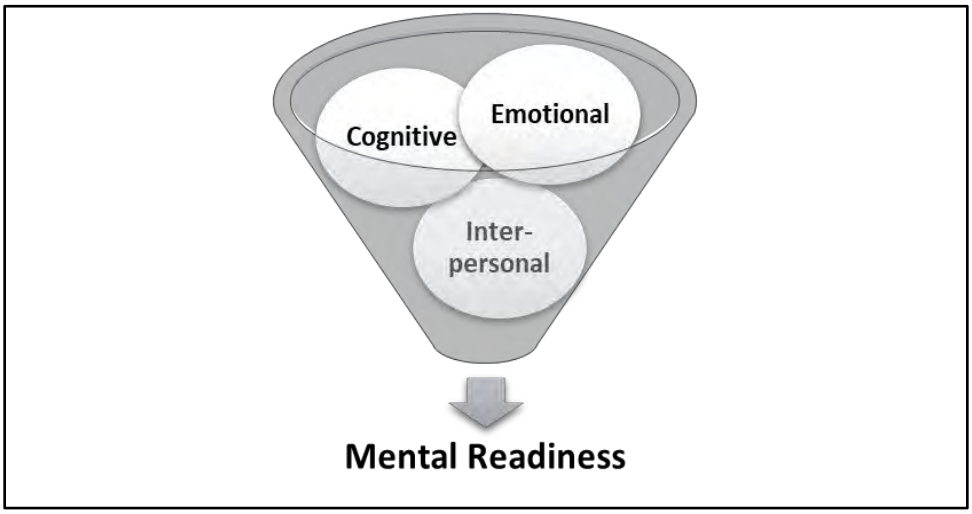


Figure 9-1. Mental readiness capabilities

9-9. One approach to developing mental readiness capabilities involves using the Goal, Plan, Do, Check strategy. Leaders can use the strategy to coordinate mental readiness capability development in a variety of circumstances.

9-10. Goals are established by the Soldier in collaboration with the mental readiness experts on the H2F performance team. Goals are specific to a task. Goals must be clearly articulated using the SMART principles—S for specific, M for measurable, A for attainable, R for relevant, and T for the time period in which the goal must be attained.

9-11. Leaders develop plans to accomplish the goal. The plan consists of the way a Soldier will be coached—the tactics, techniques, and procedures used to promote or optimize the development of the mental capability. These are individualized for the Soldier.

9-12. Doing the plan is the action or actions taken by the Soldier and the team to achieve the goal. The doing part of the strategy involves teaching, training, practice, and implementation.

9-13. Finally, the leader checks the strategy for effectiveness. The check makes sure that the goal has been met and if it has not, is retrained.

COGNITIVE CAPABILITY

9-14. Cognitive capability is the ability to expand and integrate knowledge into decisions with an understanding of how values and beliefs influence a Soldier's thoughts and ultimately his or her performance. It is the acquisition and demonstration of knowledge and understanding through processes such as memory, attention, problem-solving, decision-making, judgment, reasoning, and learning.

9-15. Soldiers and leaders require the ability to process large amounts of information and make sound decisions—a process that can be complicated by the rapid evolution and intensity of combat. Self- and team awareness of personal, spiritual, and cultural beliefs and values can assist with self and team accountability. This awareness combined with an understanding of the commander's intent can lead to improved problem solving and more effective decision making. When leaders discuss ethics and values in the context of the mission, they are positively influencing cognitive capability.

COGNITIVE LOAD

9-16. Cognitive load is the amount of information a Soldier can memorize in the short-term in order to learn something new. During the learning process, Soldiers indicate mastery of new information by how much of that information they can recall and apply. Cognitive skills training uses various methods to optimize cognitive load. These methods include limiting divided attention, breaking down new information into parts, and using visual and auditory strategies.

9-17. When learning new tasks, the capacity of the Soldier may aid or degrade mastery of processing new information and creating long-term memories. Soldiers must optimize short-term memories to create long-term memories, which is referred to as optimizing cognitive load. Cognitive load overwhelms the Soldier when the incoming information is greater than the available cognitive resources. Soldiers forget the new information resulting in poor performance.

9-18. There are three types of cognitive load: intrinsic, extraneous, and germane. Intrinsic cognitive load refers to the amount of information Soldiers need to hold in their working memory to comprehend a situation. Working memory is the short-term memory storage for selection and interpretation of new information. The ability to master new tasks depends on how quickly Soldiers can acquire, store, and retrieve information especially for a key task. If the task is complex, Soldiers with more capacity to optimize intrinsic load can process and complete the task more effectively. Soldiers with less capacity may have to break the task into smaller steps to complete it. Soldiers can improve intrinsic load by reducing or simplifying tasks, using learning cues, or applying memory cues such as an acronym.

9-19. Extraneous cognitive load refers to how information is presented and the cognitive demands placed on the Soldier during task performance. For example, if instructions for a technical task are poorly presented, presented in a noisy distracting setting, or presented out of sequence, then the Soldier may be less able to properly execute the task. Improving the delivery of the task instructions or training content may decrease extrinsic cognitive load and result in more rapid mastery of the task. Some Soldiers may prefer getting extensive, detailed instructions for a task whereas others may do better when provided with only an end goal and key cues on how to execute. For example, when learning a front squat, Sergeant (SGT) Jones receives multiple specific instructions on proper form: keep shoulder blades back and engaged, keep spine straight, keep torso upright, place feet shoulder width apart. However, SGT Jones finds the information overwhelming and cannot perform the lift comfortably. The next day, SGT Jones receives one simple instruction to lower to the floor as if going to sit. While lowering, SGT Jones is cued to keep chest up. SGT Jones performs the task with increased comfort. In this example, SGT Jones extraneous cognitive load was decreased and performance improved.

9-20. Germane cognitive load refers to the Soldier's comprehension, application, and coordination of information. This is the goal of learning. It is the ability of the Soldier to conceptualize and use information to improve different skills. Long-term learning requires sustained deliberate mental effort. This conscious cognitive processing improves the transfer of knowledge across different situations. Optimizing Soldier

cognitive performance occurs when Soldiers practice cognitive skills in ways that minimize extraneous load, manage intrinsic load, and maximize germane load.

ATTENTION

9-21. Attention is the ability to sort through irrelevant information and thoughts (for example, "I'm hungry") or surroundings (for example, weapons firing in the distance) to concentrate and focus on a specific task. Irrelevant or distracting thoughts divide attention and lead to decreased information retention, poor performance, and safety violations. Attention also has a time component that can impact performance. For example, a Soldier's attention may focus on a mistake made several months ago rather than focusing on the present task. Additionally, a Soldier's attention may focus on a future mission, causing increased worry and decreased performance of the present task.

9-22. Attention is important in both garrison and operational settings. It requires deliberate, daily practice for mastery. Practice can take many forms ranging from personal reflection in quiet moments to following directions precisely during physical training. Personal reflection allows Soldiers to understand why or how they react to certain triggers or feelings and to craft a response that allows improved performance. Spending several minutes each day reflecting on triggers, beliefs, and reactions can improve the ability to sort through sensory input. For example, if Sergeant James knows he fires his weapon more accurately when in a relaxed mental state, he can take actions to prepare his mind prior to firing. With practice, SGT James' awareness and ability to relax his mind becomes a reflexive skill that transfers into operational settings, improving lethality.

9-23. Leaders can use intense physical training to recreate the same physiological arousal that happens in high-risk situations. Application of mental performance training during intense physical training improves Soldiers' abilities to pay attention and make better decisions when under physical duress. This is applied in familiar training events such as a stress shoot.

9-24. Adding mental skills training does not have to be physically or resource intensive. For instance, combine the task of entering and clearing a building with attentional control skills using a deck of playing cards. Without letting Soldiers see it, set up an area (blank wall or board) with 2–3 playing cards. Instruct the Soldiers to identify a specific set of information on each turn. At a signal, the Soldiers enter the area, observe the cards for 5 seconds, and return to the starting position. Soldiers must recall the set of information for each card. Gradually increase the difficulty by adding information to recall (number or face, suit, or other details), increasing number of cards staged, and/or decreasing observation time. The outcome of this exercise increases mental skills in attentional control, visual scanning, self-awareness, arousal control, and situational awareness. Training these tactical mental skills can make large differences in success or failure during high-risk situations.

9-25. When thoughts interfere with performance, a routine can help Soldiers improve their attention. For example, Second Lieutenant Doe is worrying about her finances and is underperforming during physical training. Her mental readiness routine involves loosening and retying her sneakers. When she starts that process, she mentally cues herself, "Once I lace up my sneakers, my only focus for the next hour needs to be physical readiness training." This enables her to temporarily suppress the other thoughts affecting her performance.

9-26. Additional training to assist with attention includes concentration grids (see table 9-1) and other tools. Using the grid below as an example, find the numbers in ascending order and note time to complete. As performance improves, add rows or columns to the grid or external distractors to increase the level of difficulty.

EMOTIONAL CAPABILITY

9-27. Emotional capability is influenced by abilities such as arousal control, heart rate control, stress control, performance imagery, motivation, and self-talk. Leaders can train these abilities to optimize normal physiologic and emotional responses. These abilities help Soldiers combat intensely stressful, physical, and complex situations. Regularly implementing strategies that improve emotional capability helps Soldiers to achieve optimal mental readiness.

Table 9-1. Concentration grid

27	16	24	33	13
11	3	25	7	34
28	8	20	31	17
4	19	14	21	29
32	26	5	27	10
15	30	9	12	23

ACTIVATION

9-28. Arousal refers to the amount of energy devoted to an individual's level of physical and mental activation. Activation levels vary along a spectrum from low (being asleep) to high (awake, active and intensely excited). Activation levels shift across this spectrum throughout the day in response to actual and perceived demands and level of training. For example, a Soldier participating in a six-mile foot march during morning physical training will likely have a significantly lower activation level than a Soldier performing airborne operations for the first time. Activation levels also vary depending on the Soldier and the context. Some individuals appear to remain "cool and collected" even during activities that would "psych out" other individuals. Some Soldiers may not worry about rappelling from a tower while others may feel extreme stress. Activation levels required to optimize task performance can vary between Soldiers. Figure 9-2 illustrates this between two Soldiers, A and B performing the same high-stress occupational tasks.

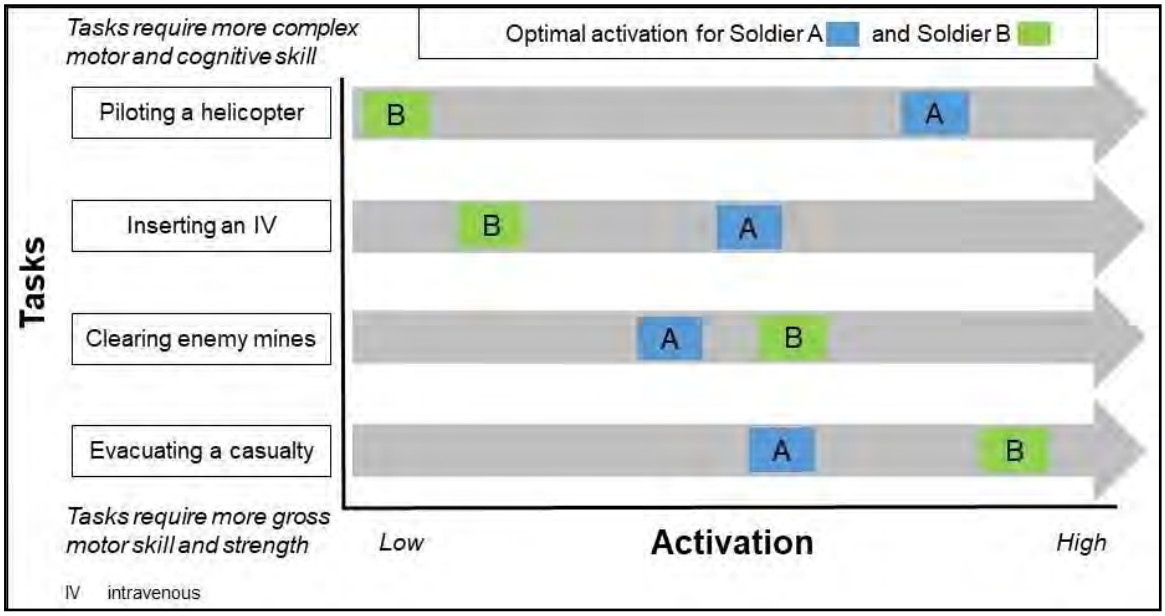


Figure 9-2. Activation levels in different Soldiers performing the same task

9-29. Understanding the physiological activation and mental operations that coincide with those states are crucial to overall mental readiness. By bringing awareness to the connection and communication between the body and brain, Soldiers can better control their state of activation. Involuntary or automatic physiological responses in the body—such as heart rate, blood pressure, and hormone levels—measure activation level. Subjective measures of activation include self-talk, confidence, and motivation. Both combat and operational stressors can lead to activation of these physical and mental responses, inducing the sympathetic nervous system's fight or flight response (see paragraph 4-41 for more on fight or flight response).

9-30. Any threat, whether it be real or perceived, can result in this sympathetic response. Even non-combat stressors such as a physical readiness test, a short-suspense deadline, family stressors, or a difficult commute can activate these physiological responses. They are inherently protective, increasing activation, reflexes, and chances of survival in life or death situations.

9-31. One of the hormones released as a result of this protective response is cortisol, often referred to as the "stress hormone." Excessive production of cortisol contributes to chronic disease, poor executive cognitive function, and increased susceptibility to injury and infection. When Soldiers are trained to control their activation levels, they can mitigate the negative impact of this physiological reaction. It helps Soldiers if they can understand how they react to stress at its initial onset. Table 9-2 outlines common physiological acute and chronic stress responses.

Table 9-2. Physiological changes associated with the stress response

Acute, early phase of the stress response (duration in minutes to hours) symptoms:

- Increased heart rate
- Increased blood pressure
- Increased respiration
- Mobilization of energy from liver and body fat
- Sharpening of attention and cognition
- Increased fear conditioning (learning)
- Blunting of pain
- Altered intestinal motility
- Release of cortisol and adrenaline

Chronic, later phases of the stress response (duration in days to weeks) symptoms:

- Suppression of immune system
- Suppression of appetite and digestion
- Suppression of growth factors
- Suppression of reproductive factors
- Persistence of increased heart rate and blood pressure for certain cases
- Persistence of increased cortisol levels for certain cases
- Release of stress hormones
- Excessive muscle atrophy (muscle wasting) and redistribution of fat

HEART RATE CONTROL

9-32. An effective way to inhibit or enhance the fight or flight response and aide in activation control is by monitoring heart rate. Intentional breathing can influence heart rate. By inhaling for a five- to seven-second count and exhaling for a five- to seven-second count, Soldiers can slow heart rate, and increase time for increased oxygen exchange to take place in the lungs. Soldiers repeat this slow inhalation and exhalation for a few repetitions several times per day. Practicing this type of intentional, controlled breathing throughout the day improves activation control.

9-33. Soldiers can practice activation control immediately before or after performance of the target task. Adding an activation control skill such as intentional breathing in mid-performance can improve performance of the target task by helping to optimize a Soldier's physiological state when optimal performance is critical. The difficulty is incorporating these techniques into deliberate, routine practice so that it becomes a reflex in the midst of performing a drill or mission. One technique is simply paying attention to the feeling of air moving in and out of lungs for several seconds. This awareness acts as a checkpoint for the performance, helping to control breathing and monitoring levels of mental and physical activation. Breathing control is a familiar component of several Soldier tasks and can be leveraged for activation control. For example, it is a fundamental component of marksmanship.

9-34. The example of the relationship between heart rate and task performance in table 9-3 applies only to extreme stress (for example, stress associated with combat operations) or fear-induced increase in heart rate. Increases induced by exercise will not be the same as when fear or extreme stress cause an increase. Combining fear or extreme stress with physical exertion can result in heart rates that table 9-3 will not capture. Soldier heart rate responses vary. However, every Soldier can train to modulate heart rate response for different scenarios. Training that incorporates heart rate control with physical readiness training is important so that Soldiers can perform occupational tasks with less stress-induced distraction.

Table 9-3. The effects on task performance of increasing levels of stress as measured by heart rate (bpm)

Task	*Low Stress 115–145 bpm*	*Moderate Stress 145–174 bpm*	*High Stress 175+ bpm*
Motor skill complexity	Enhanced	Deteriorated	Shut down
Visual reaction time	Enhanced	Decline	Diminished
Cognitive response time	Improved	Declined	Irrational response with shut down of high function
Decision making speed	Quicker	Deteriorated	Reduced ability to communicate

bpm beats per minute

STRESS CONTROL

9-35. Stress control is essential for mental readiness. As described in paragraph 9-34, stress is the body and brain's response to a threat. The interpretation of that threat is based on the perspective of the individual Soldier. Thus, the same stressor may cause a positive stress reaction in one Soldier and a negative stress reaction in another. Soldiers need to develop and cultivate individualized, group, and organizational resources for adapting to the unique demands of military tasks.

9-36. Practicing stress control strategies optimizes stress adaptability in what is known as the Yerkes-Dodson Law. This law explains a relationship between stress and performance. Without any stress, performance will be quite poor. As a Soldier experiences low to moderate levels of stress, performance will begin to increase. However, as a Soldier's stress increases beyond his or her capacity, he or she becomes overwhelmed and performance begins to degrade. This point is known as a tipping point and is unique to the individual. Routine practice of self-regulation and emotional control strategies helps Soldiers adapt to various stressful demands within potentially prolonged high-consequence situations.

PERFORMANCE IMAGERY

9-37. Performance imagery is a mental readiness skill. It is the mental rehearsal or re-creation of an occupational task or experience to improve performance of that task. Similar to the way dynamic stretching primes the Soldier's nerves and muscles for exercise, performance imagery primes the Soldier's brain to be ready for mental challenges. Performance imagery rehearses every step of a task, including reactions to potential obstacles. This preventive action can increase confidence and improve outcomes in individual or team performance. It works best when the brain attempts to mentally replicate all the sensory inputs possible: sight, smell, sound, texture, and proprioception (awareness of where the body is in space). The act of mental practice promotes neural pathways between the brain and muscles involved in the task.

9-38. To practice performance imagery, Soldiers create an image of the environment and location where the task is actually taking place. Performance imagery is even more effective when physical movements are rehearsed at the same time. If Soldiers will perform the task under high stress conditions, then they should try to imagine themselves under control, confident, or relaxed during the task. For example, to perform successfully on a combat testing lane for the Expert Field Medical Badge (known as EFMB), the Soldier will imagine the lane at the test site. He or she will visualize all the details of the lane and each step of every task. He or she will imagine the smell of the smoke and the noise of simulated mortar rounds. He or she will

rehearse the physical movements required to hold a sling and tie it around a shoulder. He or she will imagine the steps of setting a fracture in a sling and visualize executing each task confidently and in a controlled manner.

9-39. A script can be developed for different tasks and can help with efficient performance imagery and can be easily performed in preparation for an event. Two examples are described in the following scripts.

Firing M4 Script

"I will go up to my firing point and assume a prone supported firing position. My breathing is calm. I position my weapon inside my shoulder and under my collar bone. I place my body at slight angle behind my weapon, legs shoulder width apart with laces in the dirt. My breathing is calm. I look at my target. Breathe in—breathe out. Rear sight aligned on my target. Body relaxed. At the command of the range operator, I load the magazine, place my weapon from safe to semi, and take a deep breath. I align my target and breathe in, exhale, hold, and deliberately, smoothly squeeze the trigger."

3 Repetition Maximum Deadlift Script

Imagine smelling the grass, feeling the wind, hearing your battle buddies around you. Imagine being at your optimal level of energy—heart is beating fast but under control. Your body is warmed up and feels ready. Imagine the texture of the bar grip as you assume the starting position for the lift. Think about setting your shoulders and feet in preparation for the lift. Think about you and the weight becoming one and raising smoothly and together from the ground as you exhale. Imagine your body straightening at the top of the lift as your hips move under you. Imagine the controlled movement down to replace the weight quietly on the ground.

POSITIVE EMOTIONS

9-40. Positive emotions include feeling enthusiastic, active, and alert. They include optimism, a sense of humor (ability to find humor under stress or when challenged), hope, and flexibility about change. Positive emotions can impact overall health and wellness, rate, and completeness of recovery from injury and the sustainment of abilities during a setback. Feelings that are typically pleasant and energizing for a person are considered positive affect—the term used to describe how a person feels and how those feelings are expressed. In a general sense, Soldiers tend to experience more positive affect than negative affect. They feel enthusiastic, active, and alert. They have high levels of vitality and approach their daily tasks with vigor. Soldiers are proficient at generating positive emotions. The most frequently occurring positive emotions are love, joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, and awe.

9-41. Goal-setting is an effective tool for maintaining positive emotions. By defining short-term and long-term goals, small accomplishments are recognized along the way to overall achievement. Goal-setting provides a road map for success that can increase commitment towards achieving an objective. Progressively more difficult goals encourage improvements in physical and mental readiness. A clearly defined goal that a Soldier has built on his or her own improves acceptance and the likelihood of reaching the goal. Examples of the SMART process—S for specific, M for measurable, A for attainable, R for relevant, and T for the time period—for goal-setting are described in table 9-4.

Table 9-4. Sample SMART Goals

Goal	*SMART process*	*SMART goal*
Run faster	Every week, I will perform one to two running interval sessions and one sustained run at or near my goal pace. I will conduct a 5–10-minute warm-up and 10–15-minute cool-down to include Running Skill Drills before and after each run to prevent injury and maximize recovery. I will drink 8 oz. of chocolate milk after every workout to promote recovery and to fuel future performance.	**Short range:** In 3 months, I will reduce my 2-mile run time by 30 secs. **Long range:** In 6 months, I will reduce my 2-mile run time by 1 minute.
Increase sleep	I will lie down in bed no later than 2200 each night. I will stop using electronic devices within 30 minutes of going to bed. I will stretch or meditate for 10-minutes prior to sleeping.	**Short range:** In 3 weeks, I will increase my sleep from 5 hours to 6 hours per night on at least 5 nights per week. **Long range:** In 6 weeks, I will increase my sleep from 6 hours to 7 hours per night at least 6 nights per week.
oz ounces		sec second

9-42. Focusing on success even during stressful situations is an important aspect of mental readiness. It reflects a Soldier's perceived confidence or ability to perform, which strongly correlates with successful outcomes. Maintaining a positive mindset, or using positive self-talk, can make the difference in performance. Negative thoughts such as "I have never been a runner," or "I have never been athletic" result in a defeatist attitude and submaximal exertion.

9-43. Productive instructional self-talk helps to maintain focus on performing a task correctly, especially when learning a new skill. A brief short phrase can be used with each activity to encourage optimal performance. For example, "my arms are strong" or "I am prepared." Soldiers with positive attitudes are more able to cope with adversity and be successful with challenging tasks. Motivational self-talk can improve attitude and focus on the task.

9-44. Cognitive reframing is a type of self-talk strategy. If Soldiers are more open to recognizing the positive in an otherwise suboptimal situation, they are more likely to respond in a productive way. Potentially negative situations can be viewed as an opportunity to learn. The more frequently Soldiers employ this strategy, the more likely that it will become their first course of action (see table 9-5).

Table 9-5. Examples of productive self-talk

Type of self-talk	*When to use it*	*Example*
Instructional	When learning, progressing or perfecting a skill	Squatting: inhale, knees out, exhale and squat. Prone firing: straight line from weapon to firing hip pocket, cheek to stock weld, high grip of firing hand, C-grip with non-firing hand.
Motivational	Before or during an event to increase focus and confidence	Deadlift: my body is strong and I am ready to lift heavy. Sling Load Test: I have thoroughly studied the necessary materials to succeed.
Cognitive Reframing	Before an event or task that has negative connotations	Running up hills: hills are my friend. They only make me stronger. Hot weather training: this training is preparing me to be more lethal in the desert.

INTERPERSONAL CAPABILITY

9-45. Interpersonal capability is the ability to facilitate team cohesion and the development and sustainment of healthy, trusting relationships. Interpersonal capability includes effective communication techniques, caring for others, conflict resolution, and team building.

RELATIONSHIPS AND COMMUNICATION

9-46. Developing and maintaining good relationships requires effective communication. Poor communication leads to isolation and difficulty coping with daily stressors. When Soldiers encounter challenges or stress, they find it much easier to cope if they have the support of unit, family, or community. Soldiers are more effective in their professional mission if they can completely resolve conflicts with other Soldiers and with their own doubts about the mission. Self-awareness, self-confidence, assertiveness, and conflict resolution skills allow Soldiers to successfully navigate normal interpersonal problems.

9-47. Soldiers that communicate assertively and honestly with each other while demonstrating empathy (understanding the situation from another's perspective) can better develop strong relationships with other team members. Assertive communication is objective, specific, and empathetic. This type of communication can also lead to strong team cohesion, making it easier to work through stressful or chaotic situations.

9-48. Communication in its basic form is a loop that involves one person sending an intended message through a shared space to another person who receives a perceived message, and ideally provides feedback. Many barriers exist that complicate communication. The barriers include, but are not limited to the following:

- Physical.
- Environment.
- Emotional management of both the sender and receiver.
- Culture.
- Gender.
- Communication channel (face to face, email, text message, radio, and so on).
- Experience levels.
- Physiological states.

9-49. The primary components of communication are nonverbal and verbal cues. The majority of communication is nonverbal, meaning body language and facial expressions. Another major component of communication is tone. The same message can have multiple meanings based on the pitch, speed, and intonation. The meaning of the verbal messages, both the way it is intended and received, greatly depends on each component. Increased awareness of importance of verbal and nonverbal communication can improve perception of self and others, increase team dynamics, and enhance overall team performance.

9-50. Assertive communication is key when handing conflict because it is objective, specific, and empathetic. Objective communication focuses on the task, not the Soldier performing it. When conflicts move from being objective to subjective communication, the resulting conflict can damage future team dynamics. Assertive communication focuses on one or two specific corrections. The empathetic aspect of assertive communication acknowledges that with each discussion, there are multiple people involved. Each person involved has his or her own point of view, needs, and goals. Empathetic communication responds to each person's concerns to create a positive relationship. Leaders who regularly reflect on their communication styles and behaviors are more inclined to use assertive communication in stressful situations, when communication styles have the biggest impact.

ENGAGEMENT

9-51. Engagement is a Soldier's willingness and tendency to fully contribute to the mission and remain committed to the team's objectives. Engagement is required to achieve optimal individual and unit performance. Engagement requires that the Soldier understands the importance of being physically, mentally, and spiritually ready. An engaged Soldier chooses behaviors that lead to team cohesion, performance, and mission success.

9-52. Cohesion can be either socially-based or task-based. Task cohesion represents the amount of work Soldiers perform together to accomplish common goals. Social cohesion the term used to describe the affinity Soldiers have for one another in the form of mutual respect. High social cohesion results from working together toward shared goals and having respect for one another.

Mental Readiness

To optimize performance, Soldiers need to be mentally ready. Mental readiness is deliberately assessed and developed like any other skills through education, training, and practice. To use a computing analogy, addressing both physical and mental readiness is a “systems check” on both the “hardware” and the “software” that makes an effective Soldier. The H2F System incorporates training techniques to develop individual and unit mental readiness.

This page intentionally left blank.

Chapter 10
+Spiritual Readiness

This chapter discusses spiritual readiness, the fourth domain in the H2F System. It provides tools and techniques for leaders and individuals exercising spiritual readiness development, sustainment, or repair. It discusses what spiritual readiness is, the purpose for spiritual readiness, who conducts or enables spiritual readiness, how spiritual readiness is developed, and the aspects of spiritual readiness. Lastly, this chapter lists resources available.

INTRODUCTION TO SPIRITUAL READINESS

10-1. Spiritual readiness develops the personal qualities a person needs in times of stress, hardship, and tragedy. These qualities come from religious, philosophical, or human values and form the basis for character, disposition, decision making, and integrity. People develop their spiritual readiness from diverse value systems that stem from their religious, philosophical, and human values. The spiritual readiness domain is inclusive and universally vital to all personnel no matter their background, philosophy, or religion. It applies to both religious and non-religious persons and concepts. Leaders play an active role in creating and fostering a climate that encourages individual spiritual readiness according to their respective worldviews, while at the same time communicating respect and dignity for diversity in a pluralistic setting. (See AR 600-63 for more on spirituality.)

10-2. Spirituality is often described as a sense of connection that gives meaning and purpose to a person's life. It is unique to each individual. The spiritual dimension applies to all people, whether religious and non-religious. Identifying one's purpose, core values, beliefs, identity, and life vision defines the spiritual dimension. These elements, which define the essence of a person, enable one to build inner strength, make meaning of experiences, behave ethically, persevere through challenges, and be resilient when faced with adversity. An individual's spirituality draws upon parts of personal, philosophical, psychological, and religious teachings or beliefs, and forms the basis of their character. (See AR 350-53 for more on spirituality.) Understanding the general spiritual readiness enables leaders to encourage personal spiritual readiness in a climate where mutual respect and dignity encourage dialogue, foster team cohesion, and enable healthy free exercise of religion or no religion by all personnel. This approach enables and supports collective and individual readiness as Soldiers endure challenging and stressful conditions in training or operational environments.

10-3. People enhance their spiritual readiness through reflection and practice of a lifestyle based on the personal qualities they need during times of stress, hardship, and tragedy. When their actions deviate from their stated values, then they may experience inner conflict. Those struggling for integrity and congruity often only find inner peace after overcoming the struggle. They develop spiritual readiness by studying, connecting with, and understanding the value systems that mold their personal qualities. As their spiritual readiness grows, they become a leader of character and build the resilience necessary to navigate crises.

FREE EXERCISE AND RELIGIOUS LIBERTY CONCERNS

10-4. The First Amendment of the U.S. Constitution begins "*Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof….*" This clause is a constitutional bedrock providing grounding for religious support and spiritual readiness. The Army values Soldiers' rights to observe tenets of their respective religions, or to observe no religion at all. Free exercise of religion supports the Army mission of sustaining Soldiers' short- and long-term readiness, building ethical and moral strength, and motivating Soldiers to meet present and future challenges.

10-5. The word 'accommodation' describes whether the Army and its commanders will prohibit, or permit and accommodate, particular desired exercise or expression of religion that would otherwise be at odds with other military requirements, objectives, and policies. The Religious Freedom Restoration Act generally provides that a request for religious accommodation from a military policy, practice, or duty that hinders a Service member's exercise of religion may be denied only when the military policy, practice, or duty furthers a compelling governmental interest, and is the least restrictive means of furthering that compelling governmental interest. Leaders grant or deny accommodations according to specific procedures and directives such as those laid out in DODI 1300.17 and AR 600-20. Accommodation policy provides further support for Army leaders making ample allowance for individual practice of religious exercise in the Army workplace to support spiritual readiness.

ESTABLISHMENT CLAUSE AND PLURALISTIC CONCERNS

10-6. The Establishment and Free Exercise Clauses of the First Amendment act as guideposts for developing spiritual readiness. The Establishment Clause prohibits unfair use of governmental authority, force, or influence to mandate or unduly promote any particular form of religion, religious belief, or practice.

10-7. Religion may be described as a set of beliefs concerning a divine or transcendent cause, nature, and purpose of the universe typically accompanied with devotional and ritual observances along with an accompanying moral code governing the conduct of human affairs. (See ATP 1-05.03 and ATP 1-05.04 for more on religion.) Most Army professionals identify with some form of religious belief underlying the spiritual dimension. Since religion is often the most important factor in individual moral outlook and motivation, leaders must respect religious and spiritual beliefs to develop spiritual readiness appropriately in Army organizations. Leaders accommodate diverse religious and spiritual practices but do not apply undue influence, coerce, or harass subordinates about religion.

10-8. Pluralistic concerns represented by the Establishment Clause are reinforced in other mandates of law and policy. Civil rights and equal opportunity law and policy undergird an Army commitment to provide equal opportunity and fair treatment for military personnel and Families without regard to race, color, gender, religion, sexual orientation, or national origin. Army commanders seek to provide environments free of unlawful discrimination and offensive behavior to those categories (addressed in AR 600-20). Similarly, DODD 5500.07-R requires all Army leaders and Soldiers to "adhere strictly to (this) policy of equal opportunity."

THE CHAPLAIN CORPS ROLE IN SPIRITUAL READINESS

10-9. UMTs and chaplain sections support and advise on spiritual readiness development for both religious and non-religious personnel. Chaplains represent particular faith traditions as religious leaders while serving the spiritual needs of their assigned units' Soldiers. Chaplains unable to perform specific religious support needs due to their own religious commitments provide supplemental religious or spiritual leaders and resources to meet those needs.

SPIRITUAL READINESS DEVELOPMENT

10-10. Spiritual readiness development involves improving one's spiritual posture to sustaining one's self through all aspects of life. The improvement process is generally self-directed and informed by religious, philosophical, or human values forming the basis for character, disposition, decision-making and integrity. While individuals approach spiritual readiness from both non-religious and religious perspectives, both categories creates similar comparative practices.

GENERAL SPIRITUAL READINESS PRACTICES

10-11. Informed leaders understand the requirements for time, space, materiel, and other conditions required to support spiritual readiness practices within particular organizations. Individual spiritual readiness obligations can vary widely. Paragraphs 10-12 through 10-21 provide examples of spiritual readiness disciplines non-religious and religious personnel both follow. Leaders consult with a chaplain or UMT to regarding these practices.

CORPORATE AND INDIVIDUAL MEETINGS

10-12. A central practice of spiritual readiness is regular meetings to receive instruction, observe tenets of belief, and gather with people of similar values. Meetings often occur weekly and can last thirty minutes to several hours. Some groups require dedicated sacred space in garrison settings, while other groups require dedicated space free of external distractions. Army chapels are designated as dedicated space for this purpose in both garrison and operational environments. Leaders help subordinates de-conflict operational requirements and spiritual practices within constraints of operational tempo and mission requirements.

SERVICE AND CHARITY

10-13. Most spiritual traditions emphasize service to others for the sake of both charity and understanding one's relationship to other human beings and the transcendent. This might involve serving in a homeless shelter, conducting work projects in the local community, visiting the hospital, donating funds or material goods, or helping people in the unit in need.

HOSPITALITY

10-14. Hospitality refers to generously receiving and providing a sustaining environment for family, neighbors and strangers. It is a spiritual readiness practice in many traditions. In practicing hospitality, a guest receives anything from water and shade to lodging, clothing, and food. Closely related to service and charity, this spiritual readiness practice is more intimate in nature since providing hospitality is in person and generally involves engaged social interaction between the host and guest. Many traditions view the practice as a mark of heightened spiritual maturity as it involves vulnerability of the host and investment in another's well-being and basic sustenance. The practice of hospitality towards those considered the most vulnerable in society includes the orphaned, widowed, homeless, injured, physically handicapped, and prisoners.

JOURNALING

10-15. Many people use journaling as a spiritual readiness practice. Journaling often involves an individual maintaining a written record of thoughts, prayers, feelings, beliefs, and reflection on life, philosophy, or other matters. The journal is either handwritten or digitally recorded. Usually the journal is a private document not intended for disclosure. Journals might also have recorded thoughts and words with no particular association or logic, often referred to as free journaling. Free journaling releases one's mind to enable focused reflection. Journaling is a means of incorporating cognitive, spiritual, and physical activities as part of an integrated approach to spiritual readiness. Authors might review their journals to gain perspective on life.

MEDITATION

10-16. Meditation is the practice of contemplation and reflection by an individual or group. It generally requires few external distractions. For this reason, ensuring a dedicated space away from ongoing training or operations is preferable to facilitate individuals' ability to practice this spiritual readiness activity.

PRAYER AND CHANTING

10-17. Religious people tend to practice prayer and chanting to address one or more god, deity, divine being, or spirit. Prayer might follow a set form of words and rhythm or a free-form pattern. Chanting is often a modified form of prayer or song uttered in a rhythmic manner with or without repetition. Some traditions prescribe prayer according to the time of day, a pattern of prayers using beads, or a specific physical posture assumed during prayer. Some prayer is designed for individuals while other prayers are for groups ranging from a few to a large gathering.

10-18. Leaders ask subordinates what space, time, and materials they require to facilitate individual prayer practices. Some prayers require preparation in the form of ceremonial washing or fasting. For example, leaders may be asked to provide a dedicated space with ceremonial washing (ablution) capabilities and limited distractions. Some individuals pray during routine daily activities while others pray only at a dedicated time in a space free from distractions.

BELIEF (VALUES)-BASED EDUCATION (RELIGIOUS EDUCATION)

10-19. Belief-based education occurs for non-religious and religious groups. The education often occurs during group gatherings, but it also occurs as part of an individual's study habit. Groups provide times that allow belief-based education to young and more mature adherents. Trained leaders or lay volunteers provide instruction on topics and information related to core beliefs and the practice of those beliefs. Belief-based education varies from formal instruction with published curricula and examination to informal tutoring and mentoring. Training may happen throughout the week or as part of a formal education program with group meetings.

BELIEF-BASED READING AND REFLECTION

10-20. Non-religious and religious traditions usually reflect on a text, a group of texts, an author, or authors. These traditions often consider these texts or authors authoritative. Members use them for teaching, learning, personal reflection, spiritual growth, and normative practices in personal and public life.

10-21. Some religious traditions consider the texts sacred. Such texts require reverent and dignified handling ranging from careful handling, to physical touch only by trained clergy reading the document for adherents. Texts vary in ease of purchase and cost. Texts regarded as sacred often require special storage and handling considerations. Reading and reflection of spiritual or religious texts varies from one group to another, with some groups reading these texts on special holy days or in collective gatherings, while other groups carry paper or digital copies of their texts for daily reading, reflection, or prayer. Some religious groups require a dedicated space for reading and reflection; other groups might read or listen to their respective spiritual texts while conducting other activities.

RELIGIOUS SPIRITUAL READINESS PRACTICES

10-22. Individuals who practice certain spiritual resiliency disciplines tend to identify with a specific religious group. Paragraphs 10-23 and 1-24 cover the more common disciplines.

SACRAMENTS, RITES, AND ORDINANCES

10-23. Some religious traditions practice a sacramental understanding that imparts common objects with divine significance. Often, these traditions follow a rite or ordered pattern when observing sacraments. Those people with a sacramental understanding often view the objects as sacred or consecrated. Leaders and Soldiers treat those items according to the rites, rituals, or laws of the respective religious tradition. Alongside sacraments and rites are practices by some religious traditions of ordinances. While similar in manner, believers do not treat the ordinances as sacred or consecrated. Even so, all people treat those items with appropriate dignity and respect. The practice of sacraments, rites, and ordinances requires specific materials to satisfy that group's religious requirements. Successful free exercise might require leaders to use appropriated funds to facilitate these spiritual readiness practices.

