Defense Health Agency – Public Health

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Clinical Public Health and Epidemiology Directorate
Injury Prevention Branch

Changes in Physical Training, Physical Fitness, and Injury following Army Combat Fitness Test (ACFT) Field Testing, 2018–2020

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14. ABSTRACT At the time of data collection (2018–2020) the ACFT was in transition and has subsequently changed to address potential biases. In 2012, the Chief of Staff of the Army directed the U.S. Army Training and Doctrine Command (TRADOC) to undertake a comprehensive study of baseline physical fitness related to military task performance called the Baseline Soldier Physical Readiness Requirements Study (BSPRRS). Work from the BSPRRS formed the basis for the Army Combat Fitness Test (ACFT), which became part of the Army Holistic Health and Fitness (H2F) Program. Field testing of the newly developed ACFT occurred in 61 battalions. The Defense Centers for Public Health-Aberdeen (formerly Army Public Health Center) was tasked to assist with evaluation. Baseline surveys were administered from October 2018 to April 2019 inquiring about demographics, physical training, physical performance, health behaviors, and injury in the previous 12 months, prior to implementation of ACFT field testing. Follow-up surveys were administered 1 year later, from January 2020 to April 2020. There were 5,198 Soldiers (4,229 men and 969 women) who completed a baseline survey, 3,520 Soldiers (2,859 men and 661 women) who completed a follow-up survey and 1,134 Soldiers (871 men and 263 women) who completed both a baseline and follow-up survey. Following ACFT field testing, one of the largest changes to physical training was the higher percentage of time spent resistance training during unit and personal physical training for men (44 to 56 minutes +29% unit and 73 to 91 minutes +24% personal training) and women (42 to 64 minutes +54% unit and 62 to 86 minutes +39% personal training). Regarding ACFT performance, men were 2.8 times more likely to pass the ACFT field test than women (men: 75.6% passed; women: 27.2% passed). Update: from July 1, 2023 to June 30, 2024, ACFT pass rates were 96.61% for men and 92.20% for women. Physical characteristics such as body mass were associated with ACFT performance. Men and women with the highest BMI excelled on the ACFT deadlift and standing power throw events, while men and women with the lowest BMI excelled on the ACFT leg tuck and 2-mile run events. ACFT performance generally improved with more days of revised unit training prior to taking the test. Musculoskeletal injury incidence was higher for both men (40.8% to 47.6%) and women (46% to 55.9%) after ACFT implementation. For men, weight training-related injuries increased from 17.5% to 28.3%; weight training was the leading activity associated with injury. For women, weight training-related injuries did not change, 19.7% before and 20.3% after implementation, and weight training was the second highest activity associated with injury. For men, low performance on five of the six ACFT events was associated with higher musculoskeletal injury risk compared to high performers. Low performance on two of the six ACFT events was associated with higher musculoskeletal injury risk for women. These data suggest Soldiers will adapt training to meet the demands of new physical fitness test events but may experience an increased risk of injuries during this time, as they acclimate to the new events and unfamiliar training routines.			
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TECHNICAL REPORT NO. S.0087524-24
CHANGES IN PHYSICAL TRAINING, PHYSICAL FITNESS, AND INJURY FOLLOWING ARMY COMBAT FITNESS TEST (ACFT) FIELD TESTING
2018–2020

1. SUMMARY

1.1 Purpose

At the time of data collection (2018–2020), the ACFT was in transition and has subsequently changed to address potential biases. In 2012, the Chief of Staff of the Army directed U.S. Army Training and Doctrine Command (TRADOC) to undertake a comprehensive study of baseline physical fitness related to military task performance called the Baseline Soldier Physical Readiness Requirements Study (BSPRRS) (HQDA EXORD 041-13, 27 Dec 2012). TRADOC was designated as the study lead for BSPRRS, and the U.S. Army Public Health Center (APHC) (now known as the Defense Centers for Public Health–Aberdeen (DCPH-A)) was named as a supporting organization. Through a study of warrior task and battle drills (WTBDs) and common soldiering tasks (CSTs), the work from the BSPRRS formed the basis for the Army Combat Fitness Test (ACFT), which became part of the Army Holistic Health and Fitness (H2F) Program.

To evaluate the ACFT, field testing was conducted in 61 battalions who completed multiple ACFTs over 1 year (Oct 2018–Sep 2019). This evaluation assesses changes in physical training, physical performance, and musculoskeletal injury (MSKI) after ACFT field testing.

1.2 Methods

TRADOC selected 61 battalions to field test the new ACFT. These battalions included Soldiers from approximately 250 Soldier military occupational specialties (MOSs). A majority of these MOSs could be classified into the following 13 occupational specialty groups:

- Engineers
- Repairer and Maintenance
- Supply and Logistics
- Field and Air Defense
- Medical
- Military Intelligence and Electronic Warfare
- Signals and Communications
- Transportation
- Military Police
- Chemical Warfare, Explosives and Ammunition
- Infantry
- Support and Administration
- Armor

At the time of this evaluation, the ACFT consisted of the following six events: three-repetition maximum deadlift (DL), standing power throw (SPT), hand release push-up (HRPU), sprint-drag-carry (SDC), leg tuck (LT), and a 2-mile run (2MR).

The mention of any non-federal entity and/or its products is for informational purposes only, and is not to be construed or interpreted, in any manner, as federal endorsement of that non-federal entity or its products.

A baseline survey administered to participating Soldiers from October 2018 to April 2019 inquired about demographics, physical training, physical performance, health behaviors, and injury 12 months prior to the survey. A similar follow-up survey was administered approximately 1 year after ACFT field testing, from January 2020 to April 2020. Descriptive statistics (frequencies, distributions, means, and standard deviations (SDs)) for age, personal characteristics, physical training, and ACFT performance were calculated. Injury incidence was calculated as the number of Soldiers with one or more injuries divided by the total number of Soldiers surveyed (a 6-month before and after timeframe was used for self-reported injuries and a 12-month before and after timeframe was used for medical record injuries). Risk ratios were used to estimate relative differences in injury incidence before and after ACFT field testing. McNemar's and paired t-tests were used to evaluate differences for unit and personal physical fitness training before and after field testing the ACFT. An analysis of variance (ANOVA) with a post hoc least significant difference (LSD) test was used to evaluate differences in ACFT performance by age and physical characteristics. A McNemar's test was used to evaluate differences in injury incidence and leading injury body areas, injury type, activities, and causes before and after field testing the ACFT. An ANOVA was used to compare differences in limited duty days before and after field testing the ACFT. A Chi-square test was used to evaluate differences in sensitivity tables comparing the baseline survey population to the follow-up survey population.

Multivariable analyses were conducted to evaluate the relationship between physical fitness and MSKI risk, which were independent of established injury risk factors. Analyses were conducted separately by sex, given the differences in factors associated with injury. Selected risk factors were identified *a priori* based on the literature (age, body mass index (BMI)).[1] In addition, unadjusted odds ratios were estimated to identify additional ACFT-related factors associated with injury in this population. A Chi-square for trend test was used to evaluate any trends among these variables.

1.3 Results

A total of 28,482 baseline and 35,380 follow-up surveys were administered electronically to the participating battalions. There were 5,198 Soldiers (4,229 men and 969 women) who completed a baseline survey with a response rate of 18.2%. There were 3,520 Soldiers (2,859 men and 661 women) who completed a follow-up survey with a response rate of 10%. There were 1,134 or 15% of Soldiers (871 men and 263 women) who completed a baseline and follow-up survey. Men who completed both surveys (i.e., present for the entire ACFT field test) were, on average, 31.3 years old with a BMI of 26.4 kg/m^2 before ACFT field testing and 32.4 years old with a BMI of 27.0 kg/m^2 after ACFT field testing. Women who completed both surveys (i.e., present for the entire ACFT field test) were, on average, 30.0 years old with a BMI of 24.1 kg/m^2 before ACFT field testing and 30.9 years old with a BMI of 24.6 kg/m^2 after ACFT field testing.

During ACFT field testing, one of the largest changes to physical training was an increased percentage of time spent on resistance training during unit and personal physical training for men (increased by 28.9% for unit training and 24.2% for personal training) and women (increased by 53.5% for unit training and 38.5% for personal training). Regarding ACFT performance, which was age and sex neutral, men were 2.77 times more likely to pass the ACFT than women, with 75.6% of men passing and only 27.2% of women passing the ACFT. For both men and women, the ACFT event with the highest failure rate was the LT, with a 12% failure rate for men and 65% failure rate for women. Update: from July 1, 2023 to June 30,

2024, ACFT pass rates were 96.61% for men and 92.20% for women (source: U.S. Army Digital Training Management System). Physical characteristics such as body mass were associated with ACFT performance. Men and women with the highest BMI excelled on the DL and SPT, while men and women with the lowest BMI excelled on the LT and 2MR.

During ACFT field testing, ACFT performance improved for both men and women. Men had higher ACFT performance on all six ACFT events after 181 days (approximately 6 months) of revised unit and personal physical training compared to men who had revised training for 30 days or less (Table 10).

- Unit physical training:
  - DL 260 vs. 236 lb
  - SPT 9.7 vs 9.2 meters
  - HRPU 38 vs. 35 repetitions
  - SDC 1.84 vs. 1.92 minutes
  - LT 9.3 vs. 7.7 repetitions
  - 2MR 16.6 vs.16.9 minutes, $p<0.05$

- Personal physical training:
  - DL 257 vs. 244 lb.
  - SPT 10.0 vs. 9.5 meters
  - HRPU 38 vs. 36 repetitions
  - SDC 1.82 vs. 1.88 minutes
  - LT 9.6 vs. 8.3 repetitions
  - 2MR 16.5 vs. 16.9, $p<0.05$)

Women had higher ACFT performance on four of six ACFT events after 6 months of revised unit training and higher ACFT performance on three of six ACFT events after 6 months of revised personal training compared to women who had revised training for 30 days or less (Table 10).

- Unit physical training:
  - DL 179 vs. 165 lb.
  - HRPU 28 vs. 24 repetitions
  - SDC 2.31 vs. 2.44 minutes
  - LT 3.3 vs. 1.8 repetitions, $p<0.05$

- Personal physical training:
  - DL 180 vs. 168 lb.
  - SDC 2.26 vs. 2.47 minutes
  - 2MR 17.6 vs. 18.6, $p<0.05$)

MSKI incidence (estimated using medical record data) increased for both men and women after ACFT field testing compared to MSK injury incidence before field testing the ACFT. For men, MSKI incidence increased from 40.8% to 47.6% (Risk Ratio 1.17, $p<0.01$) 1 year after field testing the ACFT. For women, MSKI incidence increased from 46.0% to 55.9% (Risk Ratio 1.22, $p<0.01$) 1 year after field testing the ACFT. Self-reported weight-training injuries for men increased from 17.5% to 28.3% and was the leading activity associated with injury. Self-reported weight-training injuries for women remained similar at 19.7% before and 20.3% after ACFT field testing and was the second highest activity associated with injury. For men

completing a follow-up survey, low performance on five of the six ACFT events (e.g., DL, HRPU, SDC, LT, and 2MR) was associated with a 1.31 to 1.55 times greater risk of a MSKI compared to high ACFT event performance for men. For women completing a follow-up survey, low performance on two of the six ACFT events (e.g., SDC and 2MR) was associated with a 1.91 to 2.17 times greater risk of a MSKI compared to high ACFT event performance for women.

1.4 Conclusions

The goals of the ACFT were to provide a comprehensive test of different modalities of fitness and transform the Army's physical training culture to improve Soldier and unit physical readiness and reduce preventable injuries and attrition (FRAGO 2 HQDA EXORD 219-18 public affairs guidance December 2018). Data suggest that ACFT field testing motivated leadership and Soldiers to invest additional time performing unit and personal weight training. Furthermore, ACFT performance generally improved with 6 months of revised unit training prior to taking the test. Soldiers with greater body mass excelled on fitness tests requiring strength and power, while Soldiers of lower body mass excelled on fitness tests requiring aerobic endurance. Men were more likely to pass the ACFT field test compared to women. Both men and women had the highest failure rates on the LT event. Injury incidence increased for men and women after ACFT field testing, with weight training being the leading activity associated with injury risk for men and the second leading injury activity for women. Low performance on the majority of ACFT events was associated with higher injury risk for men, while low ACFT event performance was associated with higher injury risk on only two of the ACFT events for women. Since this evaluation, ACFT performance standards have changed; as of April 1, 2022, performance standards are now adjusted by age and sex, with the plank test event replacing the LT.

1.5 Implications

With the implementation of a new physical fitness test, Soldiers will adapt their training to meet the demands of new or modified physical fitness test events. New or unfamiliar exercises may lead to a higher risk of injury until Soldiers have adapted, learned proper form, and become familiar with these new exercises. The findings show that injuries commonly occur at the implementation of new physical training programs. Low performance on specific ACFT events can be used as a screening tool to identify Soldiers at a higher risk of a MSKI. ACFT performance continues to improve with more days spent performing revised physical training and performance standards have been adjusted by age and sex to account for physiological differences between men and women. Overall, Soldiers should be given an adequate amount of time to physically train for the ACFT before their initial test of record. ACFT performance standards may continue to adapt as Soldiers become more familiar with the test and performance improves with time and familiarity.

2. REFERENCES

See Appendix A for a listing of references used within this report.

3. AUTHORITY

In the 2019 Headquarters, Department of the Army (HQDA) Executive Order (EXORD) 149-19 (Establish the Army Holistic Health and Fitness (H2F) Program), the APHC (hereafter referred to as DCPH-A) was tasked to assist with medical metrics and evaluation of the H2F Program.

The Department of the Army Regulation 40-5, *Army Public Health Program,* May 12, 2020, paragraph 2-19a, tasks the APHC to provide epidemiologic consultation and program evaluation services in the area of injury prevention and control to Army commands and direct reporting units upon request.

4. BACKGROUND

4.1 Mission

Holistic Health and Fitness (H2F) provides a modern and holistic physical and non-physical performance readiness system for U.S. Army Soldiers.[2] One element of H2F is the ACFT. The primary purpose of this evaluation is to compare physical characteristics, physical training, MSKI, and physical performance before and after field testing of the new ACFT, which replaced the Army Physical Fitness Test (APFT) as the Army physical fitness test of record on October 1, 2020.

4.2 Oversight

The DCPH-A had oversight of this evaluation.

4.3 Background

At the time of data collection (2018–2020), the ACFT was in transition and has subsequently changed to address potential biases. In 2012, the Chief of Staff of the Army directed TRADOC to undertake a comprehensive study of baseline physical fitness related to military task performance called the BSPRRS (HQDA EXORD 041-13, December 27, 2012). TRADOC was designated as the study lead for the BSPRRS and the DCPH-A was named as a supporting command. Through a study of WTBDs and CSTs, the work from the BSPRRS formed the basis for the ACFT.[3,4] The ACFT assesses military-relevant physical demands (e.g., muscular strength and power, agility, and aerobic capacity) using a testing battery capable of measuring both health-related and combat fitness parameters.[2] The ACFT is unlike the APFT, which only measured two health-related physical fitness parameters (e.g., muscular, and aerobic endurance).

Other Services in the Department of Defense (DoD) have also modified and adapted their physical fitness performance assessments. Air Force members can now choose one assessment from each fitness component: muscular strength (1 minute of push-ups or 2 minutes of HRPU), core endurance (1 minute of sit-ups, 2 minute cross leg reverse crunch, or timed forearm plank), and cardiorespiratory fitness (1.5 mile run, 20 meter high aerobic multi-shuttle run, or 2 kilometer walk (if not medically cleared to run)) (Department of the Air Force Manual 36-2905, April 21, 2022). Similar to the ACFT, as of October 2022, the Air Force assessment is also age and sex adjusted. In 2009, the Marine Corps added an annual combat fitness test in addition to their annual physical fitness test (Marine Corps Physical Fitness Program MCO 6100.13 W/CH 2, January 30, 2015). The combat fitness test standardizes the measurement of common battlefield tasks and was intended to transform the way Marines physically train.[5]

To measure potential changes with the implementation of a new physical fitness test, TRADOC requested support from the DCPH-A. This evaluation captures data before and after ACFT field testing to evaluate changes in physical training, physical performance, and MSKI.

5. METHODS

5.1 Population

TRADOC selected 61 battalions to field test the new ACFT (HQDA EXORD 219-18 Army Combat Fitness Test, July 2018). These battalions included Soldiers from approximately 250 Soldier MOSs. A majority of these MOSs could be classified into the following 13 occupational specialty groups:

- Engineers
- Repairer and Maintenance
- Supply and Logistics
- Field and Air Defense
- Medical
- Military Intelligence and Electronic Warfare
- Signals and Communications
- Transportation
- Military Police
- Chemical Warfare, Explosives and Ammunition
- Infantry
- Support and Administration
- Armor

Thirty of the battalions were within the United States Army Forces Command (FORSCOM) and were augmented by medical and fitness teams consisting of a physical therapist, two strength and conditioning coaches, an athletic trainer, a dietitian, an occupational therapist (in 8 of the 30 battalions), and a mental health specialist (in 4 of the 30 battalions). FORSCOM battalions also received a large storage container of fitness equipment to facilitate ACFT training within the battalion footprint. A comparison between battalions with and without augmented medical and fitness teams will be captured in future reports and manuscripts.

5.2 ACFT

At the time of this evaluation, the ACFT consisted of six events: three repetition maximum DL, SPT, HRPU, SDC, LT, and 2MR. The U.S. Army Field Testing Manual describes these events along with testing procedures, scoring chart, minimum requirements by MOS, and ACFT site and equipment requirements.[6]

The ACFT was updated (after this evaluation was conducted) on March 1, 2022 to replace the LT event with a timed Plank event. The ACFT scoring scale was also revised to establish scoring categories by age and sex. The ACFT webpage provides a current description of the scoring system along with the plank and other ACFT events.[7]

5.3 Survey Design and Administration

The DCPH-A Injury Prevention Branch designed two baseline surveys with feedback and review from the TRADOC Center for Initial Military Training and the FORSCOM Surgeon's Office on each respective survey. The surveys were almost identical except for a few additional questions regarding ACFT training (TRADOC survey) and medical care provided by physical therapist, occupational therapist, or registered dietitians for those who self-reported an injury (FORSCOM survey) (Appendices B and C). The administration of the TRADOC baseline survey was delayed and may have overlapped with the implementation of the ACFT. Therefore, an ACFT training question was added to the survey asking if respondents' unit recently changed the way they train in anticipation of the upcoming ACFT. If respondents answered yes, they received the following statement, "Please answer the following questions about your unit PT before you started training for the Army Combat Fitness Test." This question and statement were also provided for personal physical training. The baseline surveys were administered from October 2018 to April 2019, inquiring about the previous 12 months. From October 2018 to February 2019, 80% of the surveys were completed, with 99.9% completed by the end of March 2019. The ACFT pilot program was scheduled for a October 1, 2018 start date. However, implementation of the pilot program did not occur until after October 2018 due to administrative reasons, such as ACFT equipment had not been received or medical and fitness team had not arrived. The follow-up survey was the same for both TRADOC and FORSCOM (Appendix D). The follow-up survey was administered approximately 1 year after the baseline survey, from January 2020 to April 2020. Between January 2020 and March 2020, 85% of the surveys were completed. Around the end of March 2020, telework policies were implemented throughout the U.S. Army due to COVID.

5.4 Human Protections Review

Prior to the administration of the survey, the DCPH-A Public Health Review Board (PHRB) reviewed and approved this project as public health practice, exempt from IRB review and approval (PHRB project number 18-688).

5.5 Data Collection and Analysis

5.5.1 Data Collection

Surveys collected demographics, personal characteristics, and physical fitness test performance (most recent APFT results on the baseline and follow-up survey and most recent ACFT results on the follow-up survey). High correlations have been found between actual Army physical fitness test scores and self-reported scores as well as actual and self-reported height and weight.[8,9] Body mass index (BMI) was calculated as weight in kilograms divided by height in meters squared (kg/m^2). Estimated percent body fat was calculated from the following equation: 64.5 – 848 x (1/BMI) + 0.079 x age – 16.4 x sex + 0.05 x sex x age + 39.0 x sex x (1/BMI), where 1 = male and 0 = female.[10] Fat mass was calculated by multiplying body weight by percent body fat. Lean mass was calculated by subtracting fat mass from body weight.

The surveys also collected injury, physical training, and health behaviors. Soldiers were asked about injuries occurring within the last 12 months. If a Soldier was injured, they were asked to report the injury that most limited their physical ability. If Soldiers had more than one injury, they were asked to report their second injury that most limited their physical ability. In addition,

Soldiers were asked where the injury occurred (body area), injury type, associated activities, injury cause, whether they sought medical attention, and the number of limited duty days, if applicable. Injury area, injury type, activity, and injury cause categories of less than 10 injuries were not reported due to the small sample size. A recent investigation of military Soldiers reported 75% of self-reported injuries with an injury diagnosis were observed to match the details of the medical encounter.[11] Physical training data were collected for both unit and personal physical training. For unit and personal physical training, only respondents who reported training for 60 to 600 minutes and 20 to 840 minutes per week were included in these analyses, respectively. These exclusions were used to censor responses in excess of plausible amounts of exercise. Health behavior questions asked about tobacco use and sleep duration. The medical utilization questions asked if respondents had seen a physical therapist, occupational therapist, and/or dietitian; type of visit (e.g., in-office appointment, phone call); and reasons for their visit. The follow-up survey included additional questions regarding raw performance on the ACFT.

ACFT data from October 2018 through June 2020 (during the ACFT pilot testing timeframe) were obtained from the U.S. Army Digital Training Management System (DTMS). Soldiers' most recent ACFT during the ACFT field testing timeframe was used for analysis. Data consisted of raw scores for each event, such as repetitions, distance in meters, and time in minutes. In addition, the ACFT data included overall calculated score as well as pass or fail. Minimum passing requirements by MOS and scores (points) by raw performance for each ACFT event were determined by current Army policy as reported in the U.S. Army Field Testing Manual.[6]

The Armed Forces Health Surveillance Branch (AFHSB) provided Defense Medical Surveillance System data. AFHSB data contained demographics, personal characteristics, visit dates, and International Classification of Diseases 10th Revision (ICD-10) diagnosis codes for all outpatient and hospitalized MSKI medical encounters from October 2017 to September 2018 (prior to ACFT field testing) and November 2018 to October 2019 (after ACFT field testing). An MSKI was defined as damage or interruption to the normal functioning of body tissues that results from an overload of kinetic energy, which exceeds the threshold of tissue tolerance either suddenly (i.e., in less than one second; known as "acute or traumatic injury") or gradually (i.e., over minutes, hours, days, or weeks; known as "cumulative micro-traumatic" or "overuse injury").[12] MSKIs were categorized into three groups (all injuries, overuse injuries, and acute injuries) using the primary (first) ICD-10 diagnosis code. The overuse injury index captures the subset of MSKI resulting from cumulative micro-trauma. The acute injury index captures the subset of MSKI resulting from a strong, sudden force or forces being applied to the body. The ICD-10 codes used for both overuse and acute MSKI indices are specifically defined elsewhere.[12,13] These injury indices are consistent with prior studies of military training injuries[14-16] and with recommendations of the DoD Military Injury Metrics and Defense Safety Oversight Council (DSOC) Military Injuries Working Groups.[17,18]

5.5.2 Data Analysis

The Statistical Package for the Social Sciences (SPSS®, IBM Corp.), Version 19.0, was used for statistical analysis. Descriptive statistics (e.g., frequencies, distributions, means, and SD) for age, personal characteristics, physical training, and ACFT performance were calculated. Injury incidence was calculated as the number of Soldiers with one or more injuries divided by the total number of Soldiers surveyed (a 6-month before and after timeframe was used for self-reported injuries and a 12-month before and after timeframe was used for medical record injuries). Risk

ratios were used to estimate relative differences in injury incidence before and after ACFT field testing. McNemar's and paired t-tests were used to evaluate differences for unit and personal physical fitness training before and after field testing the ACFT. An ANOVA with a post hoc LSD test were used to evaluate differences in ACFT performance by age and physical characteristics. A McNemar's test was used to evaluate differences in injury incidence and leading injury body areas, injury type, activities, and causes before and after field testing the ACFT. An ANOVA was used to compare difference in limited duty days before and after field testing the ACFT.

Since only a small proportion of Soldiers had data both before and after the ACFT field testing, a sensitivity analysis was performed with Soldiers who completed the baseline survey compared to the follow-up survey. In contrast to the original analysis that used paired testing (e.g., Paired t-tests and McNemar's tests), the sensitivity analyses used bivariate tests for unpaired data since the independence assumption was met (e.g., independent samples t-tests and Chi-square tests). Appendix F provides data from the sensitivity analyses. The smaller number of Soldiers who completed both a baseline and follow-up survey were considered to have been present for the entire evaluation and will be referred to as Soldiers present for the entire evaluation.

Multivariable analyses were conducted to evaluate the relationship between physical fitness and MSKI risk, which were independent of established injury risk factors. Analyses were conducted separately by sex, given differences in factors associated with injury. Selected risk factors were identified *a priori* based on the literature (age, body mass index (BMI)).[1] In addition, unadjusted odds ratios were estimated to identify additional ACFT-related factors associated with injury in this population. A Chi-square for trend test was used to evaluate any trends among these variables. Significance level was set to a p-value of less than or equal to 0.05.

6. RESULTS

6.1 Demographics

A total of 28,482 baseline surveys and 35,380 follow-up surveys were administered electronically to the participating battalions. There were 5,198 Soldiers (4,229 men and 969 women) who completed a baseline survey (response rate = 18.2%). There were 3,520 Soldiers (2,859 men and 661 women) who completed a follow-up survey (response rate = 10.0%). There were 1,134 Soldiers (15.0%) (871 men and 263 women) who completed both a baseline and follow-up survey.

Table 1 details respondents' demographics, personal characteristics, health behaviors, and fitness performance, and Table 2 shows those who completed a baseline survey (before ACFT field testing), a follow-up survey (after ACFT field testing), and both a baseline and follow-up survey for men and women, respectively. Men who completed both surveys were approximately 2.5 years older, had a slightly higher BMI after ACFT field testing, and had fewer tobacco users compared to those who completed only the baseline or follow-up survey. Women who completed both surveys were also about 2 years older and had fewer tobacco users compared to those who completed only the baseline or follow-up survey.

The remainder of the analyses focus on results for the following two groups of Soldiers: Soldiers who completed both a baseline and follow-up survey, and Soldiers who completed a follow-up survey.

