# U.S. Army Center for Health Promotion and Preventive Medicine

USCHPPM

## EVALUATION OF TWO ARMY FITNESS PROGRAMS: THE TRADOC STANDARDIZED PHYSICAL TRAINING PROGRAM FOR BASIC COMBAT TRAINING AND THE FITNESS ASSESSMENT PROGRAM

**USACHPPM PROJECT NO. 12-HF-5772B-04**

**U.S. Army Center for Health Promotion and Preventive Medicine**
**Aberdeen Proving Ground, Maryland**

**U.S. Army Physical Fitness School**
**Fort Benning, Georgia**

**U.S. Army Training Center**
**Fort Jackson, South Carolina**

**Center for Accessions Research**
**Fort Knox, Kentucky**

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## *U.S. Army Center for Health Promotion and Preventive Medicine*

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*Most recently, it became internationally known as the U.S. Army Environmental Hygiene Agency (AEHA). Its mission expanded to support worldwide preventive medicine programs of the Army, DOD, and other Federal agencies as directed by the Army Medical Command or the Office of The Surgeon General, through consultations, support services, investigations, on-site visits, and training.*

*On 1 August 1994, AEHA was redesignated the U.S. Army Center for Health Promotion and Preventive Medicine with a provisional status and a commanding general officer. On 1 October 1995, the nonprovisional status was approved with a mission of providing preventive medicine and health promotion leadership, direction, and services for America's Army.*

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★ *Integrity is the foundation*
★ *Excellence is the standard*
★ *Customer satisfaction is the focus*
★ *Its people are the most valued resource*
★ *Continuous quality improvement is the pathway*

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Training outcomes, fitness, and injuries were examined 1) during implementation of a new standardized physical training (PT) program for Army Basic Combat Training (BCT), and 2) among low-fit trainees who did and did not enter the Fitness Assessment Program (FAP) prior to BCT. Methods: To evaluate the PT program, a standardized group (SG, n= 934) that implemented the new PT program was compared to a non-standardized group (NSG, n= 1138) that implemented a traditional BCT PT program. For the FAP evaluation, 3 groups were compared. Recruits who passed the Reception Station Fitness Test were designated the Not-FAP group. Recruits who failed the test, entered the FAP, and later entered BCT were designated the FAP Control group. The trainees who failed the test but entered BCT without going into the FAP were designated the FAP Test group. Both the NSG and SG contained FAP Control and Not-FAP trainees but only the SG contained FAP Test trainees. Results, PT Program Evaluation: There were no significant differences between the SG and NSG in the proportion of trainees completing the cycle (SG= 82%, NSG= 83%, p= 0.52). After all final APFT retakes were completed, the SG had fewer final APFT failures than the NSG (1.7% vs 3.3%, p= 0.03). The relative risk (RR) of an injury in the NSG was 1.6 (men) and 1.5 (women) times higher than in the SG. Results, FAP Evaluation: The proportion of FAP test, FAP Control and Not-FAP who completed the BCT cycle were 54%, 75% and 83%, respectively (p< 0.01). After all final APFT retakes were completed the proportion of FAP test, FAP Control and Not-FAP who failed the final test was 11.4%, 8.2% and 2.1%, respectively (p< 0.01). Injury risk was higher in both the FAP Test and Control groups compared to the Not-FAP for both men and women (p< 0.01). Injury differences between FAP Test and Control groups were smaller (RR (FAP Test/Not-FAP)= 1.1 men; RR (FAP Test/FAP Control)= 1.3 women). Recommendations: Adopt the new PT program because it was associated with higher APFT pass rates and less injury risk. Retain the FAP since it reduces attrition.

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## Executive Summary

# EVALUATION OF TWO ARMY FITNESS PROGRAMS: THE TRADOC STANDARDIZED PHYSICAL TRAINING PROGRAM FOR BASIC COMBAT TRAINING AND THE FITNESS ASSESSMENT PROGRAM

### USACHPPM Project Number 12-HF-5772b-04

**1. INTRODUCTION.** LTG Dennis Cavin, Commander of Accessions Command, tasked the U.S. Army Physical Fitness School (USAPFS) and the Center for Accession Research (CAR) to develop and test the ability of a standardized physical training (PT) program to improve fitness and reduce injuries and attrition during BCT. The program developed by the USAPFS followed the principles in Army Field manual 21-20 plus incorporated injury reduction principles involving reduced running mileage and a greater variety of exercises. LTG Cavin also wanted to determine if the new fitness program coupled with an administrative change might eliminate the necessity for the Fitness Assessment Program (FAP) or reduce the number of trainees who enter the FAP. New recruits who fail a basic fitness test at the Reception Station enter the FAP and train until they can pass the test and enter BCT. The proposed administrative change was to conduct the basic fitness test at Week 2 of BCT rather than in the Reception Station. This report examines attrition, fitness and injuries 1) during implementation of the standardized physical training program, and 2) among low-fit trainees who did and did not enter the FAP prior to BCT.

**2. METHODS.** To evaluate the new PT program, a standardized group (SG, n=518 men, 416 women) that implemented the new PT program was compared to a non-standardized group (NSG, n=656 men, 482 women) that performed a traditional BCT PT program. Both groups consisted of 5 BCT companies. Prior to starting BCT, a minimal fitness test was conducted in the Reception Station and recruits were classified according to the results and whether or not they physically trained prior to entering a BCT unit. Not-FAP trainees were those who passed the Reception Station Fitness Test and entered BCT. FAP Control group comprised trainees who failed the test, trained in the FAP (about 2 weeks on average), and then entered BCT. FAP Test trainees were those who failed the test but entered BCT without training in the FAP. Both the NSG and SG contained FAP Control and Not-FAP trainees but only the SG contained FAP Test trainees.

The evaluation of the standardized PT program proceeded in three major phases: 1) train-the-trainer, 2) pilot, and 3) evaluation. The train-the-trainer phase involved a 16-hour block of instruction given to the training cadre in the SG by the USAPFS. The pilot phase involved an entire 9-week BCT cycle in which the drill sergeants from the SG implemented the exercises they had been taught and changes were made based on drill sergeant feedback. The evaluation phase

incorporated lessons learned during the pilot and is the main topic of this paper. During the evaluation phase, the NSG group command staff and drill sergeants were briefed on the project and told not to alter their traditional PT program. The SG training program consisted of conditioning drills, movement drills, stretching drills, speed running, and ability group running. The NSG training program involved calisthenics, push-up/sit-up improvement, and ability group running. The SG program contained fewer total miles of running and a greater variety of exercises.

Attrition was determined by examining group differences in the proportion of trainees who completed the 9-week BCT cycle (full cycle trainees). An Initial Fitness Assessment was given on arrival at the BCT company and consisted of a 1-minute PU event, a 1-minute SU event, and a 1-mile run (1/1/1 test). The SG also took the same Fitness Assessment at Week 2. An Army Physical Fitness Test (APFT) was administered to all groups at Weeks 5 and 7 of the BCT Cycle. On the Week 7 APFT, trainees had to meet specific age- and gender-adjusted requirements to pass the test. Trainees who failed to pass the Week 7 APFT were allowed to retake the test several times. Injuries that occurred during BCT were obtained from the Standard Ambulatory Data Record (SADR) which recorded outpatient medical visits to the troop medical clinic and hospital but did not include visits to Battalion Aid Stations. International Classification of Diseases, Version 9 (ICD-9) codes indicative of injury were selected and trainees with one or more injuries were compared among groups. Trainee age, gender, height, and weight were obtained from the training companies and the Reception Battalion Automated Report System (RECBAS). Body mass index (BMI) was calculated as weight/height$^2$.

## 3. RESULTS.

**a. TRADOC Standardized PT Program.** Analysis of the SG conducted with and without the FAP Test personnel are reported in the paper. However, because the lower initial fitness of the FAP Test personnel disadvantaged the SG, and because the FAP evaluation was a separate investigation, this summary only includes the analysis of the SG *without the FAP Test personnel.*

There were no significant differences between the SG and NSG in the proportion of men (NSG= 87%, SG=87%, p=0.89) or women (NSG=78%, SG=75%, p=0.28) who completed the cycle. PU performance of the SG was higher than that of the NSG at both Weeks 5 and 7. SU performance of the SG at Week 5 was lower than that of the NSG but by Week 7 the performance of the two groups was similar. Two-mile run performance of the men in the SG and NSG was similar as were improvements from Week 5 to Week 7. Two-mile run performance of the women in the NSG was lower than that of the SG at Week 5 and Week 7; the NSG women improved their performance more than the SG women from Week 5 to Week 7 but did not reach the same performance level as the SG women.

The SG women had a greater proportion of trainees passing the final APFT at Week 7 (NSG=79%, SG=86%, p=0.02); the trend among the men was weaker but similar (NSG=88%, SG=90%, p=0.31). When men and women were combined in a single analysis, the SG had more individuals passing the test than the NSG (NSG=84%, SG=88%, p=0.02). After all APFT retakes were completed, the SG men had fewer final APFT failures (NSG=2.9%, SG=0.8%, p=0.01); the trend in the women's data was weaker but similar (NSG=3.7%, SG=2.9%, p=0.52). When men and women were combined, the SG had fewer final APFT failures than the NSG (3.3% vs 1.7%, p=0.03).

After adjustment for covariates (initial fitness and physical characteristics) using Cox regression (a survival analysis technique), the relative risk of an injury was 1.6 (95% confidence interval (CI)=1.2-2.0) times higher in the NSG men than the SG men. The relative risk of an injury was 1.5 (95% CI=1.2-1.8) times higher in the NSG women compared to the SG women.

**b. FAP Evaluation.** The proportion of male FAP test, FAP Control and Not-FAP who completed the BCT cycle were 59%, 83% and 87%, respectively (p<0.01). For women, these numbers were 52%, 69%, and 78%, respectively (p<0.01). There were no differences in attrition between Not-FAP and FAP Control men (p=0.32) but there tended to be fewer FAP Control women who completed the cycle compared to Not-FAP women (p=0.06). More of the FAP Control group completed the cycle than the FAP Test group (p<0.01 for both men and women). Fewer FAP Test personnel completed the cycle because they had more newstarts and discharges.

On the Week 2 Fitness Assessment given to the SG, the proportion of trainees passing the test based on the Reception Station Physical Fitness Test standards was 28%, 46%, and 85% for the FAP Test, FAP Control, and Not-FAP groups (p<0.01).

Because of attrition, only 63% of FAP Test trainees took the Week 7 APFT compared to 84% and 86% of the FAP Control and Not-FAP, respectively (p<0.01). After APFT raw scores at Weeks 5 and 7 were adjusted for differences in Initial Fitness Assessment scores (analysis of covariance), the Not-FAP demonstrated higher performance than the FAP Test and FAP Control on all 3 test events for both men and women (p<0.01). There were no differences between the FAP Test and FAP Control on any test event (p>0.58).

At Week 7 the proportion of male trainees passing the test was 55%, 64% and 90% in the FAP Test, FAP Control and Not-FAP groups, respectively (p<0.01). The proportion of female trainees passing the test was 55%, 60% and 85%, respectively. On the Week 7 APFT, the Not-FAP had a larger proportion of trainees passing the test compared to the FAP Test and Control (p<0.01 for all comparisons). Proportions passing the test among the FAP Test and Control were similar (p=0.42

for men, p=0.54 for women). After all APFT retakes had been complete the proportion of men who failed the test was 12.5%, 7.8%, and 1.7% in the FAP Test, FAP Control, and Not-FAP, respectively. The proportion of women failing the test was 11.0%, 8.5% and 2.7%, respectively. The Not-FAP had fewer failures than the FAP Test and Control ($p<0.01$ for all comparisons). The difference in the proportion of FAP Test and Control failures was not statistically significant (p=0.46 for men, p=0.59 for women).

Univariate Cox regression demonstrated that injury risk was higher in both the FAP Test and Control groups compared to the Not-FAP for both men (relative risk (RR) (FAP Test/Not-FAP)=1.7, 95%CI=1.0-3.1; RR (FAP Control/Not FAP)=1.5, 95%CI=1.0-2.3) and women (RR (FAP Test/Not-FAP)= 1.5, 95%CI=1.1-2.1; RR (FAP Control/Not FAP)=1.2, 95%CI=0.9-1.6). Differences between FAP Test and Control men or women were generally smaller (RR (FAP Test/Not-FAP)=1.1, 95%CI=0.6-2.3 for men and 1.3, 95%CI=0.9-2.0 for women). After controlling for initial fitness, age and BMI, using Cox regression, there were no differences in injury risk among the three groups (RR=0.8 to 1.2).