HOLY OR SPECIAL DAY OBSERVANCES

10-24. Most religious groups have key dates celebrating significant events by members of that group in individual, familial, or collective observances. Holy day observances range from a simple group meeting to an elaborate event over several days with specific dietary, travel, and preparation requirements. Each tradition has a calendar identifying holy day observances. Each calendar varies in whether it is lunar, solar, or Gregorian based. Some calendars are set with numerical specificity whereas others are based on conditions interpreted and defined by religious leaders within that tradition. Some traditions have holy day obligations that require certain activities for their members as part of the holy day observance. Similar traditions might observe the same holy day but on a different date. Effective leaders facilitate dialogue and flexibility regarding free exercise of spiritual readiness practices. While special day observances are typically associated with religious observance, other non-religious spiritual traditions may also have certain special days. Soldiers desiring to observe special spiritual days plan with leaders in advance.

DIETARY PRACTICES

10-25. Dietary practices vary widely across religious traditions. Some follow no specific dietary practices while other groups might follow stringent dietary regimens synchronized with a religious calendar. The Army places a high priority on individual Soldiers' rights to exercise their religion, to include following religious-based dietary practices. Each person in a religious group has unique dietary practices. Accordingly, effective leaders engage in open and continued dialogue with subordinates regarding dietary practices so to accommodate the free exercise of religion in this area.

CLOTHING AND APPAREL

10-26. Spiritual readiness practices can include the wear of religious apparel. Religious accoutrements include but are not limited to headgear, tassels, special garments, or rules regarding modest dress. The Army places a strong emphasis on facilitating free exercise in the least restrictive manner as possible. See AR 670-1 and AR 600-20 for further information on religious accommodation of clothing and apparel.

PHYSICAL APPEARANCE

10-27. Similar to clothing and apparel, some religious groups require specific practices in regards to hair. The Army uses an established process for requesting waivers to accommodate free exercise of religion with regard to physical appearance. See AR 670-1 and AR 600-20 for religious accommodations to grooming standards.

SPIRITUAL READINESS ASSESSMENT

10-28. Unlike a physical readiness test that assesses established form and repetition of tasks in a set time, a spiritual readiness assessment is subjective and based on self-selection and self-assessment. Paragraph 10-29 describes sample methods of self-assessment that are not exhaustive in nature, nor intended as authoritative or definitive. Soldiers may freely choose to use assessment tools regarding spiritual readiness without repercussion or the perception of negative consequences.

10-29. Spiritual readiness assessments can come across as artificial, judgmental, rigid, and subjective. For this reason, each Soldier creates an assessment based on personal aspect and perception of spirituality. For example, Soldiers who find hope in their own personal achievements when experiencing hardship or adversity, base their assessment on the degree to which achievement is effective in bringing that hope and thereby reinforce their belief in personal achievement. Others who find hope in religious beliefs may base their assessments on connection to those beliefs or practices that reinforce those beliefs. Table 10-1 helps Soldiers assessing their own spiritual readiness to focus on relevant factors.

Table 10-1. Sample spiritual readiness assessment factors

Factor	*Questions*	
Personhood	• What perceptions do I have about myself that give me inherent value? • What gives my life meaning if anything?	• Do I believe that my life has purpose? If not why not? • If so, what purpose?
Identity	• What do my worldviews and associated beliefs say about who I am in relation to others? • How would I answer the question, "Who am I?"	
Growth Orientation	• What mindset do I use to progress through life? • On what do I base this mindset?	• In what do I engage that shapes this mindset? • What am I reading to reinforce this mindset?
Personal Agency	• Over what do I have the ability to exercise control? • What aspects of my life are completely out of my control?	• What can I do about adverse situations in my life over which I have no control? • How do I handle guilt and shame?

Table 10-1. Sample spiritual readiness assessment factors (*continued*)

Factor	*Questions*	
Coping Strategies	• How do I typically respond when experiencing adversity? • What, if anything, has worked well?	• What has not worked? • How can I improve my ability to cope with adversity?
Connection	• To what or whom do I feel most connected? • How am I reinforcing those connections? • What connections cause significant distress? • How can I healthfully disconnect from those?	• If disconnection is impossible, how can I manage the connection to minimize the distress? • How can I re-establish damaged connections? • Who, if anyone, do I need to forgive to include myself?

RESOURCES

10-30. Several offices, agencies, and individuals have staffs and resources to support leaders and the H2F Performance Team in facilitating spiritual readiness. Generally, leaders are not expected to be experts on spiritual and religious practices, nor should they function as such. Assistance from qualified staff enables leaders and individuals to focus time and energy on primary Army functions while building and maintaining their personal spiritual readiness. The resources listed in paragraphs 10-31 through 10-37 is not exhaustive in nature.

COMMANDERS AND LEADERS

10-31. Unit leaders foster spiritual readiness by providing space in schedules, battle rhythms, and training plans for individual self-development to include the spiritual dimension. Unit and organizational leaders can encourage spiritual readiness by discussing the spiritual dimension or spiritual development goals in developmental counseling, individual development plans, or their leadership philosophies. Unit leaders may also direct spiritual or moral leadership training, often with support from the chaplain section or UMT, to ensure contextualized training respects the diversity and pluralistic needs in the unit. (See ATP 1-05.04 for fostering spiritual training.)

CHAPLAIN SECTION OR UNIT MINISTRY TEAM

10-32. Chaplains and religious affairs specialists are assigned to units down to the battalion level. Called a chaplain section above brigade and the UMT at the brigade and below, chaplains and religious affairs specialists have specific training and education. They support command requirements to facilitate free exercise of religion and to provide spiritual assistance for all assigned, attached, or authorized personnel. The chaplain section or UMT advises the commander on broad issues regarding religion, morals, ethics, and morale. A key aspect of this advisement is the ability to conduct research and provide advice and resources on spiritual and religious practices. (See FM 1-05 and ATP 1-05.04 for details on religious advisement.)

GARRISON CHAPLAIN'S OFFICE

10-33. Most installations have a garrison chaplain section assigned to support an installation-wide, senior commander's command master religious program. This office is responsible for planning, developing, executing, and assessing religious support for the entire installation. As such, this office generally maintains lists of broad spiritual and religious support programs on the installation, engages spiritual leaders to facilitate comprehensive religious support, and leverages Chaplain Corps assets to research and support spiritual readiness practice requests for all assigned, attached, or authorized personnel. Garrison chaplain sections typically include a director of religious education. That individual oversees all religious education requirements on the installation and supports the garrison chaplain's research and provision of appropriate support for spiritual readiness practices. See AR 165-1 for more information on the garrison chaplain's office.

EQUAL OPPORTUNITY ADVISOR OR OFFICE

10-34. Religion is a category covered under the Equal Opportunity Program of the Army. As such, equal opportunity representatives and advisors can assist leaders and individuals with facilitating spiritual readiness without discrimination. The equal opportunity advisor or officer can advise on various religious or spiritual practices as well as indicators of a healthy climate in which leaders emphasize spiritual readiness without creating adversarial or unhealthy conditions within a unit.

ARMY FIT WEBSITE

10-35. The Army currently maintains the Army Fit website (https://armyfit.army.mil) that provides resources for teams, leaders, and individuals. The resources cover five dimensions: physical, emotional, social, spiritual, and family. There are articles under the spiritual dimension that provide insights into various spiritual readiness practices as well as discussions of potential obstacles or challenges an individual might experience in the exercise of a particular spiritual readiness practice.

LOCAL ORGANIZATIONS

10-36. In the immediate area surrounding military installations, several civilian religious and secular organizations often provide spiritual readiness education and direction. Leaders seeking information regarding spiritual readiness practices of their subordinates or looking for places to refer subordinates looking for specific spiritual advisement and practices might benefit from contacting these organizations. The chaplain section or UMT maintains a list of various local organizations to facilitate ease of referral. Maintaining these diverse lists does not constitute official government endorsement of any particular organization, but rather as a way to aid individual spiritual development.

INTERNALLY ASSIGNED ASSETS

10-37. Spiritual or religious practices of Soldiers and their Family members are diverse and often represent a cross-sectional demographic of the U.S. population. As such, leaders can benefit from learning about respective spiritual or religious groups from assigned Soldiers and their Family members. Those who practice a particular spiritual or religious tradition often understand nuances within that tradition. Providing regular opportunities for these individuals to provide information on their respective spiritual beliefs, practices, and customs can create a climate of understanding, dignity, and respect. Such classes also provide an opportunity for Soldiers to develop professional briefing and teaching skills. Identifying individuals in the unit who exercise a specific spiritual or religious tradition can prove beneficial for supporting other members of the team in a time of crisis or stress.

Summary

Spiritual readiness is a vital domain in the H2F System, and it directly impacts the resiliency of individuals and organizations. Encouraging Soldiers to connect and reflect on the worldview or value system that informs their core beliefs, principles, ethics, and morals can empower them to endure and overcome stress, hardship, and tragedy. Leaders have a responsibility to support spiritual readiness practices and create a climate where dignity and respect guide the process. Understanding common spiritual readiness practices enables leaders to support individual spiritual readiness development, sustainment, maintenance, and repair.

This page intentionally left blank.

Chapter 11
Sleep Readiness

The brain is the only organ or body part that requires sleep. Sleep is crucial for tissue repair and hormone synthesis to maintain peak performance mentally and physically. Sleep sustains brain and physical health, cognition, the immune system, and recovery after physical activity. This chapter provides tools and techniques for leaders and individuals exercising sleep readiness tactics, techniques, and procedures for a range of occupations and operational environments.

PRINCIPLES

11-1. There are three basic interrelated principles of sleep health: sleep duration, sleep timing, and sleep continuity. Of these, sleep duration is paramount because the health and functioning of the brain is primarily a direct function of the amount of sleep obtained—the more sleep obtained the better. Sleep timing is critical because the brain's internal clock strongly influences the ability to initiate and maintain sleep as well as maximize the amount of sleep obtained. The extent to which sleep is undisturbed by arousals and awakenings—sleep continuity—is important because this influences both the duration and the depth of sleep, with deeper sleep being more restorative. Ultimately, the promotion of sleep health in the operational environment entails optimizing each Soldier's sleep duration, timing, and continuity to the greatest extent possible, given existing mission constraints. See ATP 7-22.01 for H2F testing and ATP 7-22.02 for drills and exercises. See also ATP 6-22.5 for further discussion on the leader's role in sleep readiness.

SLEEP DURATION

11-2. Cognitive ability and readiness vary as direct function of the amount of sleep obtained. The more sleep Soldiers get, the greater their mental acuity, with faster response times, fewer errors, and fewer lapses in attention. Also improved are judgment, problem-solving, situational awareness, mood, resilience, and general well-being—to name but a few key Soldier attributes.

11-3. Soldiers and leaders frequently ask "what is the minimum amount of sleep needed to maintain military effectiveness?" There is no clear threshold amount of sleep below which effectiveness is compromised and above which effectiveness is sustained. Most Soldiers need 7 to 9 hours of sleep every 24 hours to maximize health and sustain performance. The relationship between sleep duration and cognitive readiness (and thus, military effectiveness) is best thought of as a continuum, with more sleep always producing improved performance. Considered this way, the question becomes: "How can the amount of sleep obtained by Soldiers be maximized, given the constraints imposed by the current mission?"

SLEEP TIMING

11-4. Human beings are diurnal, designed to be awake during the daytime and to sleep during the nighttime. A portion of the brain that serves as an internal clock—sensitive to the timing of sunrise in the morning and sunset in the evening—largely controls these sleep-wake tendencies. This sensitivity keeps the brain's clock synchronized with the outside world. During those hours that the brain's clock has learned are local daytime hours, the brain produces output that facilitates activity and wakefulness. During those hours that the brain's clock has learned are nighttime hours, it signals brain deactivation, thus promoting sleep. People who work at night might be less productive and less well-rested since they work when their brains promote sleep; and they try to sleep when their brains promote wakefulness. Likewise, this is what causes "jet lag." After rapidly crossing multiple time zones, the brain's internal clock is initially out of synch with the local day-night cycle, sending out signals to promote sleep during daylight hours and sending out signals to promote wakefulness

during the nighttime hours. Normal sleep and alertness are typically not restored in the jet-lagged brain for several days—the time it takes for the brain's internal clock to resynchronize to the day-night cycle of the new, local time zone. (See paragraphs 11-34 through 11-54 for strategies to mitigate the effects of disruptions in normal sleep patterns.)

11-5. Maintaining a consistent sleep-wake schedule on both duty and non-duty days has the benefit of strengthening and reinforcing the internal wake- and sleep-promoting processes controlled by the brain's internal clock. These processes constitute the "circadian rhythm of alertness." Individuals who maintain consistent sleep-wake schedules (especially on arising at the same time each morning and experience their first exposure to daylight at the same time each day) derive the maximum benefits from the circadian rhythm of alertness, with well-consolidated sleep at night and optimum alertness during the daytime. A consistent and regimented schedule of sleep- and wake-related activities helps to lock in other biological systems associated with circadian rhythms. These include hormone release, digestion, muscle strength, and cardiovascular performance. Circadian rhythms act in tandem with the need to sleep which builds throughout a day. These rhythms optimize the process of falling asleep, staying asleep, and ensuring quality sleep.

11-6. However, Soldiers can only achieve such benefits if they get adequate sleep (for most individuals, 7 to 9 hours of sleep per night) on a regular basis. If they get less sleep (for example, 6 hours per night during the duty week), then a "sleep debt" accrues. In such cases, it is better to sleep in on off-duty days and pay down the sleep debt, rather than sacrificing sleep to try to maintain a consistent sleep-wake schedule and strengthen the circadian rhythm of alertness.

11-7. Although the circadian rhythm of alertness generally promotes a 24-hour cycle of daytime wakefulness and nighttime sleep, there is also a temporary afternoon "dip" in alertness. This dip becomes especially noticeable in individuals who have a significant sleep debt (for example, not regularly obtaining adequate sleep). For those able to take advantage of it, the afternoon dip provides an opportunity for obtaining good quality daytime sleep to help pay down any existing sleep debt. Soldiers can generally take these naps without significantly disrupting the circadian rhythm of alertness—provided that the naps are not so long or so frequent that they begin to impair the ability to initiate sleep at night.

SLEEP CONTINUITY

11-8. The restorative value of sleep is determined not only by the duration of the sleep period, but also by the continuity of the sleep period—that is, the extent to which the sleep period is continuous and uninterrupted. The sleeping brain cycles through non-rapid eye movement (known as NREM) and rapid eye movement sleep (known as REM or "dreaming sleep") every 90–120 minutes. The full benefit of sleep occurs when the brain completes 4–5 complete cycles. Non-rapid eye movement sleep makes up most of the first half of the night's sleep. During this type of sleep, the body releases hormones that help repair and rebuild muscles and replenish energy. There are three stages of non-rapid eye movement sleep: stage 1 (the lightest sleep stage), stage 2 (which accounts for approximately 50 percent of nighttime sleep), and stage 3 (the deepest and the most recuperative sleep stage). During sleep, the body clears toxins that have accumulated throughout the day (as by-products of healthy brain functioning) from the brain; it also fixes and transforms new memories into usable knowledge. Both types of sleep are essential, and it is important that the brain cycles appropriately between non-rapid eye movement and rapid eye movement sleep across the night. When sleep is interrupted or shortened, natural progression of sleep cycles are disturbed reducing the beneficial effects of the sleep.

SLEEP READINESS FUNDAMENTALS

11-9. Like the rest of the body (for example, muscles, skin, and liver), the brain has physiological needs for food, water, and oxygen—basic needs that must be met not only to ensure proper brain functioning, but to sustain life itself. However, unlike the rest of the body, the brain has one additional physiological need: sleep. The brain requires sleep to maintain normal function. Sleep is necessary to sustain not only alertness, but also higher order cognitive abilities such as judgment, decision making, and situational awareness. In short, sleep makes Soldiers better at being Soldiers.

11-10. The brain needs sleep to restore and repair itself, to work efficiently, to fix new memories, and to process new information appropriately. Sleep also clears away waste products from normal breakdown of

chemicals that accumulate in the brain during wakefulness. Prioritizing sleep, and ensuring that opportunities for Soldier sleep are maximized in all operational environments, serves to optimize brain, psychological, and immunological health. In particular, sleeping properly before training improves attention, understanding, and learning. Sleeping properly after training improves the ability to both remember and appropriately utilize newly-acquired skills and information.

11-11. Although some Soldiers may require a little more or a little less sleep, for the vast majority of Soldiers a steady diet of 7–8 hours of sleep every 24 hours is needed to sustain normal levels of brain function and health indefinitely. Most Soldiers who regularly obtain less than 7–8 hours of sleep every 24 hours pay a price: they unwittingly but steadily accrue a significant sleep debt, characterized by increasingly suboptimal alertness, reduced mental sharpness, and an impaired ability to recover from stress. These Soldiers typically believe that they are fine and may perform most basic duties adequately. From an objective standpoint, their alertness and mental acuity is significantly (and invariably) impaired. As a rule of thumb, any Soldier who sleeps two or more hours longer on days off (versus duty days) carries a significant sleep debt.

11-12. Even for those who regularly obtain the generally recommended 7–8 hours of sleep per night, more sleep can result in even better alertness and mental acuity. In brain health and mental functioning, there is no such thing as too much sleep. Therefore, to maximize brain health and functioning in an operational environment, Soldiers aim to maximize sleep as much as possible within the constraints of the operation. As sleep duration increases, so does the likelihood of mission success.

11-13. Insufficient sleep degrades the brain's function. The more sleep the brain gets, the better it functions. The effects of inadequate sleep on brain function and performance are well-documented:

- Reduced ability to concentrate, impaired judgment, problem solving and decision making.
- Increased irritability and reduced mood.
- Reduced motivation level.
- Increased reaction time and slowed response time.
- Reduced ability to effectively cope with stress.
- Increased risk of physical injury.
- Increased time to recover from injury.

11-14. Insufficient sleep negatively affects not only cognitive performance, but emotional and social functioning. Adequate sleep promotes an optimistic outlook and social acuity, but failure to obtain adequate sleep on a regular basis (for example, being chronically sleep restricted) makes a person less resilient to stress and stress-related disorders including posttraumatic stress and depression.

11-15. If the brain is starved of sleep for long enough, it will eventually fall asleep. Although severe sleepiness can be staved off momentarily by increasing environmental stimulation (for example, increasing the volume on the radio, opening a car window, getting up and walking around), no amount of effort or willpower will maintain wakefulness for long. Humans cannot resist the need for sleep any more than the need for air. In much the same way that it is impossible to hold one's breath until consciousness is lost, it is likewise impossible for the sleep-starved individual to resist sleep onset. At some point, the sleepy brain will slip into sleep, regardless of any and all efforts to avoid it. Sleep onset under such conditions is not a voluntary act. Therefore, severe sleepiness is dangerous not only to the sleepy individuals, but also to people around them. Severe sleepiness proves more dangerous when individuals engage in monotonous activities such as driving, pulling security, or monitoring equipment or computer screens.

11-16. In short, the brain has a physiological need for sleep, and sleep promotes and sustains the ability to think and maintain mental toughness. And the more sleep, the better. Although obtaining 7 to 9 hours of nightly sleep generally results in the ability to sustain normal levels of alertness and performance during the daytime, obtaining even more sleep results in greater brain readiness—enhanced mental sharpness and resilience in the field.

PROMOTING HEALTHY SLEEP

11-17. Good sleep is essential for optimal performance and readiness. Factors to consider when optimizing sleep duration and continuity include: the sleep environment, a pre-sleep routine, and a sleep schedule that conforms as closely as possible to the brain's natural circadian rhythm of alertness.

SLEEP ENVIRONMENT

11-18. Sleep duration and continuity are optimized in environments that are quiet, dark, and maintained at a comfortable ambient temperature. Some individuals believe that they sleep better with music or a television on, that they can sleep anywhere, and that ambient noise does not bother them. Research clearly shows that this is not the case. Soldiers do not get good sleep on a cot in the tactical operations center. Although sleepers are not aware of it, environmental sounds cause brief arousals—a momentary speeding of the brain's electro-encephalograph (known as EEG) activity during sleep—that effectively disrupt sleep continuity and reduce the restorative value of that sleep. Likewise, bright lights and excessively hot or cold environments can disrupt sleep continuity and reduce the restorative value of sleep.

PRE-SLEEP ROUTINE

11-19. Stress is incompatible with sleep. Pre-sleep routines that promote winding down—such as listening to soothing music, reading, or taking a warm shower or bath—30–60 minutes prior to bedtime tend to facilitate the transition to sleep. These routines will maximize sleep duration. Conversely, activities such as watching television, playing video games, chatting online, and similar interesting or engaging activities tend to arouse the brain and delay sleep onset. These activities reduce the amount of sleep obtained and should be avoided during the pre-sleep wind-down period. Tobacco product use is also antithetical to sleep. People smoke before sleep to wind down. The stimulant in nicotine tells the body to get active while it increases heart rate and alertness. Those experiencing significant stress often find relaxation techniques such as meditation and mindfulness exercises helpful.

SLEEP SCHEDULE

11-20. Adequate performance is best achieved by Soldiers who consistently get adequate sleep (7–8 hours) on a nighttime sleep-daytime wakefulness schedule aligned with the brain's natural circadian rhythm of alertness. Both sleep duration and sleep continuity are maximized on such schedules. However, military operations are often continuous (24-hours per day) and influenced by random and unpredictable events and requirements. Shift work is unavoidable for at least some deployed Soldiers, and sleep opportunities are sometimes unpredictable for virtually all deployed Soldiers. The following situations commonly contribute to sleep loss and decrements in waking performance:

- Shift work.
- Changing schedules.
- Social jet lag.

SHIFT WORK

11-21. The human brain is biologically hard-wired to be alert during the daylight hours and asleep during the nighttime and early morning hours. Because of this, poor quality sleep results from night shift work even when shift workers spend adequate time (approximately 8–9 hours) in bed during the daytime. Although such a schedule is unnatural for the human brain, some adaptation to a nighttime-awake and daytime-asleep schedule does occur over time, but such adaptation is never complete. Soldiers always pay a cost in their waking performance and daytime sleep quality. This occurs even when working consistent, steady nights. In the long term, Soldiers associate frequent shift work with weight gain and increased risks for diabetes, fatty liver disease, and cardiovascular disease. See discussions beginning in paragraphs 11-24 and 11-30 for strategies to mitigate adverse effects of shift work.

CHANGING SCHEDULES

11-22. Rapidly changing and backward shifting work-rest (duty) schedules exacerbate the problem. Leaders should always aim to optimize the Soldier's sleep to the extent possible given the existing operational constraints. Toward this end, commanders consider the following two principles:

- Strive for consistency for individual Soldiers by rotating shifts no more often than twice per month.
- Always rotate shifts in a forward direction.

These actions allows sleep to occur later on the new shift than it did on the old shift. Bodies have more difficulty adapting to backward shift rotations because that requires earlier initiation of the sleep period. This is also why it is easier to adapt to a new time zone (jet lag symptoms are less severe) following westward travel across multiple time zones versus eastward travel. It is easier to stay up a little later and sleep in than to go to bed earlier and arise earlier in a new time zone. See discussions beginning in paragraphs 11-24 and 11-30 for strategies to mitigate the adverse effects of changing schedules.

SOCIAL JET LAG

11-23. The tendency to stay up later and sleep in later on off-duty days (often the weekends when in garrison) commonly results in a phenomenon known as social jet lag. This state of mild sleep restriction results from the subsequent need to arise earlier on the first day back to work (for example, Monday following a weekend off). The effect resembles that experienced by individuals who experience jet lag after traveling eastward across a couple of time zones.

LEADERSHIP'S ROLE

11-24. While good leadership is essential for a wide range of unit outcomes, leadership behaviors that target sleep can improve the sleep habits of unit members and the unit's overall sleep culture. Sleep leadership behavior includes promotion of sleep awareness and the development and implementation of local policies that facilitate the ability of subordinates to practice good sleep hygiene. An example of sleep awareness is ensuring that subordinates understand the importance of sleep for health and readiness, as well as the negative consequences of sleep loss. Such practices (for example, moving physical readiness training from morning to the afternoon or starting the duty day later, both of which allow Soldiers to sleep later) result in improved subordinate sleep, enhanced health (reduced sick call and accident rates), and improved unit climate. The acronym SLEEP represents the following basic sleep leadership practices:

- **S**et conditions.
- **L**ead by example.
- **E**ducate and **e**ncourage.
- **P**rioritize and plan.

SET CONDITIONS

11-25. The S stands for *set conditions*. Leaders set conditions when they—

- Strive to create an optimal sleep environment by controlling noise, light, and temperature.
- Address work-related and other sources of stress for Soldiers that may be interfering with sleep.
- Implement duty schedules that optimize nighttime sleep and daytime alertness.

LEAD BY EXAMPLE

11-26. The L stands for *lead by example*. Leaders lead by example when they—

- Serve as role models for subordinates by demonstrating good sleep habits and maintaining healthy work-rest schedule.
- Look for opportunities to show they consider sleep to be a priority for unit. For example, emphasize sleep in remarks during Recovery Drills or other unit formations and functions.
- Remind Soldiers of the importance of sleep.

EDUCATE AND ENCOURAGE

11-27. The E stands for *educate and encourage*. Leaders educate when they—

- Establish a good sleep culture in the unit and ensure that subordinate leaders are also engaging in good sleep leadership.
- Encourage Soldiers to look for signs of sleep problems regularly.
- Ensure all Soldiers have access to information on effective sleep habits.
- Give Soldiers permission to nap when circumstances allow, and encourage naps when appropriate, especially during continuous operations.

PRIORITIZE AND PLAN

11-28. The P stands for *prioritize and plan*. Leaders do this when they—

- Ensure Soldiers have enough time to attend to their personal matters while still getting sufficient sleep.
- Are aware of the challenges of shift work and continuous operations, and implement schedules that mitigate their negative effects on performance and health.
- Think of sleep as an item of logistical resupply, like beans and bullets, and plan accordingly. That is, schedule enough time for Soldiers to get sufficient (or even extra) sleep before—and recovery sleep after—all missions.
- Consider having Soldiers perform less complex tasks in the early morning before 0900 and more complex tasks in the late morning and early afternoon.

11-29. Sleep is essential to health and readiness. To optimize Soldiers' alertness and performance, leaders maintain as consistent and regimented a sleep-wake schedule as possible (optimize sleep timing) with an adequate amount of sleep opportunity (optimize sleep duration). Leaders also ensure that the sleep-wake schedule conforms as closely as possible to the brain's natural circadian rhythm to optimize both duration and quality of sleep.

PLANNING FOR PERIODS OF INSUFFICIENT SLEEP

11-30. Effective leaders consider sleep an item of logistical resupply like water, food, fuel, and ammunition. Planning for sleep in training and tactical environments is a leader competency. Sleep management optimizes Soldiers' performance in austere conditions. Sleep is a force multiplier. In healthy persons, there is no such thing as too much sleep. The goal in all operational scenarios should always be to maximize sleep duration because more sleep always results in greater alertness, resilience, and mental acuity—greater readiness.

OVERALL STRATEGY

11-31. When mission requirements do not allow for adequate sleep, the goal becomes twofold: to optimize alertness and performance during waking periods to the extent possible and to maximize the ability of Soldiers to take advantage of any opportunities for sleep that do occur. Factors that determine the extent to which alertness and performance are impacted by sleep loss include:

- Individual differences in sensitivity and resistance to the effects of sleep loss.
- Individual sleep history—those who habitually sleep more tend to be more resistant to sleep loss.
- Length of continued wakefulness—the longer the period of sleep loss, the worse the performance.
- Time of day or night—the brain's circadian rhythm of alertness exacerbates the effects of sleep loss during the early morning hours, and partially mitigates the effects of sleep loss during the daytime or early evening hours.

INDIVIDUAL DIFFERENCES

11-32. No one can maintain alertness and performance indefinitely without sleep, but some individuals are more impacted by sleep loss than others. Individual differences are determined by both genetics and sleep history or habitual sleep duration. A Soldier's sensitivity versus resistance to the effects of sleep loss cannot

be predicted before the fact; therefore, leaders need to objectively measure a Soldier's performance since insufficient sleep impairs the ability to self-assess. As a rule, sleep-deprived Soldiers will overestimate their own capabilities. Leaders should expect and plan not only for reduced performance, but increasing variability in the effectiveness of Soldiers who have increased sleep loss.

TIME OF DAY OR NIGHT

11-33. The brain's internal sleepiness-alertness cycle directly impacts performance. Because of this, work performed between 2300 and 0800 hours is generally less efficient (slower and with a greater number of errors) than work performed during the daytime and early evening hours. Leaders should anticipate reduced levels of productivity and effectiveness during these hours.

JET LAG, SHIFT WORK, AND MISSIONS

11-34. Jet lag and shift work tend to result in misalignment of the circadian rhythm. Crossing multiple time zones tends to result in jet lag and impacts a Soldier's ability to adjust to the time zone and obtain needed sleep. In jet lag, circadian misalignment results from the inability of the brain's internal clock to rapidly adapt to a new time zone. In shift work, circadian misalignment results from shifting the wake period to that portion of the night when sleep typically occurs and shifting the sleep period to the daytime when the brain is primed for wakefulness.

11-35. Following travel across multiple time zones, re-adaptation can take from 3–4 days to several weeks depending on individual differences in adaptability that are determined by factors such as age and genetics. However, realignment of the internal clock with the new environment does not occur linearly. The greatest daytime deficits in alertness and performance and the most severe nighttime sleep disturbances tend to occur during the first 24 hours in the new time zone. These issues tend to be resolved in the first 3 or 4 days in a new time zone, at which point the brain's clock will typically have made significant progress in resetting itself to the local day-night schedule.

11-36. The brain's clock can more easily adapt to westward travel (to stay up later at night and sleep in longer in the morning) than to eastward travel (to go to bed earlier and arise earlier). For the same reason, it is easier for the brain to adapt to a forward rotating shift schedule (transitioning from the day shift to the evening shift to the midnight shift) than to a backward rotating shift schedule (transitioning from the midnight shift to the evening shift to the day shift). The greatest impacts from circadian misalignment seen in jet lag and shift work are sleep disturbance, deficits in self-assessment, risk of errors and accidents, and degradation of efficiency and productivity.

11-37. The following strategies assist Soldiers coping with jet lag, shift work, and operational missions:

- Before travel.
- During travel.
- After travel.
- Before missions.
- During missions.
- After missions.
- Continuous operations.

Before Travel

11-38. Up to two weeks prior to traveling, Soldiers pay down sleep debt and bank sleep by getting 8 or more hours of sleep per night. They do not attempt to pre-adapt to a new time zone. Attempting to pre-adapt by moving sleep-wake timing forward or backward is difficult to accomplish and can cause a sleep debt.

During Travel

11-39. Transcontinental flights east are generally scheduled for evening departure, allowing for in-flight sleep during periods of minimal alertness. Transcontinental westward flights are generally scheduled for

morning departure when it may be difficult to fall asleep, but long-duration flights afford the opportunity for afternoon sleep. The following tactics support in-flight sleep:

- Stop caffeine intake 6 hours prior to take-off. Do not drink caffeine until approximately 30 minutes before landing.
- Eat a meal prior to boarding or immediately after take-off. Forego any later in-flight meal service that will interfere with your sleep.
- Do not consume alcohol before or during the flight. Alcohol will make you feel drowsy, but it actually impairs sleep.
- Control effects of cabin noise, light, and temperature by using foam ear plugs (or noise-cancelling headphones), a sleep mask, and blanket. Select a window seat so that passenger and flight attendant movements do not disrupt your sleep.

After Travel

11-40. Adjust activities in new time zone based on the following guidance:

- Schedule meetings during routine alertness cycle and avoid meetings during your routine sleep cycle.
- Use 200 milligrams of caffeine (equivalent to two cups of coffee) prior to critical meetings to support alertness and mental acuity. Stop caffeine at least 6 hours prior to a scheduled sleep period.
- For fast turn-around travel (1–2 days at each time zone), maintain home time schedule as much as possible. Schedule critical meetings during peak alertness. For eastward travel, this means scheduling meetings to occur in the late afternoon or evening of the new local time. Sleep or nap during the new local day.
- Avoid alcohol since it exacerbates sleepiness and mental deficits as well as impairs sleep.
- Use sleep-inducing agents only under a physician's supervision and approval.
- Avoid over-the-counter sleep aids. These compounds do not improve sleep and they can impair post-awakening alertness and mental acuity.
- Avoid over-the-counter melatonin (marketed as a sleep aid) since it does not increase actual sleep time.
- Manage light exposure depending on the alertness boost needed. Some sources of light found in offices and hotels boost alertness. While this exposure may be useful to boost alertness, it may also lead to poor sleep quality and duration.
- Make the computer's display adapt to the time of day and use the blue light blocker during non-daylight hours to facilitate nighttime sleep and strengthen circadian rhythms.
- Be aware of sunrise and sunset times to determine bed time. Go to bed when the sun goes down. Be active and move around when the sun is up. Use naps to achieve 7–8 hours of sleep every 24 hours. Naps will improve alertness and performance.

Before Missions

11-41. The notion that one can adapt to sleep loss is a myth. Although Soldiers generally benefit from training as they fight, this does not hold true for sleep loss. Soldiers cannot be trained to perform better on less sleep. Although chronically sleep-restricted Soldiers do become accustomed to a reduced level of alertness, which they think is normal, objective assessments to reveal deficits show that there is no evidence of habituation or adaptation to sleep loss. The only possible benefit to training under conditions of sleep loss is if it increases the Soldiers' awareness and appreciation for the extent to which sleep loss impacts their physical and mental abilities. See table 11-1 for strategies to maximize mission sleep.

11-42. Although Soldiers cannot train to perform better on less sleep, they can bank sleep. Sleep banking is achieved by significantly extending the nightly time in bed to more than 8 hours per night. Soldiers must bank sleep for multiple consecutive nights prior to embarking on a mission that is likely to result in inadequate sleep. The extra sleep they obtain in this manner creates a bank of sleep they use to sustain alertness and performance during subsequent sleep loss (acute sleep deprivation or chronic sleep restriction).

Table 11-1. Maximizing mission sleep

Before
Two weeks prior, get 8 or more hours of sleep per night.
Stop caffeine and alcohol consumption at least 6 hours prior to scheduled sleep.
During
Take naps whenever possible to accumulate 7-8 hours of sleep in every 24 hour period.
Caffeine can be used to reduce grogginess on awakening.
Separate day and night shift sleep areas.
After
To reduce sleep debt or deprivation, plan on additional sleep time.
Increase sleep to 8 hours every 24 hours to return to optimal alertness and performance.

11-43. Importantly, the benefits of sleep banking are not limited just to the following day; such benefits have been shown to remain evident over days and weeks, and may last even longer. This is because the brain saves (or banks) sleep that it does not use the next day, and it expends that sleep during future periods of sleep loss. Increasing the amount of sleep prior to a mission improves performance during that mission and, as a bonus, reduces the amount of sleep subsequently needed to recover from that mission. When possible, leaders should provide Soldiers the opportunity for extended sleep (10 hours in bed per night may be optimal) for several consecutive nights (for at least one week, if possible) prior to missions likely to involve significant sleep loss. Leaders should encourage Soldiers to take appropriate advantage of this opportunity for extra sleep. Soldiers best accomplish sleep extension by going to bed earlier (rather than staying in bed later) because awakening at the same time each morning helps to sustain and strengthen the brain's circadian rhythm of alertness.

During Missions

11-44. Properly planned sleep management strategies facilitate alertness and performance in any operational scenario. They can make the difference between mission success and failure during continuous operations when the stakes are high and opportunities for sleep are restricted. The ultimate goal of these strategies is to maximize unit readiness and lethality.

11-45. Two complementary approaches optimize Soldier alertness and effectiveness during continuous and sustained operations when they have little or no opportunity for sleep. The first (and most effective) approach is to optimize sleep itself, to the maximum extent is possible to do so given operational constraints. Nothing is better, in the short- or long-term, at preventing or reversing the effects of sleep loss than sleep itself. The second approach is to directly facilitate alertness in the sleep-deprived Soldier by using a stimulant such as caffeine. This has to be done in a way that minimizes the counterproductive effects of the stimulant on the Soldiers' ability to take advantage of whatever limited opportunities for sleep may arise during the mission.

11-46. The short- and long-term goals of the first approach is to maximize sleep duration and continuity—an approach that primarily entails optimization of work-rest schedules and optimization of the sleep environment. The second approach aims to optimize alertness and performance directly with caffeine, albeit in a manner that minimizes the negative effects of the caffeine on sleep duration and continuity.

After Missions

11-47. The longer an individual goes without sleep, the greater the decline in cognitive performance, and the longer it will take to recover from the sleep debt that has accrued. In general, it takes longer to recover from chronic sleep restriction (several nights of inadequate sleep) than it takes to recover from a comparable level of acute total sleep deprivation (a single period of extended wakefulness). While it is difficult to predict precisely the amount of recovery sleep required by each individual, the goal should always be to maximize the opportunity for recovery sleep following any mission that results in sleep loss.

Continuous (24-hour) Operations

11-48. Continuous military operations are a mainstay of the Army. Soldiers must be prepared to conduct operations for extended periods with limited rest and sleep deprivation to accomplish the mission. Paragraphs 11-49 through 11-54 describes proven techniques to mitigate the impact of continuous operations on Soldiers.

Segregation of Soldiers by Shift

11-49. Sleep and living areas for Soldiers should be segregated by the shifts worked. This minimizes sleep disruptions caused by waking activities of those working other shifts.

Extra Time for Night Workers and Day Sleepers

11-50. The circadian rhythm of alertness works against daytime sleep and nighttime alertness. Soldiers working a night shift typically require more time to successfully complete tasks because they work slower or less efficiently. These Soldiers also tend to accrue sleep debt faster than those working on normal day shifts.

Extra Monitoring on the Night Shift

11-51. Soldiers engaged in mission- and/or safety-critical tasks during the descending phase of the circadian rhythm of alertness (between 2300 and 0800) can benefit from enhanced oversight and monitoring. During these times, when Soldier alertness is compromised, there is an increased risk of lapses in attention and even brief, uncontrolled sleep episodes (microsleep).

Off-duty Safety

11-52. Following nighttime work, the morning commute back home can be a time of significantly increased risk. For example, ending staff duty or charge of quarters during the early morning hours (around 0700) can put sleep-deprived Soldiers behind the steering wheel at a point in the circadian rhythm of alertness when they are at greatest risk for vehicle accidents. Providing post-shift sleeping quarters, scheduling night shifts to end during the ascending phase of the circadian rhythm of alertness (after 0900 hours), or providing post-shift transportation home can help improve the safety of Soldiers working the night shift.

De-conflicting Schedules

11-53. Commands should schedule required briefings and dining facility availability so as to minimize potential conflicts with the daytime sleep of Soldiers on duty during the nighttime. No Soldier should have to choose between food and sleep.

Sleep Prioritization

11-54. The restorative effects of sleep accrue primarily to the brain and are primarily manifested as improved cognitive performance. Accordingly, it is especially important that leaders and others engaged in higher-order cognitive tasks—such as mission planning, decision making, risk assessment, and problem solving—are afforded and take full advantage of opportunities to obtain adequate sleep.