Table 1. Summary of Demographic Characteristics, Health Behaviors, and Army Combat Fitness Test (ACFT) Performance among Male Soldiers Before and After Field Testing the ACFT

	Before Field Testing the ACFT (completed baseline survey)	After Field Testing the ACFT (completed follow-up survey)	Before Field Testing the ACFT (completed both surveys)	After Field Testing the ACFT (completed both surveys)
Group total n (men and women)	5,198	3,520	1,134	1,134
Men: n (% of column total)	4,229 (81%)	2,859 (81%)	871 (77%)	871 (77%)
Age (average years±SD)	28.8±7.9	29.8±8.3	31.3±8.6	32.4±8.6
Height (inches)	70.0±3.2	69.8±2.8	70.2±3.3	70.0±2.8
Weight (lb)	184.1±27.6	185.5±28.1	185.5±27.4	188.3±27.2
Body mass index (kg/m^2)	26.5±3.4	26.8±3.3	26.4±3.3	27.0±3.2
Estimated Body Fat %	20.8±4.4	21.2±4.3	21.3±4.3	21.9±4.0
Cigarette Smokers %	14.6	14.6	11.0	12.3
E-cigarette Users %	8.1	6.9	6.5	5.5
Sleep duration (hours)	6.1±1.3	6.0±1.3	6.1±1.1	6.0±1.2
APFT Push-ups (reps)	61.9±13.3	60.2±14.9	61.9±13.2	59.9±15.2
APFT Sit-ups (reps)	65.9±11.9	63.8±15.1	65.6±11.6	63.3±15.7
APFT 2Mile Run (min)	15.1±1.5	15.2±1.5	15.1±1.6	15.3±1.5
ACFT Deadlift (lb)	N/A	243.5±60.3	N/A	242.6±60.4
ACFT Power Throw (m)		9.4±1.7		9.5±1.7
ACFT Hand Release Push-Up (reps)		35.6±10.7		34.5±10.9
ACFT Sprint Drag Carry (min)		1.89±0.27		1.90±0.27
ACFT Leg Tuck (reps)		8.2±5.8		8.0±5.7
ACFT 2MR (min)		16.9±2.2		17.0±2.0

Legend: n=sample size; ACFT=Army Combat Fitness Test; APFT=Army Physical Fitness Test; lb=pounds; kg=kilograms; m=meters; reps=repetitions; min=minutes: N/A=not applicable

Table 2. Summary of Demographic Characteristics, Health Behaviors, and Army Combat Fitness Test (ACFT) Performance among Female Soldiers Before and After Field Testing the ACFT

	Before Field Testing the ACFT (completed baseline survey)	After Field Testing the ACFT (completed follow-up survey)	Before Field Testing the ACFT (completed both surveys)	After Field Testing the ACFT (completed both surveys)
Group total n (men and women)	5,198	3,520	1,134	1,134
Women: n (% of column total)	969 (19%)	661 (19%)	263 (23%)	263 (23%)
Age (average years±SD)	28.3±7.4	28.6±7.5	30.0±7.8	30.9±7.7
Height (inches)	65.0±3.3	64.9±3.0	65.4±3.5	65.1±2.8
Weight (lb)	146.9±21.4	147.8±20.8	146.7±20.9	148.3±21.1
Body mass index (kg/m^2)	24.5±3.1	24.7±2.8	24.1±3.1	24.6±2.9
Estimated body fat %	31.8±4.4	32.0±4.1	31.3±4.9	32.0±4.4
Cigarette smokers %	7.0	6.8	3.8	4.2
E-cigarette users %	3.9	4.5	1.9	2.3
Sleep duration (hours)	6.1±1.4	6.0±1.4	6.3±1.1	6.2±1.3
APFT Push-up (reps)	38.9±13.7	38.1±4.1	41.7±13.7	38.6±14.5
APFT Sit-up (reps)	66.1±12.9	63.9±17.2	68.5±12.3	65.0±18.0
APFT 2Mile Run (min)	17.4±1.7	17.3±1.7	17.1±1.7	17.3±1.8
ACFT Deadlift (lb)	N/A	169.1±33.7	N/A	163.1±28.5
ACFT Power Throw (m)		5.8±1.5		5.7±1.1
ACFT Hand Release Push-up (reps)		24.2±10.1		22.4±9.8
ACFT Sprint Drag Carry (min)		2.44±0.39		2.43±0.35
ACFT Leg Tuck (reps)		2.1±3.7		1.87±3.3
ACFT 2MR (min)		18.3±2.2		18.4±2.1

Legend: n=sample size; ACFT=Army Combat Fitness Test; APFT=Army Physical Fitness Test; lb=pounds; kg=kilograms; m=meters; reps=repetitions; min=minutes; N/A=not applicable

6.2 Unit and Personal Physical Fitness Training

After ACFT field testing, men present for the entire evaluation reported performing less calisthenics, more cross training, more resistance training, and more total time per week in unit physical fitness training compared to physical training prior to ACFT field testing (Table 3). After ACFT field testing, women present for the entire evaluation reported running fewer miles per week and performed more resistance training per week during unit training compared to physical training prior to ACFT field testing (Table 3). For men and women, the largest change to unit physical training was the increased amount of time spent resistance training before and after ACFT field testing, +28.9% and +53.5%, respectively. In addition, the number of men and women participating in unit physical training between 60 to 600 minutes per week decreased after ACFT field testing, compared to before ACFT field testing.

Considering personal physical training changes, after ACFT field testing, men present for the entire evaluation reported performing more minutes of running and resistance training per week for personal physical training compared to personal physical training prior to ACFT field testing (Table 4). Additionally, men performed less obstacle course training and less total time on personal physical training per week after ACFT field testing (Table 4). After ACFT field testing, women present for the entire evaluation reported performing more minutes of resistance training per week, less obstacle course training, and less total time physical training per week during their personal physical training time compared to personal physical training prior to ACFT field testing (Table 4). For men and women, the largest increase was the number of minutes spent per week resistance training, +24.2% and +38.5%, respectively.

Appendix F provides sensitivity tables comparing baseline survey responses to follow-up survey responses for unit and personal training. Unit and personal physical training between those present for the entire evaluation (matched population, Tables 3 and 4) compared to the sensitivity tables were generally similar in the amount of time spent performing physical training before and after field testing the ACFT.

Table 3. Unit Physical Fitness Training Before and After Army Combat Fitness Test Field Testing

	Men n=871 Women n=263	Before ACFT Field Testing	After ACFT Field Testing	Percent Change	p-value
Men	Percent Unit PT participation	74.5% (649)	73.7% (642)	-1.1	0.65[1]
	Percent Unit PT participation btw 60-600 min/wk	**89.6% (499)**	**76.3% (425)**	**-17.4**	**<0.01[1]**
	Run (miles/wk)	8.1±4.0 (386)	7.6±5.3 (386)	-6.2	0.11[2]
	Run (min/wk)	69.0±32.9 (375)	66.1±47.4 (375)	-4.2	0.29[2]
	Sprinting (min/wk)	41.4±33.5 (386)	42.8±34.9 (386)	+3.4	0.54[2]
	Calisthenics (min/wk)	**52.7±51.5 (385)**	**44.9±45.9 (385)**	**-14.8**	**<0.01[2]**
	Cross-training (min/wk)	**43.2±41.9 (382)**	**50.2±46.4 (382)**	**+16.2**	**0.02[2*]**
	Agility training (min/wk)	28.8±35.6 (384)	31.0±35.3 (384)	+7.6	0.37[2]
	Resistance (min/wk)	**43.2±47.4 (386)**	**55.7±59.1 (386)**	**+28.9**	**<0.01[2]**
	Obstacle course (min/wk)	5.9±15.9 (362)	6.1±16.6 (362)	+3.4	0.84[2]
	Total exercise (min/wk)	**278.9±130.5 (389)**	**295.4±126.0 (389)**	**+5.9**	**0.04[2]**
Women	Percent Unit PT participation	62.0% (163)	58.6% (154)	-5.5	0.32[1]
	Percent Unit PT participation btw 60-600 min/wk	**93.7% (118)**	**73.0% (92)**	**-22.1**	**<0.01[1]**
	Run (miles/wk)	**7.7±4.3 (88)**	**6.5±4.1 (88)**	**-15.6**	**0.04[2]**
	Run (min/wk)	69.1±34.1 (83)	61.8±34.1 (88)	-10.6	0.16[2]
	Sprinting (min/wk)	45.0±37.7 (87)	45.9±38.8 (87)	+2.0	0.87[2]
	Calisthenics (min/wk)	41.2±51.2 (86)	45.1±44.2 (86)	+9.5	0.54[2]
	Cross-training (min/wk)	49.7±53.0 (86)	54.3±52.2 (86)	+9.3	0.51[2]
	Agility training (min/wk)	30.5±39.1 (86)	29.8±37.7 (86)	-2.3	0.90[2]
	Resistance (min/wk)	**41.7±48.0 (87)**	**64.0±60.9 (87)**	**+53.5**	**<0.01[2]**
	Obstacle course (min/wk)	4.3±16.7 (82)	2.7±11.1 (82)	-37.2	0.48[2]
	Total exercise (min/wk)	273.5±139.3 (88)	299.9±129.7 (88)	+9.7	0.15[2]

Legend: ACFT=Army Combat Fitness Test, respondents present for the duration of ACFT field testing; (n)=sample size; PT=physical training; wk=week; min=minutes; btw=between
Notes: [1] represents McNemar test; [2] represents Paired t-test; Participants selected for analysis performed between 60 to 600 minutes of unit physical training per week.

Table 4. Personal Physical Fitness Training Before and After Army Combat Field Test Field Testing

	Men n=871 Women n=263	Before ACFT Field Testing	After ACFT Field Testing	Percent Change	p-value
Men	Percent personal PT participation	81.6% (711)	84.4% (735)	+3.4	0.13[1]
	Percent personal PT participation btw 20-840 min/wk	91.9% (587)	85.9% (549)	-6.5	0.33[1]
	Run (miles/wk)	7.3±8.1 (511)	8.0±7.7 (511)	+9.6	0.08[2]
	Run (min/wk)	**57.6±64.2 (511)**	**65.1±63.4 (511)**	**+13.0**	**0.02[2]**
	Sprinting (min/wk)	26.9±38.3 (510)	25.3±35.4 (510)	-5.9	0.41[2]
	Calisthenics (min/wk)	37.0±53.1 (511)	38.1±55.9 (511)	+3.0	0.72[2]
	Cross-training (min/wk)	45.9±70.6 (512)	50.8±70.8 (512)	+10.7	0.20[2]
	Agility training (min/wk)	14.8±29.9 (509)	16.8±34.1 (509)	+13.5	0.25[2]
	Resistance (min/wk)	**73.0±101.8 (510)**	**90.7±113.9 (510)**	**+24.2**	**<0.01[2]**
	Obstacle course (min/wk)	**72.6±102.1 (511)**	**4.4±31.7 (511)**	**-93.9**	**<0.01[2]**
	Total exercise (min/wk)	**326.4±201.7 (513)**	**290.7±200.6 (513)**	**-10.9**	**<0.01[2]**
Women	Percent personal PT participation	84.8% (223)	89.4% (235)	+5.4	0.12[1]
	Percent personal PT participation btw 60-600 min/wk	90.3% (187)	88.9% (184)	-1.6	0.35[1]
	Run (miles/wk)	6.5±5.2 (166)	6.9±5.8 (166)	+6.2	0.34[2]
	Run (min/wk)	58.8±45.3 (167)	61.2±48.6 (167)	+4.1	0.18[2]
	Sprinting (min/wk)	29.6±39.5 (169)	28.3±43.3 (169)	-4.4	0.75[2]
	Calisthenics (min/wk)	31.5±45.1 (169)	26.3±43.0 (169)	-16.5	0.23[2]
	Cross-training (min/wk)	62.7±74.8 (169)	60.1±83.2 (169)	-4.1	0.74[2]
	Agility training (min/wk)	13.3±28.2 (167)	12.9±28.7 (167)	-3.0	0.88[2]
	Resistance (min/wk)	**62.3±81.2 (169)**	**86.3±95.3 (169)**	**+38.5**	**<0.01[2]**
	Obstacle course (min/wk)	**71.4±81.5 (168)**	**1.8±9.7 (168)**	**-97.5**	**<0.01[2]**
	Total exercise (min/wk)	**326.5±203.9 (169)**	**277.4±194.1 (169)**	**-15.0**	**<0.01[2]**

Legend: ACFT=Army Combat Fitness Test, respondents present for the duration of ACFT field testing; (n)=sample size; PT=physical training; wk=week; min=minutes; btw=between
Notes: [1] represents McNemar test; [2] represents Paired t-test; Participants selected for analysis performed between 20 to 840 minutes of personal physical training per week.

6.3 ACFT Performance and Unit and Personal Physical Training

Overall, 75.6% of men and 27.2% of women passed the ACFT (Table 5). Men were approximately 2.77 times more likely to pass the ACFT compared to women (risk ratio: 2.77 (95%CI: 2.36-3.27), $p < 0.01$). During ACFT field testing, both men and women had the highest passing rates on the HRPU event and the lowest passing rates on the LT event. Update: from July 1, 2023 to June 30, 2024, ACFT pass rates were 96.61% for men and 92.20% for women (source: U.S. Army Digital Training Management System).

In most cases, men who were 35 years or older had lower performance on all six ACFT events compared to men between the ages of 23 to 34 (Table 6). Men who were taller (≥73 inches) deadlifted the most amount of weight, had the longest SPT, and fastest SDC times compared to the other height groups of lower stature (Table 6). However, men who were the tallest performed the least amount of HRPUs and LTs compared to the other height groups of lower stature. There were no differences in 2MR performance across the height categories (Table 6). Men who weighed the most and had the highest BMI and percent body fat deadlifted the greatest amount of weight, had the longest SPT, did less HRPUs, had slower SDC times, performed fewer LTs, and had the slowest 2MR times compared to men who weighed less, had a lower BMI, and a lower percentage of body fat (Table 6).

Among women, ACFT performance did not vary significantly with age (Table 7). Statistically significant differences in ACFT performance were observed among female Soldiers between categories of physical characteristics. For height, the tallest women deadlifted the most amount of weight, had the longest SPT, and fastest SDC times compared to the lower height groups (Table 7). The tallest women also had faster 2MR times compared to the lowest height group (Table 7). The heaviest weight group deadlifted more weight, had a longer SPT, and faster SDC times compared to the two lowest weight groups (Table 7). The heaviest weight group performed the least amount of LTs compared to the lightest weight group and had the slowest 2MR times compared to those weighing between 134 to 158 pounds (quartiles Q2 and Q3) (Table 7). Women with the highest BMI deadlifted the most weight and had the longest SPTs compared to women with lower BMI (Table 7). Women with the highest BMI had the slowest 2MR times compared to the lower BMI groups and performed the least amount of LTs compared to the lowest BMI group (Table 7). Women with the highest percent body fat deadlifted the most weight and had the longest SPTs compared to those with the least amount of body fat (Table 7). Women in the highest body fat percentage group performed less HRPUs compared to the lowest percent body fat group, performed the least amount of LTs compared the two lowest percent body fat groups, and had the slowest 2MR times compared to the lower percent body fat groups (Table 7).

Men's strength and aerobic performance, as measured by DL and 2MR times, changed with body weight along with calculated lean body and fat mass (Table 8). In general, men who weighed more deadlifted higher amounts of weight, on average, while 2MR times were slower for men weighing more than 190 pounds compared to men weighing less than or equal to 190 pounds (Table 8). Male Soldiers who weighed more had greater amounts of lean body mass but greater amounts of fat mass (Table 8). Average lean body mass was 40% higher among those weighing more than 210 pounds, compared to male Soldiers weighing less than 151 pounds. Furthermore, fat mass was 294% higher for those weighing more than 210 pounds compared to those weighing less than 151 pounds. Therefore, fat mass increased at a disproportionally higher rate compared to lean body mass as body weight increased.

For women, strength and aerobic performance as measured by average DL and 2MR times changed with body weight along with calculated lean body and fat mass (Table 8). In general, women who weighed more deadlifted greater amounts of weight, while 2MR times were slower for women weighing greater than160 pounds (Table 8). Those who weighed more had greater amounts of lean body mass but also greater amounts of fat mass. Lean body mass increased by 38% from those weighing less than 121 pounds to more than 170 pounds. Furthermore, fat mass increased by 225% from those weighing less than 121 pounds to more than 170 pounds. Therefore, fat mass increased at a disproportionally higher rate compared to lean body mass as body weight increased.

With ACFT field testing, Soldiers were asked (on the follow-up survey) if their unit physical training program and personal physical training program changed in anticipation of taking the new ACFT. If they answered yes, they were then asked how many months they have specifically trained in preparation for taking the new ACFT. Of those who answered the question (if their unit physical training program changed), 82% of men (n=1,885/2,300) and 80% (n=365/457) of women responded that their unit physical training program changed in anticipation of the new ACFT (Table 9). For men, ACFT performance on all six events was greater with 181 days (approximately 6 months) of revised unit training compared to those with revised training of less than or equal to 30 days (Table 9).

Among women, ACFT performance on four of the six events was greater with 181 days (approximately 6 months) of revised unit training compared to those who reported revised training of less than or equal to 30 days (approximately 1 month (Table 9)).

Fifty-three percent of men (n=1054/1997) responded that their personal physical training program changed in anticipation of the new ACFT (Table 10). ACFT performance on all six events was greater with 181 days (approximately 6 months) of revised personal training compared to those training for less than or equal to 30 days (approximately 1 month (Table 10)).

Seventy-two percent of women (n=358/491) responded that their personal physical training program changed in anticipation of the new ACFT (Table 10). ACFT performance on three of the six events was greater with 181 days (approximately 6 months) of revised personal training compared to those training for less than or equal to 30 days or (approximately 1 month (Table 10)).

Table 5. Average Army Combat Fitness Test Event Performance by Overall Pass and Fail Rates for Men and Women

		Total n	Percent Passed	Average Pass Performance	Percent Failed	Average Fail Performance
Men	Deadlift (lb)	2002	95.1% (1903)	247.4±59.3 (1903)	4.9% (99)	169.6±12.6 (99)
	Standing Power Throw (m)	1951	94.6% (1846)	9.6±1.7 (1846)	5.4% (105)	7.0±0.8 (105)
	Hand Release Push-Up (reps)	1958	97.1% (1902)	35.9±10.7 (1902)	2.9% (56)	23.4±4.9 (56)
	Sprint Drag Carry (min)	1955	94.8% (1854)	1.87±0.25 (1854)	5.2% (101)	2.34±0.23 (101)
	Leg Tuck (reps)	2013	88.0% (1772)	9.2±5.5 (1772)	12.0% (241)	0.94±1.4 (241)

Table 6. Average Army Combat Fitness Test Event Performance by Overall Pass and Fail Rates for Men and Women (continued)

		Total n	Percent Passed	Average Pass Performance	Percent Failed	Average Fail Performance
Women	2-Mile Run (min)	1850	89.8% (1661)	16.43±1.72 (1661)	10.2% (189)	20.8±2.31 (189)
	Overall pass and fail rates with total calculated ACFT score (points)	2021	75.6% (1527)	481±61 (1523)	24.4% (494)	403±73 (490)
	Deadlift (lb)	364	73.6% (268)	175.6±35.8 (268)	26.4% (96)	151.0±17.1 (96)
	Standing Power Throw (m)	385	57.7% (222)	6.2±1.6 (222)	42.3% (163)	5.2±1.1 (163)
	Hand Release Push-Up (reps)	377	88.3% (333)	25.3±9.8 (333)	11.7% (44)	15.5±7.6 (44)
	Sprint Drag Carry (min)	379	67.3% (255)	2.32±0.32 (255)	32.7% (124)	2.70±0.40 (124)
	Leg Tuck (reps)	393	34.9% (137)	5.6±4.3 (137)	65.1% (256)	0.23±0.71 (256)
	2-Mile Run (min)	352	79.5% (280)	17.64±1.58 (280)	20.5% (72)	21.03±2.07 (72)
	Overall pass and fail rates with total calculated ACFT score (points)	397	27.2% (108)	419±62 (105)	72.8% (289)	315±66 (288)

Legend: ACFT=Army Combat Fitness Test, ACFT field test data from follow-up survey; (n)=sample size, and differs among events due to not everyone participating in all six events; lb=pounds; m=meter; min=minutes; reps=repetitions

Notes: ACFT Total points reported out of 600. Calculated using FY20 Standards Specific to each Military Occupational Specialty Group (Heavy, Significant, Moderate).[6] Data acquired from the Digital Training Management System.

Table 7. Average Army Combat Fitness Test Performance by Quartiles of Age and Physical Characteristics for Men

	Category	DL lbs.	SPT meters	HRPU repetitions	SDC minutes	LT repetitions	2MR minutes
Age (years)	≤ 22 Q1	231±54 (470)	9.0±1.7* (462)	34±9 (473)	1.88±0.24* (462)	7.2±4.8 (474)	17.1±2.3 (451)
	23-27 Q2	251±61* (564)	9.6±1.7 (552)	37±10* (552)	1.84±0.25* (549)	8.8±5.8* (566)	16.7±2.2* (527)
	28-34 Q3	259±60* (500)	9.7±1.8* (487)	37±11* (488)	1.88±0.26* (493)	9.3±6.1* (500)	16.6±2.1* (458)
	≥ 35 Q4 -Reference	232±61 (468)	9.4±1.7 (450)	34±11 (445)	1.98±0.31 (451)	7.2±6.1 (473)	17.3±2.3 (414)
Height (inches)	≤ 67 Q1	227±56* (407)	8.5±1.6* (397)	38±11* (398)	2.02±0.27* (396)	9.2±5.7* (407)	16.8±2.1 (378)
	68-70 Q2	244±59* (789)	9.3±1.6* (770)	36±11* (781)	1.90±0.27* (771)	8.2±5.7* (794)	16.9±2.2 (735)
	71-72 Q3	248±62* (484)	9.9±1.6* (469)	35±10 (469)	1.84±0.25* (474)	8.00±5.9* (489)	16.9±2.3 (448)
	≥ 73 Q4-Reference	257±62 (319)	10.3±1.8 (312)	33±11 (307)	1.80±0.24 (311)	7.2±5.9 (321)	16.8±2.3 (287)
Weight (pounds)	≤ 165 Q1	215±49* (501)	8.4±1.5* (493)	36±11* (498)	1.97±0.27* (485)	9.6±5.7* (503)	16.5±2.2* (473)
	166-182 Q2	242±57* (496)	9.3±1.6* (479)	37±11* (488)	1.88±0.27 (486)	8.8±5.9* (498)	16.5±2.0* (460)
	183-199 Q3	249±60* (430)	9.6±1.6* (420)	36±11* (423)	1.85±0.24 (424)	7.9±5.5* (432)	16.8±2.2* (408)
	≥ 200 Q4 -Reference	266±62 (575)	10.3±1.7 (559)	34±10 (549)	1.86±0.27 (560)	6.6±5.7 (580)	17.6±2.4 (509)
BMI (kg/m^2)	≤ 24.99 Q1	221±52* (608)	8.8±1.6* (595)	36±11* (605)	1.91±0.27 (591)	9.4±5.7* (612)	16.3±2.0* (578)
	25.00-27.49 Q2	245±59* (660)	9.5±1.7* (645)	37±11* (646)	1.87±0.28* (646)	8.7±6.0* (662)	16.6±2.1* (614)
	27.5-29.99 Q3	258±61 (428)	9.7±1.7* (416)	35±11 (414)	1.88±0.25* (418)	7.3±5.6* (430)	17.3±2.2* (394)
	≥ 30.00 Q4 -Reference	264±63 (303)	10.2±1.7 (292)	34±9.7 (290)	1.93±0.28 (297)	5.9±5.0 (306)	18.1±2.3 (262)
%BF	≤ 18.38 Q1	220±51* (501)	8.7±1.7* (493)	35±10* (500)	1.91±0.26* (488)	9.3±5.6* (504)	16.3±2.0* (480)
	18.39-21.27 Q2	243±56* (499)	9.4±1.6* (486)	37±11* (491)	1.86±0.27* (487)	8.9±5.9* (501)	16.5±2.1* (463)
	21.28-24.06 Q3	255±63 (502)	9.7±1.8 (492)	37±11* (491)	1.86±0.26* (489)	8.4±6.1* (503)	16.9±2.1* (468)
	≥ 24.07 Q4 -Reference	256±63 (497)	9.9±1.7 (477)	33±10 (473)	1.94±0.28 (488)	6.2±5.2 (502)	17.9±2.3 (437)

Legend: ACFT=Army Combat Fitness Test, ACFT field test data from follow-up survey; (n)=sample size; Q=Quartile; DL=Deadlift; SPT=Standing Power Throw; HRPU=Hand Release Push-Ups; SDC=Sprint, Drag and Carry; LT=Leg Tuck; 2MR=2-Mile Run; BMI=body mass index; %BF=estimated percent of body fat
Note: * Represents statistically significance (p≤0.05) from ANOVA with LSD Post Hoc Test (Q1 vs. Q4, Q2 vs. Q4, Q3 vs. Q4).

Table 8. Average Army Combat Fitness Test Performance by Quartiles of Age and Physical Characteristics for Women

	Category	DL lbs.	SPT meters	HRPU repetitions	SDC minutes	LT repetitions	2MR minutes
Age (years)	≤ 22 Q1	173±34 (91)	5.8±1.7 (107)	25±10 (106)	2.49±0.41 (103)	1.5±3.4 (107)	18.7±1.8 (99)
	23-27 Q2	169±31 (115)	5.8±1.3 (118)	25±10 (117)	2.38±0.37 (117)	2.7±4.1 (121)	18.0±2.2 (109)
	28-34 Q3	166±28 (90)	5.8±1.7 (93)	24±10 (89)	2.44±0.38 (90)	1.9±2.8 (94)	18.1±2.4 (83)
	≥ 35 Q4 -Reference	167±43 (68)	5.8±1.4 (67)	22±11 (65)	2.47±0.40 (69)	2.4±4.2 (71)	18.6±2.3 (61)
Height (inches)	≤ 62 Q1	160±22* (71)	5.3±1.4* (81)	25±8 (80)	2.65±0.38* (79)	2.59±3.68 (82)	18.9±2.5* (73)
	63-64 Q2	165±30* (95)	5.6±1.1* (101)	23±9 (100)	2.49±0.35* (100)	1.9±3.4 (101)	18.4±2.1 (95)
	65-66 Q3	169±29* (97)	5.7±1.2* (101)	23±11 (98)	2.43±0.36* (98)	1.7±3.1 (105)	18.2±2.0 (92)
	≥ 67 Q4 -Reference	180±44 (99)	6.5±2.0 (100)	25±11 (97)	2.23±0.36 (100)	2.4±4.4 (103)	18.0±2.1 (90)
Weight (pounds)	≤ 133 Q1	159±23* (n=82)	5.1±0.9* (97)	25±9 (95)	2.59±0.42* (94)	2.7±3.7* (97)	18.3±2.0 (89)
	134-145 Q2	166±32* (n=102)	5.7±1.8* (107)	25±11 (107)	2.46±0.36* (108)	2.1±3.7 (110)	18.1±2.3* (101)
	146-158 Q3	172±33 (88)	6.0±1.3 (91)	24±9 (87)	2.37±0.39 (87)	2.3±3.9 (91)	18.1±1.9* (85)
	≥ 159 Q4 -Reference	179±42 (92)	6.4±1.6 (90)	23±10 (88)	2.33±0.35 (90)	1.4±3.3 (95)	18.9±2.3 (77)
BMI (kg/m^2)	≤ 24.99 Q1	166±30† (201)	5.6±1.5† (219)	25±11 (215)	2.44±0.42 (216)	2.5±3.9† (222)	18.1±2.2† (207)
	25.00-27.49 Q2	169±33† (106)	5.8±1.4† (111)	23±9 (107)	2.43±0.36 (106)	1.8±3.3 (112)	18.2±1.9† (97)
	≥ 27.50 Q3 -Reference	181±43 (55)	6.4±1.6 (53)	23±9 (53)	2.45±0.35 (55)	1.1±3.0 (57)	19.6±2.4 (46)
	≤ 29.13 (Q4)	164±31* (86)	5.6±1.7* (97)	26±10* (95)	2.47±0.47 (95)	2.6±3.5* (98)	18.0±2.0* (90)

Table 9. Average Army Combat Fitness Test Performance by Quartiles of Age and Physical Characteristics for Women (continued)

	Category	DL lbs.	SPT meters	HRPU repetitions	SDC minutes	LT repetitions	2MR minutes
%BF	29.14-32.19 Q1	168±30 (87)	5.7±1.3 (95)	24±12 (94)	2.42±0.39 (93)	2.6±4.5* (95)	18.1±2.1* (91)
	32.20-34.15 Q2	171±35 (94)	5.8±1.6 (96)	24±10 (93)	2.43±0.37 (94)	2.0±3.6 (98)	18.1±2.2* (88)
	≥ 34.16 Q3 -Reference	173±38 (93)	6.1±1.4 (92)	23±8 (90)	2.44±0.34 (92)	1.2±2.7 (97)	19.1±2.2 (78)

Legend: ACFT=Army Combat Fitness Test, ACFT field test data from follow-up survey; (n)=sample size; Q=Quartile; DL=Deadlift; SPT=Standing Power Throw; HRPU=Hand Release Push-Ups; SDC=Sprint, Drag and Carry; LT=Leg Tuck; 2MR=2-Mile Run; BMI=body mass index; %BF=estimated percent of body fat

Note: * Represents statistically significance from ANOVA with LSD Post Hoc Test (Q1 vs. Q4, Q2 vs. Q4 and Q3 vs. Q4); †, represents statistically significance ($p \leq 0.05$) from ANOVA with LSD Post Hoc Test (Q1 vs. Q3 and Q2 vs. ≥ Q3).