**4. DISCUSSION.** FAP Test trainees were nested within the group undergoing the TRADOC PT program because it was hypothesized that certain characteristics of the new PT program, coupled with moving the Reception Station Basic Fitness Test to Week 2 of BCT, might serve to reduce attrition and lower injuries in lower fit trainees. It was found that 72% of FAP Test group failed the Week 2 test. More interesting was the fact that a large proportion of the FAP Control and Not-FAP also failed the Week 2 test. The total number of failures in all 3 FAP groups was over 3-fold higher than the number of trainees who actually failed the test in the Reception Station (i.e., FAP Test trainees). The reasons for this are not clear but may relate to the fact that the Week 2 test was not conducted in exactly the same manner as in the Reception Station.

**a. Evaluation of the TRADOC Standardized PT Program.** The SG that used the TRADOC Standardized PT Program had more favorable fitness and injury outcomes than the NSG that used a traditional PT program. The SG had higher raw scores on the PU, a higher APFT pass rate at Week 7, and a higher pass rate after all APFT retakes had been completed. Injury risk in the SG was substantially lower than in the NSG.

The similar Week 7 2-mile run performances were achieved with fewer total running miles on the part of the SG. The SG ran an estimated 13% to 31% fewer miles than the NSG during BCT. Speed running performed by SG trainees probably assisted in improving 2-mile run times since running of this type has been shown to result in greater improvements in speed than long-distance running alone. The lower injury rates may also be associated with the lower running miles since past studies in basic training have shown less running mileage is associated with lower

injury rates. Other features of the TRADOC Standardized PT Program that may have reduced injury risk include the gradual, progressive introduction of exercise stress and the greater variety of exercise in the program (cross-training).

**b. FAP Evaluation.** The most significant finding from the FAP evaluation was the fact that the FAP Test group had more attrition than the FAP Control and Not-FAP. FAP Test personnel were 1.5 times less likely to complete BCT than Not-FAP personnel (men and women combined). FAP Control personnel were only 1.1 times less likely to complete training compared to the Not-FAP (men and women combined). Thus, the major advantage of the FAP appears to be its ability to "screen" out the lower fit trainees before they enter BCT. Training cadre and commanders appreciated this function and desired to retain the FAP for this reason.

One problem with determining changes in fitness in the FAP Test group was that only trainees who took the test could be evaluated. Attrition was high in this group and fitness changes in those who left BCT could not be evaluated. The FAP Test and Control trainees who took the APFTs demonstrated similar performance and similar pass rates.

Injury risk in the FAP Test and Control groups were uniformly higher than for the Not-FAP. When the FAP Test and Control were compared, there was little difference in injury risk between the groups. The aerobic fitness level of the FAP Test and Control groups were substantially lower than that of the Not-FAP at the start of BCT. A previous study of the FAP showed that when the aerobic fitness level of a group coming out of the FAP was similar to that of other trainees, injury risk during BCT was similar. Thus, the level of aerobic fitness on entry to BCT may be a more important factor in risk reduction than the amount of PT. In the present evaluation, trainees were in the FAP an average of about 18 days and trained 6 days/week. This training period was not sufficient to bring the average fitness level of the FAP Control group to the average level of the Not-FAP at the start of BCT.

## 5. RECOMMENDATIONS.

1. Adopt the new TRADOC Standardized PT Program for BCT. Companies using the program demonstrated a higher APFT pass rate, lower injury risk, and similar attrition when compared to a traditional PT program.

2. Retain the FAP. The largest advantage of the FAP appears to be that it serves as a prescreening for very low fit individuals and identifies those likely to drop out of BCT early in the process. It is possible to move this attrition into BCT but this would increase the administrative burden on the BCT companies and distract from the training mission. Further study could be conducted on the feasibility of conducting the fitness test as part of the recruiting process.

3. Continue to administer the Reception Station Physical Fitness Test at the Reception Station and do not move it to Week 2 of BCT until a more adequate test of this concept can be conducted. A more adequate test would involve conducting the test exactly as it is done in the Reception Station. The Week 2 assessment appears to cause disruption of the training mission.

4. Reduce the number of APFTs in BCT. Results showed that the usual process of administering 4 APFTs is not necessary. The 1/1/1 test administered here appears to be adequate to evaluate initial fitness with full APFTs administered on Weeks 5 and Week 7 of the BCT cycle.

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**EVALUATION OF TWO ARMY FITNESS PROGRAMS: THE TRADOC STANDARDIZED PHYSICAL TRAINING PROGRAM FOR BASIC COMBAT TRAINING AND THE FITNESS ASSESSMENT PROGRAM**

**USACHPPM Project Number 12-HF-5772b-04**

**1. REFERENCES.** Appendix A contains the references used in this report.

**2. INTRODUCTION.**

In an effort to reduce injuries and attrition from Basic Combat Training (BCT), LTG Dennis Cavin, Commander of Accessions Command, mandated that physical training would be standardized for all of BCT. The U.S. Army Physical Fitness School (USAPFS) was tasked to develop this standardized physical training program. In the initial development of the program the Fitness School was thought that Army Field Manual 21-20 (1) contained many of the necessary principles for enhancing fitness and reducing injuries but the routine application of these principles was missing. Some additional injury-reduction concepts were added to the program that had been tested and evaluated previously in both BCT and Advanced Individual Training (AIT). These concepts included reducing running mileage and providing a wider variety of exercises (17,23). The program developed by the USAPFS assumed the title of the Army Training and Doctrine Command (TRADOC) Standardized Physical Training Program.

LTG Cavin questioned the need for the Fitness Assessment Program (FAP). If injury and attrition reduction principles were followed in the new physical training program it might be possible to eliminate or at least considerably reduce the number of new recruits who enter the FAP. The FAP involves a physical fitness test that new recruits take when they arrive at the Reception Station. Recruits who pass this screening test can enter BCT. Those who do not pass the screening test must enter the FAP company where they physically train until they can meet the fitness standard. Once the fitness standard is met, trainees can enter BCT.

A modification to the FAP protocol was proposed. This modification was to allow all trainees, regardless of fitness, to enter BCT and then take the physical fitness test at Week 2 of BCT. Those failing at that point would enter the FAP. It was thought that this modification, in concert with the new TRADOC physical training program, might reduce attrition and injuries among low-fit recruits.

The Center for Accessions Research (CAR) was tasked to oversee an initial program evaluation of the TRADOC Standardized Physical Training Program and the FAP. A pilot project began in January 2003. On 24 February 2003, the CAR requested assistance from the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) to studying injuries during these evaluations. A meeting was held at Fort Jackson, South Carolina on 3-4 March 2003 that included representatives from the CAR, USAPFS, USACHPPM, and the Ft Jackson Training Center. The meeting resulted in changes in the design of the evaluation based on lessons learned from the pilot study and the development of specific outcomes to be measured in the next BCT training cycle. USACHPPM assumed the task of systematically collecting the data, analyzing it, and completing the final report.

The project reported in this paper had 2 major objectives. The first objective was to determine if a standardized physical training program based on the principles in FM 21-20 and newly determined injury-reduction principles could improve fitness while reducing injuries and attrition in BCT. The second objective was to determine if the FAP would be necessary or could be modified if the standardized physical training program were implemented.

## 3. BACKGROUND LITERATURE.

### a. Modifications of Physical Training Designed to Reduce Injuries.

Three recent studies have examined modifications to physical training during Initial Entry Training designed to both reduce injuries and enhance physical fitness. One study involved BCT trainees and the others involved medic and ordnance Soldiers in AIT.

The first investigation (23,24) examined fitness and injury outcomes during a specially designed PT program called "Physical Readiness Training" (PRT). A BCT battalion which implemented PRT (Experimental battalion, n=1284) was compared to a battalion which used traditional BCT physical training (the Control battalion, n=1275) during the 9-week BCT cycle. PRT exercises included precision calisthenics, dumbbell drills, movement drills, and flexibility training. The Experimental battalion ability group running mileage was reduced by about half compared to the Control group and the Experimental group also performed regular interval training. Survival analysis controlling for demographics, fitness, and training-related variables demonstrated that the relative risk of an injury was 37% higher in the Control men ($p=0.02$) and 35% higher in the Control women ($p<0.01$), compared to the Experimental men and women. The relative risk of an overuse injury was 57% higher in the Control men ($p<0.01$) and 45% higher in the Control women ($p<0.01$), compared to the Experimental men and women. There were no differences between the Experimental and Control groups for traumatic injuries ($p=0.84$ and $p=0.70$ for men and women, respectively). On the first administration of the final Army Physical Fitness Test (APFT), the Experimental group had a greater

proportion of trainees who passed compared to the Control Group (men: 85% vs. 81%, p=0.04; women: 80% vs. 70%, p<0.01). After all retakes on the final APFT, the Experimental group had fewer APFT failures than the Control group among the women (1.6% vs. 4.6%, p<0.01) and the men (1.6% vs. 2.8%, p=0.18), but the difference was not statistically significant for the men. On the push-up (PU), Control men and women improved more than the Experimental men (p<0.01) and women (p<0.01), although the Experimental group scores exceeded minimum BCT passing values. On the sit-up (SU), there were no differences between the Experimental and Control men (p=0.21) but the Experimental women improved more than the Control women (p<0.01). There were no differences in improvements in 2-mile run times between the Experimental and Control men (p=0.15) or women (p=0.54). The PRT Program reduced overuse injuries and allowed a higher success rate on the APFT. However, PRT required some significant departures from traditional BCT physical training and required additional equipment.

The second investigation (41) examined injuries and fitness among Soldiers utilizing different training methods while attending the 10-week medic AIT at Fort Sam Houston, Texas. One group of Soldiers used a special program that emphasized lower total running mileage, gradual increases in running mileage, and the systematic introduction of interval training. In the special program, weekly distance increased from 3.0 miles in the first week to 8.0 miles in the seventh week. Interval training was introduced in the fourth week and involved nine ¼ mile repeats at a pace 5-7 seconds faster than the 2-mile pace achieved on the first APFT. Total run distance over the study period was 47.5 miles with 37 miles of long-distance running and 10.5 miles of intervals. The traditional group ran a 2.7 mile loop 3 times/week on a regular basis and performed interval training about 1 time per week. The total mileage of the traditional group is not clear but an estimate of 91 miles can be made based on the information provided in the published article (assumes 3 days/wk of running with 2.7 miles each session, 1 mile of interval training/wk ). The traditional group and special group were two consecutive10-week medic AIT cycles in the same company, which reduced differences that may be associated with different training cadre. End-of-cycle reviews showed that there were fewer profiles in the special program both among men (29% vs. 11%, p<0.01) and women (54% vs. 45%, p<0.05). The number of clinic visits for musculoskeletal complaints was 3.5 visits/100 Soldiers for the traditional group and 2.2 visits/100 Soldiers for the special group. There were no differences between the groups in APFT pass rates, total APFT scores (points), or in 2-mile run scores (points). This study demonstrated that a program emphasizing lower total mileage, gradual increases in mileage, and systematic introduction of interval training can reduce the number of limited duty profiles and the number of clinic visits while maintaining APFT pass rates and 2-mile run scores.

The third and final study (17,18) examined injury and fitness outcomes before and during a multiple intervention program among Ordnance school students in AIT

at Aberdeen Proving Ground (APG). A historical control (HC) group was comprised of AIT Soldiers present at APG during the18 months before the program started. An injury management (IM) group was comprised of AIT Soldiers present at APG for 8 months after the injury-control interventions were put in place. The 3 interventions included 1) modification of physical training, 2) cadre injury education, and 3) a Battalion Surveillance System. As a result of the educational program, the command group instituted an Injury Control Advisory Committee that reviewed injury rates and possible strategies to reduce injuries. Survival analysis controlling for group differences in demographics, lifestyle characteristics, and physical fitness demonstrated that the adjusted relative risk of a time-loss injury was 46% higher in the HC men and 58% higher in the HC women compared to the IM men and women, respectively. More men in the HC group passed the initial APFT compared to men in the IM group. However, IM and HC men did not differ on the proportion passing the first final APFT or passing after all final APFTs had been completed. For the women, there were no group differences on the initial APFT, first final APFT, or after all final APFTs were completed. After correcting for the lower initial fitness of the IM group, there were no significant raw score differences between IM and HC groups on any of the three APFT events for either gender. This multiple intervention program was successful in reducing injuries while maintaining improvements in physical fitness necessary to pass the APFT.