INTERVENTIONS TO IMPROVE AND SUSTAIN READINESS

11-55. Depending on the situation, leaders can implement certain interventions to sustain or improve Soldier readiness by limiting the causes of loss of alertness and results of sleep deprivation. Leaders can use many of these methods singularly or in combination with other interventions as practicable.

NAPS

11-56. When regular nighttime sleep is not possible due to mission requirements, Soldiers can use short, infrequent naps to restore wakefulness and promote performance. When routinely available sleep time is difficult to predict, Soldiers might take the longest nap possible as frequently as time is available. During periods of restricted sleep (6 hours of sleep or less per night), napping combined with appropriate doses of caffeine may help to sustain cognitive performance and alertness.

REST BREAKS (WITHOUT SLEEP)

11-57. In addition to varying as a function of sleep loss and the circadian rhythm of alertness, performance also varies as a function of time-on-task. This effect—the tendency for performance on a continuously performed task to decline across time—is especially apparent on tasks requiring a lot of mental energy or extended vigilance, and it is reversed by simple time-off-task (rest). Time-on-task effects interact with (are exacerbated by) sleepiness. Therefore, when Soldiers perform such tasks under conditions of sleep loss or during the descending phase of the circadian rhythm of alertness, leaders can expect Soldiers will need more frequent and/or longer rest breaks. Although rest breaks reverse that portion of the performance deficit caused by time-on-task, such breaks do not reverse deficits associated with sleepiness per se (unless, of course, Soldiers get some sleep during the rest break). Sleep loss effects and time-on-task effects interactively impair performance but require different interventions.

REVERSE PHYSICAL TRAINING SCHEDULE

11-58. When it is feasible, this strategy—a delayed start time to the duty day with afternoon as opposed to morning physical training sessions—has two benefits. First, it conforms well to the brain's natural circadian rhythm of alertness. Second, it results in longer sleep durations, especially in younger Soldiers who almost invariably use a later wake time to obtain more sleep. When implemented, this schedule can result in reduced utilization of sick call and reduced accident rates.

CAFFEINE TO SUSTAIN ALERTNESS AND PERFORMANCE

11-59. Table 11-2 summarizes the caffeine doses for optimal alertness under different sleep challenges.

Table 11-2. Caffeine dose for optimal alertness

Type of sleep challenge	*Dose*
Sustained operations	• 200 mg at midnight • 200 mg again at 0400 and 0800 if needed • Use during daytime (1200 and 1600) only if needed
Night operations with daytime sleep	• 200 mg at start of night shift • 200 mg again 4 hours later • Late dose: at least 6 hours prior to start of daytime sleep
Restricted sleep (6 hours of sleep)	• 200 mg upon awakening • 200 mg again 4 hours later • Last dose: at least 6 hours prior to sleep period
mg milligram	

Caffeine Dose (200 milligrams)

11-60. For many missions some degree of sleep loss is unavoidable. In these cases, Soldiers may best accomplish short-term sustainment of alertness and performance with judicious use of a non-sleep (stimulant) intervention. For a variety of reasons (including its wide availability, its familiarity to Soldiers, and its relative safety and effectiveness), caffeine is recommended for this purpose. For most individuals under most circumstances, the optimal dose of caffeine is 200 milligrams.

Caffeine Limitations

11-61. Caffeine only temporarily helps restore alertness and performance. It does not replace sleep. Nor does it fully restore all the cognitive abilities decremented by sleep loss. In much the same way, caffeine can help keep a Soldier from falling asleep, but it does not improve that Soldier's judgment, coordination, or reaction time. Because it will interfere with the ability to initiate and/or maintain sleep, Soldiers should avoid caffeine, if consistent with mission requirements, for at least 6 hours prior to an anticipated sleep opportunity.

BEHAVIORAL FACTORS

11-62. In addition to operational requirements, sleep readiness also depends on the behavior of individual Soldiers. The conditions in which Soldiers find themselves, as well as the schedules they maintain or activities in which they participate, contribute to sleep readiness.

Exercise

11-63. Regular, moderate physical exercise facilitates subsequent nighttime sleep onset and promotes deeper (more restorative) sleep. However, vigorous exercise immediately prior to bedtime can interfere with sleep for some individuals, especially if that exercise is to exhaustion, producing a physiological stress response. During the daytime, short bouts of around 30 minutes of physical activity can result in a moderate 3-hour boost of alertness in well-rested Soldiers. Such bouts do little for reversing and sustaining alertness under conditions of significant sleep loss.

Diet

11-64. Various foods and food preparation techniques can affect sleep—both positively and negatively. Sleep-promoting foods tend to be high in fiber and low in added sugars. High-fat, fried, or spicy foods tend to negatively impact sleep. Such foods tax the stomach, are difficult to digest, and may cause nocturnal esophageal reflux or heartburn. Soldiers should avoid these types of foods prior to bedtime. As a rule, Soldiers should avoid full, heavy meals within 2–3 hours of initiating sleep. However, they should not go to bed hungry either, since hunger can also lighten and disrupt sleep. If Soldiers need to eat just prior to bedtime, their best options include a balanced snack or meal that includes fruits; vegetables; whole grains; fat proteins; and foods low in added sugar. Foods that rarely disturb sleep include Greek yogurt or cottage cheese with fruit, peanut butter on whole grain toast, cheese and crackers, milk with a small bowl of whole grain cereal, and protein bars.

Alcohol

11-65. Although alcohol increases drowsiness and can facilitate sleep onset, it subsequently lightens and disrupts sleep as the body metabolizes it during the night. It causes multiple arousals and awakenings, thus harming sleep more than it helps. The body metabolizes alcohol at a rate of about one ounce per hour. Therefore, to avoid the negative effects of alcohol on sleep, Soldiers should consume no more than one drink one hour before bedtime, no more than two drinks two hours before bedtime, and so on. However, abstinence is the best strategy when a good night of sleep is especially important for next-day activities or missions.

Sleep Environment

11-66. The importance of a sleep-friendly environment cannot be overstated. Living conditions and environments vary widely, but leaders can improve most sleep areas with a few simple steps.

Ambient Noise

11-67. Sleeping quarters should be located as far away from noisy areas (such as airfields, generators, and fueling stations) as possible. The effects of remaining uncontrollable, intermittent, random noises should be masked with a white noise generator. Finally, Soldiers can wear noise-dampening earplugs to effectively block noise and improve sleep.

Physical Comfort

11-68. Room temperature should be cool, ranging from 65–72 ºF. Sheets, bed, pillows, sleep surfaces (such as mattresses and cots), and sleeping clothes should be clean and comfortable. Mattresses should be requisitioned to fit the Soldier.

Light

11-69. Humans are not nocturnal. Soldiers are hardwired to be active during the day and to sleep at night. The brain's internal clock is very sensitive to light, and any amount of light that reaches the brain through

the eyes at night can be harmful. Even dim lights emitted from electronics such as a smart phone, computer, or television can have a negative impact. This light confuses and resets the brain's internal clock, which can misinterpret such light exposures as either an early dawn or a late dusk. In either case, such exposures incrementally weaken the brain's circadian rhythm of alertness, negatively impacting both nighttime sleep and daytime alertness. Therefore, sleeping areas should be kept dark. Blackout curtains or blinds should cover all windows. Leaders need to strictly enforce the lights out policies. To improve Soldiers' ability to avoid unwanted light exposure and thus facilitate sleep, leaders should create separate sleep areas for each shift and encourage the use of comfortable sleep masks.

Safety

11-70. Operational or training environments should be safe and secure for Soldiers to sleep in. This also applies to areas where Soldiers take naps. Ensure that Soldiers do not attempt to nap in front of, behind, or underneath trucks, tracked vehicles, or other vehicles. Soldiers need to avoid and protect against pests (for example, use mosquito nets when appropriate). Before sleeping, Solders check that snakes, spiders, ants, and other creatures are not in the sleeping area, sleeping bag, or shoes.

SLEEP MANAGEMENT PLANNING TOOL: 2B-ALERT WEB

11-71. Leaders have a planning decision aid to help plan missions and predict the effects of any sleep-wake schedule on performance. This scientifically-developed mission planning decision aid, the 2B-Alert Web, is available at http://sleep.bhsai.org. This tool can predict the effects of any sleep-wake schedule on vigilance performance, as well as the efficacy of applying both naps and caffeine as fatigue countermeasures at any point during a mission.

RESOURCES

11-72. Everyone occasionally experiences difficulty sleeping. Such difficulties may be due to anxiety, excitement, physical exhaustion or discomfort, travel across multiple time zones, or overuse of caffeine. Usually, such sleep difficulties are situational and temporary. They easily resolve with time, a change in the situation, or good sleep hygiene practices. For example, a high operational tempo may be stressful and allow little time for sleep, or allow for sleep only during the ascending phase of the circadian rhythm of alertness (for example, the daytime) when the brain's clock promotes wakefulness. However, as the operational tempo slows and Soldiers reestablish nighttime sleep opportunities, sleep problems will typically resolve.

11-73. Sometimes, however, sleep problems are more persistent and difficult to address. For example, some individuals are able to fall asleep easily at night but then experience early morning awakenings with difficulty returning to sleep. Others persistently experience difficulty initiating sleep at night and awakening when they need to in the morning. The discussion beginning in paragraph 11-74 provides some self-management strategies Soldiers can use to address these relatively persistent sleep problems.

SLEEP PROBLEMS

11-74. When Soldiers experience persistent sleep problems despite generally good sleep habits and an adequate sleep environment, a more concerted effort to improve sleep is warranted. First, Soldiers must evaluate their sleep habits and sleep environment.

11-75. For those who persistently experience difficulty falling asleep, the following suggestions and techniques may prove helpful:

- Establish a very regular and relaxing pre-sleep routine.
- Practice self-regulation activities such as relaxation exercises and guided meditations. DOD and the Department of Veterans Affairs developed available applications, and the Human Performance Resources by CHAMPS (https://www.hprc-online.org/) has various self-regulation activities:
  - Visualization or guided imagery exercises.
  - Meditation or mindfulness exercises.
  - Mental focusing exercises.
- Use an app. There are hundreds of apps for sleep and relaxation, which may help Soldiers fall asleep and track sleep.

WHEN TO SEEK EXPERT HELP

11-76. Soldiers should schedule appointments with healthcare providers if they have persistent daytime sleepiness, difficulty staying asleep, difficulty falling sleep, or disturbance of a sleeping partner with snoring and/or gasping at night.

Sleep Readiness

Soldiers should sleep as much as they can, whenever they can, as the situation allows. The vast majority of Soldiers require 7-8 hours of sleep per night to sustain performance; more sleep is better. Soldiers can maximize sleep and subsequent performance by timing sleep and caffeine use optimally. Finally, only sleep replaces lost sleep.

Chapter 12
Special Conditioning

Programs for Soldiers who are having difficulty meeting Army standards are part of special conditioning. These programs are not punitive. They are restorative. Their purpose is to build readiness so that Soldiers return to full duty and deploy in support of any mission. They include training and testing improvement, ABCP, reconditioning after completing rehabilitation for an injury or illness, and pregnancy and postpartum physical training (P3T).

REHABILITATION AND RECONDITIONING PROGRAM

12-1. Army leaders prioritize the health and well-being of Soldiers. The focus of H2F System is the physical, psychological, and social well-being of the Soldier. This integrated approach includes those who are rallying back to optimal readiness after a period of illness, injury, or deconditioning. Operational unit leaders and sustaining phase leaders have a responsibility to communicate clearly with their medical counterparts in the Military Healthcare System when helping Soldiers through these conditions. The H2F personnel in the unit can perform this function as well and will be the primary leaders of the unit's special programs.

12-2. Illness occurs when Soldiers deviate from a healthy state and feel helpless, dependent, and continuous discomfort. It leads to a narrowing of focus and goals and an increase in concern about pain. Illness differs from disease: a Soldier can feel ill but not have a disease. An illness is a state where a Soldier has feeling of pain or discomfort that may or may not have an identified cause. A disease might not have symptoms of pain or discomfort, but it will have an identified cause—a pathology or diagnosis—that causes the body or parts of the body to not work properly. Whether real or perceived, the physical and psychological responses of the body to illness or disease is stress. When this type of stress is overlaid on daily hassles, major life events, or high operational tempo, Army leaders use the H2F System to mitigate the impact on the Soldier and the unit's readiness.

12-3. Rehabilitation and reconditioning both depend on the unit's conditioning program. If leaders do not synchronize the rehabilitation and reconditioning program with the conditioning program, the Soldier is at increased risk for chronic injury or re-injury. Exercises and drills for rehabilitation and reconditioning are based upon the conditioning program. Profiles describe which exercises, drills, and activities can be done to standard, must be modified, or cannot be performed—are restricted. If the conditioning program changes, or other physical activity is included in the H2F program, then leaders need to consider the impact on the rehabilitation and reconditioning programs and the profile system.

REHABILITATION

12-4. Rehabilitation is a program developed and overseen by medical providers that Soldiers begin soon after becoming ill or injured. Rehabilitation aims to return the Soldier to a baseline of physical function in daily activities such as personal hygiene and mobility at home and work. Once Soldiers reach this goal, they may progress to higher levels of function under the direct supervision of a medical provider. When Soldiers reach rehabilitation goals, the provider can discharge them to full duty or change their profiles so they can start reconditioning.

12-5. Soldiers may continue rehabilitation, reconditioning, or both until returned to readiness for return to full duty. Healthcare providers should communicate with H2F personnel to allow the Soldier to safely train in the reconditioning program. They may remain on profile during this period.

RECONDITIONING

12-6. Reconditioning is unit-owned. Reconditioning is a unit-driven and unit-run physical readiness training program for Soldiers who are deconditioned due to illness or injury, are new to the unit, or deconditioned due to deployment or other circumstances. Soldiers who have completed rehabilitation and been given permanent profile restrictions may be appropriate for certain reconditioning program elements. All Soldiers will have progressed in their recovery to the point where they can safely train without the direct supervision of a healthcare provider or communication between the medical provider and H2F personnel will allow the Soldier to safely train in the reconditioning program. Reconditioning returns Soldiers safely and as soon as possible to full duty.

12-7. In the H2F System, reconditioning drills and exercises provide a standard for Soldiers and units to follow no matter their circumstances. With the H2F System, units can individualize the reconditioning program. H2F trainers and healthcare providers in the unit aim to provide early identification and treatment of injuries and to prevent injuries from happening in the first place—so-called primary injury. When units receive H2F personnel, Soldiers will manage fewer injuries themselves. That means primary injury control approaches initially increase in rate and number of injuries since these personnel now identify, diagnose, record, and treat the injuries. While this increased injury rate surprises some leaders, it is a typical occurrence. As leaders implement the H2F System—with proper conditioning program and earlier access to treatment—the unit controls the number of injuries at lower rates or less severe conditions. The expert advice stops chronic or more serious injuries from developing. Those units that continue with non-standardized, random, non-periodized training often continue to have a greater need for reconditioning programs.

TRAINING AND TESTING IMPROVEMENT

12-8. When Soldiers fail to meet unit goals, leaders consider many factors that may contribute to these failures, including physical, psychological, and social areas. These factors may include transitioning from deployed status, time available to train, participation in H2F programming, family issues, increased stress from external factors, and recovery from illness or injury.

Time in Training

12-9. Soldiers who just arrived from IMT or just completed professional military education, prolonged deployment, or remote assignment may perform at or below the minimum unit standard or the baseline for the ACFT. They may be deconditioned or overweight. They may fail to keep up with the pace of other Soldiers in the gaining unit. In the face of new physical and psychological stress, they may require several months to acclimate to the unit's culture and to acclimatize to the altitude or weather at the new location. An effective leader provides Soldiers training programs specific to their needs to transition them to optimal readiness.

Regular Participation

12-10. Many factors influence regular participation in H2F sessions. The most common factor is operational tempo and related mission requirements. Leaders must anticipate and plan for these and must make H2F readiness training as important as any other programmed training, even if that means inserting it later in the morning or afternoon. (In accordance with AR 350-1, Soldiers must participate in collective or individual physical readiness training at least three times per week.) In the H2F System, optimal participation increases to 5–7 hours per Soldier per week and includes both physical and nonphysical training. Leaders must understand this and make it known. A leader excuses Soldiers from H2F programming only when they have completed exhaustive duties with little or no rest, or have temporary or permanent profiles in accordance with AR 40-501.

12-11. All Soldiers must understand that it is their personal responsibility to achieve and sustain a high level of readiness. Many Soldiers are assigned to duty positions that restrict participation in collective unit programs. Commanders must therefore develop leadership environments that encourage and motivate Soldiers to accept individual responsibility for their own readiness.

Prolonged Deployment

12-12. While deployed, leaders must make every effort to equip, program, permit, and lead physical readiness training. Detraining begins in as few as 14 days when Soldiers do not physically train. During post-deployment, when fitness levels may have declined, leaders must give special consideration to ensure Soldiers return to or exceed their pre-deployment readiness levels. Soldiers are almost always capable of rallying back to this level without needing special programming. With adequate recovery, Soldiers should prepare for the ACFT within 90 days of redeployment. In cases where a deconditioned Soldier cannot meet this goal, he or she should continue to participate in the unit's regular training program, modifying the intensity and frequency of training with guidance from the H2F performance team members.

ARMY BODY COMPOSITION PROGRAM

12-13. The ABCP ensures all Soldiers achieve and maintain optimal well-being and performance under all conditions. AR 600-9 provides the policy and procedures that apply to screening and enrollment in the ABCP. AR 350-1 specifies that the ABCP will be kept separate from other special programs. Soldiers who fail to meet AR 600-9 standards are enrolled in the ABCP and continue to participate in regular unit H2F programming. The H2F programming guides applicable modifications to Solders' nutrition and activities to create a calorie deficit. H2F personnel review Soldiers' sleep logs and weight loss goals. Soldiers in the ABCP who are also recovering from injury, illness, or other medical conditions will also be in the reconditioning program.

INJURED AND ILL SOLDIERS

12-14. Commanders faced with the challenge of controlling injuries while conducting rigorous training must adhere to the fundamental principles of H2F. In the H2F System, each Soldier has an individual reconditioning program, written and monitored by H2F personnel in the unit. Soldiers who are reconditioning will continue to train with the rest of the unit, modifying the drills and exercises with the goal of performing them to standard and returning to full duty as soon as possible.

12-15. The commander's role in injury control is to lead by being present during physical training and reconditioning sessions. Leader presence builds reputation and relationship with Soldiers who are working toward being mission capable. Commanders who stand in front of their formations (and not just during unit formation runs) demonstrate compliance with drills and exercises. No matter their level of conditioning or physical status, commanders' presence instills pride and "can do" cohesion in their formations. There ought to be no gap between the commander's intent to comply with the H2F program and the commander's participation in that program. This includes instances where leaders who are pregnant, injured, or deconditioned use H2F modified drills and exercises, and train alongside the rest of their units. Leader presence during special programs de-stigmatizes injury and demonstrates support for a key part of the Warrior Ethos—never leave a fallen comrade.

12-16. Precise execution of all physical training activities is essential to the injury control effort. Commanders must allow trained H2F leaders the time to teach proper execution of H2F activities. H2F leaders must be able to recognize and offer corrective guidance to Soldiers who have not developed the movement skills to execute drills to the standards described in ATP 7-22.02.

12-17. H2F schedules prescribed in this doctrine involve less sustained running than is currently performed in Army units. Long runs do not have strong correlation with combat-specific physical tasks and do not properly prepare Soldiers for those tasks. This doctrine carefully balances the requirement to build strength and endurance to avoid over-emphasizing any single component of readiness. A reduction in running volume will not hinder performance on two- or three-mile run assessments as long as the proper running intensity is used. An increase in strength training builds the capability to sustain higher levels of endurance activity.

12-18. Commanders look for and resolve conflicts between the H2F schedule and the unit training schedule. By considering the physical demands of tasks on the unit training schedule, commanders can better plan appropriate physical training sessions. For example, if Friday involves a 10-mile foot march to a range, commanders should not schedule speed work on Thursday. Time should be allotted for leg recovery. Monday's and Wednesday's physical training should not involve Climbing Drills 1 and 2 or the Strength

Training Circuit if Tuesday's unit training schedule takes the unit to an obstacle course that heavily challenges upper body strength.

PROFILES

12-19. The authorized forms for written profiles in the Army are DD Form 689 (*Individual Sick Slip*) and DA Form 3349 (*Physical Profile*). DD Form 689 is the short form used to communicate to the commander a Soldier's diagnosis of minimally-limiting injuries and illnesses, less than or equal to 7 days in duration. It is often used to place Soldiers on 24 or 48 hour quarters. After that period has ended, healthcare providers document the Soldier's restrictions in the Medical Readiness Portal (an electronic profile system) using DA Form 3349. DA Form 3349 is the long form the healthcare provider must generate and sign electronically to be valid. It provides a detailed description of the Soldier's temporary and permanent restrictions. It lists modifications to physical activities including the ACFT as well as those activities and exercises that can be performed to standard. Exercises not included on the profile are not authorized. If the unit performs non-standardized drills and exercises, the commander, healthcare provider, or both will discuss them with the H2F performance team to avoid increased risk to the unit's readiness.

12-20. Commanders may assign Soldiers with permanent profiles to the reconditioning program or allow them to remain in unit physical training programs. A Soldier whose permanent profile only prohibits running would not be in the reconditioning program—he or she would walk or use endurance training machines (ETMs) when the unit performs running activities. Soldiers on convalescent leave may be exempted from reconditioning at the discretion of the profiling officer. In no case can a Soldier carry a temporary profile that has been extended for more than 12 months without positive action taken to correct the problem or effect other appropriate disposition in accordance with a medical review board.

12-21. Once a Soldier is no longer on a temporary profile and not on a permanent profile, he or she may continue to train with assistive devices used during rehabilitation or reconditioning. These devices include braces, straps, tape, nasal strips, and other muscle- and joint-support devices prescribed or recommended by the provider or the unit's H2F performance team. Performance improvement apparel, tracking devices, and other wearables are also authorized during training. As long as the performance apparel comply with AR 670-1 or can be worn beneath the Army physical fitness uniform (known as APFU), Soldiers do not need a profile authorizing them to be worn and used during training. These devices aim to enhance performance and build strength and endurance to the point Soldiers no longer need assistive devices, and performance devices demonstrate higher levels of physical readiness. Assistive devices for a record ACFT are not authorized unless annotated on the Soldier's permanent profile issued after a medical evaluation board.

12-22. Once their profiles end, Soldiers may join or continue unit-based reconditioning. Soldiers on temporary profiles will not take record ACFTs. They may train for and practice the events, but their focuses on healing from the injury and then training to pass the test. They will take record ACFTs once the temporary profile has ended and their command and the H2F performance team agree that they are ready.

INITIAL PHASE RECONDITIONING

12-23. Reconditioning from injury before shipping to BCT is the responsibility of the recruit.

12-24. Reconditioning in IMT is conducted in the FTU, commanded by a physical therapist, and often includes an organic physical therapy clinic attached. Soldiers remain in the FTU until they are capable of returning to the same phase of BCT or OSUT that they left. The FTU can also conduct ACFT improvement for Soldiers who failed to pass the test in time to graduate from BCT. The increased recovery and focused physical training permitted in the FTU results in high ACFT pass rates and successful completion of BCT. If an injury is minor and only requires a few days of limitations, the Soldier receives treatment at the medical treatment facility or from healthcare providers in the unit and continues training with profile restrictions. See AR 612-201 for guidance on the Warrior Training Rehabilitation Program.

SUSTAINING PHASE RECONDITIONING

12-25. Executing reconditioning programs is problematic in units with a large population of Soldiers who have profile limitations, few personnel to administer the program, and limited access to equipment and

facilities to comply with profile recommendations. In the sustaining phase, the H2F System meets this challenge with new approaches and resources to permit individual programming. However, in locations that are remote from or not yet resourced by the H2F System, leaders should tailor guidance discussed in paragraphs 12-26 through 12-39 on governance, program, equipment and facilities for specific units.

H2F Resourced Unit

Reconditioning for all Soldiers is individualized and Soldiers train together under the supervision of H2F personnel using H2F equipment and facilities.

Non-H2F Resourced Unit

Reconditioning is supervised by designated unit personnel or medical providers using installation or non-unit-owned equipment and facilities.

Governance

12-26. In non-H2F resourced units, consolidation of reconditioning programs at the battalion (or equivalent) minimizes the administrative and logistical strain on operational unit assets. The brigade surgeon should have medical oversight of the unit reconditioning program. Battalion medical officers act as the liaisons between reconditioning program leaders (RPLs) and the brigade surgeon. The military treatment facility with rehabilitation services may provide a physical therapist and a physical therapy specialist as consultants to oversee the gym-based reconditioning program Category 1 (see paragraph 12-32). The physical therapist can assist or coordinate training efforts with the RPL.

12-27. The medical platoon leader is the RPL, and the medical platoon sergeant is the assistant RPL. If this is not possible, then the leader chooses the RPL and assistant RPL based on the following criteria:

- Certified as a MFT.
- Knowledgeable in the Army's H2F System.
- Able to instruct all physical training activities.
- Understands the regulations and processes that govern profiling (see AR 40-501).
- Able to modify activities in accordance with profile recommendations.
- Able to effectively interact with medical personnel to ensure that Soldiers are fully capable of returning to the unit conditioning program.

12-28. It is recommended that each company in the battalion provide an NCO to assist the RPL on a daily basis. These NCOs should meet criteria mentioned in paragraph 12-27 for the assistant RPL. In addition, the MFT, physical therapist, or physical therapy specialist need to provide quarterly training sessions to ensure units observe proper supervision and optimal safety practices. Trained NCOs provide supervision and group instruction to Soldiers in the reconditioning program. To meet supervision requirements, at least two NCOs per company are trained to conduct and supervise the reconditioning program. Units should constantly recruit NCOs for the MFT Course to ensure continuity of the physical training and reconditioning programs.

Program

12-29. The reconditioning program aims to return a Soldier to full duty as soon as possible. Group reconditioning programs with governance and equipment challenges use modifications (known as mods) to standardized physical readiness drills and activities so Soldiers safely progress and comply with exercise modifications in their profiles. Using non-standardized exercises and drills confounds this approach and prevents Soldiers from complying with the rehabilitation plan developed with the healthcare provider. These drills and activities, learned in the initial phase of training, include foundational movements that Soldiers must maintain throughout their career. These drills and activities are pre-habilitative and rehabilitative. For reconditioning Soldiers, these drills and activities provide the best solutions in the absence of easy access to coaching or rehabilitation personnel who can devise an individual's customized program.

12-30. Group reconditioning meets scheduling challenges and helps Soldiers avoid re-injury. Reconditioning that has to be performed in groups due to limitations in personnel or facility support can be delivered by profile category (see paragraphs 12-33 through 12-37). Schedules for group reconditioning are designed to control the risk of re-injury. Weeks A and B are intended to alternate throughout a Soldier's reconditioning until he or she returns to the unit's physical training program (see table 12-1, table 12-3 on page 12-7, and table 12-5 on page 12-8).

12-31. Modified exercises are described in discussions of Preparation Drill, Recovery Drill, Conditioning Drill 1, and to a lesser extent for the drills that incorporate strength training equipment. Not every possible modification can be illustrated for every injury across every exercise.

Note. The overarching principle for exercise modifications is that the injured Soldier should continually attempt to perform as close to the standard as possible.

This means Soldiers will perform the largest range of motion and lift the maximum amount of weight possible, as well as perform as close to the correct number of repetitions and cadence as possible, without hurting themselves. When a Soldier is profile-restricted from doing an exercise, the Soldier selects another exercise with similar cadence and, in collective situations, performed along with the rest of the unit. This approach maintains cohesion with other Soldiers, reduces the likelihood that the injured Soldier will be stigmatized, and increases the likelihood of the Soldier returning to the unit's standard.

Category 1: Severe Profile Restrictions

12-32. Entry into Category 1 is directed by the healthcare provider during the Soldier's initial visit. The Soldier's program is a gym-based program that includes a mix of specific rehabilitation exercises and clinic visits. The Category 1 profile involves any body part affected by a recent severe injury such as fracture, acute or severe sprains or strains, disc herniation, or recent surgeries (see table 12-1). A Category 1 Soldier may be—

- Using crutches, braces or a sling.
- Unable to tolerate impact.
- Able to use non-impact ETMs.
- Able to use STMs.
- Able to perform modified Recovery Drill and PMCS.

Table 12-1. Category 1 severe reconditioning schedule template

Week A				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Stability Drill	Stability Drill	Stability Drill	Stability Drill	Stability Drill
ETM	STM	ETM	STM	ETM
Rehabilitation	Rehabilitation	Rehabilitation	Rehabilitation	Rehabilitation
RD Mod	PMCS	RD Mod	PMCS	RD Mod
Week B				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
PD Mod	PD Mod	PD Mod	PD Mod	PD Mod
Trunk STM	Pool Walk	ETM legs	STM arms	ETM arms
Rehabilitation	Rehabilitation Pool	Rehabilitation	Rehabilitation	Rehabilitation
PMCS	RD Mod	PMCS	RD Mod	PMCS
Rehabilitation exercises are specified by a medical provider.				

ETM	endurance training machine	PMCS	preventive maintenance checks and services
Mod	modified	RD	recovery drill
PD	preparation drill	STM	strength training machine

Category 2: Moderate Lower Body Profile Restrictions

12-33. Soldiers entering Category 2 for lower body injuries must meet Category 2 entry criteria (see table 12-2). Lower body injuries in Category 2 include moderate low back pain or mild to moderate foot, ankle, knee, or hip pain. See table 12-3 for moderate lower body reconditioning. If the injury does not interfere with use of the uninjured limb, that limb should be trained as close to standard as possible. The Soldier can tolerate some impact and so is able to—

- Use ETMs such as an elliptical machine or stair master.
- Walk or run in a pool.
- Use STM circuits.
- Perform modified Preparation Drill.
- Perform modified Conditioning Drill 1, Running Drills, and Suspension Drills.
- Perform modified Strength Training Circuit and light Free Weight Training.
- Walk or run in the shallow end or aqua-jog in the deep end of the pool.
- Perform modified Recovery Drill and PMCS.

Table 12-2. Category 2 entry criteria

Exercise	***Dose***
Partial Squats without worsening condition	5 repetitions at slow cadence
Hand-Release Push-Ups without worsening condition	10 repetitions at slow cadence
Rower or Leg Tuck and twist without worsening condition	10 repetitions at slow cadence
Straight-Arm Hang from climbing bar without worsening condition	15 seconds
Walk without worsening condition without limping	30 minutes

Table 12-3. Category 2 moderate lower body reconditioning schedule template

Week A				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
PD Mod	PD Mod	PD Mod	PD Mod	PD Mod
STM arms	CD1 Mod, SD1	Pool Run	FW, STM Mod	ETM legs
Rehabilitation	Rehabilitation	Rehabilitation pool	Rehabilitation	Rehabilitation
RD Mod	PMCS	RD Mod	RD Mod	PMCS
Week B				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
PD Mod	PD Mod	PD Mod	PD Mod	PD Mod
Trunk STM	Pool Walk, RUD	Lower ETM	Upper STM, MB1	ETM legs
Rehabilitation	Rehabilitation pool	Rehabilitation	Rehabilitation	Rehabilitation
RD Mod	RD Mod	RD Mod	PMCS	RD Mod

Rehabilitation exercises are specified by a medical provider.

CD1	conditioning drill 1	PMCS	preventive maintenance checks and services
ETM	endurance training machine	RD	recovery drill
FW	free weight training	RUD	running drill
MB1	medicine ball drill 1	SD1	suspension drill 1
Mod	modified	STM	strength training machine
PD	preparation drill		

Category 2: Moderate Upper Body Profile Restrictions

12-34. Soldiers must meet Category 2 entry criteria (see table 12-2) for moderate upper body profile restrictions. The injury involves the hand, wrist, elbow, shoulder, upper back, or neck. If the injury does not interfere with use of the uninjured limb, Soldiers should train that limb as close to standard as possible (see table 12-4). For the injured limb, Soldiers can tolerate some impact without aggravating the injury and can—

- Use a recumbent bike or elliptical machine while holding supports.
- Perform lower body STM circuits.
- Perform modified Preparation Drill.
- Perform modified Conditioning Drill 1, Running Drills, Recovery Drill, and PMCS.
- Perform modified Strength Training Circuit and light Free Weight Training.
- Walk or run in the shallow end of the pool or aqua-jog in the deep end.

Table 12-4. Category 2 moderate upper body reconditioning schedule template

Week A				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
PD Mod CD1 Mod STM legs Rehabilitation PMCS	PD Mod STC SD1 Mod Rehabilitation RD Mod	PD Mod Pool Run / RUD Rehabilitation Pool RD Mod	PD Mod FW STM Mod Rehabilitation RD Mod	PD Mod ETM legs Rehabilitation RD Mod
Week B				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
PD Mod CD1 Mod Trunk STM Rehabilitation RD Mod	PD Mod Pool Run / RUD Rehabilitation Pool RD Mod	PD Mod ETM legs Rehabilitation PMCS	PD Mod Upper STM SD1 Mod Rehabilitation RD Mod	PD Mod ETM legs Rehabilitation PMCS
Rehabilitation exercises specified by a medical provider				

CD1	conditioning drill 1	RD	recovery drill
ETM	endurance training machine	RUD	running drill
FW	free weight training	SD1	suspension drill 1
Mod	modified	STC	strength training circuit
PD	preparation drill	STM	strength training machine
PMCS	preventive maintenance checks and services		

Category 3: Minimum Profile Restrictions

12-35. Soldiers must meet Category 3 entry criteria (table 12-5 and table 12-6) for minimum profile restrictions. The injury involves upper or lower body pain that is resolving. The Soldier is able to participate in all drills and exercises on the unit physical training schedule, modifying the number of repetitions.

Table 12-5. Category 3 entry criteria

Exercise	***Dose***
Preparation Drill	5 to 10 repetitions
Stability Drills	Standard
Conditioning Drills 1 and 2	5 to 10 repetitions
Climbing Drill 1	5 repetitions with spotters
Military Movement Drill 1	Standard
30:60s or 60:120s	5 to 10 repetitions
Strength Training Circuit	1 circuit

Table 12-6. Category 3 minimum profile restrictions

Week A				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
PD, HSD MMD1 & MMD2 30:60s (5 reps) RD	PD, 4C CD1, CD2 Rehabilitation PMCS	PD, HSD RUD, ETM RD	PD, SSD CL1, STC / FW RD	PD, HSD MMD1 & MMD2 30:60s (6 reps) Rehabilitation
Week B				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
PD ACFT practice PMCS	PD Aqua-jog Rehabilitation Pool PMCS	PD, HSD 30:60s (7 reps) RD	PD, SSD MB1, ST1 PMCS	PD, 4C Release Run (30') RD
Rehabilitation exercises specified by a medical provider.				

30:60	30 second sprint: 60 second walk	MMD	military movement drill
4C	four for the core	Mod	modified
ACFT	Army Combat Fitness Test	PD	preparation drill
CD1	conditioning drill 1	PMCS	preventive maintenance checks and services
CD2	conditioning drill 2	RD	recovery drill
CL1	climbing drill 1	rep	repetition
ETM	endurance training machine	RUD	running drill
FW	free weight training	SSD	shoulder stability drill
HSD	hip stability drill	ST1	suspension training drill 1
MB1	medicine ball drill 1	STC	strength training circuit

12-36. Soldiers will depart Category 3 and the unit's Reconditioning Program after completing the exit criteria in table 12-7 or when instructed to return to full training by an H2F or unit medical provider.

Table 12-7. Category 3 exit criteria

Exercise	***Dose***
Preparation Drill (PD) without worsening condition	5 repetitions at standard cadence
Military Movement Drill 1 (MMD1) without worsening condition	1 repetition
Conditioning Drills 1 and 2 (CD1 & CD2) without worsening condition	5 repetitions at standard cadence
Climbing Drill 1 (CL1) without worsening condition	1 repetition at standard cadence
Release Run (RR) without worsening condition	30 minutes at slowest unit ability group run (AGR) pace

Equipment and Facilities

12-37. Units ensure adequate space and equipment are provided for the reconditioning program to accommodate STMs and ETMs. In the absence of H2F equipment sets and expertise, Soldiers best execute the reconditioning program at the brigade or installation fitness facilities. Lower extremity injuries may hinder a Soldiers ability to appropriately perform strength- and endurance-related activities. Units need to provide an adequate number of ETMs that offer alternative activities so as to not aggravate or continue to injure Soldiers while promoting conditioning and recovery. Sample ETMs include cycle ergometers, steppers, elliptical machines, rowing machines, rope climbers, and treadmills. Treadmills are full weight bearing machines and are most appropriate for Soldiers cleared by medical personnel to begin a walk-to-run progression. Specialized treadmills that reduce weight-bearing have the potential to further speed recovery and, because of their harness systems, have the advantage over conventional treadmills of eliminating the risk of falling while walking or running.

12-38. Pool activities such as swimming or deep-water running eliminates most weight-bearing stress. All Soldiers recovering from surgery or have wounds that are still healing require a physician's clearance before

entering the swimming pool. Swimming laps, aqua-jogging, and aquatic exercises enable Soldiers to maintain or improve cardiorespiratory fitness without putting undue stress on joints and bones. Limitations to one leg or one arm are minimal deficits in a pool environment. Kick board workouts or upper body workouts allow for strenuous activity with minimal risk of re-injury to an affected limb. With enough staffing, units can implement specialized aquatics programs to work on water aerobics or deep-water running programs for non-swimmers. Effective leaders plan activities that keep everyone active during group pool sessions. Even if a regular pool program is not practical, leaders can schedule an occasional trip to the pool to break up the routine and provide cross training.

12-39. Units that must rely on installation or shared facilities should make arrangements to ensure that space and STMs or ETMs are available during the time dedicated to the reconditioning program. This may require policies that restrict the use of these facilities to only reconditioning programs. Leaders might need to schedule reconditioning outside typical physical training times such as after 0800 or before 1600 to best have dedicated access to gym space and equipment.

PREGNANCY AND POSTPARTUM PHYSICAL TRAINING

12-40. Soldiers are expected to meet strenuous physical fitness standards when they return to their jobs after their postpartum phases have ended. A P3T program aims to help pregnant and postpartum Soldiers maintain fitness throughout their pregnancies and to help them meet the physical requirements of their units' METLs, as well as the standards of the ABCP and ACFT.

12-41. In the H2F System, pregnant Soldiers perform the majority of their special programs in the same environments and at the same times as their units under the supervision of medical providers or exercise leaders certified in P3T. When the unit trains as a whole, it maintains cohesion, reinforces performance, and sustains unit readiness and retention. Sometimes multiple units consolidate P3T education classes for Soldiers to establish support networks and to promote peer reinforcement on topics about pregnancy, labor and delivery, newborn babies, and parenting issues. Instructors can use classrooms in the SPRC to teach these sessions while the rest of the unit performs other H2F training in the building.