Table 10. Body Weight Categories by Average Age, Physical Characteristics, Deadlift, and 2-Mile Run Performance for Men and Women

	Weight Category (lb)	n	Average Age (years)	Average Height (inches)	Average Weight (lb)	Average BMI (kg/m^2)	Average % Body Fat	Average Fat Mass (lb)	Average Lean Mass (lb)	Average Deadlift (lb)	Average 2MR (min)
Men	≤ 150	214	25.1±5.1	67.2±2.6	140.3±9.2	22.0±1.8	14.3±3.2	20.2±5.2	120.2±7.1	203.9±43.8	16.4±2.3
	151-160	162	26.0±6.6	68.0±2.3	156.9±2.8	24.0±1.6	17.6±2.6	27.6±4.1	129.3±4.6	222.0±48.9	16.5±2.1
	161-170	215	27.3±7.4	69.1±2.5	166.9±2.8	24.7±1.8	18.7±2.7	31.2±4.6	135.7±4.7	234.3±55.3	16.4±2.1
	171-180	293	28.3±7.5	69.3±2.4	176.8±2.8	26.0±1.5	20.4±2.5	36.1±4.6	140.6±4.6	244.4±57.2	16.5±1.9
	181-190	275	29.8±7.8	69.9±2.3	186.4±2.9	27.0±1.8	21.8±2.3	40.6±4.5	145.7±4.5	253.1±56.1	16.6±2.1
	191-200	221	29.9±7.1	70.7±2.2	196.4±3.0	27.7±1.8	22.7±2.1	44.5±4.3	151.8±4.7	254.5±61.7	17.1±2.1
	201-210	168	29.9±7.6	71.2±2.3	206.5±2.9	28.7±2.0	23.7±2.2	48.9±4.7	157.6±4.5	270.5±60.3	17.3±2.3
	≥ 211	256	31.6±7.4	72.0±2.4	227.8±13.6	31.0±2.3	26.0±2.2	59.3±7.6	168.5±8.6	270.7±62.3	17.9±2.3
	Total	1804	28.6±7.4	69.8±2.8	183.4±26.8	26.5±3.3	20.8±4.2	39.1±12.7	144.3±15.5	245.1±60.0	16.9±2.2
Women	≤ 120	24	27.0±7.8	62.1±2.5	114.1±6.9	20.9±1.9	25.8±3.7	29.5±5.3	84.6±4.9	152.9±22.6	18.2±1.8
	121-130	39	26.4±7.1	63.3±2.1	127.6±2.2	22.5±1.5	28.8±2.6	36.8±3.5	90.9±3.5	163.3±24.4	18.3±2.3
	131-140	69	27.4±6.5	64.1±2.4	136.6±2.7	23.5±1.7	30.3±2.6	41.4±3.6	95.1±4.2	162.6±29.9	18.1±2.4
	141-150	70	26.4±5.5	64.9±2.4	146.6±2.7	24.6±1.7	32.0±2.6	46.9±3.9	99.8±4.1	170.4±32.6	18.0±2.1
	151-160	56	27.8±7.3	65.4±2.1	155.9±3.0	25.8±1.7	33.6±2.3	52.4±4.1	103.5±3.5	170.7±37.5	18.3±2.0
	161-170	26	30.0±5.9	67.0±3.1	166.0±2.5	26.2±2.4	34.2±3.2	56.9±5.7	109.1±5.1	166.2±29.8	19.0±2.7
	≥ 171	33	29.4±6.9	68.0±3.0	182.9±10.8	28.0±1.9	36.4±2.4	66.5±6.1	116.4±7.9	196.4±48.9	18.8±2.2
	Total	317	27.5±6.7	64.9±2.9	146.6±18.8	24.5±2.6	31.7±3.8	47.0±10.7	99.7±9.6	168.9±34.7	18.3±2.2

Legend: lb=pounds; n=sample size; BMI=body mass index; kg=kilogram; m=meters; min=minutes

Notes: Army Combat Fitness Test field test data from follow-up survey; % body fat calculated from the following equation: 64.5 – 848 x (1/BMI) + 0.079 x age – 16.4 x sex + 0.05 x sex x age + 39.0 x sex x (1/BMI), where 1 = male and 0 = female (11); fat mass, body weight * percent body fat; lean mass, body weight – fat mass

Table 11. Days Spent Performing Revised *Unit Physical Training* Before Taking the Army Combat Fitness Test

	Event	ACFT FY20 Minimum Standards by Group	0–30 Days of Revised Training	31–90 Days of Revised Training	91–180 Days of Revised Training	≥ 181 Days of Revised Training
Men	ACFT DTMS Deadlift (lb)	200 HVY 180 SIG 140 MOD	236±58* (458)	246±58* (146)	244±59* (249)	260±61 (419)
	ACFT DTMS Standing Power Throw (m)	8.0 HVY 6.5 SIG 4.5 MOD	9.2±1.7* (439)	9.4±1.8* (144)	9.5±1.8 (243)	9.7±1.8 (409)
	ACFT DTMS Hand Release Push-up (reps)	30 HVY 20 SIG 10 MOD	35±10* (453)	37±10 (144)	36±10* (244)	38±11 (398)
	ACFT DTMS Sprint Drag Carry (min)	2.17 HVY 2.50 SIG 3.00 MOD	1.92±0.26* (447)	1.87±0.23 (141)	1.88±0.25 (244)	1.84±0.28 (405)
	ACFT DTMS Leg Tuck (reps)	5 HVY 3 SIG 1 MOD	7.7±5.4* (461)	8.4±5.8 (146)	8.0±5.9* (249)	9.3±6.3 (420)
	ACFT DTMS 2-Mile Run (min)	18.00 HVY 19.00 SIG 21.00 MOD	16.9±2.2* (426)	16.7±2.3 (136)	16.8±1.8 (232)	16.6±2.1 (381)
	ACFT overall score (points)	420 HVY 390 SIG 360 MOD	457±68* (461)	467±69 (146)	463±71* (249)	476±75 (420)

Table 12. Days Spent Performing Revised *Unit Physical Training* Before Taking the Army Combat Fitness Test (continued)

	Event	ACFT FY20 Minimum Standards by Group	0–30 Days of Revised Training	31–90 Days of Revised Training	91–180 Days of Revised Training	≥ 181 Days of Revised Training
Women	ACFT DTMS Deadlift (lbs)	200 HVY 180 SIG 140 MOD	165±29* (91)	181±41 (23)	171±39 (43)	179±34 (52)
	ACFT DTMS Standing Power Throw (m)	8.0 HVY 6.5 SIG 4.5 MOD	5.7±1.5 (97)	5.8±1.4 (24)	5.9±1.5 (44)	6.0±1.2 (51)
	ACFT DTMS Hand Release Push-up (reps)	30 HVY 20 SIG 10 MOD	24±9* (94)	31±10 (24)	27±10 (43)	28±13 (50)
	ACFT DTMS Sprint Drag Carry (min)	2.17 HVY 2.50 SIG 3.00 MOD	2.44±0.36* (97)	2.27±0.31 (25)	2.30±0.32 (43)	2.31±0.32 (50)
	ACFT DTMS Leg Tuck (reps)	5 HVY 3 SIG 1 MOD	1.8±3.4* (100)	3.4±5.3 (25)	2.6±4.4 (44)	3.3±4.6 (52)
	ACFT DTMS 2-Mile Run (min)	18.00 HVY 19.00 SIG 21.00 MOD	18.3±2.0 (90)	17.3±1.9 (23)	18.0±1.8 (42)	17.8±2.1 (46)
	ACFT overall score (points)	420 HVY 390 SIG 360 MOD	332±81* (100)	374±91 (25)	361±74 (44)	375±70 (52)

Legend: ACFT=Army Combat Fitness Test, ACFT field test data from follow-up survey; (n)=sample size, FY=fiscal year; DTMS=Digital Training Management System; HVY=Heavy; SIG=significant; MOD=moderate; lb=pounds; m=meters; min=minutes; reps=repetitions
Notes: ACFT overall score reported out of 600 points; * Represents statistical significance ($p \leq 0.05$) from ANOVA with LSD Post Hoc Test (0–30 Days, 31–90 days, and 91–180 days vs. ≥ 181 Days).

Table 13. Days Spent Performing Revised *Personal Physical Training* Before Taking the ACFT

	Event	ACFT FY20 Minimum Standards by Group	0–30 Days of Revised Training	31–90 Days of Revised Training	91–180 Days of Revised Training	≥ 181 Days of Revised Training
Men	ACFT DTMS Deadlift (lb)	200 HVY 180 SIG 140 MOD	244±61* (958)	239±57* (108)	242±58* (155)	267±60 (164)
	ACFT DTMS Standing Power Throw (m)	8.0 HVY 6.5 SIG 4.5 MOD	9.5±1.8* (933)	9.3±1.6* (106)	9.3±1.7* (149)	10.0±1.8 (161)
	ACFT DTMS Hand Release Push-up (reps)	30 HVY 20 SIG 10 MOD	36±11* (943)	36±11* (107)	36±11* (146)	38±11 (161)
	ACFT DTMS Sprint Drag Carry (min)	2.17 HVY 2.50 SIG 3.00 MOD	1.88±0.27* (939)	1.86±0.23 (102)	1.92±0.26* (152)	1.82±0.29 (162)
	ACFT DTMS Leg Tuck (reps)	5 HVY 3 SIG 1 MOD	8.3±5.8* (964)	8.6±6.0 (108)	8.2±6.3* (156)	9.6±6.5 (165)
	ACFT DTMS 2-Mile Run (min)	18.00 HVY 19.00 SIG 21.00 MOD	16.9±2.3* (905)	16.5±2.0 (102)	16.9±2.4 (141)	16.5±2.0 (153)
	ACFT overall score (points)	420 HVY 390 SIG 360 MOD	466±71* (964)	470±60 (108)	451±86* (156)	482±76 (165)

Table 14. Days Spent Performing Revised *Personal Physical Training* Before Taking the ACFT (continued)

	Event	ACFT FY20 Minimum Standards by Group	0–30 Days of Revised Training	31–90 Days of Revised Training	91–180 Days of Revised Training	≥ 181 Days of Revised Training
Women	ACFT DTMS Deadlift (lb)	200 HVY 180 SIG 140 MOD	168±35* (161)	163±28* (23)	172±37 (39)	180±32 (43)
	ACFT DTMS Standing Power Throw (m)	8.0 HVY 6.5 SIG 4.5 MOD	5.8±1.8 (173)	5.5±1.7 (24)	6.1±1.3 (43)	6.0±0.8 (43)
	ACFT DTMS Hand Release Push-up (reps)	30 HVY 20 SIG 10 MOD	24±11 (173)	22±9* (24)	23±10 (40)	27±10 (40)
	ACFT DTMS Sprint Drag Carry (min)	2.17 HVY 2.50 SIG 3.00 MOD	2.47±0.41* (175)	2.46±0.38* (24)	2.33±0.31 (40)	2.26±0.32 (41)
	ACFT DTMS Leg Tuck (reps)	5 HVY 3 SIG 1 MOD	2.2±4.0 (177)	1.8±3.4 (25)	2.2±4.3 (43)	1.9±2.8 (43)
	ACFT DTMS 2-Mile Run (min)	18.00 HVY 19.00 SIG 21.00 MOD	18.6±2.3* (169)	18.4±1.9 (21)	17.9±2.2 (36)	17.6±1.7 (39)
	ACFT overall score (points)	420 HVY 390 SIG 360 MOD	341±82* (177)	324±86* (25)	347±82 (43)	370±60 (43)

Legend: ACFT=Army Combat Fitness Test, ACFT field test data from follow-up survey; (n)=sample size; FY=fiscal year; DTMS=Digital Training Management System; HVY=Heavy; SIG=significant; MOD=moderate; lb=pounds; m=meters; min=minutes; reps=repetitions
Notes: ACFT overall score reported out of 600 points; * Represents statistical significance (p≤0.05) from ANOVA with LSD Post Hoc Test (0–30 Days, 31–90 days, and 91–180 days vs. ≥ 181 Days).

6.4 Injury Incidence, Limited Duty Days and Leading Injury Body Area, Type, Activity, and Cause

After ACFT field testing, self-reported injury incidence increased for men, while injury incidence remained similar for women (Table 11). However, 1 year following ACFT field testing, overall musculoskeletal and overuse MSKI rates as captured in medical records increased for both men and women compared to the previous year (Table 11). Injury incidence for acute MSKIs remained similar for both men and women before and after ACFT field testing (Table 11).

After ACFT field testing, men reported a greater average number of limited duty days, while the average number of limited duty days remained similar for women before and after ACFT field testing (Table 12).

The leading body area injured during ACFT field testing was the lower back for both men and women followed by the knee (Table 13). The percentage of lower back injuries increased for both men and women after ACFT field testing pilot study; however, the results were not statistically significant for women (Table 13). The leading injury type for both men and women was a strained muscle (Table 13), although it was not significantly different for the percentage of injuries occurring before and after ACFT field testing (Table 13). However, the percentage of other overuse injuries did significantly increase for men after field testing the ACFT. For men, weightlifting injuries increased after ACFT field testing (Table 13). For women, there were no statistically significant differences in the percentage of injuries occurring before and after ACFT field testing for weightlifting. The top three injury causes were the same for both men and women: overuse/repetitive activity; single overuse; and falling onto an object, a surface, or the ground (Table 13). There were no statistically significant differences in the percentage of injuries occurring before and after ACFT field testing by injury cause (Table 13).

Appendix F provides sensitivity tables comparing baseline survey responses to follow-up survey responses for leading injured body areas, injury types, activity type, and causes. Leading injury differences before and after field testing the ACFT between those present for the entire evaluation (matched population, Table 13) compared to those who took the baseline and follow-up survey (survey population, Appendix F) was similar in general. However, there were a few differences in significance for men, most likely due to the larger sample size when comparing the results of the survey population to the matched population. For body area, lower back injuries significantly increased for the matched and survey population, with shoulder injuries also significantly increasing after field testing the ACFT for the survey population. For injury type, other overuse injuries significantly increased after field testing the ACFT for the matched and survey population, while the frequency of sprained joints significantly decreased in the survey population after field testing the ACFT. For injury activity, weight training injuries significantly increased in both the matched and survey population after field testing the ACFT, while the frequency of running injuries significantly decreased in the survey population after field testing the ACFT. For the different causes of injury, there were no significant differences before and after field testing the ACFT for the matched and survey population. For women, the only significant finding was an increase in weight training injuries after field testing the ACFT in the survey population.

Among men, injury was associated with older age, obesity (BMI ≥ 30), performing the least amount of HRPUs, the slowest SDC times, the least amount of LTs, and slower 2MR times (Table 14). Among women, injuries were associated with high overweight status (BMI ≥ 27.5),

performing a moderate amount of HRPUs, slower SDC times, and the slowest 2MR times (Table 14).

A multivariable model including all the ACFT events was not conducted because of multiple moderate to strong correlations between ACFT events (Appendix E). Regarding individual ACFT events and controlling for age and BMI, low performance on five of the six ACFT events was associated with MSKI (from medical records) for men, except for SPT (Table 15). When controlling for age and BMI, low performance on two of the six ACFT events was associated with MSKI (from medical records) for women (Table 15).

Table 15. Comparison of Injury Incidence Before and After Army Combat Fitness Test Field Testing

	Sex	Before ACFT Field Testing	After ACFT Field Testing	Risk Ratio (95%CI)	McNemar p-value
Self-Reported Injury (6mo)	Men	23.2 (202/871)	28.8 (251/871)	1.24 (1.06-1.46)	<0.01
	Women	27.0 (71/263)	30.4 (80/263)	1.13 (0.86-1.48)	0.44
Medical Record MSK Injury (1yr)	Men	40.8 (355/871)	47.6 (415/871)	1.17 (1.05-1.30)	<0.01
	Women	46.0 (121/263)	55.9 147/263)	1.22 (1.03-1.44)	<0.01
Medical Record MSK Overuse (1yr)	Men	38.0 (331/871)	45.2 (394/871)	1.19 (10.6-1.33)	<0.01
	Women	44.9 (118/263)	53.2 (140/263)	1.19 (1.00-1.41)	0.03
Medical Record MSK Acute (1yr)	Men	10.6 (92/871)	12.4 (108/871)	1.17 (0.90-1.53)	0.25
	Women	12.9 (34/263)	14.1 (37/263)	1.09 (0.71-1.68)	0.80

Legend: (n)=sample size, ACFT=Army Combat Fitness Test; mo=month; MSK=musculoskeletal; yr=year
Note: Respondents present for the duration of ACFT field testing.

Table 16. Self-Reported Injury, Injured Soldiers Seen by a Medical Provider, Injuries Resulting in a Profile and Limited Duty Days Before and After ACFT Field Testing for Men and Women

		% Injured	% Seen by Medical Provider	% Injury Resulted in a Profile	Limited Duty Days Mean ± SD	ANOVA p-value
Men who completed both surveys	Before ACFT* Implementation	23.2 (202/871)	73.0 (146/200)	59.6 (87/146)	40.8±44.5 (87/146)	<0.01
	After ACFT** Implementation	28.8 (251/871)	72.1 (181/247)	61.9 (112/181)	60.6±63.4 (112/181)	
Women who completed both surveys	Before ACFT* Implementation	27.0 (71/263)	70.4 (50/71)	48.0 (24/50)	36.2±37.0 (22/50)	0.52
	After ACFT** Implementation	30.4 (80/263)	83.8 (67/79)	58.2 (39/67)	41.1±43.4 (38/67)	

Legend: ACFT=Army Combat Fitness Test; (n)=sample size
Notes: Respondents present for the duration of ACFT field testing.
* 6 months before ACFT field testing.
** 6 months after ACFT field testing.

Table 17. Leading Injured Body Areas, Injury Type, Activity Type, and Cause Before and After Army Combat Fitness Test Field Testing

	Men n=871 Women n=263		Before ACFT Implementation		After ACFT Implementation		McNemar p-value
			n Injured	% Injured	n Injured	% Injured	
Body Area	Men	Lower Back	43	4.9	68	7.8	0.01
		Knee	34	3.9	33	3.8	1.00
		Shoulders	19	2.2	27	3.1	0.26
		Ankle	30	3.4	23	2.6	0.38
		Foot	10	1.1	13	1.5	0.66
	Women	Lower Back	12	4.6	17	6.5	0.42
		Knee	13	4.9	9	3.4	0.48
		Hip	11	4.2	6	2.3	0.30
Injury Type	Men	Strained Muscle	35	4.0	51	5.8	0.09
		Other Overuse Injury	12	1.4	27	3.1	0.02
		Sprained Joint	25	2.9	22	2.5	0.77
		Pain in Body Part	16	1.8	21	2.4	0.49
		Overuse Muscle Pain	20	2.3	19	2.2	1.00
	Women	Strained Muscle	13	4.9	14	5.3	1.00
		Sprained Joint	13	4.9	12	4.6	1.00

Table 18. Leading Injured Body Areas, Injury Type, Activity Type, and Cause Before and After Army Combat Fitness Test Field Testing (continued)

	Men n=871 Women n=263		Before ACFT Implementation		After ACFT Implementation		McNemar p-value
			n Injured	% Injured	n Injured	% Injured	
Activity Type	Men	Physical Training Weightlifting	35	4.0	70	8.0	<0.01
		Physical Training Running	69	7.9	56	6.4	0.26
		Occupational Injuries	11	1.3	15	1.7	0.54
		Sports/Recreation	18	2.1	15	1.7	0.70
	Women	Physical Training Running	27	10.3	29	11.0	0.89
		Physical Training Weightlifting	14	5.3	16	6.1	0.84
Injury Cause	Men	Overuse/Repetitive Activity	98	11.3	112	12.9	0.32
		Single Overuse	40	4.6	46	5.3	0.57
		Falling onto an Object, Surface, Ground	17	2.0	27	3.1	0.16
		Contact an Object Surface	17	2.0	13	1.5	0.59
		Tripping without Falling	11	1.3	9	1.0	0.82
	Women	Overuse/Repetitive Activity	32	12.2	42	16.0	0.27
		Single Overuse	11	4.2	10	3.8	1.00
		Falling onto an Object, Surface, Ground	13	18.3	7	8.9	0.08

Legend: ACFT=Army Combat Fitness Test; n=sample size

Notes: Respondents present for the duration of ACFT field testing. Injuries occurring 6 months before and after ACFT field testing were used for analysis and reported.

Table 19. Associations (OR, 95% CI) of Age, BMI, and Army Combat Fitness Test Events with Musculoskeletal Injury Risk from Medical Records, Unadjusted

	Men					Women				
	Category	n	% Injury	Odds Ratio (95%CI)	p-value	Category	n	% Injury	Odds Ratio (95%CI)	p-value
Age	≤22	627	39.2	1.00		≤22	150	52	1.00	
	23-27	**751**	**44.9**	**1.26 (1.02-1.56)**	**0.04**	23-27	195	54.9	1.12 (0.73-1.72)	0.60
	28-34	702	40.2	1.04 (0.83-1.30)	0.73	28-34	170	52.4	1.01 (0.65-1.57)	0.95
	≥35	**779**	**47.1**	**1.38 (1.12-1.71)**	**<0.01**	≥35	146	54.8	1.12 (0.71-1.77)	0.63
BMI (kg/m^2)	≤24.99	829	39.9	1.00		≤24.99	361	51.2	1.00	
	25.0-27.49	915	40.7	1.03 (0.85-1.25)	0.76	25.0-27.49	185	49.7	0.94 (0.66-1.34)	0.74
	27.5-29.99	627	43.1	1.14 (0.92-1.40)	0.23	**≥27.5**	**110**	**68.2**	**2.04 (1.30-3.20)**	**<0.01**
	≥30.0	**464**	**53.2**	**1.71 (1.36-2.15)**	**<0.01**					
Deadlift (lb)	≤190	433	47.1	1.23 (0.95-1.59)	0.12	≤140	107	50.5	1.00	
	191-235	517	42.0	1.00 (0.78-1.27)	0.97	141-170	119	55.5	1.22 (0.72-2.06)	0.45
	236-295	539	38.4	0.86 (0.67-1.10)	0.22	≥171	138	52.2	1.07 (0.65-1.77)	0.79
	≥296	513	42.1	1.00						
Standing Power Throw (m)	≤8.20	484	42.6	1.00		≤5.10	136	52.2	1.13 (0.69-1.84)	0.63
	8.20-9.30	481	42.2	0.99 (0.76-1.27)	0.91	5.20-6.10	127	55.9	1.31 (0.80-2.16)	0.29
	9.31-10.50	526	40.3	0.91 (0.71-1.17)	0.47	≥6.2	122	49.2	1.00	
	≥10.51	460	42.2	0.98 (0.76-1.27)	0.90					
Hand Release Push-Ups[1] (reps)	**≤29**	**466**	**48.1**	**1.60 (1.23-2.08)**	**<0.01**	≤19	105	53.3	1.31 (0.78-2.20)	0.30
	30-35	576	41.3	1.22 (0.95-1.56)	0.12	**20-28**	**143**	**58.7**	**1.64 (1.01-2.65)**	**0.04**
	36-42	441	42.0	1.25 (0.96-1.63)	0.10	≥29	129	46.5	1.00	
	≥43	475	36.6	1.00						
Sprint Drag Carry[1, 2] (min)	**≥2.06**	**474**	**47.3**	**1.39 (1.07-1.81)**	**0.01**	**≥2.54**	**139**	**59.7**	**2.22 (1.34-3.70)**	**<0.01**
	1.88-2.05	479	41.5	1.11 (0.85-1.44)	0.46	**2.24-2.53**	**118**	**55.1**	**1.84 (1.09-3.11)**	**0.02**
	1.69-1.87	525	41.3	1.10 (0.85-1.42)	0.49	≤2.23	110	40.0	1.00	
	≤1.68	442	39.1	1.00						

Table 20. Associations (OR, 95% CI) of Age, BMI, and Army Combat Fitness Test Events with Musculoskeletal Injury Risk from Medical Records, Unadjusted (continued)

	Men					Women				
	Category	n	% Injury	Odds Ratio (95%CI)	p-value	Category	n	% Injury	Odds Ratio (95%CI)	p-value
Leg Tuck (reps)	**≤3**	**457**	**50.3**	**1.64 (1.27-2.12)**	**<0.01**	0	227	55.9	1.49 (0.91-2.45)	0.11
	4-6	523	40.3	1.09 (0.85-1.40)	0.49	1-3	79	50.6	1.21 (0.66-2.22)	0.55
	7-11	531	41.2	1.13 (0.88-1.45)	0.33	≥4	87	46.0	1.00	
	≥12	502	38.2	1.00						
2-Mile Run[2] (min)	**≥18.04**	**459**	**44.7**	**1.41 (1.08-1.83)**	**0.01**	**≥18.93**	**128**	**60.2**	**2.27 (1.33-3.86)**	**<0.01**
	16.73-18.03	**457**	**44.4**	**1.39 (1.07-1.81)**	**0.01**	17.24-18.92	120	50.8	1.55 (0.91-2.65)	0.11
	15.43-16.72	464	38.1	1.07 (0.82-1.40)	0.60	≤17.23	100	40.0	1.00	
	≤15.42	466	36.5	1.00						

Legend: n=sample size; BMI=body mass index; kg=kilograms; lb=pounds; m=meters; reps=repetitions; min=minutes
Notes: Age and BMI data from follow-up survey. ACFT event data from DTMS (most recent). Data retrieved from follow-up survey and medical musculoskeletal injury record data. [1] Represents a statistically significant Chi-square trend for men; [2] Represents a statistically significant Chi-square trend for women.