**b. Fitness Assessment Program in BCT.**

When new recruits arrive at the Reception Station they take the Reception Station Physical Fitness Test. Those passing the screening test go on to BCT. Those who fail the test do not go on to BCT but rather enter the FAP where they physically train until they can pass the test. The FAP in one form or another has been in place at Fort Jackson since 1987. From 1987 to about 2000 the FAP was called the Fitness Training Unit (FTU). Prior to 1998 the only criterion to enter BCT was ≥1 PU for women and ≥13 PUs for men. In October 1998 the test was changed to a 3 event evaluation that included PUs, SUs and a 1-mile run. In October 1999, fitness standards for entry to BCT were mandated by TRADOC for all 5 locations where Army BCT was conducted.

The current fitness criteria for entry to BCT are shown in Table 1. The tests are administered in the order shown. For all 3 test events, the recruit only has to meet, not exceed, the requirement. For example, when a male recruit performs 13 PUs, the event is ended. Recruits are tested in large groups with Reception Station drill sergeants administering the tests. A drill sergeant reads detailed instructions on how to perform the tests from Army Field Manual (FM) 21-20 (1). One drill sergeant monitors the performance of each trainee on the PUs and SUs. If a recruit fails the PU on the first attempt, they are sent to a station where they are given specific, individualized instruction on how to perform a correct PU and a second attempt is allowed. Only one attempt is allowed for the SU and the 1-mile run. For the 1-mile

run, recruits are provided a "pacer" who runs at the exact pace required to pass the test. In addition, "chasers" attempt to motivate recruits who fall behind the pacer and remind recruits where the pacer is located. Test scores are recorded on paper.

Table 1. Fitness Criteria to Enter BCT

| Event | Men | Women |
|---|---|---|
| PUs (repetitions) | 13 | 3 |
| SUs (repetitions) | 17 | 17 |
| One-Mile Run (minutes) | 8.5 | 10.5 |

If a recruit fails to meet the criterion on any single event in the test, they enter the FAP. In the FAP recruits perform a specific physical training program, which includes running, weight training, PU and SU improvement, road marching, and stretching. They also participate in military training such as customs and courtesies, drill and ceremony, wearing of the uniform, Uniformed Code of Military Justice, and Army values. New tests are given twice a week and once the trainee can pass the test they can move on to BCT.

The proportion of trainees entering the FAP has declined since 1998. Table 2 shows the proportion of trainees failing each event of the test from January to August 1998 obtained from the FAP orderly room in 1998 (21). Table 3 shows more recent data on the proportion of trainees who failed the test obtained from the Reception Station Plans, Training and Operations Office (S-3) in 2003. It is not clear why the proportion of trainees who fail the test have declined and the current cadre of the FAP was not aware of this decline over time. Some administrative changes that may account for the decline include the introduction of the chasers and pacers, running of men and women together (they previously ran at separate times), and a stronger verbal emphasis to the trainees on the consequences of not passing the test.

Table 2. Proportion of Trainees Failing Each Event on the Reception Station Physical Fitness Test During 1998

| Event | Men (%) | Women (%) |
|---|---|---|
| PU | 3.6 | 13.8 |
| SU | 1.7 | 7.7 |
| 1-Mile Run | 3.1 | 8.8 |
| Any Event | 6.9 | 23.9 |

Table 3. Proportion of Trainees Failing Any Event on the Reception Station Physical Fitness Test, 2000-2002.

| Year | Men | Women |
|---|---|---|
| 2000 | 4.3 | 12.2 |
| 2001 | 4.4 | 12.7 |
| 2002 | 5.4 | 14.8 |

A few studies have examined the effectiveness of a pre-conditioning physical training program on injuries in BCT. One study (31) was conduced during Singapore

Army basic military training (BMT). Four groups of male recruits were compared. Group A (Control Group) trained under the standard BMT protocol (3 months) and trainees were not segregated by fitness. Group B (Fit Group) was comprised of recruits who passed a physical fitness test. The passing criteria for the test was 4 chin-ups, 28 sit-ups (in 1 minute), an 81 inch standing broad jump, an 11 sec 40 meter shuttle run, and a 13 minute 1.5-mile run. Group C (Unfit-Trained Group) was comprised of recruits who failed one or more items on the fitness test and underwent a 4 to 6 week physical training program consisting of endurance runs, strength training, flexibility exercises, motor skill development and swimming. Group D (Unfit-Untrained/Extended Group) was comprised of recruits who failed the test, had no pre-BMT conditioning, and had their BMT extended by 1 month. Medical attrition in groups A, B, C, and D were 14.2%, 3.7%, 6.9%, and 13.4%, respectively. Attrition due to musculoskeletal injuries was 5.6%, 1.2%, 2.3%, and 4.7%, respectively, in the 4 groups. Compared to Group A (Control), Group C (Unfit-Trained) had both lower overall attrition (RR=2.2 (95% confidence interval (95%CI)= 1.6-2.6))and lower attrition due to musculoskeletal injuries (RR=2.4 (95%CI=1.6-3.7)). Compared to Group A (Control), Group D (Unfit-Untrained/Extended) had similar overall attrition (RR= 1.1 (95%CI=0.9-1.2)) and similar attrition due to musculoskeletal injuries (RR=1.2 (95%CI=0.9-1.5)). This study indicated that a 4 to 6 week physical conditioning program before BMT was more effective in reducing medical attrition than no pre-conditioning program or extending BMT by 1 month.

Another investigation (4) in the U.S. Army found that FAP trainees had higher sick call rates, lower end-of-cycle fitness measures, but similar discharge rates compared to Not-FAP trainees. However, this study was conducted in 1989 when only the PU criteria was in place.

A more recent investigation (20) examined BCT injury, fitness, and training outcomes of recruits who 1) failed the Reception Station Physical Fitness Test, completed FAP, and then entered BCT (FAP Group), and 2) those who passed the Reception Station test and entered BCT without the FAP (Not-FAP Group). On entry to BCT, FAP women had similar 2-mile run times compared to Non-FAP women (21.6 vs. 21.5 min, respectively, $p=0.86$). FAP men were considerably slower on the 2-mile run than Non-FAP men (20.3 vs. 17.3 min, $p<0.01$). FAP women and Non-FAP women had similar graduation success (60% vs. 68%, respectively, $p=0.14$) and time-loss injury rates (1.3 vs. 1.4 people injured/100 person-days, respectively, $p=0.90$). FAP men were less likely to graduate than Non-FAP men (55% vs. 82%, $p<0.01$) and more likely to suffer a time-loss injury (1.2 vs. 0.7 people injured/100 person days, $p<0.01$).

The latter study (20) does not answer the question of whether or not the FAP reduces injury rates and decreases BCT attrition. It does suggest that individuals of similar aerobic fitness levels had similar injury and BCT graduation rates while individuals of lower aerobic fitness had higher injury rates and less success at BCT

graduation. This has also been demonstrated in other studies (8,11,12,22,25,26,38,53). To demonstrate the effectiveness of the FAP a more appropriate study design would be to take a group of individuals who fail the Reception Station Fitness Test and put ½ into the FAP and send ½ directly to BCT (without FAP training). The two groups could then be compared.

**4. PURPOSES OF THIS PROJECT.** This project had two major purposes. The first purpose was to examine the effectiveness of the TRADOC Standardized Physical Training Program for BCT by comparing trainees who took the program to trainees who were involved in a traditional BCT physical training program. It was expected that fitness levels would be the same in the two groups after training but the TRADOC Standardized group would have less attrition and fewer injuries. The second purpose of this project was to examine the effectiveness of the FAP. Trainees who failed the Reception Station Fitness Test and physically trained prior to BCT were compared to trainees who failed the test and directly entered BCT. It was expected that individuals who physically train prior to BCT would have higher fitness scores and lower attrition and injury rates.

**5. METHODS.**

**a. Design of the Program Evaluation**

The investigation incorporated an evaluation of the TRADOC standardized physical training program with an evaluation of the FAP. Both evaluations were conducted within a single investigation because of a desire on the part of the TRADOC leadership to test the new physical training program without the additional training that is normally conducted in the FAP and to complete the study rapidly to provide information to the decision makers.

To determine the effectiveness of the TRADOC Standardized Physical Training Program, two groups were compared. A standardized group (SG) implemented the TRADOC program. The SG consisted of 5 companies. There were 4 companies (A,B,C,D) from the 2nd Battalion of the 28th Infantry Regiment (2/28) and these were augmented by Company C of the 3rd Battalion of the 518th Infantry Regiment. The other group was designated as the non-standardized group (NSG). The NSG implemented a traditional BCT physical training program. The NSG consisted of 5 companies. There were 4 companies (A,B,C,D) from the 1st Battalion of the 28th Infantry Regiment (1/28) and these were augmented by Company B of the 3rd Battalion of the 518th Infantry Regiment. The training cycle dates for each company are shown in Table 4. The BCT cycle was 9 weeks in length.

Table 4. Training Cycle Dates for the Two Battalions

| Non-Standardized Group (NSG) | | Standardized Group (SG) | |
|---|---|---|---|
| Company | Cycle Dates | Company | Cycle Dates |
| A 1/28 | 28Mar-29May03 | A 2/28 | 18Apr-19Jun03 |
| B 1/28 | 27Mar-29May03 | B 2/28 | 16Apr-19Jun03 |
| C 1/28 | 27Mar-29May03 | C 2/28 | 16Apr-19Jun03 |
| D 1/28 | 21Mar-22May03 | D 2/28 | 17Apr-19Jun03 |
| B 3/518 | 28Mar-29May03 | C 3/518 | 17Apr-19Jun03 |

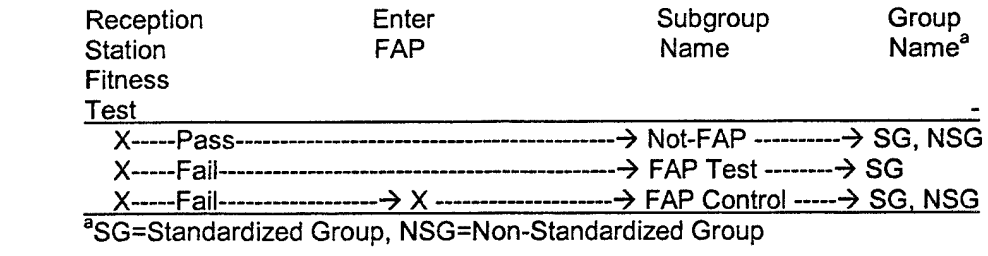
Nested within the evaluation of the SG and NSG was the FAP evaluation. It normally takes about one week for enough recruits to arrive at the Reception Station to "fill" a battalion. During the week the recruits are filling in the Reception Station, they take the Reception Station Physical Fitness Test described earlier in the Background section.

The NSG followed normal procedures regarding the Reception Station Physical Fitness Test. That is, if a recruit passed the test, that recruit entered BCT. These trainees were designated as Not-FAP. If a recruit failed the test, that recruit entered the FAP and trained until they could pass the test and enter BCT. These latter trainees were designated as FAP Controls.

Recruits who arrived to fill the SG went on to BCT regardless of whether or not they passed the Reception Station Fitness Test. The trainees who failed the test but entered the SG without going into the FAP were designated as FAP Test trainees. As with the NSG, recruits who passed the test were designated as Not-FAP trainees.

The normal procedure in BCT is for a trainee who fails the Reception Station Fitness Test to train in the FAP until he or she can pass the test. Trainees who finally pass the test enter whatever unit is filling at the time. Because trainees who had been in the FAP were available at the time both the NSG and SG were filling, both groups contained FAP Control trainees. Thus, the NSG contained Not-FAP and FAP Control trainees; the SG contained Not-FAP, FAP Control, and FAP Test Trainees. Figure 1 shows the overall design of the FAP evaluation.

Figure 1. Overall Design of the FAP Evaluation




[a]SG=Standardized Group, NSG=Non-Standardized Group

### b. TRADOC Standardized Physical Training Program.

#### (1) Phases of the Evaluation

The evaluation of the TRADOC standardized physical training program proceeded in three major phases: 1) train-the-trainer, 2) pilot, and 3) evaluation. Although the data in this report is only concerned with the evaluation phase, brief descriptions of the other phases and some results from these phases are provided for completeness.