12-42. Soldiers diagnosed as pregnant or who are recovering after their pregnancies perform physical activities directed in their pregnancy profiles up to 45 days after the end of their pregnancies. They do not have to meet the physical training goals or test standards of the unit during this time. During maternity or convalescent leave, leaders encourage Soldiers to follow at-home exercise programs. Soldiers can also attend P3T while still on maternity or convalescent leave. If postpartum Soldiers pass practice ACFTs, and receive clearances from their healthcare providers, they may return to unit physical training before the one-year requirement to pass the ACFT. They must submit a DA Form 4856 (*Developmental Counseling Form*) to complete disenrollment from P3T.

Note. In the event that a Soldier's pregnancy ends before normal delivery, consult with the Soldier's healthcare provider regarding participation in the postpartum phase of P3T.

PRECAUTIONS FOR PREGNANT SOLDIERS

Commanders and H2F performance team personnel must ensure that Soldiers follow these safety precautions:

- Soldiers must have written approval from a healthcare provider that clears them to exercise during pregnancy. The DA Form 3349 (specified for pregnancy) will indicate if they are allowed to exercise at their own pace.
- Soldiers are encouraged to continue to run or jog through the 2nd trimester at their own pace.
- Soldiers are encouraged to participate at the highest level they are comfortable and at their own pace.

PRECAUTIONS FOR PREGNANT SOLDIERS (*CONTINUED*)

- Soldiers must bring water to exercise sessions and are encouraged to drink water as needed.
- Soldiers are excused to use the restroom as needed.
- Soldiers are encouraged to consume a small amount of calories before the exercise session.
- Soldiers are allowed to modify exercises to reduce physical discomfort (such as nausea, fatigue, or pain).
- Soldiers are to be led in strength and endurance exercises at a slow pace, which may be slower than the standard slow cadence of 50 counts per minute.
- Pregnant Soldiers will not exercise to exhaustion, breathlessness, or fatigue. If Soldiers exhibit these signs, leaders coach them to decrease the intensity or to stop vaginal bleeding, abdominal pain, regular painful contractions, and amniotic fluid leakage.
- Pregnant Soldiers should be led in slow, deep breathing during all phases of exercise to prevent them from hyperventilating.
- Soldiers more than 20 weeks pregnant do not perform exercises lying on their backs.
- Soldiers more than 20 weeks pregnant must use a splinting technique to support their abdomens during all abdominal exercises.
- Weight bearing activities (running and jogging) for pregnant Soldiers are limited to 45-minutes to prevent decreased blood flow to the heart and uterus.
- Pregnant Soldiers are not to perform activities that put them at risk of falling or being hit in the abdomen.
- If a Soldier less than 20 weeks pregnant falls during an exercise, she should rest for 10 minutes on her side and notify her health care provider for further instruction. If symptoms of injury exist (such as cramping, bleeding, or swelling), the Soldier should go to the emergency room. If the Soldier is more than 20 weeks pregnant, then she needs to seek immediate care at the medical treatment facility.
- Pregnant Soldiers with the following symptoms are to be referred to health care provider immediately: swelling of face and hands; severe headaches; persistent dizziness; chest pain; palpitations; difficulty walking due to pain, vaginal bleeding or discharge; fever; or contractions that increase in intensity, frequency, or duration.
- Soldiers follow trained exercise leaders who can assist them in modifying exercises to fit their pregnancy or postpartum conditions. Training is not be led by other pregnant Soldiers.
- Safe and beneficial exercises during pregnancy include walking, stationary cycling, aerobic exercises, dancing, resistance exercises, stretching exercises, hydrotherapy, and water aerobics.
- The exercise session must always have at least two exercise leaders in attendance who will correct exercise performance to prevent injury.
- After 20 weeks gestation, Soldiers need modified or substituted physical training activities to accommodate physiological changes and to promote safe performance.
- Leaders use RPE to monitor exercise intensity during pregnancy. Moderate-intensity RPE of 5 to 7 is acceptable, or using the “talk test.” As long as a Soldier can talk while exercising, she likely is not overexerting herself.

PRECAUTIONS FOR POSTPARTUM SOLDIERS

Commanders and H2F performance personnel must—

- Administer a needs analysis or standardized postpartum questionnaire that includes questions about cesarean-section, other delivery complications, or profile limitations that will influence exercise performance.
- Offer guidance as to the appropriate modifications required by their individual condition or limitations.
- Recondition postpartum Soldiers who have had cesarean sections more slowly and modify exercises to reduce jumping, twisting, and pulling on the abdomen.
- Ask postpartum Soldiers if they have a separation midline between vertical abdominal muscles and give guidance as to the appropriate abdominal exercises based on their condition. A Soldier with a separation of more than two fingers in width must manually splint her abdomen during abdominal exercises.
- Encourage Soldiers to not move or change direction quickly and to exercise at a slow pace for the first 10 weeks after delivery.
- Watch for Soldiers with pelvic pain, low back or sciatic nerve pain, difficulty walking, limping, incontinence during exercise, or with deep abdominal pain. They may need to further modify exercise performance and check with their providers for exercise restrictions.
- Encourage frequent hydration (preferably with water). Dehydration remains a concern after pregnancy, especially for breastfeeding mothers.
- Give postpartum Soldiers the chance to practice ACFT events and measure their body composition as part of their needs analysis and program development.
- Progress postpartum Soldiers to unit conditioning program and use reconditioning programs to do so.
- Watch for symptoms of depression that may occur between 3 and 4 months postpartum. Encourage Soldiers who exhibit symptoms to seek professional assistance, and alert the Soldier's chain of command about a potential concern.

PREGNANCY AND POSTPARTUM PHYSICAL TRAINING EXERCISE SESSIONS

12-43. It is safe for Soldiers to continue or start most types of exercise during a normal, uncomplicated pregnancy. Soldiers who were very active before pregnancy or are experienced runners, for example, may be cleared by medical providers to keep doing the same workouts well into their pregnancies. Physical activity does not increase risk of miscarriage, low birth weight, or premature delivery. The benefits of exercise during pregnancy include the following:

- Decreased risk of pregnancy-related medical complications.
- Reduced back pain.
- Healthy weight gain during pregnancy and healthy weight loss afterwards.
- Improved maintenance of overall physical readiness and health.

12-44. The changes in the body during and after pregnancy drives the frequency, intensity, duration, and types of drills and exercises performed. See table 12-8. Each physical training session should integrate multiple exercise components. During pregnancy, Soldiers deliberately limit intensity. They limit their physical fitness components to muscular strength, muscular endurance, flexibility, and aerobic endurance. Exercises promote the fullest safe range of motion, balance, coordination, and healthy body composition.

Table 12-8. P3T drills, exercises and schedule template

Strength and Mobility Drills and Exercises				
Pregnancy	**Upper Body**	**Lower Body**	**Core**	**Flexibility**
Kegel Standing Trunk Curve Pelvic Clock Deep Sumo Squat CRP	SSD Chest Press Biceps Curls Seated Row Shrug Bent Over Row Lat Pull Down	Hip Stability Drill Front Leaning Rest Mod Hamstring Curls Leg Press Squat Bender Forward Lunge Deep Sumo Squat	4C CD1 Mod Trunk Extension Trunk Flexion Front Leaning Rest Mod Sit-ups Mod Reverse Sit-ups Oblique Sit-up	PMCS RD Mod PD Mod

Endurance Activities			
No Impact Lower Body	**Light Impact Lower Body**	**Moderate Intensity Lower Body**	**Upper Body**
Rowing Machine Aqua-jogging Elliptical Stationary Cycling	MMD1 / RUD Treadmill walking Foot March	Stair Climber Water Aerobics Release Run	Upper Body Cycle Rope Climb Machine

Pregnancy Daily Schedule Template					
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Preparation	PD Mod SSD Mod	PD Mod HSD	PD Mod 4C	PD Mod HSD	PD Mod SSD
Activities	STMs upper Pregnancy Ex's	RUD, MMD1 ETM, Walk	Pregnancy Ex's FW	CD1 Mod RR / ETM / FM	STMs lower Pregnancy Ex's
Recovery	PMCS RD Mod	PMCS RD Mod	PMCS RD Mod	PMCS RD Mod	PMCS RD Mod

Postpartum Weekly Schedule Template					
	Week 1*	**Week 2**	**Week 3**	**Week 4**	**Week 5**
Preparation	CRP** x 2 mins Kegel (5 reps)	CRP x 3 mins Kegel (10 reps)	CRP x 3 mins Kegel (3x5 reps)	CRP x 3 mins Kegel (4x5 reps)	CRP x 3 mins Kegel (3x10) PD Mod
Activities	Walk (5-10 mins)	Walk (5-15 mins)	Walk (5-20 mins)	Walk (5-30 mins) Pregnancy Ex's	Walk (5-40 mins) ETM
Recovery	Mindfulness CRP x 10'	RD Mod	RD Mod	PMCS RD	RD

*First week after the end of the pregnancy **Constructive Rest Position

4C	four for the core	Mod	modified
CD1	conditioning drill 1	PD	preparation drill
CRP	constructive rest position	PMCS	preventive maintenance checks and services
ETM	endurance training machine	RD	recovery drill
Ex	exercise	reps	repetitions
FM	foot march	RR	release run
FW	free weight training	RUD	running drill
HSD	hip stability drill	SSD	shoulder stability drill
min	minute	STM	strength training machine
MMD1	military movement drill 1		

12-45. P3T sessions include three typical elements: preparation, activities, and recovery. A preparation activity called centering—purposeful concentration on the base of support and changing center of mass—and relaxation are unique P3T activities leaders deliberately program into the Soldier's schedule. Preparation and strength training should occur before endurance training. To avoid light-headedness when getting up from the ground, standing exercises should precede sitting and floor exercises. For the same reason, pregnant Soldiers do not return to the position of attention between floor exercises. They use that time to recover in place. Recovery at the end of the session safely returns the Soldier to the pre-exercise state. In pregnant Soldiers, a heart rate below 100 bpm indicates that they have returned to a pre-exercise level of exertion.

PREPARATION

12-46. P3T preparation aims to get the Soldier's mind and body ready for exercise. It consists of centering, core compressions, and modified Preparation Drill. It should last approximately 15 minutes. Centering focuses on mental preparation, deep abdominal breathing, and physical balance. Soldiers can perform it sitting or standing. When a profile restricts Preparation Drill exercises, Soldiers can perform other general warm up movements including walking, marching or jogging in place, dynamic stretching, or easy aerobic dance steps. Soldiers focus also on core compressions on the transversus abdominis (muscle layer on sides of the abdomen). They pull the belly button in and toward the spine, hold for a few seconds, and repeat for a minute.

ACTIVITIES

12-47. Pregnant Soldiers should plan to exercise three to five times per week for 60 to 90 minutes at each session. Microcycles of one week and mesocycles of two to four weeks allow sequential training and fit neatly into the three trimesters of pregnancy and the postpartum period. Leaders can modify periodized training cycles to accommodate the changes occurring in the pregnant Soldier's fitness and fatigue levels, directives from medical providers, and the Soldier's motivation to train.

12-48. Otherwise-healthy, postpartum Soldiers resume core strengthening exercises shortly after giving birth. They may need modifications to core and hip strengthening exercises at first, but as they progress, standard movements become safe. Before resuming sit-up type exercises, Soldiers should be checked by their medical provider for rectus diastasis, a midline separation between the vertical muscles of the abdomen. Twelve weeks after the pregnancy has ended, postpartum Soldiers should be able to run three times per week. Postpartum Soldiers with leadership qualities should also be considered by commanders for leadership roles in the P3T program.

RECOVERY

12-49. Relaxation and stress management are recovery activities that maintain a pregnant Soldier's health throughout her pregnancy and prepare her to conserve energy during labor and delivery. A quiet, comfortable, and dimly lit environment with calming music can assist with mental imagery, deep breathing practice, muscle relaxation, and mindfulness practice.

PREGNANCY AND POSTPARTUM PHYSICAL TRAINING EXERCISES

12-50. Soldiers maintain physical fitness with P3T exercises. Each exercise may be selected for Soldiers by their providers and coached in the P3T program by H2F performance specialists. Table 12-9 lists P3T exercises (see ATP 7-22.02 for illustrations). Soldiers adjust the dose and range of movement based on their specific needs, level of conditioning, and trimester.

Table 12-9. Pregnancy and postpartum physical training exercises

Name	*Description*
Kegel	This exercise strengthens the muscles of the floor of the pelvis. These muscles, support the contents of the pelvis and surround the birth canal. The Kegel requires expert medical instruction for beginners. Like any muscles, the muscles of the pelvic floor can be strengthened over time to reduce the chance of long-term dysfunction, pain, and incontinence particularly associated with pregnancy. Three sets of 10–15 repetitions of Kegel exercises should be performed as part of a daily routine.
Pelvic Clock	This exercise strengthens and improves the control and coordination of muscles in the lumbar spine and pelvic region. Often used in the treatment of low back pain, the Pelvic Clock exercise safely unloads the spine and maintains mobility in the joints of the lumbo-pelvic region. Attention should be paid to limiting how long a pregnant Soldier remains on her back when performing this exercise, especially in the second and third trimesters.
Deep Sumo Squat	This squat is similar to other squatting exercises. This version safely prepares Soldiers for delivery of their babies. It challenges balance and hip mobility and prepares for a return to similar movements with free weights in the postpartum and reconditioning periods after pregnancy.
Standing Trunk Curve	To avoid prolonged supine positions, Soldiers can use the Standing Trunk Curve exercise to safely engage muscles in the front of the abdomen and pelvis. It can be practiced through the third trimester and in the postpartum period by Soldiers who have no rectus diastasis or no diastasis greater than two fingers wide. The exercise can be performed in a seated position to make it easier, or on hands and knees to make it harder.
Sit-ups (Modified)	Modified Sit-ups, Reverse Sit-ups, and Oblique Sit-ups safely challenge the pregnant and postpartum Soldier's abdominal muscles. The Modified Sit-Up and Oblique Sit-Up exercises can be practiced during the first trimester and in the postpartum period by Soldiers who have no rectus diastasis (midline separation of the vertical muscles of the abdomen) or no diastasis greater than two fingers wider than two fingers. Reverse Sit-Ups with the splinting technique are to be performed after 20 weeks of pregnancy, and by any Soldier with a diastasis of more than two fingers wide.
Front Leaning Rest (Modified)	To prepare for training and testing events, Soldiers can adapt the Front Leaning rest position by moving to a six-point position or by resting on their forearms with elbows bent. These static positions allow for weight-bearing through the upper body and keep the pregnant Soldier's abdomen safely off the ground.
Constructive Rest Position (CRP)	In the Constructive Rest Position the postpartum Soldier lays on her back with hands resting on her abdomen to facilitate relaxation and focused breathing.

PREGNANCY AND POSTPARTUM PHYSICAL TRAINING EDUCATION SESSIONS

12-51. Weekly education sessions are taught during P3T during pregnancy and monthly during post-partum Soldiers to improve Soldier preparedness for pregnancy and parenthood. Core curriculum sessions are mandatory and may be repeated twice during the year. See table 12-10 on page 12-16.

Table 12-10. P3T core curriculum sessions

Course	*Description*
Prenatal	
Pregnancy and postpartum physical training (P3T) orientation and special exercises	Program overview of P3T implementation, enrollment process, attendance requirements, uniform policy, benefits, exercise intensity, safety procedures, special exercises, exercise session components, and education classes.
Nutrition While Pregnant	Benefits of healthy nutrition for pregnant and breastfeeding women. Identifies key nutrients, amount of calories needed to support healthy weight gain, foods and beverages to avoid, ways to maintain a healthy diet with dietary restrictions, tips for safe food preparation, and resources for nutrition.
Fetal Development	Development of the baby according to the month of pregnancy: • Major internal and external organ systems and their functional characteristics. • Things your baby does. • Cognitive development and things baby responds to. • Readiness for birth and risk if born prematurely. • Tips for coping with the changes of pregnancy.
Dental Health During Pregnancy	Dental treatment during pregnancy, how pregnancy impacts fetal tooth development, how pregnancy alters oral health, and ways to improve oral hygiene during pregnancy.
Physical Changes During Pregnancy	The anatomical and physiological changes that occur during pregnancy. Impacts of these changes on postural dynamics, movement, muscles, and potential for injury. The means to combat these effects.
Exercise and Pregnancy	Scientific evidence of the beneficial effects of exercise on pregnancy, benefits expecting mothers may attain by meeting recommended guidelines, negates perceived risks that may hinder engaging in physical activity during pregnancy, and benefits of exercise that a baby may attain with regular maternal exercise.
Sleep in Pregnancy	Sleep recommendations and how pregnancy changes sleep. Tips for improving sleep.
Breastfeeding	Advantages of breastfeeding, preparations for breastfeeding, nursing positions, breast care, breastfeeding challenges, and weaning. Government and military breastfeeding policies, information on breast pumping, and government and nongovernment online resources for nursing moms.
What to Expect in Labor and Delivery	Information about each phase of labor and delivery. Prepares parents to be a part of the decision-making process and gain confidence at birth.
HIV and Sexually Transmitted Diseases	Discussion regarding sex during pregnancy and after delivery. Describes sexually transmitted diseases symptoms and treatments.
Reproductive Hazardous Exposures	Defines reproductive and developmental hazards and explains most important facts about toxicology. Lists common chemical, drug, and physical hazards and legal sources of information provided to help with decision making.
Postpartum	
Pregnancy Prevention and Contraception	Myths and facts on reproductive health, birth control, available contraceptive options. Recommendations for how to make the right personal choice.
Psychological and Interpersonal Issues	Explanations of psychological issues of postpartum blues, postpartum depression, and postpartum psychosis. The benefits of exercise during postpartum. How complicated pregnancies impact psychological functioning.
Nutritional Readiness	Details on how to eat nutritiously during postpartum for the health of mother and baby, especially for breastfeeding mothers. Successful and safe strategies for weight and body fat loss.

Table 12-10. P3T core curriculum sessions (*continued*)

Course	*Description*
Postpartum	
Sleep	Sleep recommendation for all ages and tips for good sleep during postpartum.
Parenting Issues	
Parenting	Child rearing principles and expectations in the first four years; coping skills for discipline, sibling issues, and rivalry.
Stress Management	Broad overview of stress definition, sources of stress, common reactions, coping mechanisms, and stress reduction tips.
Military Issues	
Social Services for Military	The following programs are explained: • Women Infants and Children (known as WIC). • New parent support program. • Social work services. • TRICARE and Defense Enrollment Eligibility Reporting System (known as DEERS). • Family Advocacy Program (known as FAP). • Community resources • Army Community Service (known as ACS). • Child and Youth Services (known as CYS) care. • Military housing issues.
Career Options 8 Including Separation from Service	Explains pregnancy policy, separation due to pregnancy, reassignments, basic allowance for subsistence and basic allowance for housing, family care plan, and costs associated with an infant.
Infant Issues	
Infant Dental Care	Explanation of oral conditions of infancy, development of teeth, prevention and causes of early childhood cavities, and the first dental visit.
Pet Safety	Benefits and risks of pet ownership, goals for pets, preparing for bringing baby home, preventing dog bites, and feline tips.
Infant Immunizations	Overview of infant and childhood immunizations and the importance of having children vaccinated.
Safety	Recommendations for safety of an infant in the car, at home, in the bathroom, kitchen, with toys, sleeping, and fire prevention. First aid tips, household hazards, and poison control are also discussed.
Social Services	
Child Development	Basic aspects of care and wellness for a baby to include: newborn characteristics, care and feeding of the newborn, behavioral cues, signs of illness, and sudden infant death syndrome (known as SIDS).

This page intentionally left blank.

PART FOUR

Deliver

This part of the doctrine provides practical examples for leaders and H2F performance experts to coach Soldiers about the H2F programs.

Chapter 13

Holistic Health and Fitness Coaching

H2F coaching is the act of teaching Soldiers the techniques, tips, and procedures for improving and maintaining high levels of readiness. The information in this chapter delivers practical health advice for the domains: physical readiness, nutritional readiness, mental readiness, spiritual readiness, and sleep readiness. This chapter offers ways for Soldiers to reflect on their holistic health and address what they need to do to improve their readiness. This chapter provides the tactical information for whole Soldier health and fitness, from the skin in and from the neck up.

BUILDING SOLDIER H2F READINESS

Attention, perception, and expectation

What Soldiers pay attention to and perceive—and what they expect to happen—has a profound impact on their overall health.

13-1. The things that Soldiers focus on tend to drive the trajectories of their lives. The more Soldiers learn to pay attention to their health and fitness, the more dramatic and positive their improvements in readiness will be. Soldiers are capable of creating new pathways in their brains that will change their ways of reacting, deciding, and behaving.

13-2. In organizations where positive lifestyle choices are valued and encouraged, those member more often make the right choices. When Soldiers learn to focus on positive events, they more likely overcome the negative, which all of us tend to find first. In successful teams, supervisors give three times as much positive feedback as negative feedback.

13-3. Soldiers have their own unique perspective formed by personal experiences, histories, and education. Changing perspectives requires deliberate hard work on the part of Soldiers, their leaders, and the performance readiness experts in the H2F System. Focusing on specific health behaviors can impact a Soldier's perspective. This section of the doctrine directs holistic health coaching, teaching, and mentoring.

HOLISTIC HEALTH

13-4. While certain behaviors make a huge impact on holistic health, Soldiers will have challenges in different areas. The specific health behaviors associated with optimal health are—

- Eat vegetables and fruit.
- Exercise.
- Avoid tobacco use.
- Avoid excessive alcohol consumption.
- Sleep.
- Take medication only prescribed by your provider.

13-5. The domains of readiness in this doctrine cover these behaviors and much more. Soldiers have many choices and large potential to achieve optimal health and fitness. Figure 13-1 lists these areas.

Figure 13-1. Circle of health

13-6. To help Soldiers take stock of where they stand on the circle of health, the personal health inventory (PHI) has been developed. A completed PHI gives the Soldier and H2F performance team a full picture of what really matters in the Soldiers' lives, what they intend to use health for, what brings them joy and happiness, and what their vision is of their best possible health and fitness. Table 13-1 gives the overview of the PHI. The PHI can be taken at a time to be determined.

Table 13-1. Personal health inventory components

Component	*Examples*
What really matters?	Identified values, mission, aspirations, and purpose
What is going right already?	Assets
Goals	SMART (specific, measurable, attainable, relevant, time-specific)
Mindful awareness	Focus on what is important
Self-care	Food and drink; recharge; personal development; family, friends and colleagues; power of mind, spirit and soul; and working the body
Professional care	Prevention, illnesses, referrals, screening, complementary approaches
Community	Resources, team members
Next steps	Follow-up, support

13-7. Mindfulness is paying attention, on purpose and without judgment, to the present moment. Mindful awareness or mindfulness is a key component of cultivating presence—paying attention or being aware of the moment—and it is essential for H2F. Unless Soldiers pay attention or take notice, they cannot change or grow. Learning to focus on one thing for a period often contradicts normal behavior. When the mind is too full of thoughts, it cannot focus in the present moment. The objective is to be mindful.

13-8. Everyone has the capacity to be mindful. It is a natural capacity to pay attention with curiosity and openness. Simple examples include enjoying a cup of tea or coffee, watching the sunset, savoring a favorite food, or noticing the details of driving home from work. Soldiers use some techniques, like meditation, to foster mindful awareness, but mindful awareness is really about an overall approach that goes wherever the Soldier goes. Mindfulness involves tuning in with personal thoughts and practicing awareness of relationships with these thoughts.

13-9. Practicing mindfulness and other forms of meditation has many health benefits. Changes in brain activity appear after a few weeks of mindfulness practice. Other physiological changes are associated with increased relaxation, improved focus, reduced inflammation, lower stress hormones, and enhanced immune system function. For healthy Soldiers, changes can include reduced stress, anxiety, depression, anger and distress; improved quality of life, higher emotional intelligence, creativity and concentration; and increased empathy, spirituality, and self-compassion.

13-10. For those Soldiers with health issues, mindfulness can ease chronic pain, decrease high blood pressure, and calm stress hormones and inflammatory processes. It can help with smoking cessation, decreasing binge eating and substance abuse, and reducing sleep difficulties.

Mindfulness Training Exercise

Sit comfortably with the feet planted firmly on the floor. Lengthen your body through your back, neck, and the top of your head. For the next two minutes, turn all of your awareness to your breathing. Without changing the rate or quality of your breathing, simply note the sensation of inhalation, the sensation of exhalation, and the pauses between these two.

Now reflect:
How easy was it to focus your attention on your breathing for two straight minutes?
What distracting thoughts arose?
What judgments or evaluations pulled your awareness away from your breathing?

Take two additional minutes to repeat the exercise above. This time, when your thoughts wander away from the breath, gently return your attention to your breathing. Judgments may arise—"I can't concentrate," or "This is boring." When this happens, simply notice that this is a thought and bring your attention back to your breathing. When your mind wanders, be gentle with yourself. Notice if you scold yourself for deviating from the breath, accept the passing distraction, and focus your attention back on the breath.

Now reflect again:
How did it feel taking an additional two minutes to focus on the breath?
How easy or difficult was it to maintain your attention on the breath?
What distracting thoughts and judgments arose?
How easy or difficult was it to gently bring your awareness back to your breathing?
How do you feel at the end of this exercise?

If you found it challenging to maintain present-moment awareness of the breath during the last exercise, take heart; the body is a constant ally in remaining grounded in the here and now. Your body feeds you constant updates about your experience of the present moment. Observe your breathing. Note the feeling of your feet on the floor. What signals are arising from your body—hunger, thirst, fatigue, discomfort, the need to go to the bathroom? What are you seeing, hearing, smelling, tasting, touching? In bringing the awareness to these ongoing status indicators, we are able to maintain presence in the current moment.

Now reflect again:
How is this way of paying attention different from how you normally pay attention?
How might this way of paying attention have an effect on your health?

PROACTIVE HEALTH

13-11. Proactive health refers to taking charge of physical, emotional, and spiritual wellbeing to control and minimize potential health hazards. As opposed to reactive health that focuses on a response to a hazard, proactive health requires a disciplined approach to managing all aspects of health—from exercise, to diet and nutrition, spirituality, and behaviors—in a preventative mode. The H2F System is designed to account for the multitude of factors that influence health from a preemptive standpoint.

PHYSICAL EXERCISE

13-12. Regular participation in exercise helps to decrease disease risk and in most cases is beneficial behavior that helps when treating diseases and symptoms. Beside daily physical training, Soldiers who tend to have less physically demanding MOS- or work-related duties should incorporate physical activity

throughout the day. Taking movement breaks every hour or performing Stability and Movement Drills during computer breaks, walking outside parking farther away, and taking the stairs all provide feasible ways to get more movement throughout the day and thus decrease sedentary time.

13-13. The health benefits of activity are significant and numerous. They include lower all-cause mortality rates; increased life span; prevention of cardiovascular disease, cancer (colon and breast), type II diabetes, high blood pressure, and obesity. Exercise reduces the negative effects of aging, reduces dementia, and enhances brain function. Cognitive benefits of exercise include improved concentration, memory, and mental agility. Increasing physical activity decreases symptoms of depression and anxiety and improves psychological well-being.

SURROUNDINGS

13-14. A Soldier's surroundings include the home, workplace, neighborhood, emotional network, climate, ecology, and healthcare environment where a Soldier goes to heal or prevent illness. Surroundings can significantly impact the way Soldiers feel as well as their health outcomes. For example, a messy desk cluttered with paper and used cups can stress some people. And a walking into a tidy clean space can invigorate some people to focus quickly on a task.

13-15. In the study of epigenetics—how genes are expressed—the expression of genetic traits is linked to the environment. The possibilities for how biological, psychological, and social phenomena interact and how differences in environment might affect health are practically endless. However, if surroundings can cause changes in health, modifying the surroundings can also influence H2F goals.

13-16. Changes to the environment and lifestyle do not have to be complicated or expensive. For example, using darker curtains, a sleep mask, or earplugs can aid sleep; while re-painting a room a brighter color or spending more time in nature can improve mood. Bringing a plant inside a home can improve indoor air quality and even the aesthetic appeal of a room. Other methods to change environment can include—

- Asking smokers to move outside (or cut back).
- Cleaning the house using safe household products.
- Using a water filter.
- Placing weapons in locked boxes.
- Keeping cords and obstacles out of the way.
- Increasing consumption of fresh vegetables and fruit instead of processed convenience foods.

PERSONAL DEVELOPMENT

13-17. Soldiers often think of work-related development as the way to forge a successful professional life. Developing a life outside professional spheres—personal development—balances work and play to provide more energy for professional success. Personal development includes hobbies, interests in art and music, volunteering, personal reading, and other sources of inspiration that help Soldiers to find their potential. Personal development might encompass or include improving financial health, spending time with friends and family, practicing forgiveness and gratitude, or committing random acts of kindness. These activities improve self-awareness and identity, build social capital, nurture positive emotions, and cultivate hope and optimism.

13-18. Meaningful activities for personal development are nearly infinite, but the impact of volunteering on holistic health is worth particular attention. Of those who volunteered over a 12-month period, a study by United Health Group published in 2013 found that 76 percent reported feeling healthier, 94 percent reported improved mood, 78 percent reported lower stress levels, 96 percent reported enriched sense of purpose in life, and 80 percent reported feeling control over health.

NUTRITION

13-19. The sheer number of resources and suggestions available for advice on nutrition make it imperative for Soldiers to work in conjunction with the H2F performance team's registered dietitian. In the absence of

a dietitian, the following guidelines, fleshed out with the information in Chapter 8, "Nutritional Readiness," provide a rational approach for leaders:

- Eat breakfast. Front-load calories during the day—eat most calories earlier rather than later.
- Don't skip meals or snacks.
- Cut back on caffeine.
- Drink more water and limit consumption of sugar-sweetened beverages.
- Limit eating out and bring a healthful lunch to work.
- Eat more fruits and vegetables. The more color on your plate, the better.
- Eat slowly and mindfully focusing on food rather than on screens; limit screen time during meals.
- Be realistic and make small changes over time.
- Be sensible and enjoy all foods in moderation.

RECHARGE

13-20. As discussed in the chapter 11, Soldiers need to maintain a well-balanced sleep-wake schedule for overall health. Disruption of this schedule promotes chronic fatigue and the onset and progression of illness. For those with less than 5 hours of sleep per night versus those with greater than 7 hours of sleep, there is an increased risk of obesity, hypertension, diabetes, heart attack, and stroke.

13-21. Recharging does not just include sleep. Energy levels can be positively impacted by vacations, rest periods, and breaks at work. Taking time for leisure, creativity, and hobbies or other non-work interests can restore energy levels. The break from work does not have to be a long one for restored energy to happen.

FAMILY, FRIENDS, AND COLLEAGUES

13-22. A Soldier's support network is perhaps the single most important variable in determining his or her physical and emotional health. The stress hormone, cortisol, does not increase as much in stressful situations when people have supportive companions nearby. A simple hug from a friend or family member can be a stress-buffer, alleviating fears and increasing positive feelings. When contact activates the skin's sensory receptors, the hormone oxytocin—the one that makes people feel good—is stimulated and cortisol is reduced.

13-23. Soldiers have many ways to enhance social connections and relationships. The following list is by no means exhaustive but includes many simple ways for Soldiers to improve their support network:

- Consider joining a health group, sports team or workout group.
- Become more active in the community through volunteering.
- Make sure to have a confidant to turn to.
- Connect with a significant other.
- Connect with animals. Heal or avoid negative relationships.
- Cultivate communication skills.
- Work with H2F performance team experts to build coping skills.
- Practice being compassionate to and thankful for others.

+ SPIRIT

13-24. Chapter 10 discusses spiritual readiness. It outlines ways that Soldiers and their leaders can encourage individual spiritual readiness and development. When Soldiers seek a sense of meaning or purpose in their lives, they can take practical actions toward that goal. For example, Soldiers can write in a journal to answer questions about what spirit means to them. They can pray, meditate, join a spiritual community, or connect with a chaplain or chaplain service. Some of the demonstrated benefits include—

- Coping: religiosity and spirituality can help people cope with many problems including anxiety, chronic pain, addiction, mental disorders, and the stress caused by natural disasters and war.
- Pain control: Many people pray as a method to cope with pain. Prayer is a positive resource for reducing pain and improving well-being and mood. Accessing religious and spiritual resources

decreases arthritis pain, chronic pain, migraines, and acute pain. Often, it seems that it is not that the pain level is decreased so much as that a person's ability to tolerate the pain is improved.

- Mental health benefits: incorporating religious and spiritual perspectives into Soldiers' lives can decrease their risk of posttraumatic stress, major depressive disorder, alcohol-related problems, and suicidal ideation.
- Health benefits: religious people smoke less, exercise more, and have a healthier diet.

POWER OF THE MIND

13-25. What Soldiers think and believe about themselves strongly affects what they can achieve physically. The H2F approach treats the Soldier's physical and mental readiness as requiring equal amounts of attention. In fact, it regards them as inseparable.

13-26. Examples of the power of the mind are well known. In the 1940s, Henry Beecher found that saline injections with no medicinal potential reduced pain for wounded Soldiers. He coined the term "placebo effect" to describe the phenomenon. In the 1970s, Herbert Benson began to study what he described as the "relaxation response"—the body's natural state of relaxation—and how this response can be activated through the mind. Study participants who use mind-body practices experience genetic and molecular changes not experienced by people in study control groups.

13-27. The field of psychoneuroimmunology studies the relationship among the nervous system, the immune system, and the endocrine system. Thoughts and emotions have a measurable biochemical effect and can change the body chemistry. Neuroplasticity research demonstrates that the nervous system can change in response to the environment, personal behaviors, and the natural world. Even brains undergo constant changes. For example, parts of the brain can shrink in response to chronic pain, and those same parts can regrow with the use of mind-body techniques such as meditation and cognitive behavioral therapy—therapy focused on changing behaviors by modifying thoughts in a positive way.

13-28. Some mind-body practices do not require referral for clinical or professional intervention. These practices can include art therapies such as music, visual arts and dance. They also include autogenic training and other forms of self-hypnosis, biofeedback devices that measure physiological activity such as heart rate monitors. Lastly, mind-body practices include breathing exercises, imagery, journaling, meditation, and progressive muscle relaxation.

H2F Coaching

Delivering improved readiness system in H2F requires a new paradigm of coaching, teaching, and mentoring and contemporary performance readiness content. This content integrates and condenses the domains of H2F into tactics, techniques, and procedures that represent a culture shift for the Soldier: skin in, neck up

This page intentionally left blank.

Chapter 14

Holistic Health and Fitness Schedules

H2F training schedule development is a complex process. This chapter directs the programming and provides template examples of how H2F is delivered.

INCORPORATING H2F TRAINING

14-1. Multiple variables impact the ability to apply one training schedule as a standard approach across all of the Army. These variables include the length of the training cycle, time until operational, time until deployment, cadre to Soldier ratios, shift work, availability of the H2F performance team, equipment and facilities, MOS-specific training, and environmental (austere, hot, cold, and seasonal) considerations.

14-2. The H2F System addresses these constraints by expanding the time required to conduct readiness training. Army physical readiness training will continue to occur at least 5 to 6 times per week for a total of five to 7.5 hours. The H2F System supplements this training with approximately 2 to 4 more hours per week of scheduled training in the SPRC. The expanded H2F training time permits more individual physical and nonphysical programming. For example, BCT will emphasize more active recovery and strength training. It will assess, group, and train Soldiers by ability for both endurance and strength activities. Both initial and sustaining phase activities will continue to include training on free weights and occupational tasks such as foot marches with progressive intensity and frequency across more arduous terrain, greater distances, and heavier loads than previously. The length of the training cycle, MOS requirements, and mission-essential tasks will determine how leaders insert these activities into the H2F schedule.

INITIAL PHASE

14-3. The initial phase of H2F training refers to the physical and nonphysical activities Soldiers perform upon entering the Army. Initial phase training is meant to indoctrinate and condition Soldiers to the rigors of life in the Army. These activities begin at varying degrees from recruitment, continuing through basic and AIT, and up to the FUA. Soldiers are taught to use the proper uniforms and procedures to prevent injuries under different environmental conditions, as well as techniques to maximize the benefits of nutrition, spiritual, and sleep protocols.

FUTURE SOLDIER PROGRAM

RECRUIT TRAINING

Recruit training should not be started until the individual or recruit has passed a routine physical examination at a military entrance processing station.

14-4. Commanders in charge of preparing individuals and recruits for the physical demands of IMT have certain considerations. The program outlined in this chapter specifies the physical intensity, duration, and frequency of training. For the program to be safe and effective leaders need to follow it as written. Soldiers need to conduct exercise regularly at the proper intensity to bring about desired changes in the body. Changes in the body occur gradually. If Soldiers miss a whole week of physical training, then starting the week over is better than pressing on too soon. In addition to the physical training programming, leaders need to teach and follow information on the other H2F domains, particularly sleep and nutrition, to recruits.

GETTING STARTED

14-5. The physical training program begins with the recruiter assessing the physical condition of the recruit. A recruiter administers the OPAT, which consists of the Standing Long Jump, Seated Power Throw, Strength Deadlift, and Interval Aerobic Run. Graders record OPAT scores on DA Form 7888 (*Occupational Physical Assessment Test Scorecard*). This assessment determines the recruit's starting point and appropriate placement into the FSP. The recruiter and the recruit review the scores on each event to determine which training schedule the recruit will follow: strength schedule or endurance schedule.

14-6. Serious recruits commit up to 60 minutes per day to physical training four or five days per week. Whether recruits start with the walk to run program or begin at a higher level, their programs will improve their health and prepare them for the requirements of OPAT or IMT.

SAFETY

14-7. The FSP physical training program is a safe and effective way to improve physical fitness. Consistent compliance with the following guidelines is the key:

- Always perform the prescribed warm-up and cool-down before and after the training activity.
- Perform only the prescribed number of sets and repetitions on the training schedule.
- Use proper form (precision) with fewer repetitions rather than poor execution with more repetitions.
- Perform all the exercises in the order listed for each drill.
- If a day of training is missed, pick up with the next day on the training schedule.

INJURY CONTROL

14-8. Injuries are not uncommon during physical training, but recruits can prevent most injuries. Many common injuries are caused by misuse—making a mistake in the amount of the exercise or in not following the standard way to perform it. The most common injuries occur in the feet, ankle, and knee joints and leg muscles. Recruits can avoid most injuries by paying deliberate attention and concentrating on the details of the exercise—the standard for the movements. Most injuries can be best treated with rest. Ice, compression and elevation of the injury may help with pain control. Leaders must report all accidents resulting in injury or illness in accordance with AR 385-10.

14-9. A holistic approach to injury control requires proactive behavior on the part of the recruit. Recruits can control injuries by following discussion in paragraphs 14-10 through 14-14. It outlines considerations that recruits can use to improve their health and fitness.