Table 21. Association of Each Army Combat Fitness Test Event with Musculoskeletal Injury Risk from Medical Records, Controlling for Age and BMI

	Men				Women			
	Performance Quartile	n	Odds Ratio (95%CI)	p-value	Performance Tertile	n	Odds Ratio (95%CI)	p-value
Deadlift (lb)	**≤190**	**433**	**1.51 (1.16-1.96)**	**<0.01**	≤140	105	0.96 (0.57-1.62)	0.87
	191-235	516	1.20 (0.94-1.54)	0.15	141-170	119	1.21 (0.74-2.00)	0.45
	236-295	537	1.00		≥171	138	1.00	
	≥296	513	1.08 (0.84-1.39)	0.55				
Standing Power Throw (m)	≤8.20	484	1.16 (0.89-1.52)	0.27	≤5.10	135	1.25 (0.75-2.06)	0.39
	8.20-9.30	479	1.09 (0.84-1.42)	0.52	5.20-6.10	126	1.37 (0.82-2.27)	0.23
	9.31-10.50	525	0.95 (0.74-1.23)	0.70	≥6.2	122	1.00	
	≥10.51	460	1.00					
Hand Release Push-Ups (reps)	**≤29**	**464**	**1.55 (1.20-2.02)**	**<0.01**	≤19	104	1.16 (0.69-1.98)	0.58
	30-35	576	1.20 (0.94-1.54)	0.15	20-28	142	1.50 (0.92-2.24)	0.10
	36-42	441	1.24 (0.95-1.62)	0.11	≥29	129	1.00	
	≥43	474	1.00					
Sprint Drag Carry (min)	**≥2.06**	**473**	**1.38 (1.06-1.81)**	**0.02**	**≥2.54**	**137**	**2.16 (1.29-3.62)**	**<0.01**
	1.88-2.05	479	1.10 (0.84-1.43)	0.49	**2.24-2.53**	**118**	**1.91 (1.12-3.25)**	**0.02**
	1.69-1.87	523	1.10 (0.85-1.43)	0.47	≤2.23	110	1.00	
	≤1.68	442	1.00					
Leg Tuck (reps)	**≤3**	**456**	**1.51 (1.15-1.97)**	**<0.01**	0	225	1.35 (0.81-2.25)	0.25
	4-6	522	1.06 (0.82-1.36)	0.68	1-3	79	1.18 (0.63-2.18)	0.61
	7-11	530	1.12 (0.87-1.43)	0.39	≥4	87	1.00	
	≥12	502	1.00					
2-Mile Run[2] (min)	**≥18.04**	**459**	**1.31 (1.00-1.72)**	**0.05**	**≥18.93**	**127**	**2.17 (1.26-3.75)**	**<0.01**
	16.73-18.03	**457**	**1.33 (1.02-1.74)**	**0.04**	17.24-18.92	120	1.59 (0.92-2.75)	0.09
	15.43-16.72	462	1.05 (0.80-1.37)	0.73	≤17.23	99	1.00	
	≤15.42	466	1.00					

Legend: n=sample size; BMI=body mass index; kg=kilograms; lb=pounds; m=meters; reps=repetitions; min=minutes
Notes: Age and BMI data from follow-up survey. Army Combat Fitness Test event data from the Digital Training Management System (most recent).Data retrieved from follow-up survey and medical musculoskeletal injury record data.

7. DISCUSSION

The primary purpose of this evaluation was to assess the impact of implementing a new U.S. Army fitness test, the ACFT, on physical training, fitness, and injury. To capture these data, surveys were administered before and approximately 1 year after ACFT field testing. Results indicate that there were changes in physical training, fitness, and MSKI incidence with ACFT field testing for both men and women. Other studies have also looked at the implementation of new physical training programs and the effects on fitness performance.[19-21] In U.S. Army basic combat training, a new physical training program resulted in higher fitness test pass rates and lower injury rates compared to a traditional basic training physical training program.[20] In a U.S. Air Force combat controller training program, the program was revised from a traditional physical training program to a functional training program. After 8 weeks of training, nearly all fitness parameters had improved based on revised guidelines and overall injury rates had decreased compared to a conventional group. These improvements in fitness and fewer injuries were attributed to a higher graduation rate compared to previous classes.[21]

7.1 Unit and Personal Training

U.S. Army Field Manual 7-22, *Holistic Health and Fitness* defines the overarching goal of physical training as movement lethality. Movement lethality is defined as “the ability to apply and sustain the right amount of strength, endurance, and speed to meet the demands of training and combat physical tasks.”[2] The ACFT is comprised of these critical physical readiness components (i.e., strength, endurance, and speed) and tasks they support (i.e., lift, drag and carry, bear weight, and high-intensity movements).[2]

After ACFT field testing, the largest change to both unit and personal physical training was the increase in time spent per week conducting resistance training. The additional time spent resistance training was most likely due to preparation for the ACFT. The ACFT specifically tests muscular strength, power, and endurance, requiring additional resistance training to prepare Soldiers to meet, or exceed, the new standards. Greater resistance training frequency predicts better performance on ACFT-related measures.[22]

Before ACFT field testing, FORSCOM (30 of 61 battalions) implemented the Soldier Readiness Test (SRT).[23] The SRT had some resemblance to an obstacle course and consisted of three phases performed back-to-back with no rest time between phases. SRT events included a tire flip, Illinois agility drill, and casualty drag in Phase 1. Phase 2 events were specific to the brigade combat team mission such as sandbag carry and stack for Infantry, and Phase 3 events consisted of a 1.5-mile movement going over two 4-foot obstacles and under two 4-foot obstacles.[23] The objective was to train for a wide range of fitness components with the goal of enhancing general physical preparedness. Soldiers spent around 70 minutes per week during personal physical training engaging in obstacle course training before ACFT field testing. Around the time ACFT field testing began, the SRT ended and obstacle course training during personal physical training decreased from approximately 70 minutes per week to 2–4 minutes per week. Therefore, the time spent obstacle course training before ACFT field testing may have been related to the SRT. Further evidence that Soldiers adapt their physical training programs based on current fitness requirements.

7.2 ACFT Performance

At the time of this ACFT field test, the ACFT had age and sex-neutral MOS Standards. ACFT pass rates differed by sex, with a 75.6% pass rate for men and 27.2% for women. The discrepancy in ACFT pass rates between men and women were largely attributed to the LT event, which had an 87% higher failure rate for women compared to men. The LT measures core strength but requires adequate upper body strength to perform it (holding up one's body weight while hanging from a bar and pulling upward with each LT repetition). Part of performing a LT includes a modified pull up without pulling one's chin over the top of the bar. In a previous investigation of light Infantry Soldiers, 38% (1,007 out of 2,665) of men were only able to perform two or less pull-ups, while 89% (185 out of 208) of women could not perform any pull-ups.[24] This low level of upper body strength, particularly among women, would inhibit a Soldier from demonstrating their core strength due to an inability or limited ability to hold or pull up their body weight. As of March 2022, the LT was replaced with the plank.[7] Alternatively, the plank requires less upper body strength and measures core strength.

The event with the highest pass rates for men and women was HRPUs. Since push-ups have been part of the APFT since 1980, Soldiers have most likely included push-ups in previous training programs. Therefore, moving to the HRPUs should have been an easier transition compared to other, less familiar events, such as the SPT.

Men in the middle age groups (23 to 34 years old) had the highest performance on all six ACFT events compared to younger and older men. This could be due to greater exposure and experience performing these types of tasks compared to younger Soldiers. A greater number of injuries throughout their time in service may have influenced older Soldiers' performance. Unlike men, women generally had similar performance by age group on all six ACFT events. ACFT performance among women may have been largely similar due to the lower number of women participating with recent ACFT performance data (397 women compared to 2021 men).

Higher and lower body mass and body composition had an influence on ACFT performance for men and women, which may be specific to physical attributes measured by certain events (e.g., aerobic endurance vs. muscular strength, and power events). For instance, men and women with a higher BMI, percent body fat, and body mass had higher performance on the ACFT DL and SPT, while men and women with a lower BMI, percent body fat, and body mass had higher performance on the LT and 2MR. In a previous study investigating body composition of Army Infantry Soldiers, Soldiers with a higher BMI had a greater amount of lean body mass along with a greater amount of fat mass.[25,26] The increases in muscle mass associated with higher BMI could have contributed to higher performance on muscular strength assessments. Other studies have shown that muscular strength is somewhat associated with greater body mass and higher BMI.[27,28] In an investigation of movement performance and body size, weak to moderate positive correlations were shown between body weight and muscular strength tests (r=0.32 to 0.50).[27] In another investigation of muscular strength and body composition, a muscular strength index based on leg extension, bench press, and grip strength performance also had weak to moderate positive correlations with BMI (r=0.31) and fat free mass (r=0.52).[28]

In contrast to higher BMI and performance on tests of muscular strength, lower BMI, percent body fat, and body mass were associated with higher performance on aerobic and muscular endurance fitness tests. In a study of muscular endurance and body composition, a muscular endurance index based on push-ups, sit-ups, and repeated squat performance had weak-to-

moderate negative correlations with BMI, percent body fat, waist circumference, and fat mass (r= -0.33 to -0.52).[28] In an investigation of movement and body size, weak to moderate negative correlations were also shown between body weight and tests of muscular endurance (r= -0.27 to -0.31).[27] In a longitudinal study investigating cardiorespiratory endurance and body composition, cardiorespiratory endurance decreased by 0.20 metabolic equivalents (METs) for women and by 0.32 METs for men for each unit of increase in BMI. The study also found that cardiorespiratory fitness declined at a nonlinear rate, which accelerated after the age of 45 years old. Suggested factors to minimize loss of cardiorespiratory fitness were maintaining a lower BMI, being physically active, and not smoking.[29] Since higher and lower body mass and composition had an influence on ACFT performance, Soldiers should strive to maintain a healthy body composition and to excel in both cardiorespiratory and muscular strength performance.

Based on ACFT field testing, most unit's fitness leaders or professionals, such as strength and conditioning coaches, and Soldiers revised their physical training programs. In general, Soldiers who had been participating in a revised physical fitness program for 6 months had higher ACFT performance compared to those who had trained less than 6 months for men and less than 30 and 90 days for women. Other military studies have also shown that fitness performance improves with revised training.[19-21,30,31]

7.3 Musculoskeletal Injuries, Limited Duty Days, and Injury Risk Factors

MSKI rates, as captured by medical record data, were higher after ACFT field testing for both men and women. Higher injury rates may have partly been attributed to greater amounts of time spent strength training. Strength training was the leading activity associated with injury for men and the second leading activity associated with injury for women. After ACFT field testing, Soldiers spent more time strength training and most likely added new strength training exercises as well as other exercises such as agility, mobility, and high intensity activities in preparation for the ACFT. Strength training, or specific exercises, as well as other new training activities may have been unfamiliar to Soldiers. Injuries commonly occur at the implementation of new physical training programs.[32,33] Physical training programs that ramp up too quickly and lack training on proper form may attribute to an increased risk of an MSKI. Another potential reason for the increased injury rates after ACFT field testing may be the direct access to fitness and medical professionals who were onsite and part of the FORSCOM battalions. Therefore, Soldiers who had been unlikely to seek medical attention may have sought medical care since it was convenient and took minimal effort.

MSKI limited duty days increased for men but remained similar for women after ACFT field testing. While Soldiers in FORSCOM units had medical and fitness professionals located within their battalion, non-FORSCOM Soldiers did not and would have sought care through medical treatment facilities. For Soldiers who did not have battalion medical and fitness providers, the referral process to see a physical therapist or other medical specialist takes approximately 10–14 days after seeing a primary care provider.[34] It is possible that injuries worsened during this lag between provider visits, which may have resulted in more limited duty days. Whereas Soldiers with battalion medical and fitness providers may have been seen on the same day, resulting in less severity and fewer limited duty days. A study using Military Health System data indicated that early referral to physical therapy for treatment of low back pain resulted in lower utilization of treatments such as lumbar spinal injections, lumbar spine surgery, and use of opioids.[35] These early referrals resulted in substantial cost savings and enhanced patient well-

being.[35] Studies using a national database of employer-sponsored health plans, as well as Medicare and Medicaid data, also indicated a lower risk of back surgery, lumbar spinal injections, and the use of opioids, with early access to physical therapy.[36,37] Early access to care may reduce injury severity and the number of limited duty days, but access to care was improved only in the FORSCOM units involved in the ACFT field testing.

Low performance on five of six ACFT events for men and two of the six ACFT events for women was associated with a higher risk of MSKI compared to those with the highest ACFT performance. Previous investigations of aerobic endurance, muscular endurance, muscular strength, anaerobic power, and anaerobic endurance also indicated higher injury risk for low performers compared to high performers.[1,38,39] In a review investigating U.S. Army Soldiers and injury prevention, Soldiers with the lowest muscular endurance (e.g., push-ups and sit-ups) and aerobic endurance (e.g., 2MR), as measured by the APFT, were at a higher risk of injury.[1] In a study investigating amateur athletes, those deadlifting 1.0 to 1.7 times their body weight were 4.53 times more likely to experience an injury compared to those deadlifting 3.0 or more times their body weight.[39] In collegiate athletes, men with a relative squat below 2.2 and women with a relative squat below 1.6 times their body weight were more susceptible to injury risk.[37] For sprint performance, those who were slower over 5-, 10-, and 20-meter distances were at a higher risk of injury compared to faster athletes.[39] In general, higher physical performance, whether muscular strength, muscular endurance, or aerobic endurance has a protective effect against MSKI. This protective effect against MSKI was also associated with higher ACFT performance.

8. LIMITATIONS

- Small study sample size for women may have limited generalizability and ability to detect differences.
- Selection bias may have been present, and it is unknown how representative the study sample is compared to the U.S. Army population.
- Information bias may have occurred, as Soldiers were asked to self-report or recall prior events up to 12 months.
- For the sub sample of Soldiers who completed both surveys, (matched group) the sample size was much smaller compared to the baseline and follow-up survey groups. Therefore, the before and after analysis used a smaller sample of Soldiers. However, sensitivity tables using the baseline and follow-up survey groups were also calculated, and the overall results were generally similar to the matched group.
- Early ACFT performance and injury risk may not be generalizable to current performance and injury risk due to differences in training and development over time. Additionally, the ACFT was considered a “diagnostic” test during this study period with no promotion implications and changes to score standards at least once per fiscal year. These factors make it difficult to assess if the raw event performance and scores represent maximum performance.
- Prior MSKI could be a potential cofounder for the association between ACFT performance and post-ACFT injury risk. However, prior injury was not strongly associated with ACFT performance and, therefore, was only weakly associated with ACFT performance and injury risk.
- The plank was not an event at the time of this study, rather the LT was the mandatory event. A cautionary note in the data was the inability to determine if a LT was attempted or not due to inconsistency in the use of ‘0’ and missing values in the data for raw LT performance and LT scores.

9. CONCLUSIONS AND IMPLICATIONS

9.1 Conclusions

On October 1, 2020, the ACFT replaced the APFT as the U.S. Army's physical fitness test of record. Unlike the APFT, ACFT events measure a range of fitness elements, including strength, power, agility, balance, flexibility, and anaerobic and aerobic endurance. One goal of the ACFT was to transform the U.S. Army's training culture and how Soldiers train. Data suggest that ACFT implementation motivated leadership as well as Soldiers to invest additional time performing unit and personal weight training. Furthermore, ACFT performance generally improved with 6 or more months of revised physical training versus 0 to 30 days. Another change compared to the APFT is that specific events in which Soldiers of both high and low body mass can excel in performance. Soldiers with greater body mass exceled on events requiring strength, while Soldiers of lower body mass exceled on events requiring aerobic endurance. During this ACFT field testing period, ACFT pass rates for men were much higher compared to women, with the LT having the highest failure rates for both men and women. Since this evaluation, ACFT performance standards were changed and are now stratified by age and sex, with the plank replacing the LT event. Injury incidence was higher for men and women after ACFT field testing, with weight training being the leading activity associated with injury for men and second leading activity for women. A majority of the ACFT events were associated with injury risk for men based on low compared to high ACFT performance, with low performance on two events being associated with injury risk for women.

9.2 Implications

With the implementation of a new physical fitness test, Soldiers adapted their training to meet the demands of the new or modified physical fitness assessment. Performing new or unfamiliar exercises may lead to a higher risk of injury. Prior studies suggest that time to adapt, learn proper form, and become familiar with new exercises will mitigate injury risk. Low performance on the DL, HRPU, SDC, LT, and 2MR ACFT events may identify men at a higher risk of MSKI. Low performance on the SDC and 2MR ACFT events may identify women at a higher risk of MSKI. ACFT performance improved with 6 or more months of revised physical training prior to taking the test. Allowing an adequate amount of time to physically train for the ACFT before an initial test of record is essential. When comparing men and women, there were large differences in ACFT pass rates during the ACFT field test using age and sex-neutral standards. However, performance standards as of April 1, 2022 were adjusted by age and sex to account for physiological differences between men and women. ACFT performance standards will likely continue to adapt as Soldiers become more familiar with the test and performance will likely improve with time and familiarity.

10. POINT OF CONTACT

The DCPH-A Injury Prevention Branch is the point of contact for this project. For additional information, please visit the DCPH-A IPB website at: https://ph.health.mil/topics/discond/ptsaip/Pages/default.aspx, or by email at dha.apg.pub-health-a.mbx.injuryprevention@health.mil. Specific questions may be directed to author(s) listed at the front of this report.

Approved:

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APPENDIX A

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APPENDIX B

TRADOC H2F BASELINE SURVEY

H2F Survey - Email [English (United States)]

On behalf of the U.S. Army Training and Doctrine Command (TRADOC), the U.S. Army Public Health Center (APHC) invites you to participate in the Army Combat Fitness Test (ACFT) evaluation for Active Duty Soldiers. Our goal is to help inform future policy decisions by TRADOC about the health and fitness of Soldiers. Your participation is requested to help us achieve this goal.

If you agree to participate, we will: 1) collect some basic background/administrative information about you in this survey; 2) obtain your SSN in order to link your survey information with other hard copy and/or electronic data; and 3) obtain your recent Army Physical Fitness Test (APFT) and Army Combat Fitness Test (ACFT) scores and injury related electronic medical records from 12 months prior and 24 months during the ACFT period from October 2018 to October 2020. We need this information to compare responses and identify trends in injury data as they relate to the ACFT.

To protect your identity: 1) any paper files will be shredded after scanning; 2) we remove SSN's and name after data are linked; 3) all electronic data will be password protected; 4) all data will be transferred by an encrypted e-mail; 5) all data will be stored on a secured network; and 6) only group (aggregate) responses will be reported. Your individual responses will never be reported or linked back to you. We are not assessing or reporting the health and fitness of any single individual.

This electronic survey will take approximately 10 to 15 minutes and must be completed in one sitting. If you do not complete the survey within one session, you will have to start over. Therefore, please reserve sufficient time to complete the survey. You may be asked to complete an additional follow up survey after 12 months and possibly at 24 months. The 12 and 24 month follow-up surveys will also be sent electronically. Your participation in the follow-up surveys is voluntary.

Your participation in this survey is voluntary, and you may withdraw your consent to link your survey data and medical records at any time, without consequences. If you have any questions about the survey, use of your data, or wish to opt out at any time in the future, please e-mail the Injury Prevention Division, APHC at usarmy.apg.medcom- phc.mbx.injuryprevention@mail.mil. You may also contact the APHC Human Protection Administrator at dha.apg.pub-health-a.list.g6-admin-office-of-human-protection@health.mil.

(End of Page 1)

PRIVACY ACT STATEMENT – HEALTH CARE RECORDS, FITNESS TEST SCORES, AND QUESTIONNAIRE

1. AUTHORITY FOR COLLECTION OF INFORMATION INCLUDING SOCIAL SECURITY NUMBER
Public Law 104-191, Section 1178; Executive Order 9397; Section 8103, Title 5, United States Code; DoD 6025.18, DoD Health Information Privacy Regulation, December 2, 2009; DoD 6025.18R, Privacy of Individually Identifiable Health Information, January 24, 2003; AR 40-5, Preventive Medicine, 26 May 2007

2. PRINCIPLE PURPOSES FOR WHICH INFORMATION IS INTENDED TO BE USED

The primary use of this information is to evaluate the Army Combat Fitness Test (ACFT). The objective of this evaluation is to determine health and physical readiness attributed to the ACFT. This survey requests information on current physical fitness activities, sleep, tobacco use and previous or current injuries.

We will need to obtain your SSN number in order to link your survey information with data such as Army Physical Fitness Test (APFT) and Army Combat Readiness Test (ACFT) scores and injuries from your medical records. The information obtained from your medical records will only be related to musculoskeletal injuries occurring over a 24-36 month period. The 24-36 month period will go back 12 months and forward up to 24 months from the survey date. No other medical information other than those pertaining to musculoskeletal injuries will be obtained. Using your SSN number is the only way this can be accomplished.

To protect your identity, we strictly limit access to your information including your SSN by storing all electronic files on a secure network that is password protected, and removing SSN and name after data are linked.

3. ROUTINE USES

The data obtained from the questionnaires will be included in a database that contains the same information for all Soldiers participating in this ACFT evaluation. You will not be personally identified in any report or any output of any type since the interest is in the health and fitness of the Unit and not the health and fitness of any single individual.

The database that is established will identify current levels of fitness, injury rates, injury trends, and factors that lower Soldiers' risk of injury and enhance fitness. The database will be used to make recommendations to decision makers regarding programs and policies that could improve fitness and reduce the incidence of injury.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION

Your participation in this survey is voluntary, and you may withdraw your consent to link your survey data and medical records at any time, without consequences. If you have any questions about the survey, use of your data, or wish to opt out at any time in the future, please e-mail the Injury Prevention Division, APHC at usarmy.apg.medcom- phc.mbx.injuryprevention@mail.mil
You may also contact the APHC Human Protection Administrator at dha.apg.pub-health-a.list.g6-admin-office-of-human-protection@health.mil.

By volunteering to participate in this evaluation, the APHC Injury Prevention Division team will be able to further improve the health and fitness of Soldiers by evaluating injury, physical training and physical fitness.

351. Signature of Participant (Please print name)

352. Today's Date

(End of Page 2)

Demographics

2. Background Details
First Name Last Name SSN (NO dashes)

3. What is your sex?
- □ Male
- □ Female

203. What is your age?
- □ 17
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205. What is your weight (lbs)?

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204. What is your height (feet'inches")?

- 4'2"
- 4'3"
- 4'4"
- 4'5"
- 4'6"
- 4'7"
- 4'8"
- 4'9"
- 4'10"
- 4'11"
- 5'0"
- 5'1"
- 5'2"
- 5'3"
- 5'4"
- 5'5"
- 5'6"
- 5'7"
- 5'8"
- 5'9"
- 5'10"
- 5'11"
- 6'0"
- 6'1"
- 6'2"
- 6'3"
- 6'4"
- 6'5"
- 6'6"
- 6'7"
- 6'8"
- 6'9"
- 6'10"
- 6'11"
- 7'0"
- 7'2"

5. What is your component?

- Active duty
- Reserve
- National Guard
- Other (Please Specify)

6. What is your military occupational specialty (MOS)? (e.g., 11B)
Please Specify

220. What is your rank?

- O1

- □ O2
- □ O3
- □ O4
- □ O5
- □ O6
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- □ E4
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- □ W5
- □ Other

(End of Page 3)

356. What is your current battalion?

- □ 1-1 CAV
- □ 1-6 IN
- □ 1-35 AR
- □ 1-37 AR
- □ 4-27 FA
- □ 40 BEB
- □ 47 SPT
- □ 22 CHEM
- □ 163 MI
- □ 4-5 ADA
- □ 1-87 IN
- □ 3-71 CAV
- □ 1-32 IN
- □ 10 BSB
- □ 3 GSAB
- □ 5-20 IN
- □ 2-3 IN
- □ 1-23 IN
- □ 296 SPT
- □ 5-3 FA
- □ 502 MI
- □ 27 EN
- □ 519 MI
- □ 1-7 ADA
- □ 264 CSSB
- □ 519 MP
- □ 19 EN

- □ 97 MP
- □ 1-18 IN
- □ 1-293 IN
- □ TRADOC STB
- □ 1-222 AV Rgt
- □ VMI (SMC)
- □ Richmond BN
- □ 3-34 IN
- □ 1-19 IN
- □ 212 CSH
- □ 709 MP
- □ 2-503 IN
- □ 18 CSSB
- □ 1-21 IN
- □ 2-35 IN
- □ 3-25 AV
- □ 78 SIGNAL
- □ 429 BSB
- □ 1-178 FA
- □ 3-142 AV
- □ 1-293 IN
- □ 419 CSSB
- □ 362 QM
- □ 268 EN
- □ 77 CSSB
- □ 980 BN
- □ 372 MI
- □ 411 OD
- □ 1st Ranger BN
- □ 1SFG/Group Spt BN
- □ McDonald Army Health Center
- □ Brook Army Medical Hospital
- □ Other (Please Specify):

357. What is your current company?

(End of Page 4)

Army Physical Fitness Test (APFT)

60. What was the approximate date of your most recent APFT?
Approximate Date (mm/dd/yyyy)

What were the raw scores on your most recent APFT?

61. Push-Ups (repetitions)
- □ I have a profile and did not perform push-ups
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5

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- □ 140+

328. Sit-Ups (repetitions)
- □ I have a profile and did not perform sit-ups
- □ 1
- □ 2
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- □ 140+

329. 2 Mile Run Time (min:sec) Enter 0 if you have a profile and did not perform run.
Minutes Seconds

330. Other Event
Please Specify:

(End of Page 5)

354. Please rate how confident you are in performing your combat-related physical duties right now:
- □ 0 (No Confidence)
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10 (Complete Confidence)

This Question is Conditionally Shown if: (354 = 0 (No Confidence) OR354 = 1 OR354 = 2 OR354 = 3 OR354 = 4 OR354 = 5 OR354 = 6)

355. What reason(s) describe your confidence level? (Select all that apply)
- □ Current Injury
- □ Past Injury
- □ I want to improve my current fitness level
- □ I am worried about getting injured
- □ I want more military training
- □ Other (Please Specify)

(End of Page 6)

Injury History (previous 12 months)

This next series of questions will ask you about injures occurring in the last 12 months. Include injuries that are acute (sudden and unexpected) such as twisting an ankle or being in a car crash and those caused by overuse (pain that develops over time from activities such as running multiple times or repeatedly lifting objects). An injury is damage or pain to a muscle, joint, bone or nerve that made it more difficult to work, do physical training or perform other activities.