The train-the-trainer phase involved a 16-hour block of instruction given to the training cadre in the SG by the USAPFS. This training was provided from 13 to 15 January 2003. The USAPFS training cadre considered feedback from the drill sergeants after each training session and modifications were made to the training program based on this feedback. An additional 4 hours were spent working with the 5 companies to set up the physical training schedules.

The pilot phase involved an entire 9-week BCT cycle in which the drill sergeants from the SG implemented the exercises they had been taught during the train-the-trainer session. This pilot phase was conducted by the USAPFS and the CAR from 24 January 2003 to 27 March 2003. Trainees were instructed on the exercises and executed them according to the drill sergeant commands. During the pilot phase, personnel from the Fitness School frequently visited, observed training, and had working group sessions with the drill sergeants. Training was modified during the pilot phase based on drill sergeant feedback and observations.

Lessons learned during the pilot phase were implemented during the evaluation phase. Appendix B shows the changes. Prior to the evaluation phase, a second cadre training session was conducted by the USAPFS to assure that the cadre fully understood the lessons learned from the pilot and the resulting changes. No additional changes were made in the SG during the evaluation phase.

Just prior to the evaluation phase, the NSG company commanders, executive officers and drill sergeants were briefed on the project and told not to alter their physical training from what they would normally do.

#### (2) TRADOC Standardized Physical Training Program

The TRADOC Standardized Physical Training Program consisted of conditioning drills, movement drills, stretching drills, speed running, and ability group running. Appendices C to G show each of the exercises and they are described briefly below. Appendix H contains the 9 week training schedule. The program alternated days containing primarily cardiovascular verses muscle strength/endurance exercises. The program differed from traditional training in that

it was much more gradually introduced, emphasized precision of movement, had a wider variety of exercises, and had reduced running mileage.

Conditioning Drill 1 (Appendix C) consisted of 10 calisthenic exercises designed to exercise specific muscles, develop flexibility, and take trainees through ranges of motion that duplicated those involved in the various occupational tasks they would perform. Exercises included the bend and reach, the rear lunge, the high jumper, the rower, the knee bender, the windmill, the forward lunge, the prone row, the supine bicycle, and the PU. All exercises were conducted in cadence and performed in the sequence listed. Initially 5 repetitions of each exercise were performed and trainees progressed to 10 repetitions.

Conditioning Drill 2 (Appendix D) consisted of 3 exercises designed to develop upper body strength and endurance. Exercises included the PU, SU and the pull-up performed in the sequence listed. PUs and SUs were performed in cadence starting with 5, 4-count repetitions and progressing to 20, 4-count repetitions. Pull-ups were performed in cadence for 5, 2-count repetitions using spotters and progressing to 5, 2-count repetitions unassisted.

Movement Drills (Appendix E) involved 3 exercises designed to assist the trainee in maneuvering their body through space and assist in developing motor efficiency. Movement Drills included verticals, laterals, and shuttle sprints. The drills were conducted in an extended rectangular formation and each repetition was about 25 yards.

Stretch Drills were part of the cool-down and were designed to assist trainees in controlling post-exercise stiffness. Stretch Drill 1 (Appendix F) was conducted after running sessions. The cool-down served to gradually slow the heart rate and prevent pooling of the blood in the legs and feet. Trainees began the cool down by walking until their heart rates returned to less than about 100 beats per minute and heavy sweating stopped. The exercises consisted of the groin stretch, calf stretch, hamstring stretch, thigh stretch, and hip stretch. Static stretches were held for 30 sec.

Stretch Drill 2 (Appendix G) was conducted as part of the cool-down after days that emphasized muscular strength/endurance training. Stretch Drill 2 consisted of the overhead arm pull, the turn and reach, the rear lunge (hip flexor stretch), the extend and flex, and the single leg-over. Static stretches were held for 30 sec.

Running was used to develop cardiorespiratory endurance. Longer-distance running was performed by ability groups. Ability groups were clusters of trainees with similar aerobic fitness as determined by the 1-mile run taken as part of the Initial Fitness Assessment (described below) taken within the first few days of arrival at

BCT. Individuals running 7:15 (min:sec) and faster were assigned to Group A. Individuals running between 7:16 and 8:45 were assigned to Group B. Individuals running between 8:46 and 10:15 were assigned to Group C. Individuals running 10:16 and slower were assigned to Group D. Table 5 shows the running speed progression for each group. Ability group runs were performed 1 to 2 times per week.

Table 5. Ability Group Running Speed Progression (numbers in each cell represent the total amount of run time followed by the pace in minutes/mile)

| Ability Group | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8/9 |
|---|---|---|---|---|---|---|---|---|
| A | 15min @7:30 | 15 min @7:15 | 20 min @7:15 | 20 min @7:15 | 20 min @7:00 | 25 min @7:00 | 25 min @7:00 | 30 min @7:00 |
| B | 15 min @9:00 | 15 min @8:30 | 20 min @8:30 | 20 min @8:30 | 20 min @8:00 | 25 min @8:00 | 25 min @7:30 | 30 min @7:30 |
| C | 15 min @10:30 | 12 min @10:00 | 14 min @10:00 | 16 min @9:30 | 18 min @9:00 | 20 min @8:30 | 20 min @8:00 | 20 min @8:00 |
| D | 15 min @12:00 | 12 min @11:00 | 14 min @10:30 | 16 min @10:00 | 16 min @9:30 | 20 min @9:30 | 20 min @9:30 | 20 min @9:00 |

Speed running was used to develop anaerobic capacity and faster running speeds. Speed running involved 4 to 10 sprint repetitions at a work:rest ratio of 1:2. For the 30:60s, trainees performed 30 seconds of sprinting followed by 60 seconds of walking. For the 60:120s, trainees performed 60 seconds of sprinting followed by 120 seconds of walking. The BCT speed running progression is shown in Table 6. The number of repetitions differed depending on the ability group. All ability groups ran at a slow pace for ¼ mile before beginning the speed running (warm up) and walked a minimum of 2-3 minutes at the end of the speed running session (part of the cool-down).

Table 6. Speed Running Progression (the first number in each cell represent the number of repetitions, the second number is the work:rest ratio in seconds)

| Ability Group | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 |
|---|---|---|---|---|---|---|---|---|---|
| A | 6 reps 30:60 | 8 reps 30:60 | 10 reps 30:60 | 6 reps 60:120 | 8 reps 60:120 | 10 reps 60:120 | 10 reps 60:120 | 10 reps 60:120 | 10 reps 60:120 |
| B | 6 reps 30:60 | 8 reps 30:60 | 10 reps 30:60 | 6 reps 60:120 | 8 reps 60:120 | 10 reps 60:120 | 10 reps 60:120 | 10 reps 60:120 | 10 reps 60:120 |
| C | 4 reps 30:60 | 6 reps 30:60 | 8 reps 30:60 | 4 reps 60:120 | 6 reps 60:120 | 8 reps 60:120 | 8 reps 60:120 | 8 reps 60:120 | 8 reps 60:120 |
| D | 4 reps 30:60 | 6 reps 30:60 | 8 reps 30:60 | 4 reps 60:120 | 6 reps 60:120 | 8 reps 60:120 | 8 reps 60:120 | 8 reps 60:120 | 8 reps 60:120 |

At selected points in the training program, trainees performed a 300-yard shuttle run. Trainees lined up in ranks. On the command "go", they ran 25 yards, touched a line on the ground with their hand, and returned to the starting point where they touched the start/finish line. This was one repetition. Trainees performed a

total of 6 repetitions in a single bout. On the sixth repetition, the trainee sprinted passed the start/finish line and did not touch it.

### c. Outcome Measures

There were three major categories of outcome measures examined in this evaluation. These were training outcomes, physical fitness, and injuries. The multiple measures of each of these outcomes is described below.

#### (1) Training Outcomes

Training outcomes included discharge, newstart-out, APFT Enhancement Program (APFTEP), or full cycle (each defined below). The cadre of each company maintained the training status of each trainee in a database management system called Warrior Training Room (WTR). Training outcomes were downloaded from WTR. However, the dates of specific actions (i.e., discharges, newstarts, etc.) were not included as part of WTR and this had to be obtained from other sources as described below.

Discharges were trainees who were not suitable for service in the Army and were formally released from their service commitment. There were numerous reasons for which a trainee could have been discharged but most reasons fell into two major categories: medical conditions that existed prior to service (EPTS discharge) or poor entry-level performance. The latter category is often called an entry-level separation (ELS) or Chapter 11 discharge. ELS discharges are most often the result of the trainee's inability to adapt to the military environment because of lack of ability (cannot adequately perform critical military tasks) or for psychosocial reasons (motivation, inability to follow orders, personality problems, etc.). Trainees who were discharged were identified from WTR in each company and cross-checked with rosters in the training battalions S-1 (Personnel Section). The latter source supplied the date of discharge.

Newstart-outs were trainees leaving any of the companies under study and entering another BCT company before the end of the 9-week BCT cycle. Trainees were newstarted (recycled) because they did not complete mandatory requirements for reasons such as lack of motivation, serious injury, emergency leave, or inability to meet specific training standards with their peers (i.e., difficulty developing specific skills like basic rifle marksmanship). Newstarted trainees could leave the unit at any point depending on the nature of the problem. Newstarted trainees were obtained from WTR and crosschecked with summaries provided by the battalion S-3 (Plans, Training, and Operations Section). The latter source provided the dates the trainees were newstarted.

APFTEP personnel were those who could not pass their final APFT prior to their scheduled graduation date. Rather than graduate, they were sent to the APFTEP in the Reception Station where they physically trained until they could pass the test. If they could not pass the test within about 3 weeks they were discharged from service. Discharges from the APFTEP were not tracked in this study (i.e. the APFTEP was the endpoint for the analysis). Trainees sent to the APFTEP were obtained from WTR and cross-checked with rosters in the APFTEP unit. The latter source supplied the date the trainee was sent to the program.

Full cycle trainees were those that began training the first day of the company training cycle and graduated with that same company after 9 weeks. The majority of trainees have this outcome. A trainee was considered to be full cycle if they began training with the unit and was not a newstart-out, not discharged, not sent to the APFTEP, and not a newstart-in.

Newstart-ins were not considered in this evaluation. Newstart-ins were trainees who did not start training with the NSG or SG but rather entered these units after training had begun (newstart-out from another unit). These individuals were not considered because of difficulty in getting accurate information (when the trainee entered the company) from the NSG and SG.

**(2) Physical Fitness Outcomes.**

Two types of physical fitness tests were employed in this study. The first type was the Fitness Assessment. The Fitness Assessment consisted of a 1-minute maximal effort PU event, a 1-minute maximal effort SU event, and a 1-mile run for time. This was also called the 1/1/1Test. The second type of fitness test was the APFT consisting of a 2-minute maximal effort PU event, a 2-minute maximal effort SU event, and a 2-mile run for time (1,15,16). This was also called the 2/2/2 Test. Both fitness tests were administered by the drill sergeants who were very familiar with the well-standardized test procedures. Test scores for both types of tests were downloaded from the WTR for the purposes of this evaluation. Figure 2 shows the approximate times when the two types of tests were to be administered in the NSG and SG.

As noted in the Introduction, the purpose of having the 1/1/1 Test at Week 2 was to examine the number of trainees that could pass the test based on the Reception Station Physical Fitness Test standards at this point. This was one possible program modification that might reduce the number of trainees in the FAP.

Figure 2. Times in Training Cycle Fitness Tests Were to be Administered

| | Week 1 Fitness Assessment | Week 1 Diagnostic APFT | Week 2 Fitness Assessment | Week 3 Diagnostic APFT | Week 5 Diagnostic APFT | Week 7 Final APFT | Weeks7-9 Retakes APFT |
|---|---|---|---|---|---|---|---|
| NSG[a] | X | X | | X | X | X | X |
| SG[a] | X | | X | | X | X | X |

[a]NSG=Non-Standardized Group
[b]SG=Standardized Group

Administration of the 3 events on the Fitness Assessment and the APFT were identical except for the time allotted to PU and SU and the distance of the run. For the PU, a trainee was required to lower his body in a generally straight line to a point where his upper arm was parallel to the ground, then return to the starting point with elbows fully extended. For the SU, the trainee's knees were bent at a 90° angle, fingers were interlocked behind the head, and a second person held the participant's ankles, keeping his or her heel firmly on the ground. The trainee raised his upper body to a vertical position so that the base of the neck was anterior to the base of the spine and then returned to the starting position. The number of PUs and SUs that were successfully completed in separate 2-minute periods were recorded. For the run, time to complete the distance was the performance measure.