Shoes

14-10. Recruits should choose an athletic shoe that is comfortable—fits properly and is new. Most local Army training centers permit recruits attending BCT to wear personally procured shoes in FSP and for OPAT. Shoes should conform to the design of the Army-issued athletic shoe. They must be durable and appropriate for different activities besides running (jumping, turning, climbing, crawling, walking, and weight lifting), different terrains (grass, sand, blacktop, trails, woodland, tracks, and gym floors), and various weather conditions (snow, ice, rain, intense heat, and cold). Minimalist-style running shoes might not provide protection and traction in inclement weather and on unimproved terrain such as gravel, roots, dirt, and mud.

Nutrition

14-11. Recruits learn that proper nutrition plays a major role in attaining and maintaining physical fitness (see chapter 8 on nutritional readiness). Good dietary habits greatly enhance overall ability to maximize potential in both physical and nonphysical performance. A good diet quality facilitates psychological resilience in young adults. Successful recruits can eliminate highly processed, high-fat, and high-sugar foods in favor of nutrient-dense choices, following this guidance:

- Bread, cereal, rice, and pasta: Try to make at least half of these choices whole-grain products, such as 100 percent whole grain bread, brown rice or wild rice, barley, or oatmeal.

- Vegetables: Eat a variety—the more color on the plate, the better—at least 3 to 5 a day, especially deep green types and the red, yellow, and orange varieties.
- Fruit: Eat all varieties—at least 2 a day. Try to have a citrus fruit or juice (for example, orange or grapefruit) plus a blue, red purple, or orange type (for example, blueberries, strawberries, plums, or peaches) every day.
- Milk, yogurt, and cheese: Select low fat milk or cottage cheese, low fat yogurt, and low fat cheeses.
- Meats, poultry, fish, eggs, beans: Choose lean meats, (round or loin), skinless chicken or turkey breast, ham, fish, or seafood (not fried or battered), egg whites, and bean burgers.
- Fats, oils, nuts: Add a little, but use in moderation. Cut back on fried, greasy, oily or creamy, and buttery foods. Use nut butters with no added sugar and eat nuts in small amounts.
- Sugar: Avoid added sugar and eliminate nutrient poor foods like candy, dessert, and sugary drinks.
- Supplements: Eat whole, real foods before choosing to take vitamins or other supplements that may not have the nutrient profile and benefits claimed by the manufacturer.

Hydration

14-12. Leaders provide water for hydration before, during, and after physical training activity in the FSP. Recruits drink 13 to 20 ounces of cool water at least 30–60 minutes before exercise. After the activity, they drink to thirst. At all times, recruits need to limit alcoholic beverages and soft drinks; they avoid these drinks after exercise as they are not suitable for proper hydration and recovery. Recruits may consume sports drinks. However, they may also need to consider that sports drinks contain additional calories. Throughout the day leaders encourage recruits to drink to thirst, approximately 8–10 glasses of water per day.

HYPONATREMIA

It is possible to drink too much water and become overhydrated or hyponatremic. Be sure to limit intake to no more than 1½ quarts per hour (48 ounces) during sustained exertion.

Clothing

14-13. Leaders ensure that the clothing is comfortable for the climate and bright or reflective enough for outdoor activity conducted in the dark on roadways or sidewalks. Recruits should never wear rubberized or plastic suits, facemasks, or other restrictive breathing devices during exercise or physical assessments. Personal audio devices and earphones are appropriate for indoor activity. Leaders discourage these devices for outdoor activity where they can reduce situational awareness and increase the risk of injury from other pedestrians and traffic.

Heat and Cold

14-14. Recruits avoid exercising in extreme hot or cold weather. Leaders try to find alternate indoor locations—schools, military Morale, Welfare, and Recreation facilities, community recreation centers, or commercial fitness facilities—to reduce the risk of heat or cold injuries. Recruits also avoid exercising near heavily trafficked streets and highways during rush hours. Leaders should check the air pollution index for the local area to avoid exposure to air pollution.

HEAT AND COLD INJURIES

If recruits experience any of these symptoms, immediately stop the physical activity and seek appropriate medical attention:

- **Heat cramps: muscular twitching, cramping, or muscular spasms in the arms, legs, or trunk.**

- **Heat exhaustion (requires medical attention): excessive thirst, fatigue, lack of coordination, increased sweating, cool or wet skin, dizziness, confusion, or combination of symptoms.**
- **Heatstroke (medical emergency, dial 911): no sweating, hot dry skin, rapid pulse, rapid breathing, dizziness or confusion, unconsciousness, seizure, or coma.**
- **Hypothermia: shivering, loss of judgment, slurred speech, drowsiness, or muscle weakness.**
- **Frostbite: white or greyish-yellow skin color, skin that feels unusually firm or waxy, or numbness in body parts exposed to the cold—usually the ears, nose, feet, and hands.**

PHYSICAL TRAINING SESSION

14-15. In untrained recruits, improvement in physical readiness is much greater and more rapid, relatively speaking, than those with advanced levels of fitness. Because of this, low-load and low-volume strength and endurance programs can produce substantial improvements. FSP physical training sessions follow this principle. Leaders can increase volume for trained recruits so long as they continue to follow the RPE guidelines in the FSP weekly templates (see table 14-1). For strength training, if recruits can complete two repetitions over the repetition goal for an exercise for two consecutive workouts, they can increase the weight by five to ten percent for the next strength session.

Table 14-1. Future Soldier Program schedule

Session	*RPE*	*Drills and Exercises*	*Time*
		FSP Week 1	
1-1	4-5	Preparation: PD (INSTRUCTION) Activities: Stability Drills (INSTRUCTION), MMD1 (INSTRUCTION), CD1 (INSTRUCTION) Recovery: RD (INSTRUCTION)	60’
1-2	4-9	Preparation: PD (5 reps), HSD Activities: MMD1; 1 mile run self-assessment Recovery: RD (20 secs)	30’
1-3	4-9	Preparation: PD (5 reps), 4C, SSD Activities: SDL, PWT, SLJ, IAR self-assessment (10 min rest between) Recovery: RD (20 secs)	60’
1-4	6-8	Preparation: PD (5 reps), HSD Activities: MMD1: 30:90s (4 reps) Recovery: RD (20 secs)	20’
1-5	4-7	Preparation: PD (5 reps), 4C Activities: SLJ and SDL improvement Recovery: RD (20 secs)	30’

Table 14-1. Future Soldier Program schedule (*continued*)

Session	*RPE*	*Drills and Exercises*	*Time*
		FSP Week 1	
1-6	4-9	Preparation: PD (5 reps) Activities: IAR improvement: 30:60s (4 reps) Recovery: RD (20 secs)	20’

FSP Week 2			
2-1	6-8	Preparation: PD (5 reps), 4C Activities: CD1 (5 reps), CD2 (5 reps) Recovery: RD (20 secs)	30’
2-2	2-5	Preparation: PD (5 reps), HSD Activities: MMD1; Recover run *or* walk (20 mins) Recovery: RD (20 secs)	30’
2-3	6-8	Preparation: PD (5 reps), SSD Activities: SPT improvement Recovery: self-stretching	20’
2-4	6-8	Preparation: PD (5 reps), HSD Activities: MMD1: Sustained run (12–20 mins) Recovery: RD (20 secs)	30’
2-5	4-8	Preparation: PD (5 reps), 4C Activities: Deadlift improvement Recovery: RD (20 secs)	30’
2-6	4-9	Preparation: PD (5 reps), HSD Activity: MMD1: 1.5 mile run self-assessment Recovery: RD (20 secs)	30’
FSP Week 3			
3-1	8-9	Preparation: PD (6 reps), SSD Activities: PWT Improvement Recovery: RD (20 secs)	30’
3-2	4-6	Preparation: PD (6 reps), 4C Activities: CD1 (6 reps), CD2 (6 reps) Recovery: RD (20 secs)	30’
3-3	3-6	Preparation: Walk (10 min), SSD Activities: Recovery run *or* walk (20 mins with 20 lb back pack) Recovery: self-stretching	30’
3-4	7-9	Preparation: PD (6 reps), HSD Activities: IAR improvement: 30:60s (5 reps) Recovery: RD (20 secs)	30’
3-5	4-6	Preparation: PD (6 reps), 4C Activities: CD2 (7 reps) Recovery: RD (20 secs)	20’
3-6	6-8	Preparation: PD (6 reps), HSD Activities: MMD1: sustained run (10–20 mins) Recovery: RD (20 secs)	45’

Table 14-1. Future Soldier Program schedule (*continued*)

Session	***RPE***	***Drills and Exercises***	***Time***
FSP Week 4			
4-1	8-9	Preparation: PD (7 reps), SSD Activities: SLJ and Deadlift improvement Recovery: RD (20 secs)	45’
4-2	7-8	Preparation: PD (7 reps), HSD Activities: IAR improvement: 30:60s (6 reps) or 60:120s (3 reps)	45’

		Recovery: RD (20 secs)	
4-3	7-8	Preparation: PD (7 reps), 4C Activities: CD1 (7 reps), CD2 (7 reps) Recovery: RD (20 secs)	30’
4-4	4-7	Preparation: PD (5 reps), HSD Activities: Walk 30 mins with 20 lb back pack Recovery: self-stretching	30’
4-5	8-9	Preparation: PD (7 reps), 4C Activities: PWT Improvement Recovery: RD (20 secs)	20’
4-6	6-7	Preparation: PD (7 reps), HSD Activities: MMD1: sustained run (20–30 mins) Recovery: RD (20 secs)	45’

4C	four for the core	PD	preparation drill
30:60	30 second sprint: 60 second walk	PWT	power throw
60:120	60 second sprint: 120 second walk	RD	recovery drill
CD	conditioning drill	rep	repetition
FSP	Future Soldier Program	RPE	rating of perceived exertion
HSD	hip stability drill	SDL	strength deadlift
IAR	interval aerobic run	sec	second
lb	pound	SLJ	standing long jump
min	minute	SPT	standing power throw
MMD	military movement drill	SSD	shoulder stability drill

14-16. The physical training session consists of three elements—preparation, activity, and recovery. These elements combine to meet the recruit’s training goal. That goal might be to improve OPAT scores, improve muscular strength, or improve anaerobic power. The recruiter identifies a component of fitness that needs improvement, and the recruit then trains that component during that specific physical training session.

14-17. The length of the physical training period prior to shipping to IMT varies. If recruits have only a few weeks available to train and know from the outset, then one micro cycle of periodized training will be possible. If more time is available, perhaps 60 to 90 days for a Regular Army recruit and 180 days for a National Guard recruit, they can complete a progressive mesocycle of training. Recruits will be encouraged to do their best. They will be instructed on the RPE scale and how to apply that to each session. Each session and week in the FSP builds on the previous one, using OPAT improvement and other exercises that prepare the recruit for BCT. If a session is missed, the recruit moves on to the next one. If a week is missed, the recruit has to go back to complete that week. Weekly self-assessments of strength and endurance exercises and activities give the recruit and the recruiter reassurance that they are making progress.

14-18. The initial part of this cycle includes light muscular endurance activities and the improvement of movement skills. These activities reduce muscle soreness and improve trunk and limb flexibility. Awareness of proper form while learning new movements will be paramount. This stage usually lasts up to four weeks and depends on recruits’ adaptation to exercise and their projected date to ship to training. The main activity during this initial stage begins with 15-20 minutes and may progress to 60 minutes. Goals set by the recruiter will drive the frequency, intensity, total time, and type of exercises performed. Sets and repetitions will increase to provide enough stimulus for continuous improvement.

14-19. As fitness improves, recruits should also improve in strength and endurance while their tolerance of intensity and duration increases. Once they meet their initial goals, and if time allows, the recruiter repeats assessment or proficiency in drills and exercises and may establish new goals. Otherwise, the recruits maintain their program at levels similar to the BCT schedule to reduce the risk of injury when they arrive at BCT. Injury control is the secondary effect of proper conditioning. The primary effect is physical readiness.

Preparation

14-20. Preparation exercises prepare the body for the more vigorous activity planned for the main portion of exercise session. Preparation should be dynamic—involve movements of all the joints in multiple

directions, positions, and planes of motion—and conducted at a controlled slow or moderate cadence (50 or 80 counts per minute). Cadence and repetitions depend on the recruits' fitness. Cadence does not exceed moderate cadence and includes no more than 10 repetitions of any single 4-count exercise. On training days that include more focus on upper body strength and mobility, recruits perform Four for the Core and the Shoulder Stability Drill followed by Conditioning Drill 1. Recruits perform five 4-count repetitions of each of the stability and conditioning drills. On training days that focus on endurance and mobility, they perform the Preparation Drill warm-up followed by the Hip Stability Drill. Recruits may modify the exercises until they can perform them to standard. See ATP 7-22.02 for exercise modifications for Preparation Drill and Conditioning Drill 1.

Activities

14-21. Activities in the FSP are specified on the physical training schedule. See also physical training schedules for BCT in table 14-6 on page 14-10 and for AIT in table 14-9 on page 14-21.

Recovery

14-22. Recovery serves to gradually slow the heart rate and helps prevent pooling of the blood in the legs and feet after recruits have completed the most rigorous exercises. Recruits begin the cool down by walking until their heart rates return to less than 100 bpm and heavy sweating stops. The cool down should last approximately 10 minutes and occur immediately after recruits complete the main activities. The Recovery Drill provides exercises designed to improve flexibility in most of the joints and reduce tightness of the muscles in the body. These static stretches involve slowly stretching muscles and then holding that position for an extended period of up to 30 seconds.

OPAT IMPROVEMENT

14-23. Some recruits need to make improvements to pass the OPAT. Table 14-2 lists OPAT improvement portions in the FSP schedule. These exercises help recruits with limited physical training experience to prepare for the OPAT. These exercises help develop strength, endurance, and movement skills using common strength training methods and practices. The sequence of each training session is the same as the FSP schedules: preparation, activities, and recovery. OPAT candidates with very limited running experience must avoid running on consecutive days to prevent injuries. Table 14-2 lists the top three or four specific exercises to improve performance on each OPAT event.

Table 14-2. OPAT improvement exercises

Standing Long Jump (SLJ) and Straight Leg Deadlift (SLD)	*Seated Power Throw (PWT)*	*Interval Aerobic Run (IAR)*
Squat	Incline Bench	30:90 run intervals
Deadlift	Seated Row	Sustained Run
Quadraplex	Bent-Leg Raises	Recovery Run (slow)
		Interval Aerobic Run practice
30:90 30 second sprint: 90 second walk		

BASIC COMBAT TRAINING

14-24. Soldiers in BCT continue to develop foundational fitness and movement skills they started in the FSP. Soldiers in BCT, OSUT (red, white, and blue phases), and basic officer leader course-accessions follow physical readiness training schedules that include the following drills and activities:

- Preparation Drill.
- Four for the Core.
- Hip Stability Drill.
- Shoulder Stability Drill.
- Conditioning Drill 1 and Conditioning Drill 2.
- Climbing Drill 1.

- Strength Training Circuit.
- Free Weight Training.
- Military Movement Drill 1.
- Running Drills 1 through 6.
- Interval Aerobic Run.
- 30:60s.
- 300 Meter Shuttle Run.
- Ability Group Run.
- Release Run.
- Foot March with fighting load.
- Recovery Drill.
- PMCS.

14-25. The first few weeks of BCT focus on muscular endurance as movement skills are built, adding hypertrophy in the later weeks. Key drills to achieve this are the Strength Training Circuit and 300 Meter Shuttle Run. Soldiers modify these drills by increasing the weight in the Strength Training Circuit and running time during the 300-Meter Shuttle Run, for example. Soldiers modify the Strength Training Circuit to focus on different components of strength:

- For hypertrophy, do 8–12 repetitions, 60 second rest.
- For muscular strength, do 5–8 repetitions, 60–120 seconds rest.
- For power, do 1–5 repetitions, 120 seconds.

14-26. Elastic resistance bands and kettlebells are required equipment and must be available at the platoon level to optimize training time.

14-27. Missed sessions due to weather and other operational requirements are common. They should not be made up. Leaders should move to the next scheduled session after the missed one.

14-28. Practice for the ACFT is permitted. The practice sessions should not focus on the Soldier's score. They should focus on Soldiers completing the event to standard, understanding the standard, and correcting improper performance of the standard. Once Soldiers know the standards and understand how the test is administered, they should use physical training to improve ACFT event performance and scores. Repeated Deadlifting, Standing Power Throws, and Hand-Release Push-Up practice sessions are not recommended. Such repeated sessions can over train the muscular endurance component of fitness at the expense of the other components and lead to ACFT failures.

14-29. Skeletal tissue adaptations often happen after eight weeks of BCT. Until then, initial improvements in strength and endurance will happen largely due to neurological adaptation—nerves get better at sending signals to the muscles. Bones, tendons, and ligaments will continue to adapt (remodel) during this period. These structures do not receive blood at the rate that muscles do, so the risk of injury is greater if Soldiers overreach in training. Muscles will begin to get bigger around Week 8—muscle fiber size increases. All Soldiers will have passed the OPAT before BCT. However, if they had curtailed FSPs or were deconditioned prior to IMT, it may take longer for their skeletal systems to adapt.

14-30. Record testing of the ACFT should occur after a short taper or de-load period and on a day prior to more intense training periods such as field training exercises. When Soldiers complete their ACFT events, the grader records the number of completed repetitions, distances, or times on the DA Form 705 (*Army Combat Fitness Test Scorecard*). If this is not the last week of the 10-week cycle, leaders should expect higher risk of lower performance.

14-31. Large companies and battalions with high Soldier to cadre ratios should adhere to collective schedules in the initial phase. Scores from performance on drills and exercises influence the commander's choice between an endurance- or strength-focused schedule (see table 14-3, table 14-4, table 14-5 on page 14-10, and table 14-6 on page 14-10). More often commanders have a higher need for strength-focused scheduling. Unit MFTs or other installation H2F performance team members can assist with programming choices for units without organic H2F performance teams. Both types of schedules can be found in this doctrine. Endurance- and strength-focused schedules will prepare Soldiers for ACFT and HPDTs. Both

schedules allow some individualization of programming for Soldiers who need special conditioning due to injury or illness.

Table 14-3. Abbreviations for physical readiness training

Exercises and Drills Abbreviations		
300SR - 300 Meter Shuttle Run	HR - Hill Repeats	RUD1 - Running Drill 1
4C - Four for the Core	HSD - Hip Stability Drill	RUD2 - Running Drill 2
AGR - Ability Group Run	LM 1 - Landmine Drill 1	RUD3 - Running Drill 3
AWST - Army Water Survival Training	LM2 - Landmine Drill 2	RUD4 - Running Drill 4
CL1 - Climbing Drill 1	MB1 - Medicine Ball Drill 1	RUD5 - Running Drill 5
CL2 - Climbing Drill 2	MB2 - Medicine Ball Drill 2	RUD6 - Running Drill 6
CD1 - Conditioning Drill 1	MMD1 - Military Movement Drill 1	RUD7 - Running Drill 7
CD2 - Conditioning Drill 2	MMD2 - Military Movement Drill 2	SSD - Shoulder Stability Drill
CD3 - Conditioning Drill 3	PD - Preparation Drill	STC - Strength Training Circuit
ETM - Endurance Training Machine	P3T - Pregnancy and Postpartum Physical Training	STM - Strength Training Machine
FM - Foot March	PMCS - Preventive Maintenance Checks and Services	ST1 - Suspension Training Drill 1
FW - Free Weight Training	RD - Recovery Drill	ST2 - Suspension Training Drill 2
GD - Guerilla Drill	RR - Release Run	TR - Terrain Run
OPAT and ACFT Abbreviations		
2MR - 2-Mile Run	MDL - 3 Repetition Max Deadlift	SDL - Strength Deadlift
HRP – Hand-Release Push-Up	PWT - Seated Power Throw	SLJ - Standing Long jump
IAR - Interval Aerobic Run	SDC - Sprint-Drag-Carry	SPT - Standing Power Throw
LTK - Leg Tuck	RWR - Rest-to-Work Ratio	

ACFT Army Combat Fitness Test OPAT Occupational Physical Assessment Test

Table 14-4. Endurance activities

Activities	***Purpose***
Military Movement Drills 1 and 2 (MMD1 & MMD2)	These drills dynamically prepare the body for more vigorous running activities and develop motor efficiency.
30:60s and 60:120s	These sprint walk drills improve anaerobic endurance. As a result, Soldiers can sustain performance of physically demanding tasks at a higher intensity for a longer duration.
300 Meter Shuttle Run (300SR)	The 300 Meter Shuttle Run develops the ability to repeatedly sprint after changing directions. It is an indicator of the Soldier's anaerobic endurance, speed, and agility.
Hill Repeats (HR)	Hill Repeats are an effective means of developing explosive leg strength, anaerobic endurance, and speed.

Table 14-4. Endurance activities (*continued*)

Activities	***Purpose***
Ability Group Run (AGR)	Ability Group Runs train Soldiers in groups of near-equal ability to sustain running for improvement in aerobic endurance.
Unit Formation Run (UFR)	Unit Formation Runs are based on a time and distance that can be achieved with unit integrity and a display of unit cohesion.
Release Run (RR)	Release Runs combine the benefits of formation running and individual performance at higher training intensities. Soldiers will run in formation to a

	specified time (no more than 15-minutes), then are released to run further out and back or directly back to the starting point.
Terrain Run (TR)	Terrain Runs through local training areas, over hills, and around obstacles improves mobility, endurance, and the ability to stop, start, and change direction.
Foot March (FM)	A Foot March as a movement component of maneuver is a critical Soldier physical requirement. Regular foot marching prepares Soldiers to successfully move under load.
Endurance Training Machines (ETMs)	Use of endurance training equipment may be required due to environmental constraints, safety for Soldiers on physical profile, and the training of specific muscle groups during rehabilitation and reconditioning.
30:60 30 second sprint: 60 second walk	60:120 60 second sprint: 120 second walk

Table 14-5. Ability groups for physical readiness training

Exercise	*A group*	*B group*	*C group*	*D group*
Sumo Squat	75 lb KB x 5 reps	50 lb KB x 5 reps	35 lb KB x 5 reps	25 lb KB x 5 reps
Deadlift	75 lb KB x 5 reps	50 lb KB x 5 reps	35 lb KB x 5 reps	25 lb KB x 5 reps
Overhead Press	50 lb KB x 5 reps	40 lb KB x 5 reps	30 lb KB x 5 reps	20 lb KB x 5 reps
Pull-up	10 or more	5–9 reps	3–4 reps	0–2 reps
Leg Tuck	5 reps	4 reps	3 reps	0–2 reps
1-Mile Run Initial Phase	7:15 and faster	7:16 to 8:15	8:16 to 10:15	10:16 and slower
1-Mile Run Sustaining Phase	6:30 and faster	6:31 to 7:15	7:16 to 8:00	8:01 and slower
KB kettlebell lb pound		rep repetition		

Table 14-6. BCT physical training schedule weeks 1-10

Session	*BCT Week 1*
1-1	Preparation: Pick up day
1-2	Preparation: PD INSTRUCTION Activities: Ability Group Run ASSIGNMENT Recovery: RD INSTRUCTION
1-3	Preparation: PD 5 reps Activities: HSD INSTRUCTION, 4C INSTRUCTION, SSD INSTRUCTION Recovery: RD 20 secs
1-4	Preparation: PD 5 reps Activities: SSD, 4C, LTK ASSESSMENT for CL and STC Ability Group ASSIGNMENT Recovery: RD 20 secs
1-5	Preparation: PD 5 reps Activities: MMD1 INSTRUCTION, 300SR INSTRUCTION completing up to 3 reps Recovery: RD 20 secs

Table 14-6. BCT physical training schedule weeks 1-10 (*continued*)

Session	*BCT Week 1*
1-6	Preparation: PD 5 reps Activities: HSD, MMD1, FM 4 miles Recovery: RD 20 secs

1-7	Preparation: PD 5 reps Activity: HSD, MMD1, Running Skill ASSESSMENT followed by RUD1 & RUD2 INSTRUCTION Recovery: RD 20 secs
BCT Week 2	
2-1	Preparation: PD Activities: SSD, CL1 & CL2 INSTRUCTION completing up to 5 reps Recovery: RD 20 secs
2-2	Preparation: PD 5 reps Activities: HSD, MMD1, RUD RE-ASSESSMENT, 30:60 INSTRUCTION completing up to 5 reps Recovery: RD 20 secs
2-3	Preparation: PD 5 reps Activities: SSD, CL1 and CL AG ASSIGNMENT AG A = 4+ reps of LTK AG B = 3 reps of LTK AG C = 2 reps of LTK AG D = 0-1 rep of LTK or 2 reps with partner assist Recovery: RD 20 secs
2-4	Preparation: PD 5 reps Activities: HSD, MMD1, AGR x 15 mins AGR A = 7:15 and faster AGR B = 8:15 and faster AGR C = 10:15 and faster AGR D = 10:16 and slower (run-walk progression of 3 min run, 45 sec walk, repeat x 4) Recovery: RD 20 secs
2-5	Preparation: PD 5 reps Activity: CD1 & CD2 INSTRUCTION Recovery: RD 20 secs
2-6	Preparation: PD 5 reps Activity: RUD 1 & RUD2; 300SR with RWR completing up to 3 reps AGR A = 1:20 per 400m pace AGR B = 1:35 AGR C = 1:50 AGR D = 2:00 Recovery: RD 20 secs
2-7	Preparation: PD 5 reps, HSD Recovery: PMCS INSTRUCTION
BCT Week 3	
3-1	Preparation: PD 6 reps Activities: RUD1, 300SR 2 reps; 30:60 6 reps Recovery: RD 20 secs

Table 14-6. BCT physical training schedule weeks 1-10 (*continued*)

Session	***BCT Week 3***
3-2	Preparation: PD 6 reps Activities: SSD, 4C, STC INSTRUCTION completing 1 circuit Recovery: RD 20 secs

3-3	Preparation: PD 6 reps Activities: HSD, MMD1, AGR x 18 mins AGR A = 7:15 and faster AGR B = 8:15 and faster AGR C = 10:15 and faster AGR D = 10:16 and slower (run-walk progression of 4 min run, 30 sec walk, repeat x 4) Recovery: RD 30 secs
3-4	Preparation: PD 6 reps Recovery: PMCS, RD 30 secs
3-5	Preparation: PD 6 reps Activities: HSD, MMD1, 60:120s 5 reps using AGs Recovery: RD 30 secs
3-6	Preparation: PD 6 reps Activities: SSD, 4C, STC x 1 circuit, hypertrophy-focused (8-12 reps per station with 60 secs rest between stations) Recovery: PMCS
3-7	Preparation: Walk x 10 mins Activities: CD1 & CD2 x 5 reps Recovery: RD 30 secs
BCT Week 4	
4-1	Preparation: PD 7 reps Activities: SSD, 4C, STC x 1 hypertrophy Recovery: RD 30 secs
4-2	Preparation: PD 7 reps Activities: HSD, MMD1, AGR x 20 mins AGR A: 7:15 and faster AGR B: 8:15 and faster AGR C: 10:15 and faster AGR D: 10:16 and slower (run-walk progression of 6 min run, 30 sec walk, repeat x 3) Recovery: RD 30 secs
4-3	Preparation: PD 5 reps (ACU) Activities: SSD; CL1 + 1 x Flexed Arm Hang AG A = 6 reps + 1 AG B = 5 reps + 1 AG C = 4 reps + 1 with partner assistance AG D = 3 reps + 1 with partner assistance Recovery: RD 30 secs
4-4	Preparation: PD 7 reps Activities: HSD, RUD1, MMD1, 300SR x 2 reps, 30:60 x 8 reps Recovery: RD 30 secs
4-5	Preparation: Walk x 10 mins Activities: SSD, CD1 & CD2 x 5 reps Recovery: RD 30 secs

Table 14-6. BCT physical training schedule weeks 1-10 (*continued*)

Session	***BCT Week 4***
4-6	Preparation: PD 7 reps Activities: SSD, 4C, FM x 8 miles Recovery: RD 30 secs

4-7	Preparation: PD 5 reps Activity: RUD2 & RUD3 INSTRUCTION Recovery: RD 30 secs
BCT Week 5	
5-1	Preparation: PD 8 reps Activities: HSD, MMD1 or RUD 2 & RUD3, 60:120s x 8 reps Recovery: RD 30 secs
5-2	Preparation: PD 8 reps Activities: 4C, SSD, CL1 AG A = 8 reps, AG B = 6 reps, AG C = 5 reps, AG D = 4 reps with partner assistance, CD1 & CD2 x 5 reps Recovery: PMCS
5-3	Preparation: PD 8 reps Activities: 4C, STC x 2 circuits, no CL1 exercises Recovery: RD 30 secs
5-4	Preparation: PD 8 reps Activities: HSD, MMD1 & MMD2, AGR x 25 mins. AGR A: 7:15 and faster AGR B: 8:15 and faster AGR C: 10:15 and faster AGR D: 10:16 and slower (run-walk progression of 8 min run, 30 sec walk, repeat x 3) Recovery: RD 30 secs
5-5	Preparation: PD 8 reps Activities: 4C, SSD, HSD, 20 min walk Recovery: RD 30 secs,
5-6	Preparation: PD 5 reps Activity: ACFT practice Recovery: RD 30 secs
5-7	Recovery: PMCS
BCT Week 6	
6-1	Preparation: PD 9 reps Activities: MMD 1 & MMD2, RUD 60:120s x 4 reps Recovery: RD 30 secs
6-2	Preparation: PD 9 reps Activities: SSD, 4C, STC x 2 circuits (5–8 reps per station, 60–120 secs rest between stations) Recovery: RD (20 secs)
6-3	Preparation: Walk 9 min Activities: PMCS
6-4	Preparation: PD 9 reps Activities: SSD, HSD, FM 12 miles Recovery: RD 30 secs

Table 14-6. BCT physical training schedule weeks 1-10 (*continued*)

Session	*BCT Week 6*
6-5	Preparation: PD 9 reps Activities: SSD, 4C, CL1 AG, CD1 & CD2 x 5 reps CL1: AG A = 10 reps AG B = 8 reps AG C = 5 reps AG D = 4 reps (AG D joins AG C after this session) Recovery: RD 30 secs,
6-6	Preparation: PD 9 reps Activities: HSD, MMD1, 300SR x 2 reps, 60:120s INSTRUCTION completing up to 6 reps Recovery: RD 30 secs
6-7	Preparation: walk (10 mins) Activities: PMCS
	BCT Week 7
7-1	Preparation: PD 10 reps Activities: SSD, 4C, STC x 2 circuits increase weights to allow only 5–8 reps per station with 120 secs rest between stations) Recovery: RD (20 secs);
7-2	Preparation: PD 10 reps Activities: 4C, HSD, 60:120s x 5 reps Recovery: RD 30 secs
7-3	Preparation: PD 10 reps (ACU) Activities: 4C, SSD, CL1 & CL2 x 6 reps Recovery: RD 30 secs
7-4	Preparation: Walk (10 min) Recovery: PMCS
7-5	Preparation: PD 10 reps Activities: 4C, CD1 x 6 reps, STC x 2 circuits Recovery: RD 30 secs
7-6	Preparation: PD 10 reps Activity: HSD, MMD1, RUD 3 & RUD4 INSTRUCTION, 300SR x 2 reps, 60:120s x 6 reps Recovery: RD 30 secs
7-7	Preparation: PD 10 reps Activity: HSD, SSD, 4C Recovery: RD 30 secs
	BCT Week 8
8-1	Preparation: PD 10 reps Activities: MDL, STC x 1 circuit Recovery: RD 30 secs
8-2	Preparation: PD 10 reps Activities: 60:120s 800m x 6 reps Recovery: RD 30 secs
8-3	Preparation: Walk (10 min) Activities: PMCS

Table 14-6. BCT physical training schedule weeks 1-10 (*continued*)

Session	*BCT Week 8*
8-4	Preparation: PD 10 reps Activities: HSD, RUD 3 & RUD4, MMD1, AGR AGR A: 7:15 and faster AGR B: 8:15 and faster AGR C/D: 10:15 and faster (AGR D joins with AGR C. Pace target increases to 9:15 and faster) Recovery: RD 30 secs
8-5	Preparation: PD 10 reps Activities: 4C, SSD, SDC x 1 rep Recovery: RD 30 secs
8-6	Preparation: walk 10 mins Activities: PMCS
8-7	Preparation: walk 10 mins
	BCT Week 9
9-1	Preparation: PD 10 reps Activities: ACFT Recovery: RD 30 secs
9-2	FTX: condensed training
9-3	FTX: condensed training
9-4	FTX: condensed training
9-5	Preparation: PD 10 reps (ACU) Activities: HSD, MMD1, FM 16 miles Recovery: PMCS, RD
9-6	Preparation: PD 5 reps Activity: HSD; RUD3 & RUD4, RUD 5 & RUD6 INSTRUCTION with optional RR x 10–15 mins Recovery: RD 30 secs, AF
	BCT Week 10
10-1	Preparation: PD 10 reps Activities: ACFT re-test (for Soldiers who have not moved to FTU) or HSD, SSD, CD1 & CD2 x 7 reps, STC power-focus (1–5 reps at each station and 2 mins rest between stations) Recovery: RD 30 secs
10-2	Preparation: Walk (10 min) Activities: PMCS
10-3	Preparation: PD 10 reps Activities: MMD1 & MMD2, 300SR 3 reps AG A/B = 2:00 min, AG C = 3:00, AG D = 3:50 Recovery: RD 30 secs
10-4	Preparation: Walk (10 min) Activities: PMCS
10-5	Family Day Operations
10-6	Preparation: PD 10 reps (ACU and FLC) Activities: 4C, SSD, CL1 & CL2 5 reps Recovery: RD 30 secs

Table 14-6. BCT physical training schedule weeks 1-10 (*continued*)

Session	*BCT Week 10*
10-7	Preparation: walk 10 mins Activities: PMCS

4C	four for the core	LTK	leg tuck
30:60	30 second sprint: 60 second walk	m	meter
60:120	60 second sprint: 120 second walk	MDL	maximum deadlift
300SR	300-meter shuttle run	min	minute
ACFT	Army Combat Fitness Test	MMD	military movement drill
ACU	Army combat uniform	PD	preparation drill
AG	ability group	PMCS	preventive maintenance checks and services
AGR	ability group run	RD	recovery drill
BCT	basic combat training	rep	repetition
CD	conditioning drill	RR	release run
CL	climbing drill	RUD	running drill
FLC	fighting load carrier	RWR	rest-to-work ratio
FM	foot march	sec	second
FTU	fitness training unit	SSD	shoulder stability drill
FTX	field training exercise	STC	strength training circuit
HSD	hip stability drill		

FITNESS TRAINING UNIT ACFT IMPROVEMENT

14-32. When Soldiers move from BCT to FTUs, they have four weeks to improve their ACFT scores to meet the Army standard. Most Soldiers pass the ACFT in the first two weeks at the FTU. For those who require three to four weeks, individualized recovery will be prioritized over increasing the workouts, weight, repetitions, or distance. The two-week schedule in table 14-7 can be repeated for Soldiers who need more than two weeks of improvement training to meet ACFT standards.

Table 14-7. Fitness training unit ACFT improvement schedule

FTU Week 1		*RPE*
1-1a	ACFT	10
1-1b	Preparation: PD 5 reps Activity: none Recovery: PMCS	4
1-2a	Preparation: PD 10 reps Activities: MB1, LM1 INSTRUCTION, CD1 x 10 reps Recovery: RD 30 secs	5
1-2b	Preparation: PD 5 reps Activity: ETM x 10 mins, HSD, 4C Recovery: PMCS	4
1-3a	Preparation: PD 5 reps Activities: Running Skill assessment, RUD, 300SR x 3 reps on 3:00, or 60:120s x 10 reps Recovery: RD 30 secs	8
1-3b	Preparation: PD 5 reps Activity: MMD1 & MMD2 Recovery: PMCS	4
1-4a	Preparation: PD 10 reps (ACUs) Activities: STC exercises 5–10 with 30 secs RI x 3 circuits Recovery: RD 30 secs	7

Table 14-7. Fitness training unit ACFT improvement schedule (*continued*)

FTU Week 1		***RPE***
1-4b	Preparation: PD 5 reps Activity: SPT and LTK practice Recovery: PMCS	6
1-5a	Preparation: PD 10 reps Activities: RUD, RR x 30 mins, or 60:120s x 10 reps, Recovery: RD 30 secs	8
1-5b	Preparation: PD 5 reps Activity: ETM x 20 mins or Aquatic training Recovery: PMCS	4
Weekend	Recovery: PMCS and/or RD, Aquatics, Stability Drills and mental imagery rehearsal	2-4
FTU Week 2		
2-1a	ACFT	10
2-1b	Preparation: PD 5 reps Activity: none Recovery: PMCS	4
2-2a	Preparation: PD 10 reps Activities: MB1, LM1, CD1 x 10 reps Recovery: RD 30 secs	8
2-2b	Preparation: PD 5 reps Activity: HSD, ETM x 20 mins Recovery: PMCS	4
2-3a	Preparation: PD 5 reps Activities: RUD, 30:60s x 10 reps, 300SR x 1 rep Recovery: RD x 30 secs	9
2-3b	Preparation: PD 5 reps Activity: STC exercises 1/2/3/4 with 30 secs RI x 3 circuits Recovery: PMCS	7
2-4a	Preparation: PD 10 reps (ACUs and 35 lb ruck) Activities: HSD, MMD1 & MMD2, FM 3 miles at 15 min pace, or RR x 30 mins Recovery: RD 30 secs	7
2-4b	Preparation: PD 5 reps Activity: MDL, HRP practice Recovery: PMCS	8
2-5a	Preparation: PD 10 reps Activities: SDC x 1 rep, 2MR at ACFT goal pace Recovery: RD 30 secs	7
2-5b	Preparation: PD 5 reps Activity: ETM x 30 mins or Aquatic training Recovery: PMCS	4
Weekend	Recovery: PMCS and/or RD, Aquatics, Stability Drills and mental imagery rehearsal	2-4
FTU Week 3/4		
3-1	ACFT	10

Table 14-7. Fitness training unit ACFT improvement schedule (*continued*)

2MR	2-mile run	MB	medicine ball drill
4C	four for the core	MDL	maximum deadlift (3 repetitions)
30:60	30 second sprint: 60 second walk	min	minute
60:120	60 second sprint: 120 second walk	MMD	military movement drill
300SR	300-meter shuttle run	PD	preparation drill
ACFT	Army Combat Fitness Test	PMCS	preventive maintenance checks and services
ACU	Army combat uniform	RD	recovery drill
CD	conditioning drill	rep	repetition
ETM	endurance training machine	RI	rest interval
FM	foot march	RPE	rating of perceived exertion
FTU	fitness training unit	RR	release run
HRP	hand-release push-up	RUD	running drill
HSD	hip stability drill	SDC	sprint-drag-carry
lb	pound	sec	second
LM	landmine drill	SPT	standing power throw
LTK	leg tuck	STC	strength training circuit

14-33. Equipment and schedules in table 14-7 (beginning on page 14-16) and table 14-8 support the following guidelines for FTU commanders to develop their ACFT improvement schedules:

- First week FTU Soldiers follow the week 1 schedule.
- Second week FTU Soldiers follow the week 2 schedule.
- First week FTU Soldiers will be given two days of rest prior to taking their first ACFTs in the FTU.
- For Soldiers requiring 3-4 weeks to pass the ACFT, the intensity of training is sustained, but physical training recovery is emphasized over an increase in weight, repetitions, and distance.
- Weekends will be rest or recovery days prior to the Monday ACFT.
- Strength-focused days alternate with endurance days.
- Non-impact ETMs and aquatic training will be included.
- The schedule is includes instruction time for ETMs, new drills and exercises, and aquatic conditioning.
- Joint and muscle mobilization (RD and PMCS) will be included after each session.
- A second session per day provides for mobility, running and lifting skill improvement.