111. How many injuries have you experienced in the last 12 months?

- None
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more

Destination: Unit PT (Set in 111 (None))

(End of Page 7)

If you reported more than 1 injury, please first answer the questions pertaining to the injury that MOST limited your physical abilities in the last 12 months (injury #1). You will then be asked the same questions for your 2nd most physically limiting injury (injury #2). Even if you reported 3 or more injuries, you will only be asked questions on the 2 most physically limiting injuries.

267. Estimate the approximate date of the most serious injury (#1) (past 12 months).
Specify Date

114. What was the primary body area injured?
- Head
- Neck
- Shoulders
- Upper Arm (bicep/tricep)
- Lower Arm (forearm)
- Elbow
- Wrist
- Hand
- Chest/ribs
- Abdomen
- Back (lower)
- Back (upper)
- Hip
- Upper leg (Thigh/Hamstring)
- Lower leg (Shin/Calf)
- Knee
- Ankle
- Foot
- Other (Please Specify)

115. What was the type of injury #1?
- Bursitis
- Overuse muscle pain
- Runner's knee (pain around knee cap)
- Shin splint
- Stress fracture or stress reaction
- Tendonitits
- Other overuse injury (Please Specify)

- □ Bruise (Contusion)
- □ Concussion
- □ Dislocation
- □ Fracture (broken bone)
- □ Laceration (cut)
- □ Nerve injury
- □ Pain in body part (not otherwise specified)
- □ Sprained joint
- □ Strained muscle
- □ Torn meniscus/cartilage
- □ Not otherwise specified

(End of Page 8)

116. What activity were you doing when this injury occurred?
- □ Physical training (running for physical training)
- □ Physical training (weight training for physical training)
- □ Other physical training (Please Specify)
- □ Lifting or moving heavy objects (not weight training)
- □ Repairing or maintaining equipment
- □ Riding or driving a motorized vehicle (car, armored vehicles)
- □ Moving in or around a stationary motor vehicle
- □ Rough-housing or fighting
- □ Combative training / Combative competition
- □ Obstacle Course
- □ Sports/recreation (such as soccer or basketball)
- □ Stepping up/climbing
- □ Walking or hiking (not foot marching)
- □ Occupational injuries (job related tasks)
- □ Other (Please Specify)

160. What was the cause associated with injury #1?
- □ Burn (such as by fire, hot substance or object, or steam)
- □ Contact (hit by/against) an object/surface (Please Specify Object)

- □ Cut or puncture by a sharp tool, object or instrument
- □ Direct contact by a person
- □ Falling onto an object, surface, or the ground
- □ Impact from a blast
- □ Overuse/repetitive activity
- □ Single overexertion/over-extension/twisting effort
- □ Tripping without falling
- □ Other (Please Specify)

Destination: Injury 1 cause (Set in 116) Destination: Medical Professional 1 (Set in 160)

(End of Page 9)

162. Have you been seen by a medical professional for injury #1?
- □ Yes
- □ No

This Question is Conditionally Shown if: (162 = No)

366. What reason best describes why you did not see a medical provider for your injury?
- □ My injury was not severe enough to require medical care
- □ I did not have time to seek medical care
- □ I tried to seek medical care but was not able to find an appointment that fit with my schedule
- □ I did not want to get a profile
- □ Other (Please specify):

This Question is Conditionally Shown if: (162 = Yes)

367. How long (in days) did it take from the time of your injury to see a medical professional?

(End of Page 10)

This Page is Conditionally Shown if: (162 = Yes)

123. Were you placed on a medical profile by a medical professional for injury #1?
- □ Yes
- □ No

(End of Page 11)

This Page is Conditionally Shown if: (123 = Yes)

224. How many days were you placed on profile for injury #1?
Number of Days

(End of Page 12)

This Page is Conditionally Hidden if: (111 = None OR111 = 1)

These next questions will ask about injury #2 that you experienced in the past 12 months.

331. Estimate the approximate date of the second most serious injury (#2) in the past 12 months.
Specify Date

332. What was the primary body area injured?
- □ Head
- □ Neck
- □ Shoulders
- □ Upper Arm (bicep/tricep)
- □ Lower Arm (forearm)
- □ Elbow
- □ Wrist
- □ Hand
- □ Chest/ribs
- □ Abdomen
- □ Back (lower)
- □ Back (upper)
- □ Hip
- □ Upper leg (Thigh/Hamstring)
- □ Lower leg (Shin/Calf)

- Knee
- Ankle
- Foot
- Other (Please Specify)

333. What was the type of injury #2?
- Bursitis
- Overuse muscle pain
- Runner's knee (pain around knee cap)
- Shin splint
- Stress fracture or stress reaction
- Tendonitits
- Other overuse injury (Please Specify)
- Bruise (Contusion)
- Concussion
- Dislocation
- Fracture (broken bone)
- Laceration (cut)
- Nerve injury
- Pain in body part (not otherwise specified)
- Sprained joint
- Strained muscle
- Torn meniscus/cartilage
- Not otherwise specified

(End of Page 13)

This Page is Conditionally Hidden if: (111 = None OR111 = 1)

334. What activity were you doing when this injury occurred?
- Physical training (running for physical training)
- Physical training (weight training for physical training)
- Other physical training (Please Specify)
- Lifting or moving heavy objects (not weight training)
- Repairing or maintaining equipment
- Riding or driving a motorized vehicle (car, armored vehicles)
- Moving in or around a stationary motor vehicle
- Rough-housing or fighting
- Combative training / Combative competition
- Obstacle Course
- Sports/recreation (such as soccer or basketball)
- Stepping up/climbing
- Walking or hiking (not foot marching)
- Occupational injuries (job related tasks)
- Other (Please Specify)

335. What was the cause associated with injury #2?
- Burn (such as by fire, hot substance or object, or steam)
- Contact (hit by/against) an object/surface (Please Specify Object)

- Cut or puncture by a sharp tool, object or instrument
- Direct contact by a person
- Falling onto an object, surface, or the ground

- □ Impact from a blast
- □ Overuse/repetitive activity
- □ Single overexertion/over-extension/twisting effort
- □ Tripping without falling
- □ Other (Please Specify)

Destination: Medical Professional 1 (Set in 335)

(End of Page 14)

This Page is Conditionally Hidden if: (111 = None OR111 = 1)
121. Have you been seen by a medical professional for injury #2?
- □ Yes
- □ No

This Question is Conditionally Shown if: (121 = No)
370. What reason best describes why you did not see a medical provider for your injury?
- □ My injury was not severe enough to require medical care
- □ I did not have time to seek medical care
- □ I tried to seek medical care but was not able to find an appointment that fit with my schedule
- □ I did not want to get a profile
- □ Other (Please specify):

This Question is Conditionally Shown if: (121 = Yes)
368. How long (in days) did it take from the time of your injury to see a medical professional?

(End of Page 15)

This Page is Conditionally Shown if: (121 = Yes)
164. Were you placed on a medical profile by a medical professional for injury #2?
- □ Yes
- □ No

(End of Page 16)

This Page is Conditionally Shown if: (164 = Yes)
226. How many days were you placed on profile for injury #2?
Number of Days

(End of Page 17)

Unit Physical Training (PT)

184. Do you currently participate in unit PT (i.e., road marching, running, calisthenics, or strength training with your unit)?
- □ Yes
- □ No

This Question is Conditionally Shown if: (184 = Yes)
371. Has your unit recently changed the way it trains in anticipation of the upcoming Army Combat Fitness Test?
- □ Yes
- □ No

This Text Block is Conditionally Shown if: (371 = Yes)
Please answer the following questions about your unit PT before you started training for the Army Combat Fitness Test (ACFT)
Destination: Personal PT (Set in 184 (No))

(End of Page 18)

188. On average, how often do you participate in unit PT each week?
- □ 1 time per week
- □ 2 times per week
- □ 3 times per week
- □ 4 times per week
- □ 5 times per week
- □ 6 times per week
- □ 7 times per week
- □ More than 7 times per week

185. How would you rate your unit PT?
- □ Challenging
- □ Hard
- □ Somewhat Hard
- □ Moderate
- □ Easy

(End of Page 19)

350. For Distance running (running continuously for 1 mile or greater) with your unit, please select your average DISTANCE (miles per time you ran) and FREQUENCY (number of times per week) during the typical week over the last 12 months.

On average, how many times per week did you run for unit PT?

Unit PT Distance running
- □ None
- □ 1 time per week
- □ 2 times per week
- □ 3 times per week
- □ 4 times per week
- □ 5 times per week
- □ 6 times per week
- □ 7 times per week
- □ > 7 times per week

Unit PT Distance running
Each time you ran for unit PT, on average, how many miles did you run?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

269. At about what pace does your unit usually run when performing unit distance running?

- □ No Distance Running
- □ 5 minute mile
- □ 6 minute mile
- □ 7 minute mile
- □ 8 minute mile
- □ 9 minute mile
- □ 10 minute mile
- □ 11 minute mile
- □ 12 minute mile
- □ Other (Please specify)

(End of Page 20)

212. For the below listed exercise activities with your unit, please select your average FREQUENCY (number of times per week) and DURATION (minutes per event) of participation during the typical week over the last 12 months.

Sprints are short bursts of speed that cannot be sustained for more than a few minutes. Intervals are short periods of high speed running mixed with periods of jogging or walking.
Calisthenics include jumping jacks, windmills, mountain climbers, etc.
Cross-training type exercises include circuit training and combinations of exercises to work various parts of the body.
Agility drills are drills requiring lateral movements, typically using cones or ladders, obstacle course, etc.
Resistance training is weight lifting using free weights, dumbbells, kettlebells, hammer-strength machines, etc.

On average, how many times per week did you perform the activity with your unit?

None 1 time per week 2 times per week 3 times per week 4 times per week
5 times per week 6 times per week 7 times per week >7 times per week

Sprinting/Interval Training	□	□	□	□	□	□	□	□	□
Calisthenics	□	□	□	□	□	□	□	□	□
Cross-training type of exercises	□	□	□	□	□	□	□	□	□
Agility drills	□	□	□	□	□	□	□	□	□
Resistance training	□	□	□	□	□	□	□	□	□
Obstacle Course	□	□	□	□	□	□	□	□	□

On average, how many minutes per event did you perform this activity with your unit? (If none, please enter '0')

Sprinting/Interval Training

Calisthenics

Cross-training type of exercises
Agility drills

Resistance training

Obstacle Course

304. Do you perform unit foot marches?
- Yes
- No

Destination: Personal PT (Set in 304 (No))

(End of Page 21)

This Page is Conditionally Shown if: (304 = Yes)
243. On average, how many times per month did you perform foot marching with your unit in the last 12 months?

242. On average, how many miles did you road march with your unit per month in the last 12 months?

241. On average, how heavy was your march load (in lbs.) each time you road marched with your unit in the last 12 months?

(End of Page 22)

Personal Physical Training (PT)

46. Do you perform PT on your own time?
- Yes
- No

This Question is Conditionally Shown if: (46 = Yes)
372. Have you recently changed the way you train in anticipation of the upcoming Army Combat Fitness Test?
- Yes
- No

This Text Block is Conditionally Shown if: (372 = Yes)
Please answer the following questions about your personal PT before you started training for the Army Combat Fitness Test (ACFT)
Destination: Tobacco (Set in 46 (No))

(End of Page 23)

215. For Distance running (running continuously for 1 mile or greater) for personal PT, please select your average DISTANCE (miles per time you ran) and FREQUENCY (number of times per week) during the typical week over the last 12 months.
On average, how many times per week did you run for personal PT?

Personal PT Distance running
- None
- 1 time per week
- 2 times per week
- 3 times per week
- 4 times per week
- 5 times per week
- 6 times per week
- 7 times per week
- > 7 times per week

Unit PT Distance running
Each time you ran for personal PT, on average, how many miles did you run?
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

270. At about what pace during personal PT do you usually run when performing distance running?
- No Distance Running
- 5 minute mile
- 6 minute mile
- 7 minute mile
- 8 minute mile
- 9 minute mile
- 10 minute mile
- 11 minute mile
- 12 minute mile
- Other (Please specify)

216. For the below listed exercise activities for personal PT, please select your average FREQUENCY (number of times per week) and DURATION (minutes per event) of participation during the typical week over the last 12 months.

Sprints are short bursts of speed that cannot be sustained for more than a few minutes. Intervals are short periods of high speed running mixed with periods of jogging or walking.
Calisthenics include jumping jacks, windmills, mountain climbers, etc.
Cross-training type exercises include circuit training and combinations of exercises to work various parts of the body.
Agility drills are drills requiring lateral movements, typically using cones or ladders, obstacle course, etc.
Aerobic endurance activities include elliptical machines, rowing machine, cycling, stair steppers. DO NOT include running.
Resistance training is weight lifting using free weights, dumbbells, kettlebells, hammer-strength machines, etc.

On average, how many times per week did you perform the activity?

None 1 time per week 2 times per week 3 times per week 4 times per week 5 times per week 6 times per week 7 times per week >7 times per week

Sprinting/Interval Training	□	□	□	□	□	□	□	□	□
Calisthenics	□	□	□	□	□	□	□	□	□
Cross-training type of exercises	□	□	□	□	□	□	□	□	□
Agility drills	□	□	□	□	□	□	□	□	□
Other aerobic endurance activities that do NOT involve running	□	□	□	□	□	□	□	□	□
Resistance training	□	□	□	□	□	□	□	□	□

Each time performed this activity for personal PT, on average, how many minutes did you perform the activity? (If none, please enter '0')

Sprinting/Interval Training
Calisthenics
Cross-training type of exercises
Agility drills
Other aerobic endurance activities that do NOT involve running
Resistance training

306. Do you perform personal foot marches?
□ Yes
□ No

Destination: Tobacco (Set in 306 (No))

(End of Page 24)

This Page is Conditionally Shown if: (306 = Yes)

307. On average, how many times per month did you personally perform foot marching in the last 12 months?

308. On average, how many miles did you personally road march per month in the last 12 months?

309. On average, how heavy was your march load (in lbs.) each time you road marched on your own in the last 12 months?

(End of Page 25)

Tobacco Use

263. Have you ever used tobacco products such as cigarettes, smokeless/chewing tobacco, or e-cigarettes?
□ Yes
□ No

This Question is Conditionally Shown if: (263 = Yes)
229. Have you smoked more than 100 cigarettes in your life? (100 cigarettes=5 packs)
- Yes
- No

Destination: Sleep (Set in 263 (No))

(End of Page 26)

This Page is Conditionally Shown if: (229 = Yes)
219. You indicated that you have smoked cigarettes. About how old were you when you started smoking cigarettes for the first time?
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30
- 31
- 32
- 33
- 34
- 35
- 36
- 37
- 38
- 39
- 40
- 41
- 42
- 43
- 44
- 45
- 46

- 47
- 48
- 49
- > 50

230. Have you smoked cigarettes in the last 30 days?
- I have smoked cigarettes in the last 30 days.
- I quit smoking and have not smoked cigarettes in the last 30 days.

(End of Page 27)

This Page is Conditionally Shown if: (230 = I have smoked cigarettes in the last 30 days.)
231. How long have you smoked cigarettes? (If not applicable, please enter '0'.)
Number of years Number of months

233. In the past 30 days, how many days did you smoke cigarettes?
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30

232. In the past 30 days, how many cigarettes have you smoked on average PER DAY?
Cigarettes per day on average

(End of Page 28)

This Page is Conditionally Shown if: (230 = I quit smoking and have not smoked cigarettes in the last 30 days.)

347. How long did you smoke cigarettes for? (If not applicable, please enter '0'.)
Number of years Number of months

68. How many months or years ago did you quit smoking cigarettes? (If not applicable, please enter '0'.)
Years quit Months quit

(End of Page 29)

This Page is Conditionally Shown if: (263 = Yes)
Smokeless Tobacco
320. Have you ever used smokeless tobacco?
- □ Yes
- □ No

This Question is Conditionally Shown if: (320 = Yes)
236. You indicated that you have used smokeless tobacco. Have you used smokeless tobacco (chewing tobacco, snuff, dip, etc.) in the last 30 days?
- □ I have used smokeless tobacco in the last 30 days.
- □ I quit using smokeless tobacco, and have not used in the last 30 days.

(End of Page 30)

This Page is Conditionally Shown if: (236 = I have used smokeless tobacco in the last 30 days.)
78. How long have you been using smokeless tobacco? (If not applicable, please enter '0'.)
Years used Months used

217. How many days did you use smokeless tobacco in the last 30 days?
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10
- □ 11
- □ 12
- □ 13
- □ 14
- □ 15
- □ 16
- □ 17
- □ 18
- □ 19
- □ 20
- □ 21
- □ 22
- □ 23

- 24
- 25
- 26
- 27
- 28
- 29
- 30

77. How many cans, pouches, or plugs did you use PER DAY on average in the last 30 days? (If not applicable, please enter '0'.)
    Number of Cans
    Number of Pouches
    Number of Plugs

(End of Page 31)

This Page is Conditionally Shown if: (236 = I quit using smokeless tobacco, and have not used in the last 30 days.)

75. How long ago did you quit using smokeless tobacco? (If not applicable, please enter '0'.)
    Years quit Months quit

(End of Page 32)

This Page is Conditionally Shown if: (263 = Yes)

Electronic Cigarettes

321. Have you ever used electronic cigarettes or personal vaporizers?
    - Yes
    - No

This Question is Conditionally Shown if: (321 = Yes)

237. You indicated that you have used electronic cigarettes or personal vaporizers. Have you used electronic cigarettes or personal vaporizers in the last 30 days?
    - I have used electronic cigarettes or personal vaporizers in the last 30 days.
    - I quit using electronic cigarettes and have not used them in the last 30 days.

This Question is Conditionally Shown if: (321 = Yes)

310. Please choose the option that best describes your electronic cigarette or personal vaporizer use.
    - I use(d) electronic cigarettes or personal vaporizers only
    - I use(d) electronic cigarettes or personal vaporizers while also smoking tobacco cigarettes
    - I use(d) electronic cigarettes or personal vaporizers in an effort to stop smoking tobacco cigarettes

Destination: Sleep (Set in 321 (No))

(End of Page 33)

This Page is Conditionally Shown if: (237 = I have used electronic cigarettes or personal vaporizers in the last 30 days.)

239. How long have you been using electronic cigarettes or personal vaporizers? (If not applicable, please enter '0'.)

Years used Months used

240. How many days did you use electronic cigarettes or personal vaporizers in the last 30 days?
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10
- □ 11
- □ 12
- □ 13
- □ 14
- □ 15
- □ 16
- □ 17
- □ 18
- □ 19
- □ 20
- □ 21
- □ 22
- □ 23
- □ 24
- □ 25
- □ 26
- □ 27
- □ 28
- □ 29
- □ 30

322. In the past 30 days, how many times did you vape on average PER DAY?
Puffs per day on average

(End of Page 34)

This Page is Conditionally Shown if: (237 = I quit using electronic cigarettes and have not used them in the last 30 days.)

348. How long did you use electronic cigarettes or personal vaporizers for? (If not applicable, please enter '0'.)
Years used Months used

238. How long ago did you quit using electronic cigarettes? (If not applicable, please enter '0'.)
Years quit Months quit

(End of Page 35)

Sleep

311. In the last month, how many hours of actual sleep did you get at night on average? (This may be different than the number of hours you spend in bed).
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10
- □ 11
- □ 12

(End of Page 36)

Providers

358. Have you had any communications (appointments, consultations, classes) with a Physical Therapist, Occupational Therapist, or Dietitian within the last 12 months?
- □ Yes
- □ No

This Question is Conditionally Shown if: (358 = Yes)

359. If yes, which providers? (Select all that apply)
- □ Physical Therapist
- □ Occupational Therapist
- □ Dietitian

Destination: Survey Submitted (Set in 358 (No))

(End of Page 37)

This Page is Conditionally Shown if: (359 (Physical Therapist) = Selected)

360. Which scenario best describes your communication with a Physical Therapist?
- □ Had an in-person appointment or consultation
- □ Had a phone contact with a physical therapist
- □ Attended a briefing or class given by a physical therapist
- □ Spoke with a physical therapist on the side (ex. in the hallway, outside, or not an official appointment)

361. What was the reason for you communication(s) or time spent with a Physical Therapist? (Select all that apply)
- □ Injury/condition (rehabilitation)
- □ Injury prevention
- □ Strengthening exercises
- □ Improve performance
- □ Stretching exercises
- □ Pain management
- □ Other (Please Specify)

(End of Page 38)

This Page is Conditionally Shown if: (359 (Occupational Therapist) = Selected)

362. Which scenario best describes your communication with an Occupational Therapist?
- □ Had an in-person appointment or consultation
- □ Had a phone contact with an occupational therapist
- □ Attended a briefing or class given by an occupational therapist
- □ Spoke with an occupational therapist on the side (ex. in the hallway, outside, or not an official appointment)

363. What was the reason for you communication(s) or time spent with an Occupational Therapist? (Select all that apply)
- □ Injury/condition (rehabilitation)
- □ Injury prevention
- □ Strengthening exercises
- □ Improve cognitive or physical performance
- □ Improve life skills (ex. sleep, stress management)
- □ Pain management
- □ Other (Please Specify)

(End of Page 39)

This Page is Conditionally Shown if: (359 (Dietitian) = Selected)

364. Which scenario best describes your communication with a Dietitian?
- □ Had an in-person appointment or consultation
- □ Had a phone contact with a dietitian
- □ Attended a briefing or class given by a dietitian
- □ Spoke with a dietitian on the side (ex. in the hallway, outside, or not an official appointment)

365. What was the reason for you communication(s) or time spent with a Dietitian? (Select all that apply)
- □ Healthier eating
- □ Lose weight
- □ Gain weight
- □ Improve performance
- □ Learn more about dietary supplements
- □ Clinical condition
- □ Other (Please Specify)

(End of Page 40)

This is the end of the survey, thank you for your participation. Please select the "Submit Survey" button below.

(End of Page 41)

APPENDIX C

FORSCOM H2F BASELINE SURVEY

FORSCOM SRT Phase II Baseline Draft 2 [English (United States)]

On behalf of the United States Army Forces Command (FORSCOM), the U.S. Army Public Health Center (APHC) invites you to participate in the Soldier Readiness Test and Training Program (SRT2P) for Active Duty Soldiers. Our goal is to help inform future policy decisions by FORSCOM about the health and fitness of FORSCOM Soldiers. Your participation is requested to help us achieve this goal.

If you agree to participate, we will: 1) collect some basic background/administrative information about you in this survey; 2) obtain your SSN in order to link your survey information with other data; and 3) pull your Army Physical Fitness Test (APFT) and Army Combat Fitness Test (ACFT) scores and injury related medical records from 12 months prior and 12-36 months during and after SRT2P. We need this information to compare responses and identify trends in injury data as it relates to SRT2P.

To protect your identity: 1) all paper files will be shredded after scanning; 2) we remove SSN's and names after data are linked; 3) all electronic data will be password protected; 4) all data transferred by an encrypted e-mail; 5) all data is stored on a secured network; and 6) only group (aggregate) responses will be reported. Your individual responses will never be reported. We are not assessing or reporting the health and fitness of any single individual.

This electronic survey will take approximately 10 to 15 minutes and must be completed in one sitting. If you do not complete the survey within one session, you will have to start over.
Therefore, please reserve sufficient time to complete the survey. You may be asked to complete an additional follow up survey after 12 months and possibly at 24 months. The 12 and 24 month follow-up surveys will also be sent electronically. Your participation in the follow-up surveys is also voluntary.

Your participation in this survey is voluntary, and you may withdraw your consent to link your survey data and medical records at any time, without consequences. If you have any questions about the survey, use of your data, or wish to opt out at any time in the future, please e-mail the Injury Prevention Program, APHC at usarmy.apg.medcom- phc.mbx.injuryprevention@mail.mil. You may also contact the APHC Human Protection Administrator at dha.apg.pub-health-a.list.g6-admin-office-of-human-protection@health.mil.

(End of Page 1)

PRIVACY ACT STATEMENT – HEALTH CARE RECORDS, FITNESS TEST SCORES, AND QUESTIONNAIRE

1. AUTHORITY FOR COLLECTION OF INFORMATION INCLUDING SOCIAL SECURITY NUMBER
Public Law 104-191, Section 1178; Executive Order 9397; Section 8103, Title 5, United States Code; DoD 6025.18, DoD Health Information Privacy Regulation, December 2, 2009; DoD 6025.18R, Privacy of Individually Identifiable Health Information, January 24, 2003; AR 40-5, Preventive Medicine, 26 May 2007

2. PRINCIPLE PURPOSES FOR WHICH INFORMATION IS INTENDED TO BE USED
The primary use of this information is to evaluate the Soldier Readiness Test and Training Program (SRT2P). The objective of this evaluation is to determine health and physical readiness attributed to SRT2P. This survey requests information on current physical fitness activities, sleep, tobacco use and previous or current injuries.

We will need to obtain your SSN number in order to link your survey information with other data such as Army Physical Fitness Test (APFT) and Army Combat Fitness Test (ACFT) scores and injuries from your medical records. The information obtained from your medical records will only be on musculoskeletal injuries occurring over a 24-36 month period. The 24-36 month period will go back 12 months and forward 12-36 months from the survey date. No other medical information other than this will be obtained. Using your SSN number is the only way we can be accomplished.

To protect your identity, we strictly limit access to your information including your SSN by storing all electronic files on a secure network that is password protected, and removing SSN and name after data are linked.

3. ROUTINE USES

The data obtained from the questionnaires will be included in a database that contains the same information for all Soldiers participating in this project. You will not be personally identified in any report or any output of any type since the interest is in the health and fitness of the Unit and not the health and fitness of any single individual.

The database that is established will identify current levels of fitness, injury rates, injury trends, and factors that lower Soldiers' risk of injury and enhance fitness. The database will be used to make recommendations to decision makers regarding programs and policies that could improve fitness and reduce the incidence of injury.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION

Your participation in this survey is voluntary, and you may withdraw your consent to link your survey data and medical records at any time, without consequences. If you have any questions about the survey, use of your data, or wish to opt out at any time in the future, please e-mail the Injury Prevention Program, APHC at usarmy.apg.medcom-phc.mbx.injuryprevention@mail.mil
You may also contact the APHC Human Protection Administrator at dha.apg.pub-health-a.list.g6-admin-office-of-human-protection@health.mil.

By volunteering to participate in this evaluation, the APHC Injury Prevention Division team will be able to further improve the health and fitness of Soldiers by evaluating injury, physical training and physical fitness.