The final APFT given on Week 7 (see Figure 2) was the one trainees had to "pass" to meet a mandated BCT graduation requirement. To "pass" the APFT, all trainees were required to meet certain age and gender adjusted criteria. These criteria involve obtaining a minimum of 50 age- and gender-adjusted "points" on each test (1). A trainee who obtained 100 points on 2 tests but 49 points on the third event was considered an APFT failure. Trainees who failed to pass the final APFT were allowed to retake the test and there were no limits on the number of retests, at the drill sergeant's discretion. Trainees who failed to meet the passing criteria after all retakes were considered APFT failures for the purposes of this study. APFT failures were sent to the APFTEP. They either eventually passed the test or were discharged. Those sent to the APFT Enhancement Program were lost to follow up in this study.

Fitness outcome measures included the 1) actual raw scores on the 3 events of the Fitness Assessment and APFT, 2) pass rates on the Fitness Assessment at Week 2 (based on Reception Station Physical Fitness Test standards), 3) the proportion of trainees passing each APFT event and the total APFT, 4) the total APFT "points" and 5) the proportion of trainees who failed after all retakes.

### (3) Injury Outcomes.

Injuries that occurred during BCT, were obtained from the Standard Ambulatory Data Record (SADR) which recorded outpatient medical visits. Each time a trainee saw a medical care provider at the troop medical clinic or the hospital at Fort Jackson, that provider completed a form that included the diagnosis for the visit and that data was entered into the SADR. The Army Medical Surveillance Activity (AMSA) downloads data from the SADR on a regular basis. A list of trainees in the 10 companies under evaluation was provided to the AMSA along with their BCT dates. For this study International Classification of Diseases, Version 9 (ICD-9) codes for all medical visits from all trainees was obtained from the AMSA. Note that visits to Battalion Aid Stations are not included because these visits are not entered into the SADR.

Six injury indices were examined. These were the Installation Injury Index (III), the Expanded Installation Injury Index (EIII), the Training Injury Index (TII), the Comprehensive Injury Index (CII), Overuse Injury Index (OII), and Acute Injury Index (AII). All indices included the specific ICD-9 codes shown in Appendix I. The III and TII were previously developed by personnel at the AMSA. The III has been used to compare injury rates among military posts while the TII has been used to compare injury rates among basic training posts. The III is reported on a monthly basis at the Army Medical Surveillance Activity (AMSA) website (http://amsa.army.mil) and the TII is reported on a periodic basis to the TRADOC surgeon. The MIII, CII, OII, and AII were developed by personnel in the Injury Control program at the USACHPPM. The MIII attempts to capture a greater number of injuries than the III. The CII captures all ICD-9 codes related to injuries. The OII attempts to capture musculoskeletal injuries resulting from cumulative microtrauma (overuse type injuries). The OII includes such diagnoses as stress fractures, stress reactions, tendonitis, bursitis, fasciitis, arthralgia, neuropathy, radiculopathy, shin splints, synovitis, and strains. The AII attempted to capture musculosketetal injuries presumably due to sudden energy exchanges resulting in abrupt overload (traumatic or acute injuries). The AII includes such diagnoses as sprains, dislocations, fractures, blisters, abrasions, lacerations, contusions, and subluxations.

Besides the 6 injury indices, another type of injury outcome was one that was serious enough to result in the temporary removal of the trainee from training. Trainees that were injured to the extent that they could not continue to train with their unit were sent to the Physical Training and Rehabilitation Program (PTRP) for recovery. Most PTRP recommendations were given by physical therapists but other health care providers such as orthopedic surgeons or occupational therapists could also make the recommendation. The Physical Therapy Clinic was the liaison for the program. Trainees who entered the PTRP spent time recovering from their injuries, performed limited exercise, and participated in some military duties and training. Names of individuals sent to the PTRP were obtained from each company and

cross-checked with rosters in the PTRP itself (to assure the trainees actually arrived in the PTRP), a list of recommended referrals from the Physical Therapy Clinic, and rosters obtained from the S-3 (Plans, Training and Operations Section). Dates individuals arrived in the PTRP were obtained from rosters in the PTRP itself.

**d. Physical Characteristics.**

Trainee physical characteristics were obtained from WTR, and the Reception Battalion Automated Support System (RECBASS). Age and gender were obtained from WTR. Height and weight were obtained from the RECBASS. Body mass index (BMI) was calculated as body weight/height$^2$ (19).

**e. Data Analysis.**

The Statistical Package for the Social Sciences (SPSS), Version 10.0.5, was used for all analyses. All available trainees that had data were used in any single analysis. Some trainees did not have data on some variables (e.g., a trainee who was discharged before a final APFT would not be included in analyses involving final APFT data).

**TRADOC Standardized Physical Training Program.** To evaluate the TRADOC Standardized Physical Training Program, two types of analyses were performed: one with and one without the FAP Test personnel included. FAP Test personnel did not follow the normal BCT procedures and would tend to confound the analysis of the physical training program by itself. However, TRADOC desired an evaluation of the program with the FAP personnel included so this was also performed.

**Analysis of Physical Characteristics**. Group differences (NSG vs. SG) in physical characteristics (age, height, weight, BMI) were analyzed using a t-test.

**Analysis of Training Outcomes.** Group differences in the proportion of trainees in each training outcome category (i.e., full cycle, discharge, newstart-out, APFTEP) were analyzed using the chi-square test of proportions.

**Analysis of Fitness Outcomes.** The Mann-Whitney U-Test was used to examine group differences in the training day that the APFTs were administered. Comparison of group differences on the Initial Fitness Assessment was made using an independent samples t-test. Comparison of changes in the Fitness Assessment Scores from Week 1 to Week 2 in the SG was performed using a paired t-test. Comparison of group differences on the APFT on Weeks 5 and 7 was performed using analysis of variance (ANOVA) and, where necessary, analysis of covariance (ANCOVA). If there were no significant differences on the Initial Fitness Assessment, a 2X2 (NSG and SG groups X Weeks 5 and 7) mixed model ANOVA was

performed. The model compared the groups as independent measures and the test periods as repeated measures. If there were significant differences on the Initial Fitness Assessment, an ANCOVA was performed. For the ANCOVA, a 2X2 mixed model analysis was performed after adjustment for the Initial Fitness Assessment scores. These analyses were performed on each test event (PU, SU, Run) separately on the APFT raw scores and for total APFT points. Group differences in APFT pass rates at Week 7 and the pass rate after all retakes were analyzed with the chi-square test of proportions.

**Analysis of Injury Outcomes.** Person-time injury incidence rates (injuries/1000 trainee-days) for all trainees were calculated as:

(trainees with ≥1 injury in group / total time of all trainees in group) X 1000

Cox regression (a survival analysis technique) was used to examine group differences in time to first injury. Univariate analysis involved groups (NSG, SG) as the only independent variable. Multivariate analysis included the groups in addition to the age, BMI, and the Initial Fitness Assessment events as covariates. Gender-specific analyses were conducted for each of the 6 injury indices (III, EIII, TII, CII, OII, and AII). For each analysis, once a trainee had an injury, his or her contribution to time in BCT was terminated. Those not completing BCT (discharges or newstart-outs) had their times terminated (censored) at the day they left the unit. All covariates (i.e., potential risk factors like age, fitness, BMI, etc.) were entered into the regression model as categorical variables. Continuous Initial Fitness Assessment variables (PU, SU, run) and BMI were converted into categorical variables with four approximately equally sized risk groups (gender specific) based on the distribution of scores for each event (quartiles). Age was partitioned into 3 categories (17-19, 20-24, >24). For all categorical variables, simple contrasts with a baseline variable (defined with a risk ratio of 1.00) were used. Group comparisons of the proportion of trainees sent to the PTRP were analyzed using the chi square statistic.

**FAP Evaluation**

**Analysis of Physical Characteristics.** Differences among subgroups (FAP Test, FAP Control and Not-FAP) in physical characteristics (age, height, weight, BMI) were analyzed using a one-way ANOVA. Differences between subgroups were determined with the Tukey test.

**Analysis of Training Outcomes.** Subgroup differences in the proportion of trainees in each training outcome category (i.e., full cycle, discharge, newstart-out, APFTEP) were analyzed using the chi-square test of proportions.

**Analysis of Fitness Outcomes.** Comparison of subgroup differences on the Initial Fitness Assessment was made using a 1-way ANOVA followed by a Tukey test. Comparison of changes in the Fitness Assessment scores from Week 1 to Week 2 in the SG was performed using a 2-way mixed model ANOVA with subgroups as independent variables and the two tests as repeated measures; subgroup differences were determined with the Tukey Test. Comparison of subgroup differences on the APFT on Weeks 5 and 7 was performed using analysis of variance (ANOVA) and, where necessary, analysis of covariance (ANCOVA). If there were no significant differences on the Initial Fitness Assessment, a 3X2 (subgroups X Weeks 5 and 7) mixed model ANOVA was performed. The model compared the groups as independent measures and the test periods as repeated measures). If there were significant differences on the Initial Fitness Assessment, an ANCOVA was performed. For the ANCOVA, a 3X2 mixed model analysis was performed after adjustment for the Initial Fitness Assessment scores. These analyses were performed on each test event (PU, SU, Run) separately on the APFT raw scores and for total APFT points. Subgroup differences on both the ANOVA and ANCOVA were analyzed with the Tukey test. Subgroup differences in APFT pass rates at Week 7 and the pass rate after all retakes were analyzed with the chi-square test of proportions.

**Analysis of Injury Outcomes.** Person-time injury incidence rates (injuries/1000 trainee-days) were calculated as:

(trainees with ≥1 injury in subgroup / total time of all trainees in subgroup) X 1000

Cox regression (a survival analysis technique) was used to examine subgroup differences in time to first injury. Univariate analysis involved subgroups (FAP Test, FAP Control, or Not-FAP) as the only independent variable. Multivariate analysis included the subgroups in addition to age, BMI, and the Initial Fitness Assessment events as covariates. Gender-specific analyses were conducted for each of the 6 injury indices (III, EIII, TII, CII, OII, and AII). Cox regressions were performed similar to that of the evaluation of the TRADOC standardized program. Subgroup comparisons of the proportion of trainees sent to the PTRP was analyzed using the chi square statistic.

**6. RESULTS: EVALUATION OF THE TRADOC STANDARDIZED PHYSICAL TRAINING PROGRAM.** As noted earlier, TRADOC desired an analysis of the new physical training program with both the FAP Test personnel included in the analysis and without the FAP Test personnel included in the analysis. In each section the first analysis includes all trainees in each group. The second analysis specifically eliminates the FAP Test trainees from the SG.

### a. Physical Characteristics

The physical characteristics of the 2 groups are shown in Table 7 along with the sample sizes. The 2 groups were very similar on all measures. The NSG had 42.4% women while the SG had 44.5% women (p=0.32).

The physical characteristics of the 2 groups with the FAP Test personnel excluded from the analysis are shown in Table 8. The groups were very similar on all measures. The NSG had 42.4% women while the SG had 41.4% women (p=0.66).