14-34. Table 14-8 itemizes the equipment required to conduct the templated physical training. The two-week schedule in table 14-7 (on page 14-16) can be repeated for Soldiers who need more time to meet Army ACFT standards.

Table 14-8. FTU equipment requirements per 12 Soldiers for ACFT improvement training

Equipment Item	***Number per 12 Soldiers***	***Remarks / Specifications***
Endurance Training Machines		
Assault bicycle	2	
Spin bicycle	2	TBD ACFT
Treadmill	2	
Elliptical	2	
Rower	2	TBD ACFT
Skier	2	
Strength Training Machines		
Chest Press	2	
Leg Press	1	
Prone Hamstring Curl	1	
Lat Pull Down	1	
Seated Row	1	

Table 14-8. FTU equipment requirements per 12 Soldiers for ACFT improvement training (*continued*)

Equipment Item	*Number per 12 Soldiers*	*Remarks / Specifications*
Free Weight Equipment		
Straight bars	6	3 x 35 lb 3 x 45 lb
Squat Racks with pull-up bar	3	Pull-up bar does not have to be 62 inch standard used in Climbing Bars for ACFT
J Hooks	6	
Incline Bench	3	
Hexagon bars	3	3 x 60 lb
Pull-up bands	12	2 each black, green, blue, red, purple and yellow
Resistance bands	12	4 each red, blue and purple
Step stools / boxes	4	2 x 12 inches high 2 x 18 inches high
Landmines	4	
Kettlebells	158	24 x 10 lb 24 x 20 lb 24 x 30 lb 6 x 50 lb 36 x 15 lb 24 x 25 lb 24 x 40 lb 6 x 60 lb
Bumper plates	92	8 x 5 lb 8 x 15 lb 18 x 35 lb 8 x 10 lb 18 x 25 lb 18 x 45 lb
Dumbbells	74	12 x 10 lb 12 x 20 lb 12 x 30 lb 4 x 50 lb 18 x 15 lb 12 x 25 lb 12 x 40 lb 2 x 60 lb
Slam balls	18	6 x 5 lb 6 x 10 lb 6 x 20 lb
ACFT Equipment		
Climbing Bars	3	62 inch wide bars for Leg Tucks
ACFT Lanes	3	Includes all standard equipment for each ACFT lane (1 x hexagon bar, 500 lb bumper plates, 1 x 10 lb medicine ball, 2 x 40 lb kettlebell, 1 x nylon sled with strap, 1 x 25 m measuring tape, 10 x cones, 1 x stopwatch, 1 x 2 m PVC pipe).

ACFT Army Combat Fitness Test
lb pound
m meter
PVC polyvinyl chloride
TBD to be determined

ADVANCED INDIVIDUAL TRAINING AND ONE STATION UNIT TRAINING

14-35. Several variables impact the ability to apply one training schedule across all of AIT and OSUT. These include the length of the AIT and OSUT, the unit fill, cadre to student ratio, shift training, varying HPDTs, MOS-specific training loads, and equipment, facility, and physical training field availability. When developing AIT and OSUT unit schedules, commanders consider the following:

- Schedule physical training sessions six times per week including one recovery session.
- Alternate strength- with endurance-emphasis weeks.
- Progress from 5 repetitions of each exercises to a maximum of 10 repetitions. Do not do more than 10 repetitions. Instead cycle through the whole drill again, or continue on to another drill.
- Change the number of repetitions, weight lifted, and rest intervals for strength activities to match individual and unit goals. A schedule that focuses on muscular strength will have fewer repetitions per lift, increased weight per lift, and increased rest intervals per set.

- Begin the Strength Training Circuit with one minute per station that includes time to move between stations, so it is a muscular endurance activity. Modify the time per station to target other components of physical readiness.
- Progress the Landmine Drill 1 (a Free Weight Training Drill) based upon physical training goals of the unit.
- Use Running Drills 1–7 on recovery days to promote optimal running activity—Release Runs, Terrain Runs, and Hill Repeats.
- Attach Suspension Training Drill 1 equipment to Climbing Pods or bars to improve a Soldier's balance, core, and upper body strength.
- Use Medicine Ball Drill 1 to improve coordination, dynamic balance, and upper body endurance.
- Schedule trained AIT units to regularly complete 40 or more exercises during one 60-minute session. An example would include Preparation Drill, Shoulder Stability Drill, Conditioning Drills 1-3, Climbing Drills 1 and 2, Sprint-Drag-Carry, and Recovery Drill.
- Understand AIT running activity times are faster than BCT. Ability Groups are A, B, and C. There is no D Group.
- Schedule speed running at least once per week. Repetitions increase from 5 to 10 for 30:60s, 60:120s, and Hill Repeats and up to three repetitions for the 300-Meter Shuttle Run.
- Monitor the sustained running goal of all Soldiers to pass the ACFT and the HPDTs of their MOSs. If the MOS program of instruction requires sustained run distance goals beyond 2 miles, the speed (in minutes per mile) of those runs should not be faster than the goal pace for the ACFT.
- Determine Foot March training based on the length of the AIT cycle, MOS requirements, and the program of instruction. Army physical fitness uniform (known as APFU) and ACU modifications assist with the exercise progression. See ATP 3-21.18 for information on foot marches.

14-36. Leaders conduct the ACFT in accordance to AR 40-501, using information in ATP 7-22.01, and the course program of instruction. During AIT, leaders schedule the ACFT in week 14 (see table 14-9). During OSUT, leaders schedule the ACFT in week 22 (see table 14-10 beginning on page 14-27). In both cases, leaders may move the ACFT earlier in the cycle especially if a cumulative FTX is proposed for the penultimate week of training. A practice ACFT scheduled at the beginning of the two-week peak period precedes the record test. For longer or shorter AIT courses, leaders can adjust the pattern of train-peak-test around other program of instruction requirements.

14-37. Preparation for the ACFT is built into the schedules for IMT. Frequent, repeated practice of the ACFT or its separate events is not likely to improve pass rates or readiness. This schedule has event-specific practice once per week in the weeks leading up to the record ACFT. Soldiers must train into physical readiness. They cannot test into physical readiness. The ACFT validates the physical training program. It is not the physical training program.

14-38. Practice and record ACFTs should be scheduled on Mondays so that Soldiers are properly recovered prior to the test. A practice ACFT is an exact rehearsal of the record test event. If the record ACFT is not conducted on a Monday, then no physical training will be scheduled on the day before the ACFT.

14-39. If the ACFT passing standard for 2-Mile Run event is 21 minutes (10:30 minutes per mile), then the standard for passing a 3 mile run cannot be faster than 31:30 minutes (10:30 minutes per mile).

14-40. Soldiers in AIT, OSUT (Black and Gold Phases), and basic officer leader course-accessions add the following drills and activities:

- Conditioning Drill 3.
- Climbing Drill 2.
- Military Movement Drill 2.
- 60:120s.
- Hill Repeats up and down.
- Sprint-Drag-Carry as a drill.
- Suspension Training Drill 1.
- Medicine Ball Drill 1.

- Landmine Drill 1.
- Guerilla Drill.
- Army Water Survival Training.
- PMCS.

14-41. Soldiers in OSUT (Black and Gold Phases) add following drills and activities:

- Free Weight Training Core (known as FWC) exercises:
  - Front Squat.
  - Back Squat.
  - Deadlift.
  - Bench Press.
  - Incline Bench.
- Free Weight Training Assistive (known as FWA) exercises:
  - Sumo Deadlift.
  - Heel Raise.
  - Bent-Over Row.
  - Single-Arm Bent-Over Row.
  - Upright Row.
  - Overhead Push-Press.
  - Bent-Arm Lateral Raise.
  - Shrug.
  - Pull Over.
  - Overhead Triceps Extension.
  - Biceps Curl.
  - Weighted Trunk Flexion.
  - Weighted Trunk Extension.

Table 14-9. AIT physical training schedule (14 Weeks)

Session	*AIT Week 1*	*Uniform*
1-1	Preparation: PD (10 reps), HSD, 4C Activities: 1MR for time for AGR assignment; AGR x 1 mile Recovery: RD (20 secs)	
1-2	Preparation: PD (10 reps), HSD, SSD Activities: STC (3 rounds in 32 min) Recovery: RD (20 secs)	ACU
1-3	Preparation: Walk (10 min) Activities/Recovery: PMCS INSTRUCTION	
1-4	Preparation: PD (5 reps), HSD, MMD1 & MMD2 Activities: AGR 20 min or RR for 20 min, release after 5 min Recovery: RD (20 secs)	
1-5	Preparation: PD (10 reps), MDL warm-up Activities: practice ACFT Recovery: PMCS	
1-6	Preparation: PD (10 reps) Activities: GD INSTRUCTION Recovery: RD (20 secs)	ACU

Table 14-9. AIT physical training schedule (14 Weeks) (*continued*)

Session	*AIT Week 2*	*Uniform*
2-1	Preparation: PD (10 reps), HSD, SSD Activities: CD1 & CD2 (5 reps x 2), SDC (1 rep), CL1 (5 reps) Recovery: RD (30 secs)	
2-2	Preparation: PD (10 reps) HSD, 4C. MMD1 & MMD2 Activities: GD, 300SR (2 reps), AGR A = 70–90 secs, AGR B = 80–100, AGR C = 90–110 at 1:3 rest ratio Recovery: PMCS	
2-3	Preparation: Walk 20 min Activities: MB1 or LM1 INSTRUCTION Recovery: RD (20 secs)	
2-4	Preparation: PD (10 reps), SSD, HSD Activities: STC (3 rounds in 32 min)—record Sumo Squat, Supine Chest Press and Leg Tuck Recovery: PMCS	
2-5	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (8 reps) Recovery: RD (30 secs)	ACU with athletic shoe
2-6	Preparation: PD (10 reps), HSD, 4C Activity: FM 5 miles Recovery: PMCS	ACU
	AIT Week 3	
3-1	Preparation: PD (10 reps), 4C Activities: MB1 or LM1 INSTRUCTION Recovery: RD (30 secs)	
3-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (8 reps) Recovery: PMCS	
3-3	Preparation: Walk (30 min) Activities/Recovery: ST1 INSTRUCTION	
3-4	Preparation: PD (10 reps), SSD, HSD Activities: FM 5 miles (Alt: AGR A = 30 min, AGRs B/C = 25 min) Recovery: RD (30 secs)	ACU
3-5	Preparation: PD (10 reps), 4C, SSD Activities: GD, CL2 INSTRUCTION Recovery: PMCS	ACU with FLC
3-6	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s (10 reps), SDC (1 rep) Recovery: RD (30 secs)	
	AIT Week 4	
4-1	Preparation: PD (10 reps), 4C Activities: MB1, CD1 & CD2 (6 reps x 2) Recovery: RD (30 secs)	

Table 14-9. AIT physical training schedule (14 Weeks) (*continued*)

Session	*AIT Week 4*	*Uniform*
4-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (8 reps) Recovery: PMCS	
4-3	Preparation: Walk (30 min) Activities/Recovery: RUD	
4-4	Preparation: PD (10 reps), SSD, HSD; Activities: FM 5 miles (Alt: AGR A = 30 min, AGRs B/C = 25 min) Recovery: RD (30 secs)	ACU
4-5	Preparation: PD (10 reps), 4C, SSD Activities: ST1, GD, CL2 (5 reps) Recovery: PMCS	ACU
4-6	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s x 10 reps, 300SR (1 rep) Recovery: RD (30 secs)	
	AIT Week 5	
5-1	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 rounds, 21 min, progress weight), SDC (2 reps, 1:3 rest ratio), CD1 & CD2 (6 reps x 2) Recovery: RD (30 secs)	
5-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Down INSTRUCTION Recovery: PMCS	
5-3	Preparation: PD (10 reps), 4C, SSD Activities: CD3 INSTRUCTION Recovery: PMCS	
5-4	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Down (5 reps) Recovery: RD (30 secs)	
5-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (6 reps x 1), CD3 (5 reps) Recovery: RD (30 secs)	
5-6	Preparation: Walk (10 min) Activities/Recovery: RUD	
	AIT Week 6	
6-1	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s x 10 reps, 300SR (2 reps) Recovery: RD (30 secs)	
6-2	Preparation: Walk (30 min) Activities/Recovery: RUD	

Table 14-9. AIT physical training schedule (14 Weeks) (*continued*)

Session	*AIT Week 6*	*Uniform*
6-3	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 rounds, 21 min, progress weight), SDC (2 reps, 1:3 rest ratio) Recovery: RD (30 secs)	
6-4	Preparation: PD (10 reps), SSD, HSD Activities: FM 7 miles Recovery: RD (30 secs)	ACU
6-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (6 reps), CD3 (6 reps) Recovery: RD (30 secs)	
6-6	Preparation: PD (10 reps), SSD, HSD Activities: RR 30 mins Recovery: RD (30 secs)	
	AIT Week 7	
7-1	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
7-2	Preparation: PD (10 reps), MMD1 & MMD2, RUD Activities: HR-Down (6 reps) Recovery: RD (30 secs)	
7-3	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 in 21 mins, progress weight), CD1 & CD2 (7 reps x 2) Recovery: RD (30 secs)	
7-4	Preparation: PD (10 reps), SSD, HSD Activities: AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
7-5	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, GD, CL2 (6 reps) Recovery: PMCS	ACU
7-6	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s (10 reps), SDC (2 reps with 1:3 rest ratio) Recovery: RD (30 secs)	
	AIT Week 8	
8-1	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
8-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (8 reps), 300SR (1 rep) Recovery: RD (30 secs)	
8-3	Preparation: PD (10 reps), SSD, HSD, 4C Activities: STC (2 in 31 mins at 90 secs per station, 6–8 reps per station) Recovery: PMCS	

Table 14-9. AIT physical training schedule (14 Weeks) (*continued*)

Session	*AIT Week 8*	*Uniform*
8-4	Preparation: PD (10 reps), MMD1 & MMD2 Activities: SDC (1 rep), AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
8-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (7 reps), CD3 (7 reps) Recovery: RD (30 secs)	
8-6	Preparation: Walk (30 min) Activities/Recovery: RUD	
9-1	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
9-2	Preparation: PD (10 reps), SSD, HSD, RUD Activities: TR x 30 mins, using RR format. Recovery: RD (30 secs)	
	AIT Week 9	
9-3	Preparation: PD (10 reps), 4C, SSD Activities: ST1, GD, CL2 (7 reps) Recovery: PMCS	ACU
9-4	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (6 reps) Recovery: RD (30 secs)	
9-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (8 reps), CD3 (8 reps) Recovery: RD (30 secs)	
9-6	Preparation: PD (10 reps), SSD, HSD Activities: FM 8 miles Recovery: RD (30 secs)	ACU
	AIT Week 10	
10-1	Preparation: PD (10 reps), SSD, HSD; Activities: AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
10-2	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, CL2 (8 reps) Recovery: PMCS	ACU
10-3	Preparation: PD (10 reps), SSD, HSD, RUD Activities: RR x 30 mins at ACFT 2MR target pace Recovery: RD (30 secs)	
10-4	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
10-5	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (7 reps) Recovery: RD (30 secs)	

Table 14-9. AIT physical training schedule (14 Weeks) (*continued*)

Session	*AIT Week 10*	*Uniform*
10-6	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (9 reps), CD3 (9 reps) Recovery: RD (30 secs)	
	AIT Week 11 (ACFT Peak 1)	
11-1	ACFT practice	
11-2	Preparation: Walk (30 min) Activities/Recovery: RUD, PMCS	
11-3	Preparation: PD (10 reps), SSD, HSD; Activities: AGR A = 30 min, AGRs B/C = 25 min at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
11-4	Preparation: PD (10 reps), SSD, HSD Activities: STC (3 rounds in 32 min) Recovery: PMCS	
11-5	Preparation: PD (10 reps), SSD, HSD Activities: SDC (2 reps), GD, CL1 & CL2 (8 reps) Recovery: RD (30 secs)	ACU
11-6	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
	AIT Week 12 (ACFT Peak 2)	
12-1	Preparation: PD (10 reps), SSD, HSD Activities: LM1, CD3 (10 reps) Recovery: PMCS	
12-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (10 reps), 300SR (1 rep) Recovery: RD (30 secs)	
12-3	Preparation: PD (10 reps), 4C Activities: ST1 or CL1 or LM1, CD1 & CD2 (10 reps) Recovery: RD (30 secs)	
12-4	Preparation: PD (10 reps), HSD, MMD1&2 Activities: AGR A = 30 min, AGRs B/C = 25 min at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
12-5	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
12-6	Preparation: PD (10 reps), SSD, HSD Activities: FM 10 Recovery: RD (30 secs)	ACU
	AIT Week 13 (FTX Week)	
13-1	FTX Activities: condensed training	
13-2	FTX Activities: condensed training	
13-3	FTX Activities: condensed training	

Table 14-9. AIT physical training schedule (14 Weeks) (*continued*)

AIT Week 13 (FTX Week)		
13-4	FTX Activities: condensed training	
13-5	FTX Activities: condensed training	
13-6	Final FM 12 miles	
AIT Week 14 (ACFT / Graduation Week)		
14-1	ACFT record	
14-2	Preparation: PD (10 reps), HSD, SSD Activities: AGR A = 30 min, AGRs B/C = 25 min Recovery: RD (30 secs)	
14-3	Preparation: PD (10 reps), 4C Recovery: PMCS	
14-4	Preparation: PD (10 reps), Activities: RUD Recovery: RD (30 secs)	
14-5	Preparation: PD (10 reps) Activities: UFR Recovery: RD (30 secs)	
14-6	Graduation	

4C	four for the core	MDL	maximum deadlift
30:60	30 second sprint: 60 second walk	min	minute
60:120	60 second sprint: 120 second walk	MMD	military movement drill
300SR	300-meter shuttle run	MR	mile run
ACFT	Army Combat Fitness Test	PD	preparation drill
ACU	Army combat uniform	PMCS	preventive maintenance checks and services
AGR	ability group run	RD	recovery drill
AIT	advanced individual training	rep	repetition
Alt	alternate	RM	repetition maximum
CD	conditioning drill	RR	release run
CL	climbing drill	RUD	running drill
FLC	fighting load carrier	SDC	sprint-drag-carry
FM	foot march	sec	second
FTX	field training exercise	SPT	standing power throw
GD	guerilla drill	SSD	shoulder stability drill
HR	hill repeats	ST	suspension training drill
HRP	hand-release push-up	STC	strength training circuit
HSD	hip stability drill	TR	terrain run
LM	landmine drill	UFR	unit formation run
MB	medicine ball drill		

Table 14-10. OSUT physical training schedule (22 weeks)

Session	***OSUT Week 1***	***Uniform***
1-1	Preparation: PD (10 reps), HSD, 4C Activities: 1MR for time for AGR assignment; AGR x 1 mile Recovery: RD (20 secs)	
1-2	Preparation: PD (10 reps), HSD, SSD Activities: STC (3 rounds in 32 min) Recovery: RD (20 secs)	ACU
1-3	Preparation: Walk (10 min) Activities/Recovery: PMCS INSTRUCTION	
1-4	Preparation: PD (5 reps), HSD, MMD1 & MMD2 Activities: AGR 20 min or RR for 20 min, release after 5 min Recovery: RD (20 secs)	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 1*	*Uniform*
1-5	Preparation: PD (10 reps), MDL warm up Activities: practice ACFT Recovery: PMCS	
1-6	Preparation: PD (10 reps) Activities: GD INSTRUCTION Recovery: RD (20 secs)	ACU
OSUT Week 2		
2-1	Preparation: PD (10 reps), HSD, SSD Activities: CD1 & CD2 (5 reps x 2), SDC (1 rep), CL1 (5 reps) Recovery: RD (30 secs)	
2-2	Preparation: PD (10 reps) HSD, 4C, MMD1 & MMD2 Activities: GD, 300SR (2 reps), AGR A = 70–90 secs, AGR B = 80–100, AGR C = 90–110 at 1:3 rest ratio Recovery: PMCS	
2-3	Preparation: Walk 10 min Activities: MB1 or LM1 INSTRUCTION	
2-4	Preparation: PD (10 reps), SSD, HSD Activities: STC (3 rounds in 32 min)—record Sumo Squat, Supine Chest Press and Leg Tuck Recovery: PMCS	
2-5	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (8 reps) Recovery: RD (30 secs)	ACU with athletic shoe
2-6	Preparation: PD (10 reps), HSD, 4C Activity: FM 5 miles Recovery: PMCS	ACU
OSUT Week 3		
3-1	Preparation: PD (10 reps), 4C Activities: MB1 or LM1 INSTRUCTION Recovery: RD (30 secs)	
3-2	Preparation: PD (10 reps), MMD1 and MMD2 Activities: HR-Up (8 reps) Recovery: PMCS	
3-3	Preparation: Walk (20 min) Activities/Recovery: ST1 INSTRUCTION	
3-4	Preparation: PD (10 reps), SSD, HSD Activities: FM 5 miles (Alt: AGR A = 30 min, AGRs B/C = 25 min) Recovery: RD (30 secs)	
3-5	Preparation: PD (10 reps), SSD Activities: GD, CL2 INSTRUCTION Recovery: PMCS	ACU with FLC

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 3*	*Uniform*
3-6	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s (10 reps), SDC (1 rep) Recovery: RD (30 secs)	
OSUT Week 4		
4-1	Preparation: PD (10 reps), 4C Activities: MB1, CD1 & CD2 (6 reps x 2) Recovery: RD (30 secs)	
4-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (8 reps) Recovery: PMCS	
4-3	Preparation: Walk (30 min) Activities/Recovery: RUD	
4-4	Preparation: PD (10 reps), SSD, HSD Activities: FM 5 miles (Alt: AGR A = 30 min, AGRs B/C = 25 min) Recovery: RD (30 secs)	ACU
4-5	Preparation: PD (10 reps), 4C, SSD Activities: ST1, CL2 (5 reps) Recovery: PMCS	ACU
4-6	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s x 10 reps, 300SR (1 rep) Recovery: RD (30 secs)	
OSUT Week 5		
5-1	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 rounds, 21 min, progress weight), SDC (2 reps, 1:3 rest ratio), CD1 & CD2 (6 reps x 2) Recovery: RD (30 secs)	
5-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Down INSTRUCTION Recovery: PMCS	
5-3	Preparation: PD (10 reps), 4C, SSD Activities: CD3 INSTRUCTION Recovery: PMCS	
5-4	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Down (5 reps) Recovery: RD (30 secs)	
5-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (6 reps x 1), CD3 (5 reps) Recovery: RD (30 secs)	
5-6	Preparation: Walk (30 min) Activities/Recovery: RUD	
OSUT Week 6		
6-1	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s x 10 reps, 300SR (2 reps) Recovery: RD (30 secs)	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 6*	*Uniform*
6-2	Preparation: Walk (10 min) Activities/Recovery: RUD	
6-3	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 rounds, 21 min, progress weight), SDC (2 reps, 1:3 rest ratio) Recovery: RD (30 secs)	
6-4	Preparation: PD (10 reps), SSD, HSD Activities: FM 7 miles Recovery: RD (30 secs)	ACU
6-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (6 reps), CD3 (6 reps) Recovery: RD (30 secs)	
6-6	Preparation: PD (10 reps), SSD, HSD Activities: RR 30 mins Recovery: RD (30 secs)	
OSUT Week 7		
7-1	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
7-2	Preparation: PD (10 reps), MMD1 & MMD2, RUD Activities: HR-Down (6 reps) Recovery: RD (30 secs)	
7-3	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 in 21 mins, progress weight), CD1 & CD2 (7 reps x 2) Recovery: RD (30 secs)	
7-4	Preparation: PD (10 reps), SSD, HSD Activities: AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
7-5	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, CL2 (6 reps) Recovery: PMCS	ACU
7-6	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s (10 reps), SDC (2 reps with 1:3 rest ratio) Recovery: RD (30 secs)	
OSUT Week 8		
8-1	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
8-2	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (8 reps), 300SR (1 rep) Recovery: RD (30 secs)	
8-3	Preparation: PD (10 reps), SSD, HSD, 4C Activities: STC (2 in 31 mins at 90 secs per station, 6-8 reps per station) Recovery: PMCS	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 8*	*Uniform*
8-4	Preparation: PD (10 reps), MMD1 & MMD2 Activities: SDC (1 rep), AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
8-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (7 reps), CD3 (7 reps) Recovery: RD (30 secs)	
8-6	Preparation: Walk (30 min) Activities/Recovery: RUD	
OSUT Week 9		
9-1	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
9-2	Preparation: PD (10 reps), SSD, HSD, RUD Activities: TR x 30 mins, using RR format. Recovery: RD (30 secs)	
9-3	Preparation: PD (10 reps), 4C, SSD Activities: ST1, GD, CL2 (7 reps) Recovery: PMCS	ACU
9-4	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (6 reps) Recovery: RD (30 secs)	
9-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (8 reps), CD3 (8 reps) Recovery: RD (30 secs)	
9-6	Preparation: PD (10 reps), SSD, HSD Activities: FM 8 miles Recovery: RD (30 secs)	ACU
OSUT Week 10		
10-1	Preparation: PD (10 reps), SSD, HSD Activities: AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
10-2	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, CL2 (8 reps) Recovery: PMCS	ACU
10-3	Preparation: PD (10 reps), SSD, HSD, RUD Activities: RR x 30 mins at ACFT 2MR target pace Recovery: RD (30 secs)	
10-4	Preparation: PD (10 reps), 4C, SSD Activities: 3RM, SPT, HRP practice Recovery: PMCS	
10-5	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (7 reps) Recovery: RD (30 secs)	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 10*	*Uniform*
10-6	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (9 reps), CD3 (9 reps) Recovery: RD (30 secs)	
OSUT Week 11		
11-1	ACFT practice	
11-2	Preparation: Walk (30 min) Activities/Recovery: RUD, PMCS	
11-3	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, GD, CL2 (8 reps) Recovery: PMCS	ACU
11-4	Preparation: PD (10 reps), SSD, HSD, RUD Activities: RR x 30 mins at ACFT 2MR target pace Recovery: RD (30 secs)	
11-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 and CD2 (10 reps), CD3 (10 reps) Recovery: PMCS	
11-6	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up and Down (5 reps each) Recovery: RD (30 secs)	
OSUT Week 12		
12-1	Preparation: PD (10 reps), SSD, HSD, MMD1 & MMD2 Activities: AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
12-2	Preparation: Walk (30 min) Activities/Recovery: FWC INSTRUCTION, PMCS	
12-3	Preparation: PD (10 reps), SSD, HSD, RUD Activities: TR x 30 mins, using RR format. Recovery: RD (30 secs)	
12-4	Preparation: PD (10 reps), 4C, SSD Activities: FWC Front Squat, Back Squat Recovery: PMCS	
12-5	Preparation: PD (10 reps), SSD, HSD Activities: FM 9 miles Recovery: RD (30 secs)	ACU
12-6	Preparation: PD (10 reps), 4C, SSD Activities: FWC Bench Press, Incline Bench Recovery: PMCS	
OSUT Week 13		
13-1	Preparation: Walk (10 min) Activities/Recovery: FWA INSTRUCTION, PMCS	
13-2	Preparation: PD (10 reps), SSD, HSD, MMD1 & MMD2 Activities: AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 13*	*Uniform*
13-3	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Front Squat or Back Squat Recovery: PMCS	
13-4	Preparation: PD (10 reps), 4C, SSD Activities: GD, CL2 (10 reps) Recovery: PMCS	ACU with FLC
13-5	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Bench Press or Incline Bench Recovery: PMCS	
13-6	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (10 reps) Recovery: RD (30 secs)	
OSUT Week 14		
14-1	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Deadlift Recovery: PMCS	
14-2	Preparation: Walk 20 min Activities: RUD	
14-3	Preparation: PD (10 reps), SSD, HSD, 4C Activities: STC (2 in 31 mins at 90 secs per station, 6–8 reps per station) Recovery: PMCS	
14-4	Preparation: PD (10 reps), HSD Activities: RUD, 30:60s x 10 reps, RUD Recovery: RD (30 secs)	
14-5	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Front Squat or Back Squat Recovery: PMCS	
14-6	Preparation: PD (10 reps), HSD, MMD1 & MMD2 Activities: AGR A = 30 min, AGRs B/C = 25 min at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
14-7	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
OSUT Week 15		
15-1	ACFT practice	
15-2	Preparation: Walk 40 min Activities: PMCS	
15-3	Preparation: PD (10 reps), 4C, SSD Activities: ST1, GD, CL2 (10 reps) Recovery: PMCS	ACU
15-4	Preparation: PD (10 reps), HSD Activities: RUD, 30:60s x 10 reps, RUD Recovery: RD (30 secs)	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 15*	*Uniform*
15-5	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Bench Press or Incline Bench Recovery: PMCS	
15-6	Preparation: PD (10 reps), HSD, 4C Activities: 1MR for time for new AGR assignment; AGR x 1 mile Recovery: RD (30 secs)	
OSUT Week 16		
16-1	Preparation: PD (10 reps), SSD, HSD Activities: AGR A = 30 min, AGRs B/C = 25 min at ACFT 2MR target pace Recovery: RD (30 secs)	
16-2	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, GD, CL2 (9 reps) Recovery: PMCS	ACU
16-3	Preparation: PD (10 reps), SSD, HSD, RUD Activities: RR x 30 mins at ACFT 2MR target pace Recovery: RD (30 secs)	
16-4	Preparation: PD (10 reps), 4C, SSD Activities: 3RM, SPT, HRP practice Recovery: PMCS	
16-5	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (8 reps) Recovery: RD (30 secs)	
16-6	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (10 reps), CD3 (10 reps) Recovery: RD (30 secs)	
OSUT Week 17		
17-1	Preparation: PD (10 reps), HSD, 4C Activities: 30:60s x 10 reps, 300SR (3 reps) Recovery: RD (30 secs)	
17-2	Preparation: Walk (40 min) Activities/Recovery: RUD	
17-3	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 rounds, 21 min, progress weight), SDC (3 reps, 1:3 rest ratio) Recovery: RD (30 secs)	
17-4	Preparation: PD (10 reps), SSD, HSD Activities: FM 9 miles Recovery: RD (30 secs)	ACU
17-5	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (10 reps), CD3 (10 reps) Recovery: RD (30 secs)	
17-6	Preparation: PD (10 reps), SSD, HSD; Activities: RR 30 mins Recovery: RD (30 secs)	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 18*	*Uniform*
18-1	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Deadlift Recovery: PMCS	
18-2	Preparation: PD (10 reps), 4C, SSD Activities: SPT, HRP, SDC practice Recovery: PMCS	
18-3	Preparation: PD (10 reps), SSD, HSD, 4C Activities: STC (2 in 31 mins at 90 secs per station, 6–8 reps per station) Recovery: PMCS	
18-4	Preparation: PD (10 reps), SSD, HSD, RUD Activities: RR x 30 mins slower than ACFT 2MR target pace Recovery: RD (30 secs)	
18-5	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Front Squat or Back Squat Recovery: PMCS	
18-6	Preparation: PD (10 reps), HSD, MMD1 & MMD2 Activities: AGR A = 30 min, AGRs B/C = 25 min at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
OSUT Week 19 (ACFT Peak 1)		
19-1	ACFT practice	
19-2	Preparation: Walk (30 min) Activities/Recovery: RUD, PMCS	
19-3	Preparation: PD (10 reps), SSD, HSD Activities: AGR A = 30 min, AGRs B/C = 25 min at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
19-4	Preparation: PD (10 reps), SSD, HSD Activities: STC (3 rounds in 32 minutes) Recovery: PMCS	
19-5	Preparation: PD (10 reps), SSD, HSD Activities: SDC (2 reps), GD, CL1 & CL2 (8 reps) Recovery: RD (30 secs)	ACU
19-6	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
OSUT Week 20 (ACFT Peak 2)		
20-1	Preparation: PD (10 reps), SSD, HSD Activities: LM1, CD3 (10 reps) Recovery: PMCS	
20-2	Preparation: PD (10 reps), MMD1 and MMD2 Activities: 60:120s (10 reps), 300SR (1 rep) Recovery: RD (30 secs)	
20-3	Preparation: PD (10 reps), 4C Activities: ST1/CL1 or LM1, CD1 and CD2 (10 reps) Recovery: RD (30 secs)	

Table 14-10. OSUT physical training schedule (22 weeks) (*continued*)

Session	*OSUT Week 20*	*Uniform*
20-4	Preparation: PD (10 reps), HSD, MMD1 & MMD2 Activities: AGR A = 30 min, AGRs B/C = 25 min at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
20-5	Preparation: PD (10 reps), 4C Activities: 3RM, SPT, HRP practice Recovery: PMCS	
20-6	Preparation: PD (10 reps), SSD, HSD Activities: FM 10 miles Recovery: RD (30 secs)	ACU
OSUT Week 21 (FTX Week)		
21-1	FTX Activities: condensed training	
21-2	FTX Activities: condensed training	
21-3	FTX Activities: condensed training	
21-4	FTX Activities: condensed training	
21-5	FTX Activities: condensed training	
21-6	Final FM 12 miles	
OSUT Week 22 (ACFT / Graduation Week)		
22-1	ACFT record	
22-2	Preparation: PD (10 reps), HSD, SSD Activities: AGR A = 30 min, AGRs B/C = 25 min Recovery: RD (30 secs)	
22-3	Preparation: PD (10 reps), 4C Recovery: PMCS	
22-4	Preparation: PD (10 reps) Activities: RUD Recovery: RD (30 secs)	
22-5	Preparation: PD (10 reps) Activities: UFR Recovery: RD (30 secs)	
22-6	Graduation	

4C	four for the core	MDL	maximum deadlift
30:60	30 second sprint: 60 second walk	min	minute
60:120	60 second sprint: 120 second walk	MMD	military movement drill
300SR	300-meter shuttle run	MR	mile run
ACFT	Army Combat Fitness Test	OSUT	one station unit training
ACU	Army combat uniform	PD	preparation drill
AGR	ability group run	PMCS	preventive maintenance checks and services
Alt	alternate	RD	recovery drill
CD	conditioning drill	rep	repetition
CL	climbing drill	RM	repetition maximum
FLC	fighting load carrier	RR	release run
FM	foot march	RUD	running drill
FTX	field training exercise	SDC	sprint-drag-carry
FWA	free weight assistive	sec	second
FWC	free weight core	SPT	standing power throw
GD	guerilla drill	SSD	shoulder stability drill
HR	hill repeats	ST	suspension training drill
HRP	hand-release push-up	STC	strength training circuit
HSD	hip stability drill	TR	terrain run
LM	landmine drill	UFR	unit formation run
MB	medicine ball drill		

FIRST UNIT OF ASSIGNMENT

14-42. The FUA is a critical point for Soldiers as they transition from Army trainees to full-fledged Soldiers. Therefore, it is important for leaders at the gaining unit to conduct proper assessments of a Soldier's physical and nonphysical conditioning as he or she is integrated into the formation. H2F performance teams are uniquely staffed and equipped to perform this function.

14-43. Using results from an assessment of the new Soldier, H2F performance experts in the gaining unit develop a program that focuses on that new Soldier's needs. Table 14-11 provides a sample schedule to address a new Soldier's endurance physical limitations. Table 14-12 on page 14-39 provides a sample schedule to address a new Soldier's physical limitations for power. Table 14-13 on page 14-41 provides a sample schedule using hybrid approaches to address a new Soldier's physical limitations. Summarized, the three schedules look like this:

- Endurance-biased schedule: 6 days per week; 3/2 endurance/strength plus one day active recovery.
- Lower Body Power schedule: 2/3 endurance/strength plus one day active recovery.
- Hybrid schedule: 2/2 endurance/strength with one day option and one day active recovery.

ENDURANCE-BIASED SCHEDULE

14-44. An endurance-biased schedule is 6 days per week. It uses 3/2 endurance/strength plus one day active recovery. See table 14-11.

Table 14-11. First unit of assignment new Soldier endurance schedule

Session	*RPE*	*Drills and Exercises*	*Uniform*
FUA Week 1 (Endurance)			
1-1	4-5	Preparation: PD (10 reps), HSD Activities: 300SR (3 reps) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip INSTRUCTION	
1-2	4-9	Preparation: ACUs with FLC, PD (5 reps), HSD, SSD Activities: STC (3 reps) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist INSTRUCTION	
1-3	3-4	Preparation: Walk (10 mins) Activities: RUD 1/2/3, PMCS Recovery: RD (20 secs)	
1-4	6-8	Preparation: PD (5 reps), HSD, SSD Activities: MMD1 & MMD2, RUD 4/5/6/7, AGR 20 min Recovery: RD (30 secs)	
1-5	7-9	Preparation: PD (10 reps), 4C Activities: CD1 & CD2, CL1 & CL2 Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
FUA Week 2 (Endurance)			
2-1	6-8	Preparation: PD (10 reps), HSD, SSD Activities: MMD1, RUD 3/4, RR (30 mins) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
2-2	2-5	Preparation: PD (10 reps), HSD, 4C Activities: 300SR (3 reps) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
2-3	6-8	Preparation: Walk (10 mins) Activities: FWC for MDL improvement Recovery: RD (30 secs)	

Table 14-11. First unit of assignment new Soldier endurance schedule (*continued*)

Session	*RPE*	*Drills and Exercises*	*Uniform*
FUA Week 2 (Endurance)			
2-4	6-8	Preparation: PD (5 reps), HSD Activities: STC (2 reps) Recovery: RD (20 secs)	
2-5	4-8	Preparation: ACUs with athletic shoes, PD (10 reps), HSD Activities: 60:120s (10 reps) Recovery: RD (20 secs)	
FUA Week 3 (Endurance)			
3-1	8-9	Preparation: PD (10 reps), SSD Activities: STC (2 reps), SPT (5 reps) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist	
3-2	7-8	Preparation: PD (6 reps), HSD Activities: RUD2, MMD2, SDC (1 rep), 300SR (2 reps) Recovery: RD (20 secs)	
3-3	2-4	Preparation: Walk (10 min), SSD Activities: PMCS, Swim practice for AWST Recovery: self-stretching	
3-4	7-9	Preparation: PD (6 reps), HSD Activities: FM (40 mins) or MMD1 & MMD2, AGR (30 mins) Recovery: RD (20 secs)	
3-5	5-8	Preparation: PD (10 reps), 4C Activities: LM1, ST1, MB1 (5 reps each) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist	ACU with FLC
FUA Week 4 (Endurance)			
4-1	8-9	Preparation: PD (7 reps) Activities: MMD1 & MMD2, 60:120s (10 reps) Recovery: RD (20 secs)	
4-2	7-8	Preparation: PD (7 reps), 4C Activities: SSD, CL1 and CL2, SPT practice Recovery: RD (20 secs); PMCS	
4-3	7-8	Preparation: PD (7 reps), HSD Activities: ETMs or AGR Recovery: RD (20 secs)	
4-4	5-7	Preparation: PD (5 reps), SSD Activities: LM1, ST1, MB1 (6 reps each) Recovery: self-stretching	
4-5	8-9	Preparation: PD (7 reps), 4C Activities: MMD1 and MMD2, SDC (1 rep), 300SR (2 reps) Recovery: PMCS	

Table 14-11. First unit of assignment new Soldier endurance schedule (*continued*)

4C	four for the core	MDL	maximum deadlift
60:120	60 second sprint: 120 second walk	min	minute
300SR	300-meter shuttle run	MMD	military movement drill
ACU	Army combat uniform	PD	preparation drill
AGR	ability group run	PMCS	preventive maintenance checks and services
AWST	Army water survival training	RD	recovery drill
CD	conditioning drill	rep	repetition
CL	climbing drill	RPE	rating of perceived exertion
ETM	endurance training machine	RR	release run
FLC	fighting load carrier	RUD	running drill
FM	foot march	SDC	sprint-drag-carry
FUA	first unit of assignment	sec	second
FWC	free weight core	SPT	standing power throw
HSD	hip stability drill	SSD	shoulder stability drill
LM	landmine drill	ST	suspension training drill
MB	medicine ball drill	STC	strength training circuit

LOWER BODY POWER SCHEDULE

14-45. A lower body power schedule is 2/3 endurance/strength plus one day active recovery. See table 14-12.