1. Signature of Participant (Please print name)

2. Today's Date

(End of Page 2)

Demographics

3. Background Details
First Name Last Name SSN (NO dashes)

4. What is your sex?
- □ Male
- □ Female

5. What is your age?
- □ 17
- □ 18
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- □ 64
- □ 65+

6. What is your weight (lbs)?
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- □ 300
- □ 300+

7. What is your height (feet'inches")?
   - □ 4'2"
   - □ 4'3"
   - □ 4'4"
   - □ 4'5"
   - □ 4'6"
   - □ 4'7"
   - □ 4'8"
   - □ 4'9"
   - □ 4'10"
   - □ 4'11"
   - □ 5'0"
   - □ 5'1"
   - □ 5'2"
   - □ 5'3"
   - □ 5'4"
   - □ 5'5"
   - □ 5'6"
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   - □ 6'6"
   - □ 6'7"
   - □ 6'8"
   - □ 6'9"
   - □ 6'10"
   - □ 6'11"
   - □ 7'0"
   - □ 7'2"

8. What is your component?
   - □ Active duty
   - □ Reserve
   - □ National Guard
   - □ Other (Please Specify)

9. What is your military occupational specialty (MOS)? (e.g., 11B)
   Please Specify

10. What is your rank?
    - □ O1
    - □ O2
    - □ O3

- O4
- O5
- O6
- O7
- O8
- O9
- O10
- E1
- E2
- E3
- E4
- E5
- E6
- E7
- E8
- E9
- W1
- W2
- W3
- W4
- W5
- Other

(End of Page 3)

11. What is your current brigade?
    - 2/1 AD (Ft. Bliss)
    - 69 ADA
    - 108 ADA
    - 48 CHEM
    - 201 EMIB
    - 504 EMIB
    - 20 EN
    - 3 ESC
    - 17 FA
    - 1-2 SBCT
    - 2/1 ID (Ft. Riley)
    - 76 ID
    - 52 MI
    - 1/10 MTN
    - 16 MP
    - 89 MP
    - Other (Please Specify)

Destination: 2/1 AD (Set in 11 (2/1 AD (Ft. Bliss))) Destination: 69 ADA (Set in 11 (69 ADA))
Destination: 108 ADA (Set in 11 (108 ADA))
Destination: 48 CHEM (Set in 11 (48 CHEM))
Destination: 201 EMIB (Set in 11 (201 EMIB))
Destination: 504 EMIB (Set in 11 (504 EMIB))
Destination: 20 EN (Set in 11 (20 EN))
Destination: 3 ESC (Set in 11 (3 ESC))
Destination: 17 FA (Set in 11 (17 FA))

Destination: 1-2 SBCT (Set in 11 (1-2 SBCT)) Destination: 2/1 ID (Set in 11 (2/1 ID (Ft. Riley))) Destination: 76 ID (Set in 11 (76 ID))
Destination: 52 MI (Set in 11 (52 MI)) Destination: 1/10 MTN (Set in 11 (1/10 MTN)) Destination: 16 MP (Set in 11 (16 MP))
Destination: 89 MP (Set in 11 (89 MP))

(End of Page 4)

12. What is your current battalion?
- □ 1-1 CAV
- □ 1-6 IN
- □ 1-35 AR
- □ 1-37 AR
- □ 4-27 FA
- □ 40 BEB
- □ 47 BSB
- □ Other (Please Specify)

Destination: Company (Set in 12)

(End of Page 5)

13. What is your current battalion?
- □ 4-5 ADA
- □ Other (Please Specify)

Destination: Company (Set in 13)

(End of Page 6)

14. What is your current battalion?
- □ 1-7 ADA
- □ Other (Please Specify)

Destination: Company (Set in 14)

(End of Page 7)

15. What is your current battalion?
- □ 22 CHEM
- □ Other (Please Specify)

Destination: Company (Set in 15)

(End of Page 8)

16. What is your current battalion?
- □ 502 MIBN
- □ Other (Please Specify)

Destination: Company (Set in 16)

(End of Page 9)

17. What is your current battalion?
- □ 163 MIBN
- □ Other (Please Specify)

Destination: Company (Set in 17)

(End of Page 10)

18. What is your current battalion?
- □ 19 EN
- □ 27 EN
- □ Other (Please Specify)

Destination: Company (Set in 18)

(End of Page 11)

19. What is your current battalion?
- □ 264 CSSB
- □ Other (Please Specify)

Destination: Company (Set in 19)

(End of Page 12)

20. What is your current battalion?
- □ 5-3 FA
- □ Other (Please Specify)

Destination: Company (Set in 20)

(End of Page 13)

21. What is your current battalion?
- □ 5-20 IN
- □ 2-3 IN
- □ 1-23 IN
- □ 296 BSB
- □ Other (Please Specify)

Destination: Company (Set in 21)

(End of Page 14)

22. What is your current battalion?
    - 1-18
    - Other (Please Specify)

Destination: Company (Set in 22)

(End of Page 15)

23. What is your current battalion?
    - 1-293 IN INARNG
    - Other (Please Specify)

Destination: Company (Set in 23)

(End of Page 16)

24. What is your current battalion?
    - 519 MIBN
    - Other (Please Specify)

Destination: Company (Set in 24)

(End of Page 17)

25. What is your current battalion?
    - 1-87 IN
    - 3-71 CAV
    - 1-32 IN
    - 10 BSB
    - 3-10 GSAB
    - Other (Please Specify)

Destination: Company (Set in 25)

(End of Page 18)

26. What is your current battalion?
    - 519 MP
    - Other (Please Specify)

Destination: Company (Set in 26)

(End of Page 19)

27. What is your current battalion?
    - 97 MP
    - Other (Please Specify)

Destination: Company (Set in 27)

(End of Page 20)

28. What is your Company?
Please Specify:

(End of Page 21)

29. Have you previously participated in the Soldier Readiness Testing and Training (SRT)?
- □ Yes
- □ No

This Question is Conditionally Shown if: (29 = Yes)

30. What group were you in?
- □ Gold
- □ Silver
- □ Bronze

(End of Page 22)

Army Physical Fitness Test (APFT)

31. What was the approximate date of your most recent APFT?
Approximate Date (mm/dd/yyyy)

What were the raw scores on your most recent APFT?

32. Push-Ups (repetitions)
- □ I have a profile and did not perform push-ups
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
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33. Sit-Ups (repetitions)
- □ I have a profile and did not perform sit-ups
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- □ 140

34. 2 Mile Run Time (min:sec) Enter 0 if you have a profile and did not perform run.
    Minutes Seconds

35. Other Event
    Please Specify:

(End of Page 23)

36. Please rate how confident you are in performing your combat-related physical duties right now:
- 0 (No Confidence)
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Complete Confidence)

This Question is Conditionally Shown if: (36 = 0 (No Confidence) OR36 = 1 OR36 = 2 OR36 = 3 OR36 = 4 OR36 = 5 OR36 = 6)

37. What reason(s) describe your confidence level? (Select all that apply)
- Current Injury
- Past Injury
- I want to improve my current fitness level
- I am worried about getting injured
- I want more military training
- Other (Please Specify)

(End of Page 24)

Injury History (previous 12 months)

This next series of questions will ask you about injures occurring in the last 12 months. Include injuries that are acute (sudden and unexpected) such as twisting an ankle or being in a car crash and those caused by overuse (pain that develops over time from activities such as running multiple times or repeatedly lifting objects). An injury is damage or pain to a muscle, joint, bone or nerve that made it more difficult to work, do physical training or perform other activities.

38. How many injuries have you experienced in the last 12 months?
- None
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more

Destination: Unit PT (Set in 38 (None))

(End of Page 25)

If you reported more than 1 injury, please first answer the questions pertaining to the injury that MOST limited your physical abilities in the last 12 months (injury #1). You will then be asked the same questions for your 2nd most physically limiting injury (injury #2). Even if you reported 3 or more injuries, you will only be asked questions on the 2 most physically limiting injuries.

39. Estimate the approximate date of the most serious injury (#1) (past 12 months).
Specify Date

40. What was the primary body area injured?
- □ Head
- □ Neck
- □ Shoulders
- □ Upper Arm (bicep/tricep)
- □ Lower Arm (forearm)
- □ Elbow
- □ Wrist
- □ Hand
- □ Chest/ribs
- □ Abdomen
- □ Back (lower)
- □ Back (upper)
- □ Hip
- □ Upper leg (Thigh/Hamstring)
- □ Lower leg (Shin/Calf)
- □ Knee
- □ Ankle
- □ Foot
- □ Other (Please Specify)

41. What was the type of injury #1?
- □ Bursitis
- □ Overuse muscle pain
- □ Runner's knee (pain around knee cap)
- □ Shin splint
- □ Stress fracture or stress reaction
- □ Tendonitits
- □ Other overuse injury (Please Specify)
- □ Bruise (Contusion)
- □ Concussion
- □ Dislocation
- □ Fracture (broken bone)
- □ Laceration (cut)
- □ Nerve injury
- □ Pain in body part (not otherwise specified)
- □ Sprained joint
- □ Strained muscle
- □ Torn meniscus/cartilage
- □ Not otherwise specified

(End of Page 26)

42. What activity were you doing when this injury occurred?

- □ Physical training (running for physical training)
- □ Physical training (weight training for physical training)
- □ Other physical training (Please Specify)
- □ Lifting or moving heavy objects (not weight training)
- □ Repairing or maintaining equipment
- □ Riding or driving a motorized vehicle (car, armored vehicles)
- □ Moving in or around a stationary motor vehicle
- □ Rough-housing or fighting
- □ Combative training / Combative competition
- □ Obstacle Course
- □ Sports/recreation (such as soccer or basketball)
- □ Stepping up/climbing
- □ Walking or hiking (not foot marching)
- □ Occupational injuries (job related tasks)
- □ Other (Please Specify)

43. What was the cause associated with injury #1?
- □ Burn (such as by fire, hot substance or object, or steam)
- □ Contact (hit by/against) an object/surface (Please Specify Object)
- □ Cut or puncture by a sharp tool, object or instrument
- □ Direct contact by a person
- □ Falling onto an object, surface, or the ground
- □ Impact from a blast
- □ Overuse/repetitive activity
- □ Single overexertion/over-extension/twisting effort
- □ Tripping without falling
- □ Other (Please Specify)

Destination: Injury 1 cause (Set in 42) Destination: Medical Professional 1 (Set in 43)

(End of Page 27)

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44. Have you been seen by a medical professional for injury #1?
- □ Yes
- □ No

This Question is Conditionally Shown if: (44 = No)

45. What reason best describes why you did not see a medical provider for your injury?
- □ My injury was not severe enough to require medical care
- □ I did not have time to seek medical care
- □ I tried to seek medical care but was not able to find an appointment that fit with my schedule
- □ I did not want to get a profile
- □ Other (Please specify):

(End of Page 28)

This Page is Conditionally Shown if: (44 = Yes)

46. Were you placed on a medical profile by a medical professional for injury #1?
- □ Yes
- □ No

(End of Page 29)

This Page is Conditionally Shown if: (46 = Yes)

47. How many days were you placed on profile for injury #1?
Number of Days

(End of Page 30)

This Page is Conditionally Shown if: (44 = Yes)

48. Did you see the Physical Therapist, Occupational Therapist, or Dietitian regarding this injury? Check all that apply.
- □ Physical Therapist
- □ Occupational Therapist
- □ Dietitian
- □ None of the above

(End of Page 31)

This Page is Conditionally Shown if: (48 (Physical Therapist) = Selected)

49. How many days did it take to get an appointment with the Physical Therapist after receiving a referral?
- □ 1
- □ 2
- □ 3
- □ 4
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- □ 60

50. How many visits did you have with the Physical Therapist?

51. Are you still seeing the Physical Therapist?
    - □ Yes
    - □ No

This Question is Conditionally Shown if: (51 = No)

52. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
    - □ 10%
    - □ 20%
    - □ 30%
    - □ 40%
    - □ 50%
    - □ 60%
    - □ 70%
    - □ 80%
    - □ 90%
    - □ 100%

(End of Page 32)

This Page is Conditionally Shown if: (48 (Occupational Therapist) = Selected)

53. How many days did it take to get an appointment with the Occupational Therapist after receiving a referral?

- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
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- □ 60

54. How many visits did you have with the Occupational Therapist?

55. Are you still seeing the Occupational Therapist?
    - □ Yes
    - □ No

This Question is Conditionally Shown if: (55 = No)

56. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
    - □ 10%
    - □ 20%
    - □ 30%
    - □ 40%
    - □ 50%
    - □ 60%
    - □ 70%
    - □ 80%
    - □ 90%
    - □ 100%

(End of Page 33)

This Page is Conditionally Shown if: (48 (Dietitian) = Selected)

57. How many days did it take to get an appointment with the Dietitian after receiving a referral?
    - □ 1
    - □ 2
    - □ 3
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58. How many visits did you have with the Dietitian?

59. Are you still seeing the Dietitian?
    - □ Yes
    - □ No

This Question is Conditionally Shown if: (59 = No)

60. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
    - □ 10%
    - □ 20%

- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

(End of Page 34)

This Page is Conditionally Hidden if: (38 = 1 OR38 = None)
These next questions will ask about injury #2 that you experienced in the past 12 months.

61. Estimate the approximate date of the second most serious injury (#2) in the past 12 months.
Specify Date

62. What was the primary body area injured?
- Head
- Neck
- Shoulders
- Upper Arm (bicep/tricep)
- Lower Arm (forearm)
- Elbow
- Wrist
- Hand
- Chest/ribs
- Abdomen
- Back (lower)
- Back (upper)
- Hip
- Upper leg (Thigh/Hamstring)
- Lower leg (Shin/Calf)
- Knee
- Ankle
- Foot
- Other (Please Specify)

63. What was the type of injury #2?
- Bursitis
- Overuse muscle pain
- Runner's knee (pain around knee cap)
- Shin splint
- Stress fracture or stress reaction
- Tendonitits
- Other overuse injury (Please Specify)
- Bruise (Contusion)
- Concussion
- Dislocation
- Fracture (broken bone)
- Laceration (cut)
- Nerve injury
- Pain in body part (not otherwise specified)
- Sprained joint
- Strained muscle

- Torn meniscus/cartilage
- Not otherwise specified

(End of Page 35)

This Page is Conditionally Hidden if: (38 = 1 AND38 = None)

64. What activity were you doing when this injury occurred?
    - Physical training (running for physical training)
    - Physical training (weight training for physical training)
    - Other physical training (Please Specify)
    - Lifting or moving heavy objects (not weight training)
    - Repairing or maintaining equipment
    - Riding or driving a motorized vehicle (car, armored vehicles)
    - Moving in or around a stationary motor vehicle
    - Rough-housing or fighting
    - Combative training / Combative competition
    - Obstacle Course
    - Sports/recreation (such as soccer or basketball)
    - Stepping up/climbing
    - Walking or hiking (not foot marching)
    - Occupational injuries (job related tasks)
    - Other (Please Specify)

65. What was the cause associated with injury #2?
    - Burn (such as by fire, hot substance or object, or steam)
    - Contact (hit by/against) an object/surface (Please Specify Object)
    - Cut or puncture by a sharp tool, object or instrument
    - Direct contact by a person
    - Falling onto an object, surface, or the ground
    - Impact from a blast
    - Overuse/repetitive activity
    - Single overexertion/over-extension/twisting effort
    - Tripping without falling
    - Other (Please Specify)

(End of Page 36)

This Page is Conditionally Hidden if: (38 = 1 AND38 = None)

66. Have you been seen by a medical professional for injury #2?
    - Yes
    - No

This Question is Conditionally Shown if: (66 = No)

67. What reason best describes why you did not see a medical provider for your injury?
    - My injury was not severe enough to require medical care
    - I did not have time to seek medical care
    - I tried to seek medical care but was not able to find an appointment that fit with my schedule
    - I did not want to get a profile
    - Other (Please specify):

(End of Page 37)

This Page is Conditionally Shown if: (66 = Yes)

68. Were you placed on a medical profile by a medical professional for injury #2?
- □ Yes
- □ No

Destination: Page 29 (Set in 68 (No))

(End of Page 38)

This Page is Conditionally Shown if: (68 = Yes)

69. How many days were you placed on profile for injury #2?
Number of Days

(End of Page 39)

This Page is Conditionally Shown if: (66 = Yes)

70. Did you see the Physical Therapist, Occupational Therapist, or Dietitian regarding this injury? Check all that apply.
- □ Physical Therapist
- □ Occupational Therapist
- □ Dietitian
- □ None of the above

Destination: Unit PT (Set in 70 (None of the above))

(End of Page 40)

This Page is Conditionally Shown if: (70 (Physical Therapist) = Selected)

71. How many days did it take to get an appointment with the Physical Therapist after receiving a referral?
- □ 1
- □ 2
- □ 3
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- □ 60

72. How many visits did you have with the Physical Therapist?

73. Are you still seeing the Physical Therapist?
    - □ Yes
    - □ No

This Question is Conditionally Shown if: (73 = No)

74. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
    - □ 10%
    - □ 20%

- □ 30%
- □ 40%
- □ 50%
- □ 60%
- □ 70%
- □ 80%
- □ 90%
- □ 100%

(End of Page 41)

This Page is Conditionally Shown if: (70 (Occupational Therapist) = Selected)

75. How many days did it take to get an appointment with the Occupational Therapist after receiving a referral?

- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
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76. How many visits did you have with the Occupational Therapist?

77. Are you still seeing the Occupational Therapist?
- □ Yes
- □ No

This Question is Conditionally Shown if: (77 = No)

78. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
- □ 10%
- □ 20%
- □ 30%
- □ 40%
- □ 50%
- □ 60%
- □ 70%
- □ 80%
- □ 90%
- □ 100%

(End of Page 42)

This Page is Conditionally Shown if: (70 (Dietitian) = Selected)

79. How many days did it take to get an appointment with the Dietitian after receiving a referral?
- □ 1
- □ 2
- □ 3
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- □ 5
- □ 6
- □ 7

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- 60

80. How many visits did you have with the Dietitian?

81. Are you still seeing the Dietitian?
- □ Yes
- □ No

This Question is Conditionally Shown if: (81 = No)

82. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
- □ 10%
- □ 20%
- □ 30%
- □ 40%
- □ 50%
- □ 60%
- □ 70%
- □ 80%
- □ 90%
- □ 100%

(End of Page 43)

Unit Physical Training (PT)

83. Do you currently participate in unit PT (i.e., road marching, running, calisthenics, or strength training with your unit)?
- □ Yes
- □ No

Destination: Personal PT (Set in 83 (No))

(End of Page 44)

84. On average, how often do you participate in unit PT each week?
- □ 1 time per week
- □ 2 times per week
- □ 3 times per week
- □ 4 times per week
- □ 5 times per week
- □ 6 times per week
- □ 7 times per week
- □ More than 7 times per week

85. How would you rate your unit PT?
- □ Challenging
- □ Hard
- □ Somewhat Hard
- □ Moderate
- □ Easy

(End of Page 45)

86. For Distance running (running continuously for 1 mile or greater) with your unit, please select your average DISTANCE (miles per time you ran) and FREQUENCY (number of times per week) during the typical week over the last 12 months.

On average, how many times per week did you run for unit PT?

Unit PT Distance running

None	1 time per week	2 times per week	3 times per week	4 times per week	5 times per week	6 times per week	7 times per week	> 7 times per week
□	□	□	□	□	□	□	□	□

Unit PT Distance running
Each time you ran for unit PT, on average, how many miles did you run?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

87. At about what pace does your unit usually run when performing unit distance running?
- □ No Distance Running
- □ 5 minute mile
- □ 6 minute mile
- □ 7 minute mile
- □ 8 minute mile
- □ 9 minute mile
- □ 10 minute mile
- □ 11 minute mile
- □ 12 minute mile
- □ Other (Please specify)

(End of Page 46)

88. For the below listed exercise activities with your unit, please select your average FREQUENCY (number of times per week) and DURATION (minutes per event) of participation during the typical week over the last 12 months.

Sprints are short bursts of speed that cannot be sustained for more than a few minutes. Intervals are short periods of high speed running mixed with periods of jogging or walking.
Calisthenics include jumping jacks, windmills, mountain climbers, etc.
Cross-training type exercises include circuit training and combinations of exercises to work various parts of the body.
Agility drills are drills requiring lateral movements, typically using cones or ladders, obstacle course, etc.
Resistance training is weight lifting using free weights, dumbbells, kettlebells, hammer-strength machines, etc.

On average, how many times per week did you perform the activity with your unit?

	None	1 time per week	2 times per week	3 times per week	4 times per week	5 times per week	6 times per week	7 times per week	>7 times per week
Sprinting/Interval Training	□	□	□	□	□	□	□	□	□
Calisthenics	□	□	□	□	□	□	□	□	□
Cross-training type of exercises	□	□	□	□	□	□	□	□	□

Agility drills	□	□	□	□	□	□	□	□	□
Resistance training	□	□	□	□	□	□	□	□	□
Obstacle Course	□	□	□	□	□	□	□	□	□

On average, how many minutes per event did you perform this activity with your unit? (If none please enter '0')

Sprinting/Interval Training

Calisthenics

Cross-training type of exercises

Agility drills

Resistance training

Obstacle Course

89. Do you perform unit foot marches?
□ Yes
□ No

Destination: Personal PT (Set in 89 (No))

(End of Page 47)

This Page is Conditionally Shown if: (89 = Yes)

90. On average, how many times per month did you perform foot marching with your unit in the last 12 months?

91. On average, how many miles did you road march with your unit per month in the last 12 months?

92. On average, how heavy was your march load (in lbs.) each time you road marched with your unit in the last 12 months?

(End of Page 48)

Personal Physical Training (PT)

93. Do you perform PT on your own time?
□ Yes
□ No

Destination: Tobacco (Set in 93 (No))

(End of Page 49)

94. For Distance running (running continuously for 1 mile or greater) for personal PT, please select your average DISTANCE (miles per time you ran) and FREQUENCY (number of times per week) during the typical week over the last 12 months.

On average, how many times per week did you run for personal PT?

	None	1 time per week	2 times per week	3 times per week	4 times per week	5 times per week	6 times per week	7 times per week	> 7 times per week
Personal PT Distance running	□	□	□	□	□	□	□	□	□

Each time you ran for personal PT, on average, how many miles did you run?
Personal PT Distance running

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

95. At about what pace during personal PT do you usually run when performing distance running?
- □ No Distance Running
- □ 5 minute mile
- □ 6 minute mile
- □ 7 minute mile
- □ 8 minute mile
- □ 9 minute mile
- □ 10 minute mile
- □ 11 minute mile
- □ 12 minute mile
- □ Other (Please specify)

96. For the below listed exercise activities for personal PT, please select your average FREQUENCY (number of times per week) and DURATION (minutes per event) of participation during the typical week over the last 12 months.

Sprints are short bursts of speed that cannot be sustained for more than a few minutes. Intervals are short periods of high speed running mixed with periods of jogging or walking.
Calisthenics include jumping jacks, windmills, mountain climbers, etc.
Cross-training type exercises include circuit training and combinations of exercises to work various parts of the body.
Agility drills are drills requiring lateral movements, typically using cones or ladders, obstacle course, etc.
Aerobic endurance activities include elliptical machines, rowing machine, cycling, stair steppers. DO NOT include running.
Resistance training is weight lifting using free weights, dumbbells, kettlebells, hammer-strength machines, etc.

On average, how many times per week did you perform the activity?

	None	1 time per week	2 times per week	3 times per week	4 times per week	5 times per week	6 times per week	7 times per week	> 7 times per week

Sprinting/Interval Training	□	□	□	□	□	□	□	□	□
Calisthenics	□	□	□	□	□	□	□	□	□
Cross-training type of exercises	□	□	□	□	□	□	□	□	□
Agility drills	□	□	□	□	□	□	□	□	□
Other aerobic endurance activities that do NOT involve running	□	□	□	□	□	□	□	□	□
Resistance training	□	□	□	□	□	□	□	□	□

Each time performed this activity for personal PT, on average, how many minutes did you perform the activity? (If none please enter '0')

Sprinting/Interval Training
Calisthenics
Cross-training type of exercises
Agility drills
Other aerobic endurance activities that do NOT involve running
Resistance training

97. Do you perform personal foot marches?
□ Yes
□ No

Destination: Tobacco (Set in 97 (No))

(End of Page 50)

This Page is Conditionally Shown if: (97 = Yes)

98. On average, how many times per month did you personally perform foot marching in the last 12 months?

99. On average, how many miles did you personally road march per month in the last 12 months?

100. On average, how heavy was your march load (in lbs.) each time you road marched on your own in the last 12 months?

(End of Page 51)

Tobacco Use

101. Have you ever used tobacco products such as cigarettes, smokeless/chewing tobacco, or e-cigarettes?
□ Yes
□ No

This Question is Conditionally Shown if: (101 = Yes)

102. Have you smoked more than 100 cigarettes in your life? (100 cigarettes=5 packs)

- Yes
- No

Destination: Sleep (Set in 101 (No))

(End of Page 52)

This Page is Conditionally Shown if: (102 = Yes)

103. You indicated that you have smoked cigarettes. About how old were you when you started smoking cigarettes for the first time?
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    - 7
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    - 47
    - 48

- □ 49
- □ > 50

104. Have you smoked cigarettes in the last 30 days?
- □ I have smoked cigarettes in the last 30 days.
- □ I quit smoking and have not smoked cigarettes in the last 30 days.

(End of Page 53)

This Page is Conditionally Shown if: (104 = I have smoked cigarettes in the last 30 days.)

105. How long have you smoked cigarettes? (If not applicable, please enter '0'.)
Number of years Number of months

106. In the past 30 days, how many days did you smoke cigarettes?
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
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- □ 9
- □ 10
- □ 11
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- □ 30

107. In the past 30 days, how many cigarettes have you smoked on average PER DAY?
Cigarettes per day on average

(End of Page 54)

This Page is Conditionally Shown if: (104 = I quit smoking and have not smoked cigarettes in the last 30 days.)

108. How long did you smoke cigarettes for? (If not applicable, please enter '0'.)
Number of years Number of months

109. How many months or years ago did you quit smoking cigarettes? (If not applicable, please enter '0'.)
Years quit Months quit

(End of Page 55)

This Page is Conditionally Shown if: (101 = Yes)

Smokeless Tobacco

110. Have you ever used smokeless tobacco?
- □ Yes
- □ No

This Question is Conditionally Shown if: (110 = Yes)

111. You indicated that you have used smokeless tobacco. Have you used smokeless tobacco (chewing tobacco, snuff, dip, etc.) in the last 30 days?
- □ I have used smokeless tobacco in the last 30 days.
- □ I quit using smokeless tobacco, and have not used in the last 30 days.

(End of Page 56)

This Page is Conditionally Shown if: (111 = I have used smokeless tobacco in the last 30 days.)

112. How long have you been using smokeless tobacco? (If not applicable, please enter '0'.)
Years used Months used

113. How many days did you use smokeless tobacco in the last 30 days?
- □ 1
- □ 2
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114. How many cans, pouches, or plugs did you use PER DAY on average in the last 30 days? (If not applicable, please enter '0'.)
Number of Cans Number of Pouches Number of Plugs

(End of Page 57)

This Page is Conditionally Shown if: (111 = I quit using smokeless tobacco, and have not used in the last 30 days.)

115. How long ago did you quit using smokeless tobacco? (If not applicable, please enter '0'.)
Years quit Months quit

(End of Page 58)

This Page is Conditionally Shown if: (101 = Yes)

Electronic Cigarettes

116. Have you ever used electronic cigarettes or personal vaporizers?
- Yes
- No

This Question is Conditionally Shown if: (116 = Yes)

117. You indicated that you have used electronic cigarettes or personal vaporizers. Have you used electronic cigarettes or personal vaporizers in the last 30 days?
- I have used electronic cigarettes or personal vaporizers in the last 30 days.
- I quit using electronic cigarettes and have not used them in the last 30 days.