Table 7. Physical Characteristics of the NSG and SG

| Variable | Group | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N | Mean | SD | p-value[a] | N | Mean | SD | p-value[a] |
| Age (yr) | NSG | 656 | 21.9 | 4.1 | 0.74 | 482 | 21.4 | 4.0 | 0.16 |
| | SG | 518 | 22.0 | 3.9 | | 416 | 21.8 | 4.2 | |
| Weight (lbs) | NSG | 656 | 172.8 | 29.7 | 0.71 | 482 | 137.5 | 21.4 | 0.21 |
| | SG | 518 | 173.1 | 30.2 | | 416 | 139.3 | 21.1 | |
| Height (in) | NSG | 656 | 69.5 | 2.9 | 0.17 | 482 | 64.3 | 2.5 | 0.46 |
| | SG | 518 | 69.2 | 2.8 | | 416 | 64.4 | 2.6 | |
| BMI ($kg/m^2$) | NSG | 656 | 25.1 | 3.8 | 0.23 | 482 | 23.3 | 3.0 | 0.28 |
| | SG | 518 | 25.4 | 4.0 | | 416 | 23.5 | 2.9 | |

[a]p-value compares NSG and SG using an independent samples t-test

Table 8. Physical Characteristics of the NSG and SG Without the FAP Test Personnel

| Variable | Group | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N | Mean | SD | p-value[a] | N | Mean | SD | p-value[a] |
| Age (yr) | NSG | 656 | 21.9 | 4.1 | 0.98 | 482 | 21.4 | 4.0 | 0.08 |
| | SG | 486 | 21.9 | 3.8 | | 343 | 21.9 | 4.3 | |
| Weight (lbs) | NSG | 656 | 172.8 | 29.7 | 0.94 | 482 | 137.5 | 21.4 | 0.67 |
| | SG | 486 | 172.7 | 30.4 | | 343 | 138.1 | 20.2 | |
| Height (in) | NSG | 656 | 69.5 | 2.9 | 0.19 | 482 | 64.3 | 2.5 | 0.28 |
| | SG | 486 | 69.2 | 2.8 | | 343 | 64.5 | 2.6 | |
| BMI ($kg/m^2$) | NSG | 656 | 25.1 | 3.8 | 0.52 | 482 | 23.3 | 3.0 | 0.90 |
| | SG | 486 | 25.3 | 4.0 | | 343 | 23.3 | 2.8 | |

[a]p-value compares NSG and SG using an independent samples t-test

### b. Training Outcomes

Table 9 shows the training outcomes for the two groups. Among the men, the difference in the proportion of full cycle trainees between the NSG and SG was very small. The SG men had a larger proportion of newstart-outs but the NSG tended to have more men sent to the APFTEP. Among the women, fewer SG trainees were full cycle. A greater proportion of female SG newstart-outs, discharges, and APFTEP personnel all contributed to this difference. When men and women were

combined in the analysis, the NSG had more full cycle trainees (less attrition) than the SG (83.1% vs 78.9%, p=0.01)

Table 9. Training Outcome for NSG and SG

| Outcome | Gender | Proportion in Group (%) | | p-value[a] |
|---|---|---|---|---|
| | | NSG | SG | |
| Full-Cycle | Men | 86.8 | 85.3 | 0.48 |
| | Women | 78.2 | 70.9 | 0.01 |
| Newstart-out | Men | 3.4 | 6.7 | 0.01 |
| | Women | 7.3 | 10.3 | 0.10 |
| Discharges | Men | 7.0 | 6.8 | 0.87 |
| | Women | 10.8 | 14.7 | 0.08 |
| APFT Enhancement | Men | 2.9 | 1.5 | 0.13 |
| | Women | 3.7 | 4.3 | 0.66 |

[a]From chi-square test of proportions

Table 10 shows the training outcomes with the FAP Test personnel removed from the analyses. There were no significant differences between the SG and NSG in the proportion of male or female trainees who were full cycle. SG men had more newstart-outs than the NSG but the NSG sent more men to the APFTEP. Female group differences were very small in all training outcome categories. When men and women were combined in the analysis, there were no difference in the proportion of full cycle trainees between the NSG and SG (NSG=83.1, SG=82.0, p=0.52).

Table 10. Training Outcome for NSG and SG without FAP Test Trainees

| Outcome | Gender | Proportion in Group (%) | | p-value[a] |
|---|---|---|---|---|
| | | NSG | SG | |
| Full-Cycle | Men | 86.8 | 87.0 | 0.89 |
| | Women | 78.2 | 74.9 | 0.28 |
| Newstart-out | Men | 3.4 | 5.8 | 0.04 |
| | Women | 7.3 | 7.6 | 0.81 |
| Discharges | Men | 7.0 | 6.0 | 0.48 |
| | Women | 10.8 | 13.1 | 0.31 |
| APFT Enhancement | Men | 2.9 | 0.8 | 0.01 |
| | Women | 3.7 | 2.9 | 0.52 |

[a]From chi-square test of proportions

### c. Physical Fitness Outcomes

#### (1) Fitness Tests Administration Dates

Table 11 shows the training day when the Fitness Assessments and the APFTs were actually administered in each group (Figure 2 shows approximate week). Training Day 1 is the first day the trainees were in their BCT companies and the last training day varied between 60-62, depending on when the company began training. APFTs were administered by the companies so that the SD and range

reflect differences among company administration dates within the groups. Table 11 shows that the tests were generally administered near the end of the week that they were scheduled and sometimes early into the next week. The training days that the Initial, Week 5 and Week 7 tests were administered were very similar in the NSG and SG.

Table 11. Training Day When APFTs Were Administered[a]

| | | Initial Fitness Assessment Week 1 | APFT1 Week 1 | Second Fitness Assessment Week 2 | APFT2 Week 3 | APFT3 Week 5 | APFT4 Week 7 |
|---|---|---|---|---|---|---|---|
| NSG (Training Day) | Mean | 2.2 | 8.0 | | 21.4 | 36.2 | 48.4 |
| | SD | 1.5 | 0.7 | | 1.5 | 0.8 | 1.1 |
| | Range | 1-4 | 7-9 | | 19-23 | 35-37 | 47-50 |
| SG (Training Day) | Mean | 2.2 | | 15.4 | | 35.8 | 49.2 |
| | SD | 0.8 | | 2.1 | | 1.1 | 0.8 |
| | Range | 1-3 | | 13-18 | | 35-37 | 48-50 |
| p-value[b] (NSG vs SG) | | 0.69 | | | | 0.55 | 0.31 |

[a]Values in Table are "training days" with the first day of Training Day 1 and the last day, graduation.
[b]From Mann-Whitney U-Test

### (2) Initial Fitness Assessment

Table 12 shows the Initial Fitness Assessment raw scores of the NSG and SG. At the start of training, there were only very small group differences on performance of the PU, SU, or the 1-mile run.

Table 12. Initial Fitness Assessment Scores Comparing NSG and SG

| Event | Group | Men | | | Women | | |
|---|---|---|---|---|---|---|---|
| | | Mean | Standard Deviation | p-value[a] | Mean | Standard Deviation | p-value[a] |
| PUs | NSG | 28 | 11 | 0.09 | 9 | 8 | 0.39 |
| | SG | 29 | 12 | | 9 | 9 | |
| SUs | NSG | 31 | 7 | 0.48 | 25 | 9 | 0.30 |
| | SG | 31 | 7 | | 24 | 9 | |
| 1-Mile Run | NSG | 8.4 | 1.2 | 0.14 | 10.3 | 1.7 | 0.10 |
| | SG | 8.5 | 1.5 | | 10.5 | 1.6 | |

[a]From independent samples t-test

Table 13 shows the initial fitness test scores of the two groups with the FAP Test trainees eliminated from the analysis. Men and women in the SG performed an average of 2 more PUs than men and women in the NSG and this difference was statistically significant. There were no group differences on SU or the 1-mile run.

Table 13. Initial Fitness Assessment Scores without the FAP Test Trainees

| Event | Group | Men | | | Women | | |
|---|---|---|---|---|---|---|---|
| | | Mean | Standard Deviation | p-value[a] | Mean | Standard Deviation | p-value[a] |
| PUs | NSG | 28 | 11 | <0.01 | 9 | 8 | <0.01 |
| | SG | 30 | 11 | | 11 | 9 | |
| SUs | NSG | 31 | 7 | 0.76 | 25 | 9 | 0.28 |
| | SG | 31 | 7 | | 25 | 8 | |
| 1-Mile Run | NSG | 8.4 | 1.2 | 0.84 | 10.3 | 1.7 | 0.62 |
| | SG | 8.4 | 1.4 | | 10.3 | 1.5 | |

[a]From independent samples t-test

## (3) Initial Fitness Assessment and Second Fitness Assessment

Table 14 shows a comparison of the Initial and Second Fitness Assessments. Only the SG took the Fitness Assessment at Week 2 so the comparison is restricted to this group. The numbers differ from Tables 12 and 13 because only trainees who took both tests (n=484 men and 355 women) could be included in the analyses. It can be seen that there were substantial improvements on all the test events.

Table 14. Initial and Second Fitness Assessment Scores (1/1/1 Test) of the SG

| Event | Group | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean (reps or min) | Standard Deviation (reps or min) | Δ (%) | p-value[a] | Mean (reps or min) | Standard Deviation (reps or min) | Δ (%) | p-value[a] |
| PUs | Initial | 29 | 12 | 21.8 | <0.01 | 10 | 9 | 56.7 | <0.01 |
| | Second | 36 | 11 | | | 15 | 10 | | |
| SUs | Initial | 31 | 7 | 12.9 | <0.01 | 25 | 9 | 25.2 | <0.01 |
| | Second | 35 | 7 | | | 31 | 8 | | |
| 1-Mile Run | Initial | 8.4 | 1.5 | 9.4 | <0.01 | 10.4 | 1.6 | 9.4 | <0.01 |
| | Second | 7.6 | 1.2 | | | 9.5 | 1.3 | | |

[a]From paired t-test

Table 15 shows a comparison of the Initial and Second Fitness Assessment test scores of the SG with the FAP Test personnel eliminated from the analysis. Elimination of the FAP Test trainees had little effect on the relative or absolute improvements in the test scores.

Table 15. Initial and Week 2 Fitness Assessment Scores (1/1/1 Test) of the SG without FAP Test Personnel

| Event | Group | Men | | | | Women | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean (reps or min) | Standard Deviation (reps or min) | Δ (%) | p-value[a] | Mean (reps or min) | Standard Deviation (reps or min) | Δ (%) | p-value[a] |
| PUs | Initial | 30 | 11 | 21.7 | <0.01 | 11 | 9 | 54.6 | <0.01 |
| | Second | 36 | 11 | | | 17 | 9 | | |
| SUs | Initial | 31 | 7 | 12.7 | <0.01 | 26 | 8 | 23.6 | <0.01 |
| | Second | 35 | 7 | | | 32 | 7 | | |
| 1-Mile Run | Initial | 8.3 | 1.4 | 9.2 | <0.01 | 10.2 | 1.5 | 9.4 | <0.01 |
| | Second | 7.6 | 1.2 | | | 9.2 | 1.1 | | |

[a]From paired t-test

### (4) APFT Raw Scores

Table 16 shows the APFT scores for the SG and the NSG during the course of BCT. Recall that the SG did not take their first full APFT until Week 5 and that the statistical analysis of the APFT raw scores involves a 2 by 2 ANOVA (Groups by Weeks 5 and 7). On the PU, there was no significant Group by Week interaction ($p=0.26$ for men, $p=0.54$ for women). There was an improvement in performance from Week 5 to Week 7 ($p<0.01$ for both men and women) and the SG demonstrated higher performance than the NSG ($p=0.03$ for men and $p=0.02$ for women). Overall, the results indicate that for both men and women, PU performance of the SG was higher than that of the NSG at both Weeks 5 and 7.

On the SU, there was a significant Group by Week interaction indicating that the SG improved their performance more than the NSG from Week 5 to Week 7 ($p<0.01$ for both men and women). The groups improved from Week 5 to Week 7 ($p<0.01$ for men and women). For the men, there was a significant group difference indicating that the performance of the NSG was greater than the SG ($p<0.01$) and this same trend was seen for the women ($p=0.08$). Overall the results indicate that for both men and women, the SU performance of the SG at Week 5 was lower than that of the NSG but by Week 7 the performance of the two groups was similar.

On the 2-mile run, there were significant improvements in run times from Week 5 to Week 7 ($p<0.01$ for both men and women). There were no significant group differences ($p=0.81$ for men and 0.24 for women). While there was no significant Group by Week interaction for the men ($p=0.59$), this was not the case for the women ($p<0.01$). The interaction for the women indicated that the SG improved to a greater extent than the NSG from Week 5 to Week 7. Overall, the men in the SG and NSG showed similar performance and similar improvements from Week 5 to Week 7. The women in the NSG had lower performance at Week 5 but improved to the same level as the SG by Week 7.