Table 14-12. First unit of assignment new Soldier lower body power schedule

Session	*RPE*	*Drills and Exercises*	*Uniform*
FUA Week 1 (Power)			
1-1	4-5	Preparation: PD (10 reps), HSD Activities: 300SR (3 reps) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip INSTRUCTION	
1-2	4-9	Preparation: ACUs with FLC, PD (5 reps), HSD, SSD Activities: STC (3 reps) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist INSTRUCTION	
1-3	3-4	Preparation: Walk (10 mins) Activities: RUD 1/2/3, PMCS Recovery: RD (20 secs)	
1-4	6-8	Preparation: PD (5 reps), HSD, 4C Activities: MMD1, RUD 4/5/6/7, AGR 20 min Recovery: RD (30 secs)	
1-5	7-9	Preparation: PD (10 reps), 4C Activities: SDC (1 rep), 300SR (3 reps) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
FUA Week 2 (Power)			
2-1	6-8	Preparation: PD (10 reps), HSD Activities: MMD1, RUD 3/4, RR (30 mins) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
2-2	2-5	Preparation: PD (10 reps), SSD Activities: MDL practice, SPT practice Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
2-3	6-8	Preparation: Walk (10 mins) Activities: FWC for MDL improvement Recovery: RD (30 secs)	

Table 14-12. First unit of assignment new Soldier lower body power schedule (*continued*)

Session	*RPE*	*Drills and Exercises*	*Uniform*
FUA Week 2 (Power)			
2-4	6-8	Preparation: PD (5 reps), SSD, 4C Activities: STC (2 reps) 1 min per station at 60–80% of 1RM Recovery: RD (20 secs)	
2-5	4-8	Preparation: PD (10 reps), HSD Activities: 60:120s (6 reps) Recovery: RD (20 secs)	ACUs with athletic shoes
FUA Week 3 (Power)			
3-1	8-9	Preparation: PD (10 reps), SSD Activities: STC, (1 rep), SPT (5 reps), SDC (1 rep) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist	
3-2	4-7	Preparation: PD (6 reps), HSD Activities: RUD2, MMD1 & MMD2, 300SR (3 reps) Recovery: RD (20 secs)	
3-3	2-4	Preparation: Walk (10 min), SSD Activities: PMCS, Swim practice for AWST Recovery: self-stretching	
3-4	7-9	Preparation: PD (6 reps), HSD Activities: FM (40 mins) or MMD1 & MMD2, AGR (30 mins) Recovery: RD (20 secs)	
3-5	5-7	Preparation: PD (10 reps), 4C Activities: LM1, ST1, MB1 (5 reps each) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist	ACUs with FLC
FUA Week 4 (Power)			
4-1	8-9	Preparation: PD (10 reps), SSD Activities: SDC (2 reps, 1:3 RI), STC (1 rep), SPT (5 reps) Recovery: RD (30 secs)	
4-2	7-8	Preparation: PD (10 reps), HSD Activities: BSS for AWST Recovery: RD (30 secs); PMCS	
4-3	7-8	Preparation: PD (10 reps), 4C Activities: FWC for MDL preparation Recovery: RD (30 secs)	
4-4	4-7	Preparation: PD (10 reps), HSD Activities: AGR (30 mins) Recovery: self-stretching	
4-5	9-10	Preparation: PD (10 reps), 4C Activities: practice ACFT Recovery: RD (30 secs)	

Table 14-12. First unit of assignment new Soldier lower body power schedule (*continued*)

4C	four for the core	MMD	military movement drill
60:120	60 second sprint: 120 second walk	PD	preparation drill
300SR	300-meter shuttle run	PMCS	preventive maintenance checks and services
ACFT	Army Combat Fitness Test	RD	recovery drill
ACU	Army combat uniform	rep	repetition
AGR	ability group run	RI	rest interval
AWST	Army water survival training	RM	repetition maximum
BSS	basic survival swimmer	RPE	rating of perceived exertion
FLC	fighting load carrier	RR	release run
FM	foot march	RUD	running drill
FUA	first unit of assignment	SDC	sprint-drag-carry
FWC	free weight core	sec	second
HSD	hip stability drill	SPT	standing power throw
LM	landmine drill	SSD	shoulder stability drill
MB	medicine ball drill	ST	suspension training drill
MDL	maximum deadlift	STC	strength training circuit
min	minute		

HYBRID SCHEDULE

14-46. In a sample hybrid schedule, Soldiers use 2/2 endurance/strength with one day option and one day active recovery. See table 14-13.

Table 14-13. First unit of assignment new Soldier hybrid schedule

Session	*RPE*	*Drills and Exercises*	*Uniform*
FUA Week 1 (Hybrid)			
1-1	4-5	Preparation: PD (10 reps), HSD Activities: 300SR (3 reps) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
1-2	4-9	Preparation: PD (5 reps), HSD, SSD Activities: STC (3 reps) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist	ACUs with FLC
1-3	3-4	Preparation: Walk (10 mins) Activities: RUD 1/2/3, PMCS Recovery: RD (20 secs)	
1-4	6-8	Preparation: PD (5 reps), HSD, SSD Activities: MMD1, RUD 4/5/6/7, AGR 20 min Recovery: RD (30 secs)	
1-5	7-9	Preparation: PD (10 reps), 4C Activities: 300SR (2 reps) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
FUA Week 2 (Hybrid)			
2-1	5-6	Preparation: PD (10 reps), HSD, SSD Activities: MMD1 & MMD2, RUD 3/4, RR (30 mins) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
2-2	6-8	Preparation: PD (10 reps), HSD, 4C Activities: MMD1 & MMD2, 300SR (3 reps) Recovery: RD (20 secs), PMCS Spine, Ankle, Knee, Hip	
2-3	6-8	Preparation: Walk (10 mins) Activities: FWC for MDL improvement Recovery: RD (30 secs)	

Table 14-13. First unit of assignment new Soldier hybrid schedule (*continued*)

Session	*RPE*	*Drills and Exercises*	*Uniform*
FUA Week 2 (Hybrid)			
2-4	6-8	Preparation: PD (5 reps), HSD Activities: STC (2 reps) Recovery: RD (20 secs)	
2-5	6-8	Preparation: PD (10 reps), HSD Activities: 60:120s (10 reps) Recovery: RD (20 secs)	ACUs with athletic shoes
FUA Week 3 (Hybrid)			
3-1	8-9	Preparation: PD (10 reps), SSD Activities: STC (1 rep), SPT (5 reps), SDC (1 rep) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist	
3-2	4-7	Preparation: PD (6 reps), HSD Activities: RUD2, MMD2, 300SR x 6 Recovery: RD (20 secs)	
3-3	2-4	Preparation: Walk (10 min), SSD Activities: PMCS, Swim practice for AWST Recovery: self-stretching	
3-4	7-9	Preparation: PD (6 reps), HSD Activities: FM (40 mins) or MMD1 & MMD2, AGR (30 mins) Recovery: RD (20 secs)	
3-5	5-8	Preparation: PD (10 reps), 4C Activities: LM1, ST1, MB1 (5 reps each) Recovery: RD (20 secs), PMCS Spine, Shoulder, Elbow, Wrist	ACUs with FLC
FUA Week 4 (Hybrid)			
4-1	8-9	Preparation: PD (10 reps), SSD Activities: STC (2 reps) Recovery: RD (30 secs)	
4-2	7-8	Preparation: PD (10 reps), HSD Activities: AGR (30 mins) Recovery: RD (30 secs); PMCS	
4-3	7-8	Preparation: PD (10 reps), 4C Activities: practice MDL and SPT Recovery: RD (30 secs)	
4-4	4-5	Preparation: PD (10 reps), HSD Activities: RUD, MMD1, 300SR x 6 Recovery: RD (30 secs)	
4-5	9-10	Preparation: PD (10 reps), 4C Activities: practice ACFT Recovery: PMCS	

Table 14-13. First unit of assignment new Soldier hybrid schedule (*continued*)

4C	four for the core	min	minute
60:120	60 second sprint: 120 second walk	MMD	military movement drill
300SR	300-meter shuttle run	PD	preparation drill
ACFT	Army Combat Fitness Test	PMCS	preventive maintenance checks and services
ACU	Army combat uniform	RD	recovery drill
AGR	ability group run	rep	repetition
AWST	Army water survival training	RPE	rating of perceived exertion
FLC	fighting load carrier	RR	release run
FM	foot march	RUD	running drill
FUA	first unit of assignment	SDC	sprint-drag-carry
FWC	free weight core	sec	second
HSD	hip stability drill	SPT	standing power throw
LM	landmine drill	SSD	shoulder stability drill
MB	medicine ball drill	ST	suspension training drill
MDL	maximum deadlift	STC	strength training circuit

SUSTAINING PHASE

14-47. In the sustaining phase, Soldiers prepare for conditions specific to their occupational tasks. Occupational tasks that require heavier loads, both physical and psychological, require heavier training loads. However, the principles and physiological considerations outlined in Part Two remain the same for every Soldier, no matter his or her occupational tasks. Training programs in the sustaining phase are designed to guide every Soldier and the H2F performance team that coaches and customizes the individual Soldier's plan.

BUILD 1

14-48. The build 1 period is the first period in the sustaining phase. However, it is not the first period in the Soldier's training progression. That base period was completed during the initial phase as the Soldier progressed from the FSP to the FUA. In the build periods, the basic abilities established in the initial phase are further refined.

14-49. The build 1 period lasts four to eight weeks. Leaders use this time to build on the Soldiers' abilities from the base period with higher intensity and increased volume of training. Training effort begins to mimic the primary goal or mission, and the period ends with a simulation of the mission or a test—perhaps an FTX or a practice ACFT. Table 14-14 describes the drills and activities across what might be the first four weeks of a build 1 period.

Table 14-14. Sustaining phase build 1 period

Build 1 Week 1			
Session	***RPE***	***Drills and Exercises***	***Uniform***
1-1	9	ACFT practice, or 1MR for time for new AGR assignment, AGR x 1 mile	
1-2	5	Preparation: HSD, 4C Activities: Walk (60 mins) Recovery: PMCS	
1-3	7	Preparation: PD (10 reps), 4C, SSD Activities: ST1, GD, CL1 (10 reps) Recovery: PMCS	ACU
1-4	7	Preparation: PD (10 reps), HSD Activities: RUD, 30:60s x 10 reps, RUD Recovery: RD (30 secs)	
1-5	7	Preparation: PD (10 reps), 4C, SSD Activities: FWA plus Bench Press or Incline Bench Recovery: PMCS	

Table 14-14. Sustaining phase build 1 period (*continued*)

Session	*RPE*	*Drills and Exercises*	*Uniform*
Build 1 Week 2			
2-1	7	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, GD, CL2 (10 reps) Recovery: PMCS	ACU
2-2	8	Preparation: PD (10 reps), SSD, HSD, RUD Activities: RR x 30 mins at ACFT 2MR target pace, or AGR at ACFT 2MR target pace Recovery: RD (30 secs)	
2-3	6-7	Preparation: PD (10 reps), 4C, SSD Activities: MDL, SPT, HRP practice Recovery: PMCS	
2-4	9	Preparation: PD (10 reps), MMD1 & MMD2 Activities: HR-Up (10 reps) Recovery: RD (30 secs)	
2-5	8	Preparation: PD (10 reps), 4C, SSD Activities: CD1/2/3, GD Recovery: RD (30 secs)	
2-1	7	Preparation: PD (10 reps), 4C, SSD Activities: LM1 or MB1, GD, CL2 (10 reps) Recovery: PMCS	ACU
Build 1 Week 3			
3-1	8-9	Preparation: PD (10 reps) Activities: HSD, MMD1 & MMD2, 30:60s x 10 reps, 300SR (3 reps) Recovery: RD (30 secs)	
3-2	7	Preparation: PD, SSD, 4C Activities: FWA or FWC (Bench) Recovery: PMCS	
3-3	6	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 reps, progress weight), SDC (3 reps, 1:3 rest ratio) Recovery: RD (30 secs)	
3-4	5	Preparation: PD (10 reps) Activities: ETM x 30 mins Recovery: PMCS (30 secs)	
3-5	10	Preparation: PD (10 reps) Activities: practice ACFT Recovery: RD (30 secs)	
Build 1 Week 4			
4-1	8-9	Preparation: PD (10 reps) Activities: HSD, MMD1 & MMD2, 30:60s x 10 reps, 300SR (3 reps) Recovery: RD (30 secs)	
4-2	7	Preparation: PD, 4C Activities: MDL and SPT practice, RR x 30 mins Recovery: PMCS	

Table 14-14. Sustaining phase build 1 period (*continued*)

Session	*RPE*	*Drills and Exercises*	*Uniform*
Build 1 Week 4			
4-3	6	Preparation: PD (10 reps), 4C, HSD Activities: STC (2 reps, progress weight), SDC (3 reps, 1:3 rest ratio) Recovery: RD (30 secs)	
4-4	5	Preparation: PD (10 reps) Activities: ETM x 30 mins Recovery: PMCS (30 secs)	
4-5	10	Record ACFT	

4C	four for the core	MDL	maximum deadlift
30:60	30 second sprint: 60 second walk	min	minute
300SR	300-meter shuttle run	MMD	military movement drill
ACFT	Army Combat Fitness Test	MR	mile run
ACU	Army combat uniform	PD	preparation drill
AGR	ability group run	PMCS	preventive maintenance checks and services
CD	conditioning drill	RD	recovery drill
CL	climbing drill	rep	repetition
ETM	endurance training machine	RPE	rating of perceived exertion
FWA	free weight assistive	RR	release run
FWC	free weight core	RUD	running drill
GD	guerilla drill	SDC	sprint-drag-carry
HR	hill repeat	sec	second
HRP	hand-release push-up	SPT	standing power throw
HSD	hip stability drill	SSD	shoulder stability drill
LM	landmine drill	ST	suspension training drill
MB	medicine ball drill	STC	strength training circuit

BUILD 2

14-50. The build 2 period is an option when more training time is available in the Soldier's schedule. Like the build 1 period, it lasts four to eight weeks with increasing intensity and volume. Training effort begins to mimic the primary goal or mission, and the period ends with a simulation of the mission or a test—perhaps a field training exercise or a practice ACFT. See table 14-15.

Table 14-15. Sustaining phase build 2 period

Session	*RPE*	*Drills and Exercises*	*Uniform*
Build 2 Week 1			
1-1	8-9	ACFT practice	
1-2	5	Preparation: PD (10 reps) Activities: Walk (30 mins), or AGR 1MR re-assessment Recovery: RUD, PMCS	
1-3	7	Preparation: PD (10 reps), SSD, HSD Activities: AGR (30 mins) at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
1-4	8	Preparation: PD (10 reps), SSD, HSD Activities: STC (3 rounds in 32 min) Recovery: PMCS	
1-5	9	Preparation: PD (10 reps), SSD, HSD Activities: SDC (2 reps), GD, CL1 & CL2 (8 reps) Recovery: RD (30 secs)	ACU

Table 14-15. Sustaining phase build 2 period (*continued*)

Session	*RPE*	*Drills and Exercises*	*Uniform*
Build 2 Week 2			
2-1	7	Preparation: PD (10 reps), SSD, HSD Activities: LM1 & LM2, CD3 Recovery: PMCS	
2-2	8-9	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (10 reps) Recovery: RD (30 secs)	
2-3	8	Preparation: PD (10 reps), 4C Activities: ST1 & ST2/CL1 & CL2 or LM1, CD1 & CD2 (10 reps) Recovery: RD (30 secs)	ACU
2-4	7	Preparation: PD (10 reps), HSD, MMD1 & MMD2 Activities: AGR 30 mins at sub-ACFT 2MR target pace Recovery: RD (30 secs)	
2-5	6-7	Preparation: PD (10 reps), SSD, 4C Activities: MDL, SPT, HRP practice Recovery: PMCS	
Build 2 Week 3			
3-1	7	Preparation: PD (10 reps), SSD, HSD Activities: FM 10 miles Recovery: RD (30 secs)	ACU
3-2	8	Preparation: PD (10 reps) Activities: SDC x 2, LTK practice, STC x 2 reps Recovery: RD (30 secs)	
3-3	6-7	Preparation: PD (10 reps), HSD Activities: MMD1 and MMD2, RR or AGR x 30 mins Recovery: PMCS	
3-4	9	Preparation: PD (10 reps) Activities: FWC (Deadlift at ACFT target weight) Recovery: RD (30 secs)	
3-5	8	Preparation: PD (10 reps) Activities: 4C, HSD, GD, CL2 Recovery: RD (30 secs)	ACU
Build 2 Week 4			
4-1	10	Record ACFT	
4-2	4-5	Preparation: PD, 4C, HSD Activities: Walk (30 mins) Recovery: RUD, PMCS	
4-3	8	Preparation: PD (10 reps), HSD Activities: BSS for AWST Recovery: RD (30 secs); PMCS	ACU
4-4	6-7	Preparation: PD (10 reps) Activities: 4C, HSD, UFR Recovery: RD (30 secs)	
FTX Start			

Table 14-15. Sustaining phase build 2 period (*continued*)

4C	four for the core	min	minute
60:120	60 second sprint: 120 second walk	MMD	military movement drill
ACFT	Army combat fitness test	MR	mile run
ACU	Army combat uniform	PD	preparation drill
AGR	ability group run	PMCS	preventive maintenance checks and services
AWST	Army water survival training	RD	recovery drill
BSS	basic survival swimmer	rep	repetition
CD	conditioning drill	RPE	rating of perceived exertion
CL	climbing drill	RR	release run
FM	foot march	RUD	running drill
FTX	field training exercise	SDC	sprint-drag-carry
FWC	free weight core	sec	second
GD	guerilla drill	SPT	standing power throw
HRP	hand-release push-up	SSD	shoulder stability drill
HSD	hip stability drill	ST	suspension training drill
LM	landmine drill	STC	strength training circuit
LTK	leg tuck	UFR	unit formation run
MDL	maximum deadlift		

PEAK 1

14-51. The peak period covers the two to three weeks immediately prior to an event such as a deployment or high physical demand mission (see table 14-16). Soldiers cannot sustain training efforts in this period beyond three weeks without leading to overtraining. Typically, a period of tapering off from the volume of training for one to two weeks is included at the end of the peak period. The week of taper in this schedule reduces training volume by 50 percent. Tapering for a short period allows accumulated fatigue to dissipate without risking physical fitness.

14-52. For those Soldiers who have periodized their training over the previous months and who wish to perform well on the ACFT, they would follow the peak 1 schedule with 1–2 days of rest before taking a record ACFT. Depending upon the previous level of training, a typical week for a Soldier peaking for a deployment or another high physical demand assignment might include the following:

- 5 days of training per week.
- 1 session per day of 60-90 minutes.
- 1 long event-specific session per week of several hours replicating event load, terrain, climate, equipment or uniform, nutrition or hydration, and tasks.
- Alternating hybrid days.
- Recovery sessions that include PMCS.
- AWST skill.
- 3 free weight sessions per week.
- A high RPE range with some maximum effort (RPE 9-10).

Table 14-16. Peak 1 schedule

Peak 1 Week 1 - Muscular Endurance emphasis			
Session	***RPE***	***Drills and Exercises***	***Uniform***
1-1	6-9	Preparation: PD (10 reps), 4C Activities: CD1 & CD2, (10 reps); CL 1 (10 reps); STC (3 reps) or FW muscular endurance Recovery: RD (30 secs)	
1-2	7-10	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2; 60:120s (10 reps) or 300SR (2 reps) and HR up (8–10 reps) Recovery: RD (30 secs)	ACUs with FLC

Table 14-16. Peak 1 schedule (*continued*)

Peak 1 Week 1 - Muscular Endurance emphasis			
Session	***RPE***	***Drills and Exercises***	***Uniform***
1-3	7	Preparation: PD (10 reps), SSD Activities: CD1 & CD2 (10 reps); CL1 (10 reps); STC (3 reps, no CL) or ACFT improvement Recovery: RD (30 secs)	
1-4	7	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2; TR x 30 min; HR down (4 reps); or AWST practice Recovery: RD (30 secs)	ACU with boots
1-5	10	Preparation: PD (10 reps), 4C Activities: CD 3 (10 reps); CL 1 (10 reps); STC (3 reps) or FW muscular endurance Recovery: RD (30 secs)	
Peak 1 Week 2 - Anaerobic Endurance emphasis			
2-1	9	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2, 30:60s (15 reps), 300SR (3 reps) or SDC (1 rep) Recovery: RD (30 secs)	ACU with boots
2-2	8	Preparation: PD (10 reps), HSD Activities: AWST practice; or CD 3 (10 reps); CL1 (5 reps); CL 2 (5 reps); STC (3 reps) Recovery: RD (30 secs)	
2-3	6	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2; AGR (30 min) or FM with FL (30 mins) or ACFT improvement Recovery: RD (30 secs)	
2-4	8	Preparation: PD (10 reps), 4C Activities: GD (1 rep); CD1 & CD2 (10 reps); CL2 (5 reps); STC no CL (2 reps) or FW hypertrophy Recovery: RD (30 secs)	ACU with boots
2-5	10	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2; 60:120s (10 reps); or 300SR (2 reps) and HR up x 10 reps Recovery: RD (30 secs)	
Peak 1 Week 3 - Taper			
3-1	8	Preparation: PD (5 reps) Activities: GD (1 rep); CD1 & CD2 (5 reps); CL 2 (5 reps); STC (1 rep, no CL) or FW Recovery: RD (30 secs)	ACU with boots
3-2	7	Preparation: PD (5 reps) Activities: MMD1 & MMD2; 60:120s (5 reps); or RR 15 mins; or HR up (5 reps) Recovery: RD (30 secs)	
3-3	6	Preparation: PD (5 reps), HSD Activities: CD 3 (5 reps); CL 1 (5 reps); STC (1 rep) Recovery; RD (30 secs)	

Table 14-16. Peak 1 schedule (*continued*)

Peak 1 Week 3 - Muscular Endurance emphasis			
Session	***RPE***	***Drills and Exercises***	***Uniform***
3-4	8	Preparation: PD (5 reps) Activities: MMD1 & MMD2; AGR 15 mins; or FM with FL x 15 min Recovery: RD (30 secs)	
3-5	7	Preparation: PD (5 reps) Activities: CD1 & CD2 (5 reps); FW (20 min) Recovery: RD (30 secs)	

4C	four for the core	HR	hill repeat
30:60	30 second sprint: 60 second walk	HSD	hip stability drill
60:120	60 second sprint: 120 second walk	min	minute
300SR	300-meter shuttle run	MMD	military movement drill
ACFT	Army Combat Fitness Test	PD	preparation drill
ACU	Army combat uniform	RD	recovery drill
AGR	agility group run	rep	repetition
AWST	Army water survival training	RPE	rating of perceived exertion
CD	conditioning drill	RR	release run
CL	climbing drill	SDC	sprint-drag-carry
FL	fighting load	sec	second
FLC	fighting load carrier	SSD	shoulder stability drill
FM	foot march	STC	strength training circuit
FW	free weight training	TR	terrain run
GD	guerilla drill		

PEAK 2

14-53. Peak 2 schedules are designed to prepare Soldiers for the most intense and longest duration occupational tasks and training. This might include a deployment where close combat is likely, an attempt to max the ACFT, AWST testing or Ranger School. This schedule may be applied to any Soldier, any MOS or area of concentration and any unit preparing for multi-domain operations (see table 14-17). The schedule is the most intense block of training described in this publication. It includes:

- 5–6 days of training per week.
- 2 sessions per day of 30–90 minutes.
- 1 long event-specific session per week of several hours replicating event load, terrain, climate, equipment or uniform, nutrition or hydration, and tasks.
- Alternating strength and endurance days.
- AWST preparation and certification.
- 3 free weight training sessions per week.
- 3–5 runs or ruck marches per week.
- ACU, boots, IOTV, or a combination of them used frequently during main sessions.

Table 14-17. Peak 2 schedule

Peak 2 Week 1						
Session	***RPE***	***Drills and Exercises***			***Uniform***	***Time***
1-1a	9	Preparation: PD (10 reps) Activities: MMD1 & MMD2; 300SR (1 rep); or SDC (1 rep); RR or FM with FL (60 min) Recovery: RD (30 secs)			ACU with boots and/or IOTV	90’
1-1b	6	Swim/ FW	1 x 200–800 m easy stroke of choice 4 x 100–400 m freestyle AWST practice strokes	FWC (Deadlift as main effort) FWA or ST1/MB1/LM1		60’

Table 14-17. Peak 2 schedule (*continued*)

Peak 2 Week 1						
Session	***RPE***	***Drills and Exercises***			***Uniform***	***Time***
1-2a	8	Preparation: PD (10 reps); SSD Activities: GD; CD1 & CD2; CL2; STC (3 reps); or FW; or ST/MB/LM (40 min) Recovery: RD (30 secs)				90’
1-2b	5	ETM/ RUD	Stationary bike x 20 min Elliptical machine x 20 min Stationary row x 20 mins	RUD 3 (5 reps) RUD 5 (5 reps) RUD 6 (5 reps)		60’
1-3a	10	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2; 30:60s (20 reps); 300SR (3 reps) Recovery: RD (30 secs)			ACU and boots	75’
1-3b	6	Swim	1 x 200–800 m easy stroke of choice 2 x 100–400 m freestyle AWST practice strokes			30’
1-4a	8	Preparation: PD (10 reps) Activities: FWC Power (Squat as main effort) Recovery: RD (30 secs)				60
1-4b	5	STM or FM	Overhead Press (3 x 15 reps at 50% on 1 min RI) Chest Press (3 x 15 reps at 50% on 1 min RI) ST2/LM2/MB2 (1 rep at 50%)	FM with APL x 4 miles		60’
1-5a	7	Preparation: PD (10 reps) Activities: AWST practice Recovery: RD (30 secs)			ACU and boots	90
1-5b	5	Swim	1 x 400-1000 m easy stroke of choice 4 x 100 m moderate 4 x 25 m hard to max effort			30
1-6	6-10	Event-specific day x 4 hours				360’
Peak 2 Week 2						
2-1a	9	Preparation: PD (10 reps) Activities: AWST certification; FWC power upper body (bench as main effort) Recovery: RD (30 secs)			ACU and boots	90’
2-1b	5	ETM or FM	Stationary bike x 25 plus one of Elliptical machine x 25 min or Stationary row x 25 min	FM with APL x 6 miles		90’
2-2a	8	Preparation: PD (10 reps) Activities: Ropes/obstacle course; SPT practice; GD; CD3 Recovery: RD (30 secs)				90’

Table 14-17. Peak 2 schedule (*continued*)

Peak 2 Week 2						
Session	***RPE***	***Drills and Exercises***			***Uniform***	***Time***
2-2b	5-9	ETM or Swim	Stationary bike x 30 plus one of Elliptical machine x 30 min or Stationary row x 30 min	Swim		60’
2-3a	8	Preparation: PD (10 reps) Activities: RUD3 & RUD4; RR (35 min); RUD5 & RUD6; RR (35 min) Recovery: RD (30 secs)			ACU and boots	90’
2-3b	6	FW, PMCS	FWC (squat as main effort) FWA or ST2/MB2/LM2			30’
2-4a	8	Preparation: PD (10 reps), 4C Activities: FWC upper lower body (bench as main effort) Recovery: RD (30 secs)				90’
2-4b	5-8	Swim / FWA				60’
2-5a	8-10	Preparation: PD (10 reps) Activities: MMD1 & MMD2; 300SR (2 reps); or SDC (2 reps); RR or FM with FL (60 min) Recovery: RD (30 secs);			ACU with boots and/or IOTV	90’
2-5b	2-5	ETM or RUD	Stationary bike x 40 min plus one of Elliptical machine x 20 min or Stationary row x 20 mins	RUD1/2/3/4 (1 rep)		30’
2-6	7-10	Event specific day x 6-8 hours				360-480’
Peak 2 Week 3 - Taper						
3-1a	8	Preparation: PD (10 reps) Activities: FWC leg and back (deadlift as main effort) Recovery: RD (30 secs)				60’
3-1b	5	Swim easy for time				30’
3-2a	7	Preparation: PD (10 reps) Activities: MMD1 & MMD2; 300SR (1 rep); SDC (1 rep) Recovery: RD (30 secs)				60’
3-2b	2-5	ETM or FM	Stationary bike x 20 min plus one of Elliptical machine x 20 min or Stationary row x 20 min	FM with APL x 2 miles		30’
3-3a	6	Preparation: Walk (10 mins) Activities: HSD, RUD, RR x 30 mins Recovery: PMCS				60’
3-3b	2-4	Swim easy or FM for time				30’

Table 14-17. Peak 2 schedule (*continued*)

Peak 2 Week 3				
Session	***RPE***	***Drills and Exercises***	***Uniform***	***Time***
3-4a	8	Preparation: PD (10 reps) Activities: CD1 & CD2, CL1 Recovery: RD (30 secs)		45’
3-4b	2	Rest / Walk / PMCS		30’
3-5a	5	Preparation: PD (10 reps) Activities: HSD, 4C, SSD Recovery: RD (30 secs);		45’
3-5b	2-4	Rest / Walk / PMCS		30’

EVENT

4C	four for the core	MB	medicine ball drill
30:60	30 second sprint: 60 second walk	min	minute
300SR	300-meter shuttle run	MMD	military movement drill
ACU	Army combat uniform	PD	preparation drill
APL	assault pack load	PMCS	preventive maintenance checks and services
AWST	Army water survival training	RD	recovery drill
CD	conditioning drill	rep	repetition
CL	climbing drill	RI	rest interval
ETM	endurance training machine	RPE	rating of perceived exertion
FL	fighting load	RR	release run
FM	foot march	RUD	running drill
FW	free weight training	SDC	sprint-drag-carry
FWA	free weight assistive	sec	second
FWC	free weight core	SPT	standing power throw
GD	guerilla drill	SSD	shoulder stability drill
HSD	hip stability drill	ST	suspension training drill
IOTV	improved outer tactical vest	STC	strength training circuit
LM	landmine drill	STM	strength training machine
m	meter		

COMBAT

14-54. Training while deployed follows the principle that the Soldier is in the environment for which he or she has already trained. Training while deployed is important to sustain fitness, morale, and unit cohesion, but should not hinder the mission or degrade unit readiness. In high-operational tempo environments, degradation in sleep, nutrition, and training practices have caused too many Soldiers to get injured or evacuated from theater.

14-55. Condensed training time and the use of limited equipment or tactical substitutions is appropriate in austere environments. In more robust life support areas, some Soldiers may continue or increase the amount of physical training in their H2F programs. Equipment, personnel, and facilities may be close to equivalent to those in garrison in some cases. Planning for deployment should not assume that.

14-56. Fitness testing while deployed is not required nor recommended. Testing for schools that are scheduled close to a Soldier’s re-deployment should occur once the Soldier has had time to recover after deployment. Schools that require a record ACFT to attend or graduate will accept the most-recent record ACFT prior to the deployment.

TRANSITION

14-57. After reaching a peak level of fitness, completing an event, functional school or deployment, Soldiers will need to reset and rebuild their readiness. This starts with a transition period of several weeks to months and ends when a new Build period begins (see table 14-18). The main feature of this period might include self-paced rallying from being deconditioned, injured or ill; a return to practicing fundamental movement skills; a reduction in high intensity and high volume training; and special emphasis on nutritional

readiness, mental readiness, spiritual readiness, and sleep readiness. Other features of this transition period include:

- 5 days of training per week.
- 1 session per day of 60–90 minutes.
- Alternating strength and endurance days.
- 3 Free Weight Training sessions per week.
- 3 endurance training sessions per week.

Table 14-18. Transition schedule

Session	*RPE*	*Drills and Exercises*	*Time*
Transition Week 1			
1-1	6	Preparation: PD (10 reps) Activities: ETM x 30 min, FWA Recovery: RD (30 secs)	60’
1-2	7	Preparation: PD (10 reps) Activities: HSD, MMD1 & MMD2, RR (30 min) Recovery: RD (30 secs)	60’
1-3	7	Preparation: PD (10 reps) Activities: 4C, SSD, CD1 & CD2, STC x 2 reps Recovery: RD (30 secs)	90’
1-4	6	Preparation: PD (10 reps) Activities: HSD, MMD1 & MMD2, 300SR x 2 reps, CL1 Recovery: RD (30 secs)	60’
1-5	6	Preparation: PD (10 reps) Activities: MB1, LM1, ST1 or FWA Recovery: RD (30 secs), PMCS	60’
Transition Week 2			
2-1	7	Preparation: PD (10 reps) Activities: ETM x 30 min, FWC (deadlift) Recovery: RD (30 secs)	60’
2-2	8	Preparation: PD (10 reps) Activities: HSD, 300SR x 2, RR (30 min) Recovery: RD (30 secs)	60’
2-3	8	Preparation: PD (10 reps) Activities: 4C, HSD, CD1, CD3, CL1, FWA (for upper body push/bench) Recovery: RD (30 secs)	90’
2-4	7	Preparation: PD (10 reps) Activities: HSD, MMD1 & MMD2, SDC x 2 reps, CL1 Recovery: RD (30 secs)	60’
2-5	9	Preparation: PD (10 reps) Activities: 4C, HSD, STC x 2 reps or FWA Recovery: RD (30 secs), PMCS	60’
Transition Week 3			
3-1	8	Preparation: PD (10 reps) Activities: ETM x 30 mins, FWC (bench) Recovery: RD (30 secs)	60’

Table 14-18. Transition schedule (*continued*)

Session	*RPE*	*Drills and Exercises*	*Time*
Transition Week 3			
3-2	9	Preparation: PD (10 reps) Activities: HSD, MMD1 & MMD2, 30:60s (10 reps) or 60:120s (5-10 reps) Recovery: RD (30 secs)	60’
3-3	6	Preparation: Walk (10 min) Activities: STC x 1 rep or FWA Recovery: RD (30 secs)	90’
3-4	2-4	Preparation: Walk x 30 mins or PD (10 reps) Activities: PMCS Recovery: RD (30 secs)	60’
3-5	10	Preparation: PD (10 reps) Activities: practice ACFT Recovery: RD (30 secs)	60’

4C	four for the core	min	minute
30:60	30 second sprint: 60 second walk	MMD	military movement drill
60:120	60 second sprint: 120 second walk	PD	preparation drill
300SR	300-meter shuttle run	PMCS	preventive maintenance checks and services
ACFT	Army Combat Fitness Test	RD	recovery drill
CD	conditioning drill	rep	repetition
CL	climbing drill	RPE	rating of perceived exertion
ETM	endurance training machine	RR	release run
FW	free weight training	SDC	sprint-drag-carry
FWA	free weight assistive	sec	second
FWC	free weight core	SSD	shoulder stability drill
HSD	hip stability drill	ST	suspension training drill
LM	landmine drill	STC	strength training circuit
MB	medicine ball drill		

RESERVE COMPONENT

14-58. Reserve Component Soldiers conduct one hour of training for every 16 hours of unit training during inactive duty training periods. During annual training periods, units should try to conduct physical training five times per week (see table 14-19). The three week annual training schedule includes—

- One week of individual training prior to annual training with low to minimal equipment requirements.
- 30–60 minute sessions.
- Moderate RPE (6–8) for the majority of sessions.
- Maximal RPE (10) only during practice and record ACFT sessions.
- Alternating strength and endurance sessions.