This Question is Conditionally Shown if: (116 = Yes)

118. Please choose the option that best describes your electronic cigarette or personal vaporizer use.
- I use(d) electronic cigarettes or personal vaporizers only
- I use(d) electronic cigarettes or personal vaporizers while also smoking tobacco cigarettes
- I use(d) electronic cigarettes or personal vaporizers in an effort to stop smoking tobacco cigarettes

Destination: Sleep (Set in 116 (No))

(End of Page 59)

This Page is Conditionally Shown if: (117 = I have used electronic cigarettes or personal vaporizers in the last 30 days.)

119. How long have you been using electronic cigarettes or personal vaporizers? (If not applicable, please enter '0'.)
Years used Months used

120. How many days did you use electronic cigarettes or personal vaporizers in the last 30 days?
- □ 1
- □ 2
- □ 3
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- □ 30

121. In the past 30 days, how many times did you vape on average PER DAY?
Puffs per day on average

(End of Page 60)

This Page is Conditionally Shown if: (117 = I quit using electronic cigarettes and have not used them in the last 30 days.)

122. How long did you use electronic cigarettes or personal vaporizers for? (If not applicable, please enter '0'.)
Years used Months used

123. How long ago did you quit using electronic cigarettes? (If not applicable, please enter '0'.)
Years quit Months quit

(End of Page 61)

Sleep

124. In the last month, how many hours of actual sleep did you get at night on average? (This may be different than the number of hours you spend in bed).
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10
- □ 11
- □ 12

(End of Page 62)

Providers

125. Have you had any communications (appointments, consultations, classes) with a Physical Therapist, Occupational Therapist, or Dietitian within the last 12 months?
- □ Yes
- □ No

This Question is Conditionally Shown if: (125 = Yes)

126. If yes, which providers? (Select all that apply)
- □ Physical Therapist
- □ Occupational Therapist
- □ Dietitian

(End of Page 63)

This Page is Conditionally Shown if: (126 (Physical Therapist) = Selected)

127. Which scenario best describes your communication with a Physical Therapist?
- □ Had an in-person appointment or consultation
- □ Had a phone contact with a physical therapist
- □ Attended a briefing or class given by a physical therapist
- □ Spoke with a physical therapist on the side (ex. in the hallway, outside, or not an official appointment)

128. What was the reason for you communication(s) or time spent with a Physical Therapist? (Select all that apply)
- □ Injury/condition (rehabilitation)
- □ Injury prevention
- □ Strengthening exercises
- □ Improve performance
- □ Stretching exercises
- □ Pain management
- □ Other (Please Specify)

(End of Page 64)

This Page is Conditionally Shown if: (126 (Occupational Therapist) = Selected)

129. Which scenario best describes your communication with an Occupational Therapist?
- □ Had an in-person appointment or consultation
- □ Had a phone contact with an occupational therapist
- □ Attended a briefing or class given by an occupational therapist
- □ Spoke with an occupational therapist on the side (ex. in the hallway, outside, or not an official appointment)

130. What was the reason for you communication(s) or time spent with an Occupational Therapist? (Select all that apply)
- □ Injury/condition (rehabilitation)
- □ Injury prevention
- □ Strengthening exercises
- □ Improve cognitive or physical performance
- □ Improve life skills (ex. sleep, stress management)
- □ Pain management
- □ Other (Please Specify)

(End of Page 65)

This Page is Conditionally Shown if: (126 (Dietitian) = Selected)

131. Which scenario best describes your communication with a Dietitian?
- □ Had an in-person appointment or consultation
- □ Had a phone contact with a dietitian
- □ Attended a briefing or class given by a dietitian
- □ Spoke with a dietitian on the side (ex. in the hallway, outside, or not an official appointment)

132. What was the reason for you communication(s) or time spent with a Dietitian? (Select all that apply)
- □ Healthier eating
- □ Lose weight
- □ Gain weight
- □ Improve performance
- □ Learn more about dietary supplements
- □ Clinical condition
- □ Other (Please Specify)

(End of Page 66)

This is the end of the survey, thank you for your participation. Please select the "Submit Survey" button below.

(End of Page 67)

APPENDIX D

H2F ACFT FOLLOW-UP SURVEY 2019–2020

H2F ACFT Follow-Up Survey 2019–2020 - FINAL-EMAIL LIST [English (United States)]

PRIVACY ACT STATEMENT – HEALTH CARE RECORDS, FITNESS TEST SCORES, AND QUESTIONNAIRE

1. AUTHORITY FOR COLLECTION OF INFORMATION INCLUDING SOCIAL SECURITY NUMBER
Public Law 104-191, Section 1178; Executive Order 9397; Section 8103, Title 5, United States Code; DoD 6025.18, DoD Health Information Privacy Regulation, December 2, 2009; DoD 6025.18R, Privacy of Individually Identifiable Health Information, January 24, 2003; AR 40-5, Preventive Medicine, 26 May 2007

2. PRINCIPLE PURPOSES FOR WHICH INFORMATION IS INTENDED TO BE USED

The primary use of this information is to evaluate the Army Combat Fitness Test (ACFT). The objective of this evaluation is to inform future policy decisions by TRADOC about the health and fitness of Soldiers. This survey requests information on current physical fitness activities, sleep, tobacco use and previous or current injuries.

We will need to obtain your SSN in order to link your survey information with other data such as Army Physical Fitness Test (APFT) and Army Combat Fitness Test (ACFT) scores and injuries from your medical records. The information obtained from your medical records will only be on musculoskeletal injuries occurring over a 24-36 month period. The 24-36 month period will go back 12 months and forward 12-36 months from the survey date. No other medical information other than this will be obtained. Using your SSN number is the only way this can be accomplished.

To protect your identity, we strictly limit access to your information including your SSN by storing all electronic files on a secure network that is password protected, and removing SSN and name after data are linked.

3. ROUTINE USES

The data obtained from the questionnaires will be included in a database that contains the same information for all Soldiers participating in this project. You will not be personally identified in any report or any output of any type since the interest is in the health and fitness of the Unit and not the health and fitness of any single individual.

The database that is established will identify current levels of fitness, injury rates, injury trends, and factors that lower Soldiers' risk of injury and enhance fitness. The database will be used to make recommendations to decision makers regarding programs and policies that could improve fitness and reduce the incidence of injury.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION

Your participation in this survey is voluntary, and you may withdraw your consent to link your survey data and medical records at any time, without consequences. If you have any questions about the survey, use of your data, or wish to opt out at any time in the future, please e-mail the Injury Prevention Program, APHC at usarmy.apg.medcom-aphc.mbx.injuryprevention@mail.mil.

You may also contact the APHC Human Protection Administrator at dha.apg.pub-health-a.list.g6-admin-office-of-human-protection@health.mil.

By volunteering to participate in this evaluation, the APHC Injury Prevention Program team will be able to further improve the health and fitness of Soldiers by evaluating injury, physical training and physical fitness.

351. Signature of Participant (Please print name)

352. Today's Date

(End of Page 1)

On behalf of the U.S. Army Training and Doctrine Command (TRADOC), the U.S. Army Public Health Center (APHC) invites you to participate in the Army Combat Fitness Test (ACFT) evaluation for Active Duty Soldiers. Our goal is to help inform future policy decisions by TRADOC about the health and fitness of Soldiers. Your participation is requested to help us achieve this goal.

If you agree to participate, we will: 1) collect some basic background/administrative information about you in this survey; 2) obtain your SSN in order to link your survey information with other data; and 3) pull your Army Physical Fitness Test (APFT) and Army Combat Fitness Test (ACFT) scores and injury related medical records from 12 months prior and 12-36 months during and after the implementation of the new ACFT. We need this information to compare responses and identify trends in injury data as it relates to the ACFT.

To protect your identity: 1) all paper files will be shredded after scanning; 2) we remove SSNs and names after data are linked; 3) all electronic data will be password protected; 4) all data transferred by encrypted e-mail; 5) all data is stored on a secured network; and 6) only group (aggregate) responses will be reported. Your individual responses will never be reported. We are not assessing or reporting the health and fitness of any single individual.

This electronic survey will take approximately 10 to 15 minutes and must be completed in one sitting. If you do not complete the survey within one session, you will have to start over.
Therefore, please reserve sufficient time to complete the survey. You may be asked to complete a 24 month follow-up survey which will be sent electronically. Your participation in the follow- up survey is also voluntary.

Your participation in this survey is voluntary, and you may withdraw your consent to link your survey data and medical records at any time, without consequences. If you have any questions about the survey, use of your data, or wish to opt out at any time in the future, please e-mail the APHC Injury Prevention Program at usarmy.apg.medcom-aphc.mbx.injuryprevention@mail.mil. You may also contact the APHC Human Protection Administrator at dha.apg.pub-health-a.list.g6-admin-office-of-human-protection@health.mil.

Demographics

3. What is your sex?
   - ☐ Male
   - ☐ Female

203. What is your age?

- □ 17
- □ 18
- □ 19
- □ 20
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- □ 64
- □ 65+

205. What is your weight (lbs)?

- □ 90
- □ 91
- □ 92

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- □ 300
- □ 300+

204. What is your height (feet'inches")?

- □ 4'2"
- □ 4'3"
- □ 4'4"
- □ 4'5"
- □ 4'6"
- □ 4'7"
- □ 4'8"
- □ 4'9"
- □ 4'10"
- □ 4'11"
- □ 5'0"
- □ 5'1"
- □ 5'2"
- □ 5'3"

- □ 5'4"
- □ 5'5"
- □ 5'6"
- □ 5'7"
- □ 5'8"
- □ 5'9"
- □ 5'10"
- □ 5'11"
- □ 6'0"
- □ 6'1"
- □ 6'2"
- □ 6'3"
- □ 6'4"
- □ 6'5"
- □ 6'6"
- □ 6'7"
- □ 6'8"
- □ 6'9"
- □ 6'10"
- □ 6'11"
- □ 7'0"
- □ 7'1"
- □ 7'2"

5. What is your component?
   - □ Active Duty
   - □ Reserve
   - □ National Guard
   - □ Other (Please Specify)

6. What is your military occupational specialty (MOS)? (e.g., 11B)
   Please Specify

220. What is your rank?
   - □ E1
   - □ E2
   - □ E3
   - □ E4
   - □ E5
   - □ E6
   - □ E7
   - □ E8
   - □ E9
   - □ O1
   - □ O2
   - □ O3
   - □ O4
   - □ O5
   - □ O6
   - □ O7
   - □ O8
   - □ O9
   - □ O10
   - □ W1

- W2
- W3
- W4
- W5
- Other

(End of Page 2)

407. What is your current battalion?

- 1SFG
- 1-1 CAV
- 1-6 IN
- 1-7 ADA
- 1-18 IN
- 1-19 IN
- 1-21 IN
- 1-23 IN
- 1-32 IN
- 1-35 AR
- 1-37 AR
- 1-87 IN
- 1-178 FA
- 1-222 AV Rgt
- 1-293 IN
- 1-293 IN INARNG
- 2-3 IN
- 2-35 IN
- 2-503 IN
- 3-10 AV
- 3-10 GSAB
- 3-25 AV
- 3-34 IN
- 3-71 CAV
- 3-142 AV
- 4-5 ADA
- 4-27 FA
- 5-20 IN
- 5-3 FA
- 3 GSAB
- 10 BSB
- 18 CSSB
- 19 EN
- 22 CHEM
- 27 EN
- 40 BEB
- 47 SPT
- 47 BSB
- 47 SPT BN
- 77 CSSB
- 78 SIGNAL
- 97 MP
- 163 MI

- □ 212 CSH
- □ 223 MI
- □ 264 CSSB
- □ 268 EN
- □ 296 SPT
- □ 296 BSB
- □ 362 QM
- □ 368 EN
- □ 372 MI
- □ 411 OD
- □ 419 CSSB
- □ 429 BSB
- □ 449 SIGNAL
- □ 502 MI
- □ 519 MI
- □ 519 MP
- □ 709 MP
- □ 741 BEB
- □ 980 BN
- □ 1st Ranger Battalion
- □ Brook Army Medical Hospital
- □ TRADOC STB
- □ McDonald Army Health Center
- □ Richmond Bn
- □ TRADOC STB
- □ VMI (SMC)
- □ Other

(End of Page 3)

266. What is your Company? (i.e. 'A')
Please Specify:

(End of Page 4)

Army Physical Fitness Test (APFT)

408. What was the approximate date of your most recent APFT?
Approximate Date (mm/dd/yyyy)

What were the raw scores on your most recent APFT?

409. Push-Ups (repetitions)

410. Sit-Ups (repetitions)

411. 2 Mile Run Time (min:sec) Enter 0 if you have a profile and did not perform run.
Minutes Seconds

412. Other Event

Please Specify:

(End of Page 5)

365. Have you taken the Army Combat Fitness Test (ACFT)?
- Yes
- No

(End of Page 6)

This Page is Conditionally Hidden if: (365 = No)
397. Were you on profile for any of the following events?
- Deadlift
- Standing power throw
- Sprint-Drag-Carry
- Push-ups
- Leg tuck
- 2 mile run
- None, I was not profiled for any events

(End of Page 7)

This Page is Conditionally Shown if: (365 = Yes)
Army Combat Fitness Test (ACFT)
60. What was the approximate date of your most recent ACFT?
Approximate Date (mm/dd/yyyy)

What were the raw scores on your most recent ACFT?

This Question is Conditionally Hidden if: (397 (Deadlift) = Selected)
392. Deadlift
Pounds lifted

This Question is Conditionally Hidden if: (397 (Standing power throw) = Selected)
390. Standing Power Throw

Was your Standing Power Throw measured in:
- Meters
- Feet

This Question is Conditionally Shown if: (390 = Meters)
372. Standing Power Throw
Distance thrown in meters

This Question is Conditionally Shown if: (390 = Feet)
389. Standing Power Throw
Distance thrown in feet

This Question is Conditionally Hidden if: (397 (Sprint-Drag-Carry) = Selected)
393. Push-ups

Which type of push-ups did you perform?

- □ T-Push-ups
- □ Hand release Push-ups

This Question is Conditionally Hidden if: (397 (Sprint-Drag-Carry) = Selected)
378. Push-ups (repetitions)

This Question is Conditionally Hidden if: (397 (Push-ups) = Selected)
376. Sprint-Drag-Carry
Minutes Seconds

This Question is Conditionally Hidden if: (397 (Leg tuck) = Selected)
394. Leg Tuck (repetitions)

This Question is Conditionally Hidden if: (397 (2 mile run) = Selected)
377. 2 Mile Run Time
Minutes Seconds

381. Alternate Event(s)

Did you take any alternate events?
- □ Yes
- □ No

This Question is Conditionally Shown if: (381 = Yes)
395. Alternate Event

	Pass	Fail	N/A
Bike	□	□	□
Row	□	□	□
Swim	□	□	□

(End of Page 8)

354. Please rate how confident you are in performing your combat-related physical duties right now:
- □ 0 No Confidence
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10 Complete Confidence

This Question is Conditionally Shown if: (354 = 0 No Confidence OR354 = 1 OR354 = 2 OR354 = 3 OR354 = 4 OR354 = 5 OR354 = 6)
355. What reason(s) describe your confidence level? (Select all that apply)
- □ Current Injury
- □ Past Injury

- □ I want to improve my current fitness level
- □ I am worried about getting injured
- □ I want more military training
- □ Other (Please Specify)

(End of Page 9)

Injury History (previous 12 months)

This next series of questions will ask you about injures occurring in the last 12 months. Include injuries that are acute (sudden and unexpected) such as twisting an ankle or being in a car crash and those caused by overuse (pain that develops over time from activities such as running multiple times or repeatedly lifting objects). An injury is damage or pain to a muscle, joint, bone, or nerve that made it more difficult to work, do physical training, or perform other activities.

111. How many injuries have you experienced in the last 12 months?
- □ None
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10 or more

Destination: Unit PT (Set in 111 (None))

(End of Page 10)

If you reported more than 1 injury, please first answer the questions pertaining to the injury that MOST limited your physical abilities in the last 12 months (injury #1). You will then be asked the same questions for your second most physically limiting injury (injury #2). Even if you reported 3 or more injuries, you will only be asked questions on the 2 most physically limiting injuries.

267. Estimate the approximate date of the most serious injury (#1) (past 12 months).
Specify Date

114. What was the primary body area injured?
- □ Head
- □ Neck
- □ Shoulders
- □ Upper Arm (bicep/tricep)
- □ Lower Arm (forearm)
- □ Elbow
- □ Wrist
- □ Hand
- □ Chest/ribs
- □ Abdomen
- □ Back (lower)

- □ Back (upper)
- □ Hip
- □ Upper leg (Thigh/Hamstring)
- □ Lower leg (Shin/Calf)
- □ Knee
- □ Ankle
- □ Foot
- □ Other (Please Specify)

115. What was the type of injury #1?
- □ Bursitis
- □ Overuse muscle pain
- □ Runner's knee (pain around knee cap)
- □ Shin splint
- □ Stress fracture or stress reaction
- □ Tendonitits
- □ Bruise (Contusion)
- □ Concussion
- □ Dislocation
- □ Fracture (broken bone)
- □ Laceration (cut)
- □ Nerve injury
- □ Pain in body part (not otherwise specified)
- □ Sprained joint
- □ Strained muscle
- □ Torn meniscus/cartilage
- □ Other overuse injury (Please Specify)
- □ Not otherwise specified

(End of Page 11)

116. What activity were you doing when this injury occurred?
- □ Physical training (running for physical training)
- □ Physical training (weight training for physical training)
- □ Other physical training (Please Specify)
- □ Taking the Army Combat Fitness Test
- □ Foot Marching with a load (Please Specify Weight (lbs) of Load Carried):
- □ Foot Marching without a load
- □ Lifting or moving heavy objects (not weight training)
- □ Repairing or maintaining equipment
- □ Riding or driving a motorized vehicle (car, armored vehicles)
- □ Moving in or around a stationary motor vehicle
- □ Rough-housing or fighting
- □ Combative training / Combative competition
- □ Obstacle Course
- □ Sports/recreation (such as soccer or basketball)
- □ Stepping up/climbing
- □ Walking or hiking (not foot marching)
- □ Occupational injuries (job related tasks)
- □ Other (Please Specify)

160. What was the cause associated with injury #1?
- □ Burn (such as by fire, hot substance or object, or steam)

- Contact (hit by/against) an object/surface (Please Specify Object)

- Cut or puncture by a sharp tool, object or instrument
- Direct contact by a person
- Falling onto an object, surface, or the ground
- Impact from a blast
- Overuse/repetitive activity
- Single overexertion/over-extension/twisting effort
- Tripping without falling
- Other (Please Specify)

Destination: Injury 1 cause (Set in 116) Destination: Medical Professional 1 (Set in 160)

(End of Page 12)

162. Have you been seen by a medical professional for injury #1?
- Yes
- No

This Question is Conditionally Shown if: (162 = No)
359. What reason best describes why you did not see a medical provider for your injury?
- My injury was not severe enough to require medical care
- I did not have time to seek medical care
- I tried to seek medical care but was not able to find an appointment that fit with my schedule
- I did not want to get a profile
- Other (Please specify):

(End of Page 13)

This Page is Conditionally Shown if: (162 = Yes)
123. Were you placed on a medical profile by a medical professional for injury #1?
- Yes
- No

(End of Page 14)

This Page is Conditionally Shown if: (123 = Yes)
224. How many days were you placed on profile for injury #1? (if permanent, please write 'permanent')
Number of Days

(End of Page 15)

This Page is Conditionally Shown if: (162 = Yes)
276. Did you see the Physical Therapist, Occupational Therapist, or Dietitian regarding this injury? Check all that apply.
- Physical Therapist
- Occupational Therapist
- Dietitian
- None of the above

(End of Page 16)

This Page is Conditionally Shown if: (276 (Physical Therapist) = Selected)

325. How many days did it take to get an appointment with the Physical Therapist after receiving a referral?

- □ 0
- □ 1
- □ 2
- □ 3
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- 60+

398. How many visits did you have with the Physical Therapist?
- 1
- 2
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- 29
- 30+

278. Are you still seeing the Physical Therapist?
- Yes
- No

This Question is Conditionally Shown if: (278 = No)

279. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
- 10%
- 20%

- □ 30%
- □ 40%
- □ 50%
- □ 60%
- □ 70%
- □ 80%
- □ 90%
- □ 100%

(End of Page 17)

This Page is Conditionally Shown if: (276 (Occupational Therapist) = Selected)

326. How many days did it take to get an appointment with the Occupational Therapist after receiving a referral?

- □ 0
- □ 1
- □ 2
- □ 3
- □ 4
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- □ 60+

399. How many visits did you have with the Occupational Therapist?

- □ 1
- □ 2
- □ 3
- □ 4
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- □ 28
- □ 29
- □ 30+

282. Are you still seeing the Occupational Therapist?
- Yes
- No

This Question is Conditionally Shown if: (282 = No)

283. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

(End of Page 18)

This Page is Conditionally Shown if: (276 (Dietitian) = Selected)

327. How many days did it take to get an appointment with the Dietitian after receiving a referral?
- 1
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- □ 60+

400. How many visits did you have with the Dietitian?

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- □ 28
- □ 29
- □ 30+

287. Are you still seeing the Dietitian?
- □ Yes
- □ No

This Question is Conditionally Shown if: (287 = No)

288. What percentage of your goal with your dietitian have you reached? (Please indicate what percentage reflects your progress, 100% being fully met)
- □ 10%
- □ 20%
- □ 30%
- □ 40%
- □ 50%
- □ 60%
- □ 70%
- □ 80%
- □ 90%
- □ 100%

(End of Page 19)

This Page is Conditionally Hidden if: (111 = None OR111 = 1)
These next questions will ask about injury #2 that you experienced in the past 12 months. Even if you reported 3 or more injuries, you will only be asked questions on the 2 most physically limiting injuries.

331. Estimate the approximate date of the second most serious injury (#2) in the past 12 months. Specify Date

332. What was the primary body area injured?
- □ Head
- □ Neck
- □ Shoulders
- □ Upper Arm (bicep/tricep)
- □ Lower Arm (forearm)
- □ Elbow
- □ Wrist
- □ Hand
- □ Chest/ribs
- □ Abdomen
- □ Back (lower)
- □ Back (upper)
- □ Hip
- □ Upper leg (Thigh/Hamstring)
- □ Lower leg (Shin/Calf)
- □ Knee
- □ Ankle
- □ Foot
- □ Other (Please Specify)

333. What was the type of injury #2?
- □ Bursitis
- □ Overuse muscle pain
- □ Runner's knee (pain around knee cap)
- □ Shin splint
- □ Stress fracture or stress reaction
- □ Tendonitits
- □ Other overuse injury (Please Specify)
- □ Bruise (Contusion)
- □ Concussion
- □ Dislocation
- □ Fracture (broken bone)
- □ Laceration (cut)
- □ Nerve injury
- □ Pain in body part (not otherwise specified)
- □ Sprained joint
- □ Strained muscle
- □ Torn meniscus/cartilage
- □ Not otherwise specified

(End of Page 20)

This Page is Conditionally Hidden if: (111 = None OR111 = 1)

334. What activity were you doing when this injury occurred?
- □ Physical training (running for physical training)
- □ Physical training (weight training for physical training)
- □ Other physical training (Please Specify)
- □ Foot Marching with a load (Please Specify Weight (lbs) of Load Carried):
- □ Foot Marching without a load
- □ Lifting or moving heavy objects (not weight training)
- □ Repairing or maintaining equipment
- □ Riding or driving a motorized vehicle (car, armored vehicles)
- □ Moving in or around a stationary motor vehicle
- □ Rough-housing or fighting
- □ Combative training / Combative competition
- □ Obstacle Course
- □ Sports/recreation (such as soccer or basketball)
- □ Stepping up/climbing
- □ Walking or hiking (not foot marching)
- □ Occupational injuries (job related tasks)
- □ Other (Please Specify)

335. What was the cause associated with injury #2?
- □ Burn (such as by fire, hot substance or object, or steam)
- □ Contact (hit by/against) an object/surface (Please Specify Object)
- □ Cut or puncture by a sharp tool, object or instrument
- □ Direct contact by a person
- □ Falling onto an object, surface, or the ground
- □ Impact from a blast
- □ Overuse/repetitive activity
- □ Single overexertion/over-extension/twisting effort
- □ Tripping without falling

- Other (Please Specify)

(End of Page 21)

This Page is Conditionally Hidden if: (111 = None OR111 = 1)
121. Have you been seen by a medical professional for injury #2?
- Yes
- No

This Question is Conditionally Shown if: (121 = No)
360. What reason best describes why you did not see a medical provider for your injury?
- My injury was not severe enough to require medical care
- I did not have time to seek medical care
- I tried to seek medical care but was not able to find an appointment that fit with my schedule
- I did not want to get a profile
- Other (Please specify):

(End of Page 22)

This Page is Conditionally Shown if: (121 = Yes)
164. Were you placed on a medical profile by a medical professional for injury #2?
- Yes
- No

Destination: Page 29 (Set in 164 (No))

(End of Page 23)

This Page is Conditionally Shown if: (164 = Yes)
226. How many days were you placed on profile for injury #2?
Number of Days

(End of Page 24)

This Page is Conditionally Shown if: (121 = Yes)
291. Did you see the Physical Therapist, Occupational Therapist, or Dietitian regarding this injury? Check all that apply.
- Physical Therapist
- Occupational Therapist
- Dietitian
- None of the above

Destination: Unit PT (Set in 291 (None of the above))

(End of Page 25)

This Page is Conditionally Shown if: (291 (Physical Therapist) = Selected)
292. How many days did it take to get an appointment with the Physical Therapist after receiving a referral?

- □ 0
- □ 1
- □ 2
- □ 3
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- 60+

401. How many visits did you have with the Physical Therapist?
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- 30+

294. Are you still seeing the Physical Therapist?
- Yes
- No

This Question is Conditionally Shown if: (294 = No)

295. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%

- □ 80%
- □ 90%
- □ 100%

(End of Page 26)

This Page is Conditionally Shown if: (291 (Occupational Therapist) = Selected)

323. How many days did it take to get an appointment with the Occupational Therapist after receiving a referral?

- □ 0
- □ 1
- □ 2
- □ 3
- □ 4
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- 60+

402. How many visits did you have with the Occupational Therapist?

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- 30+

298. Are you still seeing the Occupational Therapist?

- Yes
- No

This Question is Conditionally Shown if: (298 = No)

299. Are you fully recovered? (Please indicate what percentage reflects your progress, 100% being fully recovered)
- □ 10%
- □ 20%
- □ 30%
- □ 40%
- □ 50%
- □ 60%
- □ 70%
- □ 80%
- □ 90%
- □ 100%

(End of Page 27)

This Page is Conditionally Shown if: (291 (Dietitian) = Selected)

324. How many days did it take to get an appointment with the Dietitian after receiving a referral?
- □ 0
- □ 1
- □ 2
- □ 3
- □ 4
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- □ 60+

403. How many visits did you have with the Dietitian?

- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
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- □ 7
- □ 8
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- □ 27
- □ 28

- 29
- 30+

302. Are you still seeing the Dietitian?
- Yes
- No

This Question is Conditionally Shown if: (302 = No)
303. What percentage of your goal with your dietary goals have been met? (Please indicate what percentage reflects your progress, 100% being fully met)
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

(End of Page 28)

Unit Physical Training (PT)

184. Do you currently participate in unit PT (i.e., road marching, running, calisthenics, or strength training with your unit)?
- Yes
- No

This Question is Conditionally Shown if: (184 = Yes)
382. Has your unit changed the way it trains in anticipation of the upcoming Army Combat Fitness Test?
- Yes
- No

This Question is Conditionally Shown if: (382 = Yes)
384. In the last year how many months has your unit specifically trained for the new upcoming Army Combat Fitness Test?
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Destination: Personal PT (Set in 184 (No))

(End of Page 29)

188. On average, how often do you participate in unit PT each week?

- □ 1 time per week
- □ 2 times per week
- □ 3 times per week
- □ 4 times per week
- □ 5 times per week
- □ 6 times per week
- □ 7 times per week
- □ More than 7 times per week

185. How would you rate your unit PT?

- □ Challenging
- □ Hard
- □ Somewhat Hard
- □ Moderate
- □ Easy

(End of Page 30)

For Distance running (running continuously for 1 mile or greater) with your unit, please select your average DISTANCE (miles per time you ran) and FREQUENCY (number of times per week) during the typical week over the last 12 months.