Table 16. APFT Raw Scores of the NSG and SG

| Event | Week | Group | Men | | Women | |
|---|---|---|---|---|---|---|
| | | | Mean (reps or min) | SD (reps or min) | Mean (reps or min) | SD (reps or min) |
| PUs (reps) | Week 1 | NSG | 34 | 13 | 12 | 10 |
| | | SG | --- | --- | --- | --- |
| | Week 3 | NSG | 39 | 13 | 17 | 10 |
| | | SG | --- | --- | --- | --- |
| | Week 5 | NSG | 42 | 12 | 20 | 11 |
| | | SG | 45 | 13 | 23 | 18 |
| | Week 7 | NSG | 46 | 12 | 24 | 10 |
| | | SG | 48 | 12 | 26 | 11 |
| SUs (reps) | Week 1 | NSG | 46 | 12 | 40 | 15 |
| | | SG | --- | --- | --- | --- |
| | Week 3 | NSG | 53 | 11 | 49 | 13 |
| | | SG | --- | --- | --- | --- |
| | Week 5 | NSG | 57 | 11 | 54 | 12 |
| | | SG | 53 | 11 | 51 | 13 |
| | Week 7 | NSG | 61 | 11 | 59 | 11 |
| | | SG | 60 | 11 | 59 | 11 |
| 2-Mile Run (min) | Week 1 | NSG | 17.3 | 2.4 | 21.6 | 3.0 |
| | | SG | --- | --- | --- | --- |
| | Week 3 | NSG | 16.1 | 2.0 | 20.0 | 2.6 |
| | | SG | --- | --- | --- | --- |
| | Week 5 | NSG | 15.5 | 1.6 | 19.1 | 2.3 |
| | | SG | 15.5 | 1.8 | 18.7 | 2.4 |
| | Week 7 | NSG | 14.9 | 1.3 | 18.0 | 1.7 |
| | | SG | 14.9 | 1.4 | 18.0 | 1.7 |

Table 17 shows the APFT scores for the SG and the NSG during the course of BCT without the FAP Test trainees included in the analyses. Since there were significant group differences on PU on the Initial Fitness Assessment, ANCOVA was used for analysis with adjustment for PU scores on the Initial Fitness Assessment. The ANCOVA showed no significant Group by Week interaction ($p=0.13$ for men, $p=0.58$ for women). There was an improvement from Week 5 to Week 7 ($p<0.01$ for both men and women) and the SG demonstrated higher performance than the NSG ($p<0.01$ for men and $p=0.02$ for women). Overall, the results indicate that for both men and women, PU performance of the SG was higher than that of the NSG at both Weeks 5 and 7 even after adjustment for the initial PU performance.

ANOVA on the SU showed a significant Group by Week interaction indicating that the SG improved their performance more than the NSG from Week 5 to Week 7 ($p<0.01$ for both men and women). Both groups improved from Week 5 to Week 7 ($p<0.01$ for men and women). For the men, there was a significant group difference indicating that the performance of the NSG was greater than the SG ($p<0.01$) but there was no group difference among the women ($p=0.51$). Overall, the results indicate that for both men and women, the performance of the SG at Week 5 was lower than that of the NSG but by Week 7 the performance of the two groups was similar.

ANOVA on the 2-mile run scores showed that there were significant improvements in run times from Week 5 to Week 7 ($p<0.01$ for both men and women). For the men, there were no significant group differences ($p=0.27$) and no significant Group by Week interaction ($p=0.47$). For the women, there were significant group differences ($p<0.01$) and a significant Group by Week interaction ($p<0.01$). Overall, the men in the SG and NSG showed similar performance and similar improvements from Week 5 to Week 7. Women in the NSG had lower performance at Week 5 and Week 7; the NSG women improved their performance more than the SG women from Week 5 to Week 7 but did not reach the same performance level as the SG women.

Table 17. APFT Raw Scores of the NSG and SG Without FAP Test Trainees

| Event | Week | Group | Men | | Women | |
|---|---|---|---|---|---|---|
| | | | Mean (reps or min) | SD (reps or min) | Mean (reps or min) | SD (reps or min) |
| PUs | Week 1 | NSG | 34 | 13 | 12 | 10 |
| | | SG | --- | --- | --- | --- |
| | Week 3 | NSG | 39 | 13 | 17 | 10 |
| | | SG | --- | --- | --- | --- |
| | Week 5 | NSG | 42 | 12 | 20 | 11 |
| | | SG | 45 | 12 | 25 | 11 |
| | Week 7 | NSG | 46 | 12 | 24 | 10 |
| | | SG | 48 | 11 | 27 | 11 |
| SUs | Week 1 | NSG | 46 | 12 | 40 | 15 |
| | | SG | --- | --- | --- | --- |
| | Week 3 | NSG | 53 | 11 | 49 | 13 |
| | | SG | --- | --- | --- | --- |
| | Week 5 | NSG | 57 | 11 | 54 | 12 |
| | | SG | 54 | 11 | 52 | 12 |
| | Week 7 | NSG | 61 | 11 | 59 | 11 |
| | | SG | 60 | 11 | 60 | 11 |
| 2-Mile Run | Week 1 | NSG | 17.3 | 2.4 | 21.6 | 3.0 |
| | | SG | --- | --- | --- | --- |
| | Week 3 | NSG | 16.1 | 2.0 | 20.0 | 2.6 |
| | | SG | --- | --- | --- | --- |
| | Week 5 | NSG | 15.5 | 1.6 | 19.1 | 2.3 |
| | | SG | 15.4 | 1.8 | 18.5 | 2.3 |
| | Week 7 | NSG | 14.9 | 1.3 | 18.0 | 1.7 |
| | | SG | 14.8 | 1.3 | 17.8 | 1.6 |

### (5) APFT Total Points

Table 18 shows the APFT total points for all the APFTs. ANOVA showed that there was an improvement in test scores from Week 5 to Week 7 ($p<0.01$ for both men and women). However, group differences were small ($p=0.84$ for men and $p=0.13$ for women) and there was no significant Group by Week interaction ($p=0.98$ for men and $p=0.11$ for women). Overall results indicate similar improvements from Week 5 to Week 7 with no group differences.

Table 18. APFT Total Points of the NSG and SG

| Week | Group | Men | | Women | |
|---|---|---|---|---|---|
| | | Mean (points) | SD (points) | Mean (points) | SD (points) |
| Week 1 | NSG | 149 | 49 | 121 | 57 |
| | SG | --- | --- | --- | --- |
| Week 3 | NSG | 177 | 45 | 156 | 54 |
| | SG | --- | --- | --- | --- |
| Week 5 | NSG | 196 | 41 | 179 | 51 |
| | SG | 195 | 42 | 185 | 52 |
| Week 7 | NSG | 217 | 33 | 210 | 39 |
| | SG | 216 | 35 | 213 | 41 |

Table 19 shows the APFT total points for all the APFTs with the FAP Test personnel eliminated from the analyses. Among the men, total points improved from Week 5 to Week 7 but there were no significant group differences ($p=0.60$) and the Group by Week interaction was not significant ($p=0.92$). For the women, both groups improved from Week 5 to Week 7 ($p<0.01$) but the Group by Week interaction ($p=0.05$) indicated that the NSG improved more than the SG over the 2 weeks. Performance of the SG was higher than that of the NSG ($p<0.01$). Overall, the men in the SG and NSG showed similar performance and similar improvements from Week 5 to Week 7. Women in the NSG had lower performance at Week 5 and Week 7. The NSG women improved their performance more than the SG women from Week 5 to Week 7 but the NSG women did not reach the same performance level as the SG women.

Table 19. APFT Total Points of the NSG and SG Without the FAP Test Trainees

| Week | Group | Men | | Women | |
|---|---|---|---|---|---|
| | | Mean (points) | SD (points) | Mean (points) | SD (points) |
| Week 1 | NSG | 149 | 49 | 121 | 57 |
| | SG | --- | --- | --- | --- |
| Week 3 | NSG | 177 | 45 | 156 | 54 |
| | SG | --- | --- | --- | --- |
| Week 5 | NSG | 196 | 41 | 180 | 50 |
| | SG | 197 | 41 | 194 | 48 |
| Week 7 | NSG | 217 | 33 | 210 | 39 |
| | SG | 218 | 34 | 220 | 39 |

### (6) APFT Pass Rates

Table 20 shows the pass rates for the entire APFT and for each test event. The NSG and SG are compared at Weeks 5 and 7. The overall APFT pass rates were not different between the NSG and SG at Weeks 5 or 7 for men or women. Even when men and women were combined into one analysis there were no significant group differences in the proportions passing the Week 7 APFT (NSG=84.4%, SG=85.5%, $p=0.52$)

On the PUs, a greater proportion of the SG men passed the test at Week 5 but by Week 7 the group differences were much smaller. Women did not differ on the PUs at Weeks 5 or 7. On the SUs, a greater proportion of NSG men and women passed the test at Week 5, but by Week 7 the group differences were much smaller. On the 2-mile run, there were no group differences at Week 5 or 7 for either men or women.

Table 20. Proportion of NSG and SG Trainees Passing the APFT and Each APFT Event

| Event | Test Week | Group | Men | | Women | |
|---|---|---|---|---|---|---|
| | | | Proportion Passing (%) | p-value[a] | Proportion Passing (%) | p-value[a] |
| Overall APFT | Week 1 | NSG | 25.7 | --- | 14.4 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 48.3 | --- | 30.6 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 63.9 | 0.71 | 46.9 | 0.20 |
| | | SG | 65.0 | | 52.0 | |
| | Week 7 | NSG | 87.9 | 0.88 | 79.0 | 0.40 |
| | | SG | 88.2 | | 81.6 | |
| PUs | Week 1 | NSG | 52.1 | --- | 48.5 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 67.1 | --- | 67.1 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 79.5 | 0.03 | 78.0 | 0.20 |
| | | SG | 85.2 | | 82.2 | |
| | Week 7 | NSG | 92.3 | 0.40 | 93.1 | 0.64 |
| | | SG | 93.7 | | 94.0 | |
| SUs | Week 1 | NSG | 55.2 | --- | 37.2 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 80.1 | --- | 72.3 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 91.5 | <0.01 | 80.2 | 0.02 |
| | | SG | 82.5 | | 72.5 | |
| | Week 7 | NSG | 97.1 | 0.27 | 92.3 | 0.56 |
| | | SG | 95.9 | | 91.1 | |
| 2-Mile Run | Week 1 | NSG | 50.0 | --- | 33.3 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 72.3 | --- | 55.7 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 85.2 | 0.62 | 71.9 | 0.18 |
| | | SG | 83.9 | | 76.9 | |
| | Week 7 | NSG | 95.4 | 0.86 | 88.5 | 0.50 |
| | | SG | 95.6 | | 90.1 | |

[a]From chi-square test of proportions

Table 21 shows the pass rates for the overall APFT for each APFT event with the FAP Test personnel eliminated from the analyses. The NSG and SG are compared at Weeks 5 and 7. For the total APFT, the SG women had a greater proportion of trainees passing the test and this same trend was seen in the men, although it was not statistically significant. When men and women were combined in a single analysis, the SG had more individuals passing the test than the NSG (NSG=84.4%, SG=88.4%, p=0.02).

On the PUs, a greater proportion of the SG women passed the test at Weeks 5 and 7 and this same trend was apparent in the men. On the SUs, a greater proportion of NSG men passed at Week 5 and this same trend was apparent in the women; however, by Week 7 there were virtually no group differences for either men or women. On the 2-mile run, the two groups of men had a similar proportion passing at Weeks 5 and 7. Women had more SG trainees passing at Week 5 and this trend remained at Week 7.

Table 22 compares the final APFT failures (after all retakes) of the SG and NSG with and without the FAP Test trainees included. When all trainees were included in the analyses, there were no differences between the NSG and SG, although the SG men tended to have fewer APFT failures. When men and women were combined there was only a small difference between the 2 groups (NSG=3.3%, SG=2.8%, p=0.53)

When the FAP Test trainees were eliminated from the analyses, the SG men tended to have fewer failures and the women's data was in a similar direction. When men and women were combined, the SG had fewer APFT failures than the NSG (3.3 vs 1.7%, p=0.03).