Table 14-19. Reserve Component schedule

Session	*RPE*	*Drills and Exercises*	*Time*
Week 1: AT preparation week			
1-1	8	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2 or RUD4 and RUD5, 30:60s (8 reps) or 60:120s (4 reps) Recovery: RD (30 secs)	60’
1-2	7	Preparation: PD (10 reps) Activities: STC x 1 rep or FWA Recovery: RD (30 secs)	45’

Table 14-19. Reserve Component schedule (*continued*)

Session	*RPE*	*Drills and Exercises*	*Time*
Week 1: AT preparation week			
1-3	8	Preparation: PD (10 reps), 4C Activities: MMD1 & MMD2, 300SR (2 reps) Recovery: RD (30 secs)	30’
1-4	7	Preparation: PD (10 reps), SSD Activities: FWC or CD1 & CD2 (5 reps) Recovery: RD (30 secs)	45’
1-5	6-7	Preparation: PD (10 reps), HSD Activities: RR (30 min) Recovery: RD (30 secs)	45’
Week 2: First week of AT			
2-1	8	Preparation: PD (10 reps), 4C, SSD Activities: CD1 & CD2 (5 reps), CL1 (5 reps) or PSD (3 x 30 secs) Recovery: RD (30 secs)	60’
2-2	6	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2, RR (30 min) Recovery: RD (30 secs)	60’
2-3	9	Preparation: ACU and athletic shoes, PD (10 reps) Activities: GD, CD3 (5 reps), CL2 (5 reps) Recovery: RD (30 secs)	60’
2-4	8	Preparation: PD (10 reps) Activities: RUD2/3/4, 300SR (1 rep), 60:120s (6 reps) Recovery: RD (30 secs)	60’
2-5	10	Preparation: PD (10 reps), 4C Activities: FWC (INSTRUCTION) or STC (1 rep), MDL, SPT, HRP, SDC (INSTRUCTION) Recovery: RD (30 secs), PMCS	60’
Week 3: Second week of AT			
3-1	8	Preparation: PD (10 reps), SSD, 4C Activities: CL1 (6 reps), CD1 & CD2 (6 reps) or MB1 or LM1 or ST1 (INSTRUCTION) Recovery: RD (30 secs)	60’
3-2	9	Preparation: PD (10 reps), HSD Activities: MMD1, 30:60s (10 reps) Recovery: RD (30 secs)	45’
3-3	6	Preparation: Walk (10 min) Activities: 4C, HSD, SSD Recovery: RD (30 secs), PMCS	30’
3-4	10	Preparation: PD (10 reps) Activities: record ACFT Recovery: RD (30 secs)	40’
3-5	5	Preparation: PD (10 reps) Activities: FM (30 mins), or make-up ACFT Recovery: RD (30 secs), PMCS	60’

Table 14-19. Reserve Component schedule (*continued*)

4C	four for the core	MDL	maximum deadlift
30:60	30 second sprint: 60 second walk	min	minute
60:120	60 second sprint: 120 second walk	MMD	military movement drill
300SR	300-meter shuttle run	PD	preparation drill
ACFT	Army Combat Fitness Test	PMCS	preventive maintenance checks and services
ACU	Army combat uniform	PSD	push up sit up drill
AT	annual training	RD	recovery drill
CD	conditioning drill	rep	repetition
CL	climbing drill	RPE	rating of perceived exertion
FM	foot march	RR	release run
FWA	free weight assistive	RUD	running drill
FWC	free weight core	SDC	sprint-drag-carry
GD	guerilla drill	sec	second
HRP	hand-release push-up	SPT	standing power throw
HSD	hip stability drill	SSD	shoulder stability drill
LM	landmine drill	ST	suspension training drill
MB	medicine ball drill	STC	strength training circuit

REMOTELY LOCATED SOLDIERS

14-59. An ideal unit H2F program strives to give Soldiers the knowledge they need to conduct their own quality training sessions between unit assemblies. The training program should increase Soldier motivation so they habitually train on their own. Incorporating this training into inactive duty training periods is one way to affect motivation with the added benefit of providing commanders a readiness snapshot. For example, teaching drills during unit assemblies so that Soldiers can then practice on their own raises collective proficiency and readiness (see table 14-20). Soldiers are then prepared for subsequent inactive duty training and annual training. Features of this training schedule include the following:

- 5 sessions over a week.
- 60 minute sessions.
- One mid-week recovery session.
- One condensed-time session per week.
- One commercial gym session example using ETMs and STMs.

14-60. The following drills may be conducted with ready availability of alternate equipment as listed:

- Suspension Training Drills 1 and 2: 1 x suspension trainer.
- Landmine Drills 1 and 2: weighted bar, pole or log anchored in the corner of a room or curb.
- Strength Training Circuit and Free Weight Training Assistive: 3 x kettlebells or equivalent weights (2 x 20–40 pounds, 1 x 10–20 pounds).
- Climbing Drills 1 and 2 and Strength Training Circuit: 1 x doorway-style pull-up bar.
- Strength Training Circuit: 1 x step bench or equivalent stool or stair.
- Medicine Ball Drills 1 and2: 1 x slam ball (5–10 pounds).
- Climbing Drills 1 and 2: 1 x resistance band (40–50 inches, 40–80 pound resistance).

Table 14-20. Remotely located Soldier schedule

Session	*RPE*	*Drills and Exercises*	*Time*
Week 1			
1-1	7	Preparation: PD (10 reps) Activities: LM1 & LM2, CD3 Recovery: RD (30 secs)	60’
1-2	8	Preparation: PD (10 reps), MMD1 & MMD2 Activities: 60:120s (10 reps) Recovery: RD (30 secs)	60’

Table 14-20. Remotely located Soldier schedule (*continued*)

Session	*RPE*	*Drills and Exercises*	*Time*
Week 1			
1-3	8	Preparation: PD (10 reps), 4C Activities: ST1 & ST2/CL1 & CL2 or LM1, CD1 & CD2 (10 reps) Recovery: RD (30 secs)	30’
1-4	7	Preparation: PD (10 reps), HSD, MMD1 & MMD2 Activities: AGR 30 min at sub-ACFT 2MR target pace Recovery: RD (30 secs)	60’
1-5	6	Preparation: PD (10 reps) Activities: MDL, SPT, HRP, LTK practice Recovery: RD (30 secs)	30’
Week 2			
2-1	7	Preparation: PD (10 reps), SSD, HSD Activities: FM 10 miles Recovery: RD (30 secs)	60’
2-2	8	Preparation: PD (10 reps) Activities: SDC x 2, LTK practice, STC x 2 reps Recovery: RD (30 secs)	60’
2-3	6	Preparation: PD (10 reps), HSD Activities: MMD1 & MMD2, run x 30 min Recovery: PMCS	30
2-4	7	Preparation: PD (10 reps) Activities: FWC (deadlift at ACFT target weight) Recovery: RD (30 secs)	60’
2-5	9	Preparation: PD (10 reps) Activities: 4C, HSD, GD, CL2 Recovery: RD (30 secs)	30’
Week 3			
3-1	10	Practice ACFT	60’
3-2	4	Preparation: PD, 4C, HSD Activities: Walk (30 min) Recovery: RUD, PMCS	60’
3-3	6	Preparation: PD (10 reps), HSD Activities: BSS for AWST Recovery: RD (30 secs); PMCS	30’
3-4	2-4	Preparation: PD (10 reps) Activities: 4C, HSD, run x 30 min Recovery: RD (30 secs)	60’
3-5	8	Preparation: PD (10 reps), 4C Activities: MDL, SPT, HRP, LTK practice Recovery: RD (30 secs)	30’

Table 14-20. Remotely located Soldier schedule (*continued*)

4C	four for the core	min	minute
60:120	60 second sprint: 120 second walk	MMD	military movement drill
ACFT	Army Combat Fitness Test	MR	mile run
AGR	agility group run	PD	preparation drill
AWST	Army water survival training	PMCS	preventive maintenance checks and services
BSS	basic survival swimmer	RD	recovery drill
CD	conditioning drill	rep	repetition
CL	climbing drill	RPE	rating of perceived exertion
FM	foot march	RUD	running drill
FWC	free weight core	SDC	sprint-drag-carry
GD	guerilla drill	sec	second
HRP	hand-release push-up	SPT	standing power throw
HSD	hip stability drill	SSD	shoulder stability drill
LTK	leg tuck	ST	suspension training drill
LM	landmine	STC	strength training circuit
MDL	maximum deadlift		

H2F Schedules

Soldiers and their leaders are able to implement their own training programs utilizing the information in this chapter. The detailed physical training schedules may be used as written or modified to suit unit METL and integrated into the other domains of nutritional readiness, mental readiness, spiritual readiness, and sleep readiness.

Source Notes

This division lists sources by page number. Where material appears in a paragraph, it lists both the page number followed by the paragraph number.

2-4 2-25. Rating of perceived exertion, see Borg, 13–16.

3-4 "Intrinsically, character is…," see AR 600-100, 3.

3-6 paraphrased from CJCSI 3405.01, A-E-1.

4-1 4-3. Physical demands studies, see Sharp, https://apps.dtic.mil/sti/citations/AD1057800.

4-2 4-4. Five domains, see East, 22.

4-2 4-6—4-11. Energy pathways, see Alvar, 50–56.

4-6 4-25. One repetition maximum, see Coburn, 358.

4-7 4-30. Broca's area for speech production, see McArdle, 368. Wernicke's area for speech comprehension, see *Stedman's Medical Dictionary*, 1960.

6-2 6-6–6-12. Strength, power, muscular endurance, and hypertrophy, see Borg, 13–16.

6-8 6-37. Karvonen formula, see McArdle, 478.

7-5 7-10. Running methods. Pose Method. Pose Method, Inc. www.PoseMethod.com.

8-1 8-4 *Dietary Guidelines for Americans*. https://www.dietaryguidelines.gov/current-dietary-guidelines/2015-2020-dietary-guidelines.

8-2 8-6–8-16. Paraphrased healthy eating pattern. https://health.gov/our-work/food-nutrition/2015-2020-dietary-guidelines/guidelines/chapter-1/a-closer-look-inside-healthy-eating-patterns/.

8-6 8-21–8-22. Body mass index, see Deuster, 6.

8-8 8-33. Nutrient timing, see Deuster, 35–38. Pre-exercise, see Ormsbee, 1782–1808.

8-9 8-37–8-45. Hydration, see Deuster, 38–41.

8-11 8-48. 1994 Dietary Supplement Health and Education Act, see https://www.loc.gov/.

9-7 9-36. Yerkes-Dodson Law, see Yerkes, 459–482.

10-1 10-4. "Congress shall make…," see https://constitution.congress.gov/constitution/.

10-2 10-8. "adhere strictly to…," see DODD 5500.07-R.

11-4 11-18. Research of noise and arousals, see Hume, 297–302.

11-7 11-39. Tips for travel and sleep, see paraphrased from "Sleep Tactics for Time Zone Travel" 2020. https://p3.amedd.army.mil/performance-learning-center/sleep/sleep-tactics-for-time-zone-travel.

13-2 Figure 13-1. "The Circle of Health," see U.S. Department of Veterans Affairs. https://www.va.gov/wholehealth/.

13-4 Mindfulness Training Exercise, see U.S. Department of Veterans Affairs. https://www.va.gov/wholehealth/.

13-5 13-18. Statistics, see United Health Group, 3–4.

13-6 13-25."Whole Health Skill Building," see U.S. Department of Veterans Affairs. https://www.va.gov/wholehealth/. Mental health benefits as discussed in (National Health and Resilience in Veterans Study, 2017.)

13-7 13-27–13-28. Placebo effect, see *Whole Health: Change the Conversation: Advancing Skills in the Delivery of Personalized, Proactive, Patient-Driven Care*, 3.

This page intentionally left blank.

Glossary

SECTION I—ACRONYMS AND ABBREVIATIONS

ABCP	Army Body Composition Program
ACFT	Army Combat Fitness Test
ACU	Army combat uniform
ADP	Army doctrine publication
AFPAM	Air Force pamphlet
AIT	advanced individual training
ATP	Army techniques publication
AR	Army regulation
AWST	Army Water Survival Training
BCT	basic combat training
BMI	body mass index
bpm	beats per minute
CJCSI	Chairman of the Joint Chiefs of Staff instruction
CWST	Combat Water Survival Test
DA	Department of the Army
DA Pam	Department of the Army pamphlet
DD	Department of Defense (form)
DOD	Department of Defense
DODI	Department of Defense instruction
DODD	Department of Defense directive
DSHEA	Dietary Supplement Health and Education Act
EXORD	executive order
ETM	endurance training machine
FDA	United States Food and Drug Administration
FM	field manual
FSP	Future Soldier Program
FTU	fitness training unit
FTX	field training exercise
FUA	first unit of assignment
GS	general schedule
H2F	holistic health and fitness
HPDT	high physical demand task
HQDA	Headquarters, Department of the Army
IMT	initial military training
IOTV	improved outer tactical vest

lb	pound
METL	mission-essential task list
MFT	master fitness trainer
mL	milliliter
MOS	military occupational specialty
MMD	military movement drill
NCO	noncommissioned officer
OPAT	Occupational Physical Assessment Test
OSUT	one station unit training
P3T	pregnancy and postpartum physical training
PHI	personal health inventory
PMCS	preventive maintenance checks and services
RD	recovery drill
RPE	rating of perceived exertion
RPL	reconditioning program leader
S-4	battalion or brigade logistics staff officer
SFC	sergeant first class
SGT	sergeant
SMART	specific, measurable, attainable, relevant, time-specific
SPRC	Soldier Performance Readiness Center
STM	strength training machine
TB MED	technical bulletin medical
TRADOC	United States Training and Doctrine Command
UMT	unit ministry team
U.S.	United States
USACIMT	United States Army Center for Initial Military Training
USAR	United States Army Reserve
USAREC	United States Army Recruiting Command
USARIEM	United States Army Research Institute of Environmental Medicine
WTBD	warrior tasks and battle drills

Terms included in the glossary are not codified Army terms. They are included for clarity for the reader.

SECTION II—TERMS

2-mile run

The sixth and final event of the Army Combat Fitness Test.

3 repetition maximum deadlift

The first event in the Army Combat Fitness Test.

300-meter shuttle run

An anaerobic physical training event.

ability group run

An endurance physical training activity.

activation

The theory that emotion is measurable as changes in an individual's level of neural stimulation.

active nutrition

Fuels the arduous activities and events performed as part of occupations and covers fueling before during and after these activities.

acute mountain sickness

A life-threatening condition resulting from extended periods of exposure to high-altitude, low-oxygen environments.

adenosine triphosphate

A large molecule composed of adenosine and three simpler components called phosphate groups that release energy through chemical reactions that occur during physical activity.

aerobic endurance

A component of fitness that involves long-duration, low-intensity physical activity.

agility

The ability to bend, rotate and twist in the frontal, transverse and sagittal planes and use that ability to change direction.

anaerobic endurance

A component of fitness that involves short-duration, high-intensity physical activity.

anatomy

The physical structure of the body.

angular velocity

The rate of change in position of a person or object generated by force of motion as it revolves around an axis.

Army Fit

The Army's online resource that provides tools for leaders, individuals, and teams. The resources cover five dimensions; physical, emotional, social, spiritual, and Family.

attention

The mental faculty of considering or taking notice of someone or something.

autonomic nervous system

The part of the nervous system that functions without conscious input in order to stimulate and control the muscle tissue in the heart, organs, glands, blood vessels, endocrine system and the lymphatic system.

base period

Physical training completed during the initial phase in which basic abilities of the Soldier progress from the Future Soldier Program to the first unit of assignment.

body composition

The percentage of lean muscle and other body tissues.

bone

The specialized tissue that form the skeleton, the complex formation for muscles to attach to and cavities to protect vital structures such as the brain, heart and spinal cord.

build period

Is the four to eight week period when the abilities from the Base period are built upon with higher intensity and increased volume of training.

calorie

A unit of energy; in nutrition it is the energy acquired from food and drink and energy discharged through the course of physical activity.

carbohydrate

Molecular compounds made of carbon, hydrogen, and oxygen that form sugars, starches, and fibers utilized by the body for nutrition.

central nervous system

The brain and spinal cord that originate all functions of the mind and body.

character

A complex, multi-factorial construct that is defined as a Soldier's true nature including identity, sense of purpose, values, virtues, morals and conscience.

cognitive load

The used amount of an individual's memory resources.

cognitive skill

The ability to expand and integrate knowledge into decisions.

communication

Nonverbal and verbal cues that convey information, attitudes, or emotions both intentionally and unintentionally.

conditioning

A state of health and well-being that enables the performance of daily activities including exercise and occupational tasks.

confidence

The feeling or belief that one can rely on someone or something.

coordination

The ability to synchronize limb, torso, and head movements at varying speeds of motion.

dehydration

A harmful reduction in the amount of water in the body due to overexertion and/or lack of fluid intake or malnutrition.

electrolytes

Minerals in body tissues and fluids that have an electric charge and are responsible for maintaining water balance and acid/base (ph) level.

emotional capability

The ability of an individual to manage his or her emotions and those of others as well.

enterprise

A complex of equipment, procedures, doctrine, leaders, technical connectivity, information, shared knowledge, organizations, facilities, training, and materiel.

flexibility

The range of motion across single or multiple joints that allows the body to be positioned for optimal movement.

free weight training

Free weight training core exercises and free weight training assistive exercises are physical training drills.

glycogen

A substance deposited in bodily tissues as a store of carbohydrates for future use as energy.

governance

The critical holistic health and fitness element that includes the policies and regulations that define objectives, allocate resources and implement quality controls to deliver performance readiness.

hand-release push-up

The third event in the Army Combat Fitness Test.

heart rate

The number of contractions of the heart per minute.

high physical demand tasks

The most intense physical tasks performed by Soldiers in the execution of their occupational duties.

holistic health and fitness

The Army's doctrinal system for physical and nonphysical readiness training of Soldiers.

Human Performance Resources Center

U.S. Department of Defense online information resource managed by the Center for Human and Military Performance at the Uniformed Services University of the Health Sciences.

hydration

The act of, and status resulting from, the consumption of fluids.

hyponatremia

A potentially life-threatening condition that occurs when the level of sodium in the blood is too low.

hypothermia

Shivering, loss of judgment, slurred speech, drowsiness, muscle weakness resulting from prolonged exposure to the cold.

illness

Conditions other than injury in which a person's physical and/or mental health status has deviated from a healthy state and this affecting the functional capabilities; includes infectious and non-infectious disease, genetic conditions, and pregnancy related conditions.

initial phase

The first of two phases in the Holistic Health and Fitness System that covers the Soldier from recruit station to first unit of assignment.

injury

Conditions caused by an external energy that is transferred to the body damaging its tissues immediately (acute injury) or gradually over time (cumulative microtrauma); examples include damage to musculoskeletal tissue, heat , cold, and hearing.

integration

The principle of holistic health and fitness training that incorporates all five domains of Soldier readiness.

intensity

The amount of effort exerted to complete an exercise.

interval aerobic run

The final of four events in the Occupational Physical Assessment Test.

kinesthesia

The perception of the body's position in space during movement.

leg tuck

The fifth event in the Army Combat Fitness Test.

linear velocity

The rate of change in position of a person or object generated by force of motion along a straight path.

low-fat

Foods containing minimal amounts of animal or vegetable fats.

macrocycles

The longest of the training cycles lasting up to several months or longer.

maximum heart rate

The maximum number of heartbeats during one minute of maximum physical effort.

meditation

The act of engaging in contemplation, reflection or mental exercises for the purpose of gaining spiritual awareness or enlightenment.

mental readiness

The ability to meet the mental demands of any combat or duty position, adapt successfully in the presence of extreme risk and adversity, accomplish the mission and continue to fight and win.

mesocycles

Training cycles that last from two to six weeks.

microcycles

The shortest of the training cycles that last a few days to two weeks.

mobility

The ability to move at varying speed and range of motions across multiple planes of motion.

monounsaturated fat

A healthy dietary fat found in olive oil, avocados and certain nuts that reduce the risk of heart disease and inflammation as well as contribute to weight loss.

moral

Concerned with the principles and the common acceptance of standards of right and wrong behavior.

movement lethality

The ability to physically engage with and destroy the enemy.

muscle fiber

Groups of specialized muscle cells.

muscular endurance

A component of fitness that involves sustained bouts of lower intensity strength.

muscular strength

Execute sustained bouts of low intensity movement.

nervous system

The body's master system that governs the activities of all the other systems including movement, thought, emotions, sensation, illness and health.

neuroendocrine system

The combined functions of the autonomic nervous system and endocrine system that coordinate the body's hormonal responses to exercise and other stimuli.

non-rapid eye movement sleep

The phase of sleep associated with the restoration of the body's tissue and energy.

oxidative phosphorylation

The physiological process that supplies the predominant source of energy for low-intensity, long-duration sustained exercise.

pace

The ability to adjust the speed of an activity to manage fatigue.

perception

The ability to understand correct technique in order to develop skill.

periodization

The systematic planning of long- and short-term readiness training and testing in preparation for combat.

peripheral nervous system

The system of smaller bundles of nerves that emanate from the spinal cord to innervate the limbs and trunk of the body.

physical readiness

The ability to meet the physical demands of any duty or combat position, move lethally on the battlefield, accomplish the mission and continue to fight, win, and come home healthy.

physiological capacity

Regular and progressive training that builds movement lethality and mental toughness to maximal levels of strength, endurance, and Soldier readiness.

physiology

The study of the functions and parts of a living organism.

polyunsaturated fat

A healthy dietary fat found in foods such as fish, vegetable oils, and certain nuts and seeds that contribute to lowering levels of bad cholesterol.

power

The component of fitness associated with short-duration, explosive movements performed with heavy loads and/or at high speeds.

precision

The principle of training referring to the correct execution of the holistic health and fitness program.

proactive nutrition

The prevention of nutritional deficiency, chronic disease and immune system compromise.

progression

The proper dose of frequency, intensity, duration and type of exercise required to overload the body without causing overtraining, plateauing or reversal of fitness.

psychological stress

Pressure or tension exerted on an individual in reaction to his or her environment that produce either desired or undesired effects based on the amount of pressure exerted and the individual's ability to manage it.

rapid eye movement sleep

The phase of sleep distinguished by rapid movement of the eyes, accompanied with low muscle tone throughout the body, and the propensity of the sleeper to dream vividly.

reaction time

The interval between an external stimuli and the Soldier's response.

reactive nutrition

Specific nutritional interventions to treat illness, injury or medical conditions and spans hospitalization through rehabilitation to return to full duty.

reconditioning

Physical training regimens designed to improve or rehabilitated a certain part of the body to increase activity or to recover from illness or injury.

recovery

The period of four to eight weeks when the Soldier begins to prepare for the primary mission. It is characterized by low workloads and general adaptation and recuperation.

rehabilitation

The process of restoring health or conditioning through training and therapy after an illness, injury, or other debilitating event.

relationship

The way in which two or more concepts, objects or people are connected, or in a state of being connected.

repetitions in reserve

The number of movement or lift repetitions an individual thinks he or she could still perform after having completed a set.

resilience

The ability to face and cope with adversity, adapt to change, recover, learn, and grow from setbacks.

resting heart rate

The number of contractions of the heart per minute while at complete rest.

saturated fat

A dietary fat made through the hydrogenation of oils that contributes to increased risk of heart disease if consumed in excess of dietary guidelines.

seated power throw

One of the first three events in the Occupational Physical Assessment Test.

sleep continuity

The extent to which the sleep period is continuous and uninterrupted.

sleep duration

The total amount of sleep obtained over a 24-hour period.

sleep readiness

The ability to recognize and implement the requisite sleep principles and behaviors to support optimal brain function.

social acuity

The awareness of, control over and ability to manage interactions with others.

sodium

The major positive ion in the fluid surrounding the cells of the body that contributes to proper osmotic pressure in the blood, organs, and tissues.

spiritual

Concerned with an individual's core religious, philosophical, or human values that form that individual's sense of identity, purpose, motivation, character, and integrity. These elements enable one to build inner strength, make meaning of experiences, behave ethically, persevere through challenges, and be resilient when faced with adversity.

spiritual readiness

The development of the personal qualities needed to sustain a person in times of stress, hardship, and tragedy. These qualities come from religious, philosophical, or human values and form the basis for character, disposition, decision making, and integrity.

sprint-drag-carry

The fourth event in the Army Combat Fitness Test.

stacking

The process of combining nutritional supplements that may work synergistically, antagonistically, or neutrally to produce positive, negative, or neutral effects on the body.

standards

Something established by authority, regulation, policy, or doctrine as the accepted requirement.

standing long jump

One of the first three events in the Occupational Physical Assessment Test.

standing power throw

The second event in the Army Combat Fitness Test.

strength deadlift

One of the first three events in the Occupational Physical Assessment Test.

stress response

A reaction sometimes known as “fight or flight”, that refers to the body’s response to one or more environmental stressors.

structural requirements

The physical and cognitive characteristics that provide the foundation for increased work capacity.

surveillance

The process of developing tangible, actionable information designed to answer the commander’s critical information requirements.

taper

The pre-deployment period of one to two weeks with the intensity and specificity of exercise high while reducing frequency and duration of training.

target heart rate

The heart rate required for a Soldier to reach and sustain during physical training.

training load

The amount of training performed over time.

training period

Programmed blocks of training time designed to meet a specific training objectives.

trans fat

A dietary fat made through the hydrogenation of oils that contributes to increased risk of heart disease if consumed in excess of dietary guidelines.

transition period

Period of several weeks to months and ends when a new Build period begins.

This page intentionally left blank.

References

All URLs accessed on 2 September 2020.

REQUIRED PUBLICATIONS

These documents must be available to intended users of this publication.

DOD Dictionary of Military and Associated Terms. June 2020.

FM 1-02.1. *Operational Terms*. 21 November 2019.

RELATED PUBLICATIONS

These documents are referenced in this publication and contain relevant supplemental information.

JOINT PUBLICATIONS

Most Department of Defense issuances are found at https://www.esd.whs.mil/DD/DoD-Issuances/.

Most Chairmen of the Joint Chiefs of Staff issuances are available at https://www.jcs.mil/Library/.

CJCSI 3405.01. *Chairman's Total Force Fitness Framework.* 01 September 2011.

DOD 5500.07-R. *Joint Ethics Regulation (JER)*. 30 August 1993.

DODD 1308.1. *DoD Physical Fitness and Body Fat Program*. 30 June 2004.

DODI 1300.17. *Religious Liberty in the Military Services*. 01 September 2020.

DODI 1308.3. *DoD Physical Fitness and Body Fat Programs Procedures*. 05 November 2002.

ARMY PUBLICATIONS

Most Army doctrinal publications and Army regulations are available online:

https://armypubs.army.mil/.

ADP 7-0. *Training*. 31 July 2019.

AR 1-201. *Army Inspection Policy.* 25 February 2015.

AR 40-501. *Standards of Medical Fitness*. 27 June 2019.

AR 165-1. *Army Chaplain Corps Activities*. 23 June 2015.

AR 350-1. *Army Training and Leader Development*. 10 December 2017.

AR 350-53. *Comprehensive Soldier and Family Fitness*. 19 June 2014.

AR 385-10. *The Army Safety Program*. 24 February 2017.

AR 600-9. *The Army Body Composition Program*. 16 July 2019.

AR 600-20. *Army Command Policy*. 24 July 2020.

AR 600-63. *Army Health Promotion*. 11 March 2019.

AR 600-100. *The Army Profession and Leadership Policy*. 05 April 2017.

AR 612-201. *Initial Military/Prior Service Trainee Support.* 21 July 2017.

AR 670-1. *Wear and Appearance of Army Uniforms and Insignia*. 25 May 2017.

ATP 1-05.03. *Religious Support and External Advisement*. 31 January 2019.

ATP 1-05.04. *Religious Support and Internal Advisement*. 23 March 2017.

ATP 3-21.18. *Foot Marches*. 17 April 2017.

ATP 3-90.97. *Mountain Warfare and Cold Weather Operations.* 29 April 2016.

ATP 6-22.5. *A Leader's Guide to Soldier Health and Fitness.* 10 February 2016.

ATP 7-22.01. *Holistic Health and Fitness Testing*. 01 October 2020.

ATP 7-22.02. *Holistic Health and Fitness Drills and Exercises*. 01 October 2020.

DA Pam 385-30. *Risk Management*. 02 December 2014.

FM 1-05. *Religious Support*. 21 January 2019.

FM 6-27/MCTP 11-10C. *The Commander's Handbook on the Law of Land Warfare*. 07 August 2019.

FM 7-0. *Train to Win in a Complex World.* 05 October 2016.

TB MED 507/AFPAM 48-152 (I). *Heat Stress Control and Heat Casualty Management.* 07 March 2003.

OTHER PUBLICATIONS

Alvar, Brent, et al. *NSCA's Essentials of Tactical Strength and Conditioning*. Human Kinetics. 2017.

Borg, Gunnar. *Borg's Perceived Exertion and Pain Scales*. Human Kinetics. 1998.

Coburn, J. and M. Malek. *NSCA's Essentials of Personal Training.* Human Kinetics. 2012.

Constitution of the United States. https://constitution.congress.gov/constitution/.

Deuster, Patricia A., Teresa Kemmer, Lori Tubbs, Stacey Zeno, and Christiane Minnick. *The Special Operations Forces Nutrition Guide*. 2012. https://navyseals.com/wp-content/uploads/2012/12/special-operations-nutrition-guide.pdf.

Dietary Guidelines for Americans. https://www.dietaryguidelines.gov/current-dietary-guidelines/2015-2020-dietary-guidelines.

Dietary Supplement Health and Education Act. 1994. https://www.loc.gov/.

East, W. et al. *Technical Report: T19.041-13.1: Baseline Soldier Physical Report Requirements Study*. Research and Analysis Division, U.S. Army Center for Initial Military Training. November 2019.

Hume, K. I., M. Brink, and M. Basner. "Effects of Environmental Noise on Sleep." *Noise Health*, vol.14, no. 61, 2012, pp. 297–302.

McArdle, William D., Frank I. Katch, and Victor L. Katch, *Exercise Physiology, Nutrition, Energy, and Human Performance, 8th Ed*. Wolters Kluwer Health, Lippincott Williams and Wilkins. 2015.

National Health and Resilience in Veterans Study (NHRVS). 2017. https://www.vacsp.research.va.gov/CSPEC/Studies/INVESTD-R/Ntl-Health-Resilience-Veterans-Study.asp.

Ormsbee, Michael J., et al. "Pre-Exercise Nutrition: The Role of Macronutrients, Modified Starches and Supplements on Metabolism and Endurance Performance." *Nutrients,* vol. 6, no. 5, 2014, pp. 1782–1808.

Religious Freedom Restoration Act. 1993. https://www.loc.gov/.

Sharp, Marilyn A., et al. *Longitudinal Validation of the Occupational Physical Assessment Test (OPAT)*. Defense Technical Information Center. 2018. https://apps.dtic.mil/sti/citations/AD1057800.

Stedman's Medical Dictionary, 26th Ed. Williams and Wilkins. 1995.

Warfighter Nutrition Guide. Human Performance Resources by CHAMP. 2019. https://www.hprc-online.org/nutrition/warfighter-nutrition-guide.

Whole Health: Change the Conversation: Advancing Skills in the Delivery of Personalized, Proactive, Patient-Driven Care. https://www.beckley.va.gov/wholehealth/Power_of_the_Mind.pdf.

Yerkes, R. M. and J. D. Dodson. "The Relation of Strength of Stimulus to Rapidity of Habit-Formation." *Journal of Comparative Neurology and Psychology*, vol. 18, no. 5, 1908, pp. 459–482. https://doi.org/10.1002/cne.920180503.

WEBSITES

2B-Alert Web. http://sleep.bhsai.org.

Army Combat Fitness Test. https://www.army.mil/acft/.

Army Fit. https://armyfit.army.mil.

Army Public Health Center site at https://phc.amedd.army.mil/topics/healthyliving/n/Pages/default.aspx.

Central Army Registry website. https://atiam.train.army.mil/catalog/dashboard.

Human Performance Resources by CHAMPS. https://www.hprc-online.org/.

Medical Readiness Portal. https://medpros.mods.army.mil/EPROFILE/DEFAULT.ASPX?RETURNURL=%2FEPROFILE%2FADMIN%2FUSERSMANAGER.ASPX.

Natural Medicines database http://info.therapeuticresearch.com/dod.

Operation Supplement Safety. https://www.opss.org/.

Pose Method. Pose Method, Inc. www.PoseMethod.com.

U.S. Department of Veterans Affairs, Whole Health. https://www.va.gov/wholehealth/.

United Health Group, *Doing Good Is Good For You: 2013 Health and Volunteering Study*. UnitedHealth Group, 2013. https://www.unitedhealthgroup.com/content/dam/UHG/PDF/2013/UNH-Health-Volunteering-Study.pdf.

PRESCRIBED FORMS

This section contains no entries.

REFERENCED FORMS

Unless otherwise indicated, DA forms are available on the Army Publishing Directorate website at https://armypubs.army.mil/. DD forms are available on the Executive Services Directorate website at https://www.esd.whs.mil/Directives/forms/.

DA Form 705. *Army Combat Fitness Test Scorecard*.

DA Form 2028. *Recommended Changes to Publications and Blank Forms*.

DA Form 3349. *Physical Profile*. (Accessible through the Medical Readiness Portal.)

DA Form 4856. *Developmental Counseling Form*.

DA Form 7888. *Occupational Physical Assessment Test Scorecard*.

DD Form 689. *Individual Sick Slip*.

RECOMMENDED READINGS

Abshire, Danny and Brian Metzler. *Natural Running: The Simple Path to Stronger, Healthier Running*. VeloPress, 2010.

Byrn, Gordon and Joe Friel. *Going Long: Training for Triathlon's Ultimate Challenge*. VeloPress, 2009.

Childs, John D., et al. “Effects of Traditional Sit-Up Training Versus Core Stabilization Exercises on Short-Term Musculoskeletal Injuries in US Army Soldiers: A Cluster Randomized Trial.” *Physical Therapy*, vol. 90, 2010, pp. 1404–1412.

Cook, Gray. *Movement: Functional Movement Systems: Screening, Assessment and Corrective Strategies*. On Target Publications, 2017.

Couch, Dick. *A Tactical Ethic: Moral Conduct in the Insurgent Battlespace*. Naval Institute Press, 2013.

Daigle, Karen A., et al. "Comprehensive Performance Nutrition for Special Operations Forces." *Journal of Special Operations Medicine: A Peer Reviewed Journal for SOF Medical Professionals*, vol. 15, 2015, pp. 40–53.

DeGroot, D., et al. "Baseline Soldier Physical Readiness Requirements Study." *Journal of Science and Medicine in Sport*, vol. 20, November 2017. doi:10.1016/j.jsams.2017.09.076.

Dreyer, Danny and Katherine Dreyer. *Chi Marathon: the Breakthrough Natural Running Program for a Pain-Free Half-Marathon and Marathon*. Touchstone Book, 2012.

Ericsson, Anders and Robert Pool. *Peak: Secrets from the New Science of Expertise*. Houghton Mifflin Harcourt. 2016.

Friedl, Karl E., et al. "Perspectives on Aerobic and Strength Influences on Military Physical Readiness." *Journal of Strength and Conditioning Research*, vol. 29, 2015. doi:10.1519/jsc.0000000000001025.

Gagnon, Patrick, et al. "The FORCE Fitness Profile—Adding a Measure of Health-Related Fitness to the Canadian Armed Forces Operational Fitness Evaluation." *Journal of Strength and Conditioning Research*, vol. 29, 2015. doi:10.1519/jsc.0000000000001163.

Greitens, Eric. *Resilience: Hard-Won Wisdom for Living a Better Life*. Houghton Mifflin Harcourt. 2015.

Grossman, Dave and Loren W. Christensen. *On Combat: the Psychology and Physiology of Deadly Conflict in War and in Peace*. Warrior Science Publications. 2008.

Helmhout, Pieter H., et al. "The Effectiveness of a 6-Week Intervention Program Aimed at Modifying Running Style in Patients With Chronic Exertional Compartment Syndrome." *Orthopaedic Journal of Sports Medicine*, vol. 3, no. 3, 24 March 2015. doi:10.1177/2325967115575691.

Jones, Andrew M. "The Physiology of the World Record Holder for the Women's Marathon." *International Journal of Sports Science & Coaching*, vol. 1, no. 2, 2006. doi:10.1260/174795406777641258.

Jones, Bruce H., and Veronique D. Hauschild. "Physical Training, Fitness, and Injuries." Journal of *Strength and Conditioning Research*, vol. 29, 2015. doi:10.1519/jsc.0000000000001115.

Kelly, Terrence K., et al. *An Assessment of the Army's Tactical Human Optimization, Rapid Rehabilitation and Reconditioning Program*. RAND Corporation, 2013. JSTOR. http://www.jstor.org/stable/10.7249/j.ctt3fgzpw.

Knapik, Joseph, et al. "Evaluation of a Standardized Physical Training Program for Basic Combat Training." *Journal of Strength and Conditioning Research*, vol. 19, no. 2, 2005, pp. 246–53. doi:10.1519/16324.1.

Mastroianni, George, et al. *A Warrior's Guide to Psychology and Performance: What You Should Know about Yourself and Others*. Potomac Books, Inc., 2011.

McKenzie, Robin. *Treat Your Own Back, 9th Ed.*, Orthopedic Physical Therapy Products, 2011.

McMillian, Danny. "Ranger Athlete Warrior Program: A Systemic Approach to Conditioning." *Infantry Magazine,* 2007, p. 5.

Molloy, Joseph. "Factors Influencing Running-Related Musculoskeletal Injury Risk Among U.S. Military Recruits." *Military Medicine*, vol. 181, 2016, pp. 512–523. doi:10.7205/MILMED-D-15-00143.

Mujika, Iñigo, et al. "An Integrated, Multifactorial Approach to Periodization for Optimal Performance in Individual and Team Sports." *International Journal of Sports Physiology and Performance*, vol. 13, no. 5, 2018, pp. 538–561. doi:10.1123/ijspp.2018-0093.

Noakes, Timothy and Marika Sboros. *Lore of Nutrition: Challenging Conventional Dietary Beliefs*. Penguin Books, 2017.

Pressfield, Steven. *The Warrior Ethos*. Black Irish Entertainment, LLC, 2011.

Raymond, A. "Can We Make Our Soldiers Tough Enough." *Popular Science,* vol. 144, no. 1, 1944, pp. 57–62. https://books.google.co.uk/books?id=oiUDAAAAMBAJ&lpg=PA203&ots=q3LvcPF_ry&pg=PA56&redir_esc=y#v=twopage&q&f=false.

Rippetoe, Mark. *Starting Strength: Basic Barbell Training*. The Aasgaard Company, 2017.

Romanov, Nicholas and Kurt Brungardt. *The Running Revolution: How to Run Faster, Farther, and Injury-Free—For Life*. Penguin Books. 2014.

Schwellnus, Martin, et al. "How Much Is Too Much? (Part 2) International Olympic Committee Consensus Statement on Load in Sport and Risk of Illness." *British Journal of Sports Medicine*, vol. 50, no. 17, 2016, pp. 1043–1052. doi:10.1136/bjsports-2016-096572.

Scott, Shawn J., et al. "A Multiple Intervention Strategy for Reducing Femoral Neck Stress Injuries and Other Serious Overuse Injuries in U.S. Army Basic Combat Training." *Military Medicine*, vol. 177, no. 9, 2012, pp. 1081–1089. doi:10.7205/milmed-d-12-00085.

Sherman, Nancy. *The Untold War: Inside the Hearts, Minds, and Souls of Our Soldiers*. W.W. Norton & Company, 2010.

Weina, Stacy Usher. "Effects of Pregnancy on the Army Physical Fitness Test." *Military Medicine*, vol. 171, no. 6, 2006, pp. 534–537. doi:10.7205/milmed.171.6.534.

Whipple, Thomas J., and Robert B. Eckhardt. *The Endurance Paradox: Bone Health for the Endurance Athlete*. Left Coast Press, 2011.

This page intentionally left blank.

Index

Entries are by paragraph number.

Entries are by paragraph number.

Entries are by paragraph number.

Entries are by paragraph number.

Entries are by paragraph number.

This page intentionally left blank.

FM 7-22
1 October 2020

By Order of the Secretary of the Army:

JAMES C. MCCONVILLE
General, United States Army
Chief of Staff

Official:

KATHLEEN S. MILLER
Administrative Assistant
to the Secretary of the Army
2026204

DISTRIBUTION:

Active Army, Army National Guard, and United States Army Reserve: To be distributed in accordance with the initial distrubution number (IDN) 110165, requirements for FM 7-22.

PIN: 103049-001