418. On average, how many times per week did you run for unit PT?

- □ None
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ >7

419. Each time you ran for unit PT, on average, how many miles did you run?

- □ 0
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10
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- □ 18
- □ 19
- □ 20

269. When distance running with your unit, what pace does your unit usually run?
- □ No Distance Running
- □ 5 minute mile
- □ 6 minute mile
- □ 7 minute mile
- □ 8 minute mile
- □ 9 minute mile
- □ 10 minute mile
- □ 11 minute mile
- □ 12 minute mile
- □ Other (Please specify)

(End of Page 31)

212. For the below listed exercise activities with your unit, please select your average FREQUENCY (number of times per week) and DURATION (minutes per event) of participation during the typical week over the last 12 months.

Sprints are short bursts of speed that cannot be sustained for more than a few minutes. Intervals are short periods of high speed running mixed with periods of jogging or walking.
Calisthenics include jumping jacks, windmills, mountain climbers, etc.
Cross-training type exercises include circuit training and combinations of exercises to work various parts of the body.
Agility drills are drills requiring lateral movements, typically using cones or ladders, obstacle course, etc.
Resistance training is weight lifting using free weights, dumbbells, kettlebells, hammer-strength machines, etc.

On average, how many times per week did you perform the activity with your unit?

	None	1 time per week	2 times per week	3 times per week	4 times per week	5 times per week	6 times per week	7 times per week	>7 times per week
Sprints/Interval Training	□	□	□	□	□	□	□	□	□
Calisthenics	□	□	□	□	□	□	□	□	□
Cross-training type of exercises	□	□	□	□	□	□	□	□	□
Agility drills	□	□	□	□	□	□	□	□	□
Resistance training	□	□	□	□	□	□	□	□	□
Obstacle Course	□	□	□	□	□	□	□	□	□

On average, how many minutes per event did you perform this activity with your unit? (If none please enter '0')

Sprints/Interval Training

Calisthenics

Cross-training type of exercises

Agility drills

Resistance training

Obstacle Course

304. Do you perform unit foot marches?
- □ Yes
- □ No

Destination: Personal PT (Set in 304 (No))

(End of Page 32)

This Page is Conditionally Shown if: (304 = Yes)

243. On average, how many times per month did you perform foot marching with your unit in the last 12 months?

242. On average, how many miles did you foot march with your unit per month in the last 12 months?

241. On average, how heavy was your march load (in lbs.) each time you foot marched with your unit in the last 12 months?

(End of Page 33)

Personal Physical Training (PT)

46. Do you perform PT on your own time?
- □ Yes
- □ No

This Question is Conditionally Shown if: (46 = Yes)

385. Have you changed the way you train on your own time in anticipation of the upcoming Army Combat Fitness Test?
- □ Yes
- □ No

This Question is Conditionally Shown if: (385 = Yes)

387. In the last year how many months have you specifically trained for the new upcoming Army Combat Fitness Test?
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7

- □ 8
- □ 9
- □ 10
- □ 11
- □ 12

Destination: Tobacco (Set in 46 (No))

(End of Page 34)

For Distance running (running continuously for 1 mile or greater) for personal PT, please select your average DISTANCE (miles per time you ran) and FREQUENCY (number of times per week) during the typical week over the last 12 months.

215. On average, how many times per week did you run for personal PT?

- □ None
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ >7

417. Each time you ran for personal PT, on average, how many miles did you run?

- □ 0
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
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- □ 20

270. At about what pace during personal PT do you usually run when performing distance running?

- □ No Distance Running
- □ 5 minute mile
- □ 6 minute mile
- □ 7 minute mile

- □ 8 minute mile
- □ 9 minute mile
- □ 10 minute mile
- □ 11 minute mile
- □ 12 minute mile
- □ Other (Please specify)

405. For the below listed exercise activities for personal PT, please select your average FREQUENCY (number of times per week) and DURATION (minutes per event) of participation during the typical week over the last 12 months. (If none please enter '0')

Sprints are short bursts of speed that cannot be sustained for more than a few minutes. Intervals are short periods of high speed running mixed with periods of jogging or walking.
Calisthenics include jumping jacks, windmills, mountain climbers, etc.
Cross-training type exercises include circuit training and combinations of exercises to work various parts of the body.
Agility drills are drills requiring lateral movements, typically using cones or ladders, obstacle course, etc.
Aerobic endurance activities include elliptical machines, rowing machine, cycling, stair steppers. DO NOT include running.
Resistance training is weight lifting using free weights, dumbbells, kettlebells, hammer-strength machines, etc.

On average, how many times per week did you perform the activity with your unit?

	None	1 time per week	2 times per week	3 times per week	4 times per week	5 times per week	6 times per week	7 times per week	>7 times per week
Sprints/Interval Training	□	□	□	□	□	□	□	□	□
Calisthenics	□	□	□	□	□	□	□	□	□
Cross-training type of exercises	□	□	□	□	□	□	□	□	□
Agility drills	□	□	□	□	□	□	□	□	□
Resistance training	□	□	□	□	□	□	□	□	□
Obstacle Course	□	□	□	□	□	□	□	□	□

On average, how many minutes per event did you perform this activity with your unit? (If none please enter '0')

Sprints/Interval Training
Calisthenics
Cross-training type of exercises
Agility drills
Resistance training
Obstacle Course

306. Do you perform personal foot marches?
- □ Yes
- □ No

Destination: Tobacco (Set in 306 (No))

(End of Page 35)

This Page is Conditionally Shown if: (306 = Yes)

307. On average, how many times per month did you personally perform foot marching in the last 12 months?

308. On average, how many miles did you personally foot march per month in the last 12 months?

309. On average, how heavy was your march load (in lbs.) each time you foot marched on your own in the last 12 months?

(End of Page 36)

Tobacco Use

263. Have you ever used tobacco products such as cigarettes, smokeless/chewing tobacco, or e-cigarettes?
- □ Yes
- □ No

This Question is Conditionally Shown if: (263 = Yes)
229. Have you smoked more than 100 cigarettes in your life? (100 cigarettes=5 packs)
- □ Yes
- □ No

Destination: Sleep (Set in 263 (No))

(End of Page 37)

This Page is Conditionally Shown if: (229 = Yes)
219. You indicated that you have smoked cigarettes. About how old were you when you started smoking cigarettes for the first time?
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- □ 50
- □ > 50

230. Have you smoked cigarettes in the last 30 days?
- □ I have smoked cigarettes in the last 30 days.
- □ I quit smoking and have not smoked cigarettes in the last 30 days.

(End of Page 38)

This Page is Conditionally Shown if: (230 = I have smoked cigarettes in the last 30 days.)

231. How long have you smoked cigarettes? (If not applicable, please enter '0'.)
Number of years Number of months

233. In the past 30 days, how many days did you smoke cigarettes?
- □ 1
- □ 2
- □ 3
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- 30

232. In the past 30 days, how many cigarettes have you smoked on average PER DAY?
Cigarettes per day on average

(End of Page 39)

This Page is Conditionally Shown if: (230 = I quit smoking and have not smoked cigarettes in the last 30 days.)

347. How long did you smoke cigarettes for? (If not applicable, please enter '0'.)
Number of years Number of months

68. How many months or years ago did you quit smoking cigarettes? (If not applicable, please enter '0'.)
Years quit Months quit

(End of Page 40)

This Page is Conditionally Shown if: (263 = Yes)

Smokeless Tobacco

320. Have you ever used smokeless tobacco?
- Yes
- No

This Question is Conditionally Shown if: (320 = Yes)

236. You indicated that you have used smokeless tobacco. Have you used smokeless tobacco (chewing tobacco, snuff, dip, etc.) in the last 30 days?
- I have used smokeless tobacco in the last 30 days.
- I quit using smokeless tobacco, and have not used in the last 30 days.

(End of Page 41)

This Page is Conditionally Shown if: (236 = I have used smokeless tobacco in the last 30 days.)

78. How long have you been using smokeless tobacco? (If not applicable, please enter '0'.)
Years used Months used

217. How many days did you use smokeless tobacco in the last 30 days?

- □ 1
- □ 2
- □ 3
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- □ 20
- □ 21
- □ 22
- □ 23
- □ 24
- □ 25
- □ 26
- □ 27
- □ 28
- □ 29
- □ 30

77. How many cans, pouches, or plugs did you use PER DAY on average in the last 30 days? (If not applicable, please enter '0'.)

Number of Cans Number of Pouches Number of Plugs

(End of Page 42)

This Page is Conditionally Shown if: (236 = I quit using smokeless tobacco, and have not used in the last 30 days.)

75. How long ago did you quit using smokeless tobacco? (If not applicable, please enter '0'.)

Years quit Months quit

(End of Page 43)

This Page is Conditionally Shown if: (263 = Yes)

Electronic Cigarettes

321. Have you ever used electronic cigarettes or personal vaporizers?

- □ Yes
- □ No

This Question is Conditionally Shown if: (321 = Yes)

237. You indicated that you have used electronic cigarettes or personal vaporizers. Have you used electronic cigarettes or personal vaporizers in the last 30 days?
- □ I have used electronic cigarettes or personal vaporizers in the last 30 days.
- □ I quit using electronic cigarettes and have not used them in the last 30 days.

This Question is Conditionally Shown if: (321 = Yes)

310. Please choose the option that best describes your electronic cigarette or personal vaporizer use.
- □ I use(d) electronic cigarettes or personal vaporizers only
- □ I use(d) electronic cigarettes or personal vaporizers while also smoking tobacco cigarettes
- □ I use(d) electronic cigarettes or personal vaporizers in an effort to stop smoking tobacco cigarettes

Destination: Sleep (Set in 321 (No))

(End of Page 44)

This Page is Conditionally Shown if: (237 = I have used electronic cigarettes or personal vaporizers in the last 30 days.)

239. How long have you been using electronic cigarettes or personal vaporizers? (If not applicable, please enter '0'.)
Years used Months used

240. How many days did you use electronic cigarettes or personal vaporizers in the last 30 days?
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10
- □ 11
- □ 12
- □ 13
- □ 14
- □ 15
- □ 16
- □ 17
- □ 18
- □ 19
- □ 20
- □ 21
- □ 22
- □ 23
- □ 24
- □ 25
- □ 26
- □ 27

- □ 28
- □ 29
- □ 30

322. In the past 30 days, how many times did you vape on average PER DAY?
Puffs per day on average

(End of Page 45)

This Page is Conditionally Shown if: (237 = I quit using electronic cigarettes and have not used them in the last 30 days.)

348. How long did you use electronic cigarettes or personal vaporizers for? (If not applicable, please enter '0'.)
Years used Months used

238. How long ago did you quit using electronic cigarettes? (If not applicable, please enter '0'.)
Years quit Months quit

(End of Page 46)

Sleep

311. In the last month, how many hours of actual sleep did you get at night on average? (This may be different than the number of hours you spend in bed).
- □ 1
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6
- □ 7
- □ 8
- □ 9
- □ 10
- □ 11
- □ 12

(End of Page 47)

Providers and/or Fitness Professionals

312. Have you had any communications (appointments, consultations, classes) with a Physical Therapist, Occupational Therapist, Dietitian, Strength and Conditioning Coach, or Athletic Trainer within the last 12 months?
- □ Yes
- □ No

This Question is Conditionally Shown if: (312 = Yes)

313. If yes, which providers/fitness professionals? (Select all that apply)
- □ Physical Therapist
- □ Occupational Therapist
- □ Dietitian

- Strength and Conditioning Coach
- Athletic Trainer
- Other

(End of Page 48)

This Page is Conditionally Shown if: (313 (Physical Therapist) = Selected)

314. Which scenario best describes your communication with a Physical Therapist?
    - Had an in-person appointment or consultation
    - Had a phone contact with a physical therapist
    - Attended a briefing or class given by a physical therapist
    - Spoke with a physical therapist on the side (ex. in the hallway, outside, or not an official appointment)

315. What was the reason for you communication(s) or time spent with your Physical Therapist? (Select all that apply)
    - Injury/condition (rehabilitation)
    - Injury prevention
    - Strengthening exercises
    - Improve performance
    - Stretching exercises
    - Pain management
    - Other (Please Specify)

(End of Page 49)

This Page is Conditionally Shown if: (313 (Occupational Therapist) = Selected)

316. Which scenario best describes your communication with an Occupational Therapist?
    - Had an in-person appointment or consultation
    - Had a phone contact with an occupational therapist
    - Attended a briefing or class given by an occupational therapist
    - Spoke with an occupational therapist on the side (ex. in the hallway, outside, or not an official appointment)

317. What was the reason for you communication(s) or time spent with your Occupational Therapist? (Select all that apply)
    - Injury/condition (rehabilitation)
    - Injury prevention
    - Strengthening exercises
    - Improve cognitive or physical performance
    - Improve life skills (ex. sleep, stress management)
    - Pain management
    - Other (Please Specify)

(End of Page 50)

This Page is Conditionally Shown if: (313 (Dietitian) = Selected)

319. Which scenario best describes your communication with a Dietitian?
    - Had an in-person appointment or consultation
    - Had a phone contact with a dietitian

- Attended a briefing or class given by a dietitian
- Spoke with a dietitian on the side (ex. in the hallway, outside, or not an official appointment)

318. What was the reason for you communication(s) or time spent with your Dietitian? (Select all that apply)
- Healthier eating
- Lose weight
- Gain weight
- Improve performance
- Learn more about dietary supplements
- Clinical condition
- Other (Please Specify)

(End of Page 51)

This Page is Conditionally Shown if: (313 (Strength and Conditioning Coach) = Selected)

413. Which scenario best describes your communication with a Strength and Conditioning Coach?
- Had an in-person appointment or consultation
- Had a phone contact with a strength and conditioning coach
- Attended a briefing or class given by a strength and conditioning coach
- Spoke with a strength and conditioning coach on the side (ex. in the hallway, outside, or not an official appointment)

414. What was the reason for you communication(s) or time spent with your Strength and Conditioning Coach? (Select all that apply)
- Injury/condition (rehabilitation)
- Injury prevention
- Strengthening exercises
- Improve performance
- Stretching exercises
- Pain management
- Other (Please Specify)

(End of Page 52)

This Page is Conditionally Shown if: (313 (Athletic Trainer) = Selected)

415. Which scenario best describes your communication with an Athletic Trainer?
- Had an in-person appointment or consultation
- Had a phone contact with an athletic trainer
- Attended a briefing or class given by an athletic trainer
- Spoke with an athletic trainer on the side (ex. in the hallway, outside, or not an official appointment)

416. What was the reason for you communication(s) or time spent with your Athletic Trainer? (Select all that apply)
- Injury/condition (rehabilitation)
- Injury prevention
- Strengthening exercises
- Improve performance
- Stretching exercises
- Pain management
- Other (Please Specify)

(End of Page 53)

This is the end of the survey, thank you for your participation. Please select the "Submit Survey" button below.

(End of Page 54)

APPENDIX E

ACFT CORRELATION TABLES

ACFT Correlation Matrix for Men

Men		DTMS ACFT Events					
		DL	SPT	HR PU	SDC	LT	2MR
DTMS ACFT Events	DL	1	.530	.559	-.498	.477	-.190
	n	2002	1941	1949	1950	2002	1847
	SPT	.530	1	.297	-.504	.327	-.080
	n	1941	1951	1927	1896	1951	1822
	HR PU	.559	.297	1	-.433	.664	-.365
	n	1949	1927	1958	1912	1958	1840
	SDC	-.498	-.504	-.433	1	-.420	.374
	n	1950	1896	1912	1955	1955	1845
	LT	.477	.327	.664	-.420	1	-.397
	n	2002	1951	1958	1955	2013	1850
	2MR	-.190	-.080	-.365	.347	-.397	1
	n	1847	1822	1840	1845	1850	1850

All Correlations are significant (p<0.01)

3.00-3.99 Fair | 4.00 -4.99 Mod | ≥ 5.00 Strong

ACFT Correlation Matrix for Women

Women		DTMS ACFT Events					
		DL	SPT	HR PU	SDC	LT	2MR
DTMS ACFT Events	DL	1	.518	.587	-.552	.545	-.354
	n	364	356	350	352	364	326
	SPT	.518	1	.307	-.418	.345	-.207
	n	356	385	374	371	385	350
	HR PU	.587	.307	1	-.421	.596	-.411
	n	350	374	377	367	377	346
	SDC	-.552	-.418	-.421	1	-.357	.538
	n	352	371	367	379	379	352
	LT	.545	.345	.596	-.357	1	-.376
	n	364	385	377	379	393	352
	2MR	-.354	-.207	-.411	.538	-.376	1
	n	326	350	346	352	352	352

All Correlations are significant (p<0.01)

3.00-3.99 Fair | 4.00 -4.99 Mod | ≥ 5.00 Strong

APPENDIX F

SENSITIVITY TABLES

Table F-1. Unit Physical Fitness Training Before and After ACFT Field Testing Comparing the Results of Soldiers who Completed the Baseline Survey to Those who Completed the Follow-up Survey

	Men Before n=4,229 / After n=2,859 Women Before n=969 / After n=661	Before ACFT Field Testing	After ACFT Field Testing	% Change	p-value
Men	Percent Unit PT participation	75.8% (3,205)	80.6% (2,304)	+6.3	0.09[1]
	Percent Unit PT participation btw 60-600 min/wk	66.3% (2,805)	60.2% (1,722)	-9.2	0.01[1]
	Run (miles/wk)	8.4±4.9 (2,785)	8.0±5.2 (1722)	-4.8	<0.01[2]
	Run (min/wk)	71.6±39.7 (2,696)	66.4±43.7 (1722)	-7.3	<0.01[2]
	Sprinting (min/wk)	47.4±38.8 (2,790)	43.9±37.9 (1722)	-7.4	<0.01[2]
	Calisthenics (min/wk)	52.1±48.7 (2,763)	45.5±45.3 (1722)	-12.7	<0.01[2]
	Cross-training (min/wk)	45.5±44.7 (2,757)	52.3±51.0 (1722)	+14.9	<0.01[2]
	Agility training (min/wk)	31.1±36.2 (2,765)	31.1±34.6 (1722)	0	1.00[2]
	Resistance (min/wk)	41.1±49.0 (2,755)	54.2±57.3 (1722)	+31.9	<0.01[2]
	Obstacle course (min/wk)	6.8±18.1 (2,575)	4.8±15.2 (1722)	-29.4	<0.01[2]
	Total exercise (min/wk)	295.4±126.0 (2,805)	298.2±132.3 (1722)	+0.95	0.48[2]
Women	Percent Unit PT participation	58.0% (562/969)	69.3% (458/661)	+20.3	0.03[1]
	Percent Unit PT participation btw 60-600 min/wk	52.7% (511/969)	48.7% (332/661)	-7.6	0.57[1]
	Run (miles/wk)	7.3±4.6 (503)	6.6±4.0 (332)	-9.6	0.02[2]
	Run (min/wk)	66.2±38.5 (477)	57.7±34.1 (332)	-12.8	<0.01[2]
	Sprinting (min/wk)	41.2±37.1 (504)	41.3±36.5 (332)	+0.24	0.96[2]
	Calisthenics (min/wk)	42.0±47.6 (500)	40.3±42.6 (332)	-4.0	0.59[2]
	Cross-training (min/wk)	46.0±47.6 (500)	63.3±65.2 (332)	+37.6	<0.01[2]
	Agility training (min/wk)	30.4±38.7 (497)	29.1±34.1 (332)	-4.3	0.61[2]
	Resistance (min/wk)	39.8±45.9 (506)	57.4±54.5 (332)	+44.2	<0.01[2]
	Obstacle course (min/wk)	6.9±20.4 (465)	3.9±15.3 (332)	-43.5	0.02[2]
	Total exercise (min/wk)	263.7±134.8 (511)	292.9±137.0 (332)	+11.1	<0.01[2]

Legend: ACFT=Army Combat Fitness Test; (n)=sample size; PT=physical training; wk=week; min=minutes; btw=between. Notes: [1], represents Chi-Square test; [2], represents Independent t-test; Participants selected for analysis performed between 60 to 600 minutes of unit physical training per week.

Table F-2. Personal Physical Fitness Training Before and After ACFT Field Testing Comparing the Results of Soldiers who Completed the Baseline Survey to Those who Completed the Follow-up Survey

	Men Before n=4,229 / After n=2,859 Women Before n=969 / After n=661	Before ACFT Field Testing	After ACFT Field Testing	% Change	p-value
Men	Percent personal PT participation	81.4% (3,442)	83.2% (2378)	+2.2	0.55[1]
	Percent personal PT participation btw 20-840 min/wk	70.8% (2996)	71.0% (2030)	+0.28	0.95[1]
	Run (miles/wk)	6.5±6.9 (2972)	7.4±7.2 (2030)	+13.8	<0.01[2]
	Run (min/wk)	50.4±54.3 (2980)	58.4±56.2 (2030)	+15.9	0.02[2]
	Sprinting (min/wk)	30.7±43.8 (2953)	31.8±41.7 (2030)	+3.6	0.37[2]
	Calisthenics (min/wk)	37.6±55.7 (2959)	36.8±54.5 (2030)	-2.1	0.62[2]
	Cross-training (min/wk)	44.7±68.8 (2961)	49.3±70.0 (2030)	+10.3	0.02[2]
	Agility training (min/wk)	17.4±33.9 (2944)	19.2±35.9 (2030)	+10.3	0.07[2]
	Resistance (min/wk)	65.1±92.6 (2958)	94.3±121.0 (2030)	+44.9	<0.01[2]
	Obstacle course (min/wk)	82.0±116.7 (2962)	4.6±22.0 (2030)	-94.4	<0.01[2]
	Total exercise (min/wk)	324.1±204.6 (2996)	294.4±200.6 (2030)	-9.2	<0.01[2]
Women	Percent personal PT participation	84.0% (814/969)	85.8% (567/661)	+2.1	0.78[1]
	Percent personal PT participation btw 20-840 min/wk	74.8% (725/969)	71.9% (497/661)	-3.9	0.95[1]
	Run (miles/wk)	6.0±5.2 (714)	6.1±5.3 (497)	+1.7	0.74[2]
	Run (min/wk)	52.6±47.8 (716)	54.3±46.4 (497)	+3.2	0.54[2]
	Sprinting (min/wk)	31.7±50.4 (714)	29.7±40.3 (497)	-6.3	0.44[2]
	Calisthenics (min/wk)	31.5±50.0 (714)	31.6±49.8 (497)	-0.32	0.97[2]
	Cross-training (min/wk)	52.4±70.0 (715)	62.9±79.3 (497)	+20.0	0.02[2]
	Agility training (min/wk)	13.7±27.6 (704)	16.6±34.8 (497)	+21.2	0.12[2]
	Resistance (min/wk)	64.2±79.1 (716)	87.8±104.7 (497)	+36.8	<0.01[2]
	Obstacle course (min/wk)	65.8±84.3 (713)	5.0±21.0 (497)	-92.4	<0.01[2]
	Total exercise (min/wk)	307.3±194.5 (725)	287.9±196.6 (497)	-6.3	<0.09[2]

Legend: ACFT=Army Combat Fitness Test; (n)=sample size; PT=physical training; wk=week; min=minutes; btw=between.

Notes: [1], represents Chi-Square test; [2], represents Independent t-test; Participants selected for analysis performed between 20 to 840 minutes of personal physical training per week.

Table F-3. Leading Injured Body Areas, Injury Type, Activity Type, and Cause Before and After ACFT Field Testing Comparing the Results of Soldiers who Completed the Baseline Survey to Those who Completed the Follow-up Survey

Men Before n=4,229 /Men After n=2,859 Women Before n=959 /Women After n=661			Before ACFT Implementation		After ACFT Implementation		Chi-square p-value
			n Injured	% Injured	n Injured	% Injured	
Body Area	Men	Lower Back	186	4.4	167	5.8	<0.01
		Knee	189	4.5	104	3.6	0.10
		Shoulders	83	2.0	81	2.8	0.02
		Ankle	108	2.6	73	2.6	1.00
		Foot	72	1.7	43	1.5	0.52
	Women	Lower Back	54	5.6	41	6.2	0.62
		Knee	46	4.7	32	4.8	0.93
		Hip	28	2.9	20	3.0	0.88
Injury Type	Men	Strained Muscle	163	3.9	136	4.8	0.08
		Other Overuse Injury	54	1.3	66	2.3	<0.01
		Sprained Joint	121	2.9	59	2.1	0.04
		Pain in Body Part	97	2.3	77	2.7	0.30
		Overuse Muscle Pain	75	1.8	68	2.4	0.08
	Women	Strained Muscle	42	4.3	31	4.7	0.74
		Sprained Joint	31	3.2	26	3.9	0.44
Activity Type	Men	Physical Training Weightlifting	136	3.2	164	5.7	<0.01
		Physical Training Running	360	8.5	203	7.1	0.05
		Occupational Injuries	61	1.4	46	1.6	0.58
		Sports/Recreation	76	1.8	41	1.4	0.25
	Women	Physical Training Running	84	8.7	64	9.7	0.52
		Physical Training Weightlifting	33	3.4	44	6.7	<0.01
Injury Cause	Men	Overuse/Repetitive Activity	431	10.2	308	10.8	0.44
		Single Overuse	176	4.2	138	4.8	0.20
		Falling onto an Object, Surface, Ground	105	2.5	91	3.2	0.09
		Contact an Object Surface	82	1.9	51	1.8	0.64
		Tripping without Falling	37	0.9	29	1.0	0.55
	Women	Overuse/Repetitive Activity	118	12.2	99	15.0	0.15
		Single Overuse	37	3.8	28	4.2	0.68
		Falling onto an Object, Surface, Ground	43	4.4	21	3.2	0.22

Legend: ACFT=Army Combat Fitness Test; n=sample size.

Notes: Injuries occurring 6 months before and after ACFT field testing were used for analysis and reported.