Table 21. Proportion of NSG and SG Trainees Passing the APFT and Each APFT Event (FAP Test Trainees Excluded from the Analyses)

| Event | Test Week | Group | Men | | Women | |
|---|---|---|---|---|---|---|
| | | | Proportion Passing (%) | p-value[a] | Proportion Passing (%) | p-value[a] |
| Overall APFT | Week 1 | NSG | 25.7 | --- | 14.4 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 48.3 | --- | 30.6 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 63.9 | 0.27 | 46.9 | 0.02 |
| | | SG | 67.4 | | 56.5 | |
| | Week 7 | NSG | 87.9 | 0.31 | 79.0 | 0.02 |
| | | SG | 89.9 | | 86.0 | |
| PUs | Week 1 | NSG | 52.1 | --- | 48.5 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 67.1 | --- | 67.1 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 79.5 | <0.01 | 78.0 | 0.03 |
| | | SG | 86.5 | | 85.3 | |
| | Week 7 | NSG | 92.3 | 0.13 | 93.1 | 0.05 |
| | | SG | 94.7 | | 96.7 | |
| SUs | Week 1 | NSG | 55.2 | --- | 37.2 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 80.1 | --- | 72.3 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 91.5 | <0.01 | 80.2 | 0.14 |
| | | SG | 83.9 | | 75.0 | |
| | Week 7 | NSG | 97.1 | 0.38 | 92.3 | 0.38 |
| | | SG | 96.1 | | 94.1 | |
| 2-Mile Run | Week 1 | NSG | 50.0 | --- | 33.3 | --- |
| | | SG | --- | | --- | |
| | Week 3 | NSG | 72.3 | --- | 55.7 | --- |
| | | SG | --- | | --- | |
| | Week 5 | NSG | 85.2 | 0.81 | 71.9 | 0.02 |
| | | SG | 85.7 | | 81.1 | |
| | Week 7 | NSG | 95.4 | 0.36 | 88.5 | 0.16 |
| | | SG | 96.6 | | 91.9 | |

[a]From chi-square test of proportions

Table 22. APFT Failures in SG and NSG (Analysis with All Trainees and with FAP Test Personnel Excluded

| | | Men | | Women | |
|---|---|---|---|---|---|
| | | Proportion Not Passing Test (%) | p-value[a] | Proportion Not Passing Test (%) | p-value[a] |
| All Trainees | NSG | 2.9 | 0.13 | 3.7 | 0.65 |
| | SG | 1.5 | | 4.3 | |
| FAP Test Trainees Excluded | NSG | 2.9 | 0.01 | 3.7 | 0.52 |
| | SG | 0.8 | | 2.9 | |

[a]From chi-square statistic

### d. Injury Outcomes

#### (1) Person-Time Injury Incidence Rates

Table 23 shows the person-time injury incidence rates. On all injury indices, rates are higher in the NSG compared to the SG. Table 24 shows the person-time injury incidence rates for the two groups and the 6 injury indices with the FAP Test personnel excluded from the analyses. Again, rates are higher for the NSG compared to the SG. The rates for the SG with the FAP excluded are lower than rates with the FAP Test personnel included, especially for the women.

Table 23. Person-Time Injury Incidence Rates (injuries/1000 trainee-days) for the SG and NSG

| Index | Group | Men | Women |
|---|---|---|---|
| Installation Injury Index | NSG | 4.86 | 9.02 |
| | SG | 3.31 | 7.74 |
| Expanded Installation Injury Index | NSG | 5.03 | 9.13 |
| | SG | 3.38 | 7.86 |
| Training Injury Index | NSG | 3.31 | 7.32 |
| | SG | 2.36 | 7.15 |
| Comprehensive Injury Index | NSG | 5.22 | 9.24 |
| | SG | 3.60 | 8.03 |
| Overuse Injury Index | NSG | 3.51 | 7.71 |
| | SG | 2.58 | 6.60 |
| Acute Injury Index | NSG | 0.66 | 0.85 |
| | SG | 0.61 | 0.42 |

Table 24. Person-Time Injury Incidence Rates (injuries/1000 trainee-days) for the SG and NSG Excluding FAP Test Trainees

| Index | Group | Men | Women |
|---|---|---|---|
| Installation Injury Index | NSG | 4.86 | 9.02 |
| | SG | 3.18 | 7.02 |
| Expanded Installation Injury Index | NSG | 5.03 | 9.13 |
| | SG | 3.24 | 7.13 |
| Training Injury Index | NSG | 3.31 | 7.32 |
| | SG | 2.19 | 6.52 |
| Comprehensive Injury Index | NSG | 5.22 | 9.24 |
| | SG | 3.41 | 7.23 |
| Overuse Injury Index | NSG | 3.51 | 7.71 |
| | SG | 2.46 | 6.02 |
| Acute Injury Index | NSG | 0.66 | 0.85 |
| | SG | 0.57 | 0.20 |

#### (2) Univariate Analysis of Injury Risk in NSG and SG

Table 25 shows a univariate comparison of the NSG and SG on the 6 injury indices using Cox Regression. For both men and women, injury risk was higher in

the NSG compared to the SG for the III, EIII, CII and OII. The NSG men also demonstrated higher risk than the SG men for the TII; however, for the TII for women and for the AII for both men and women, the higher injury trend in the NSG was weaker.

Table 25. Relative Injury Risk (NSG/SG) from Univariate Cox Regression

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio[a] | 95% CI[b] | p-value[c] |
| Installation Injury Index | 1.55 | 1.22-1.97 | <0.01 | 1.37 | 1.11-1.63 | <0.01 |
| Expanded Installation Injury Index | 1.59 | 1.25-2.01 | <0.01 | 1.34 | 1.11-1.61 | <0.01 |
| Training Injury Index | 1.44 | 1.09-1.92 | <0.01 | 1.09 | 0.89-1.33 | 0.43 |
| Comprehensive Injury Index | 1.55 | 1.23-1.95 | <0.01 | 1.32 | 1.09-1.58 | 0.01 |
| Overuse Injury Index | 1.40 | 1.07-1.84 | 0.01 | 1.29 | 1.05-1.58 | 0.02 |
| Acute Injury Index | 1.09 | 0.60-1.90 | 0.78 | 2.06 | 0.98-4.30 | 0.06 |

[a]NSG/SG [b]CI=confidence interval [c]From Wald statistic

Table 26 shows the univariate Cox regression results with the FAP Test personnel eliminated from the analyses. In all cases, the relative risk of an injury was higher in the NSG than the SG. The trend was weaker for the TII among the women and for the AII among the men. The risk ratios were higher with the FAP Test personnel excluded from the analyses.

Table 26. Relative Injury Risk (NSG/SG) from Univariate Cox Regression With FAP Test Personnel Excluded from the Analyses

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio[a] | 95% CI[b] | p-value[c] |
| Installation Injury Index | 1.63 | 1.27-2.09 | <0.01 | 1.50 | 1.22-1.84 | <0.01 |
| Expanded Installation Injury Index | 1.67 | 1.31-2.13 | <0.01 | 1.49 | 1.21-1.83 | <0.01 |
| Training Injury Index | 1.57 | 1.16-2.10 | <0.01 | 1.20 | 0.96-1.49 | 0.11 |
| Comprehensive Injury Index | 1.64 | 1.29-2.09 | <0.01 | 1.49 | 1.21-1.82 | <0.01 |
| Overuse Injury Index | 1.47 | 1.10-1.96 | <0.01 | 1.42 | 1.14-1.78 | <0.01 |
| Acute Injury Index | 1.10 | 0.60-2.04 | 0.75 | 2.86 | 1.17-7.00 | 0.02 |

[a]NSG/SG [b]CI=confidence interval [c]From Wald statistic

**(3) Multivariate Comparison of Injury Risk in NSG and SG .** Table 27 shows the relative risk of injury in the NSG compared to the SG after adjustment for age, BMI, and the 3 APFT events. For the men the relative risk is slightly reduced in all cases compared to the univariate analysis; for the women the relative risk is slightly elevated. In all cases but one (All for the men), the relative risk is still higher in the NSG compared to the SG.

Table 27. Multivariate Cox Regression Results for the Six Injury Indices

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio | 95% CI | p-value[a] |
| Installation Injury Index | 1.51 | 1.17-1.93 | <0.01 | 1.41 | 1.16-1.73 | <0.01 |
| Expanded Installation Injury Index | 1.54 | 1.21-1.97 | <0.01 | 1.40 | 1.14-1.70 | <0.01 |
| Training Injury Index | 1.42 | 1.06-1.91 | 0.02 | 1.12 | 0.90-1.38 | 0.32 |
| Comprehensive Injury Index | 1.50 | 1.19-1.91 | <0.01 | 1.38 | 1.14-1.69 | <0.01 |
| Overuse Injury Index | 1.36 | 1.02-1.80 | 0.03 | 1.41 | 1.13-1.75 | <0.01 |
| Acute Injury Index | 0.83 | 0.43-1.59 | 0.57 | 2.13 | 1.01-4.48 | 0.05 |

[a]NSG/SG [b]CI=confidence interval [c]From Wald statistic

Table 28 shows the relative risk of injury in the NSG compared to the SG after adjustment for age, BMI and the 3 APFT events with the FAP Test trainees excluded from the analyses. In all cases but one (All for the men), the relative risk is still higher in the NSG compared to the SG. For both men and women, the relative risk is slightly elevated compared to the analysis with the FAP test personnel included.

Table 28. Multivariate Cox Regression Results for the Six Injury Indices With FAP Test Personnel Exclude from the Analysis.

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio | 95% CI | p-value[a] |
| Installation Injury Index | 1.53 | 1.19-1.98 | <0.01 | 1.47 | 1.19-1.83 | <0.01 |
| Expanded Installation Injury Index | 1.57 | 1.22-2.02 | <0.01 | 1.46 | 1.18-1.82 | <0.01 |
| Training Injury Index | 1.49 | 1.10-2.03 | 0.01 | 1.17 | 0.92-1.47 | 0.20 |
| Comprehensive Injury Index | 1.55 | 1.21-1.98 | <0.01 | 1.47 | 1.18-1.82 | <0.01 |
| Overuse Injury Index | 1.40 | 1.04-1.87 | 0.03 | 1.43 | 1.13-1.81 | <0.01 |
| Acute Injury Index | 0.88 | 0.45-1.71 | 0.71 | 3.03 | 1.23-7.47 | 0.02 |

[a]NSG/SG [b]CI=confidence interval [c]From Wald statistic

### (4) PTRP Injuries

Table 29 shows the proportion of trainees sent to the PTRP from the NSG and SG. There were only small differences between the groups whether or not the FAP Test trainees were excluded.

Table 29. Proportion of Trainees sent to the PTRP for All Trainees and with the FAP Personnel Excluded

| | All Trainees | | FAP Test Trainees Excluded | |
|---|---|---|---|---|
| | Men | Women | Men | Women |
| NSG | 1.8% | 5.0% | 1.8% | 5.0% |
| SG | 1.9% | 6.0% | 1.6% | 5.5% |
| p-value | 0.90 | 0.50 | 0.82 | 0.72 |

## 7. RESULTS – FAP EVALUATION

Supplemental data on the FAP evaluation is in Appendix J. These data include the time spent in the FAP by the FAP Control group, test scores from the Reception Station Fitness Test, and information on the proportion of trainees who failed each of the 3 test events.

### a. Physical Characteristics.

Table 30 shows the physical characteristics of the FAP Test, FAP Control and Not-FAP trainees along with the sample sizes. There were no differences between the FAP Test and FAP Control trainees on any of the physical characteristics. However, there were differences between these two groups and the Not-FAP. FAP Test ($p=0.07$) and FAP Control ($p=0.08$) men tended to be older than the Not-FAP but there were no differences in age among the three groups of women. FAP Test and FAP Control men and women were heavier than the Not-FAP men and women ($p<0.01$ for both comparisons). FAP Test and Control men and women had higher BMIs than the Not-FAP men and women ($p<0.01$ for both comparisons). The FAP Control women tended to be slightly taller than the Not-FAP women ($p=0.08$) but the FAP Test and Not-FAP women did not differ on height ($p=0.76$). In summary, FAP Test and Control men were slightly older than the Not-FAP. FAP Test and Control men and women were heavier than the Not-FAP men and women and this was reflected in higher BMI.

Table 30. Physical Characteristics of the 3 FAP Groups

| | | Men | | | | | Women | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | Mean | SD | p-value[a] | p-value[b] | N | Mean | SD | p-value[a] | p-value[b] |
| Age (yrs) | FAP Test | 32 | 23.1 | 5.3 | 0.02 | 0.98 | 73 | 21.3 | 3.6 | 0.32 | NA[c] |
| | FAP Control | 64 | 23.0 | 4.4 | | | 94 | 22.2 | 4.5 | | |
| | Not-FAP | 1078 | 21.8 | 3.9 | | | 731 | 21.6 | 4.1 | | |
| Weight (lbs) | FAP Test | 32 | 185.5 | 25.7 | <0.01 | 0.15 | 73 | 144.7 | 24.2 | <0.01 | 0.92 |
| | FAP Control | 64 | 197.3 | 33.2 | | | 94 | 145.9 | 23.9 | | |
| | Not-FAP | 1078 | 171.3 | 29.2 | | | 731 | 136.7 | 20.2 | | |
| Height (in) | FAP Test | 32 | 69.2 | 2.8 | 0.51 | NA[c] | 73 | 64.1 | 2.6 | 0.07 | 0.70 |
| | FAP Control | 64 | 69.7 | 3.6 | | | 94 | 64.9 | 2.5 | | |
| | Not-FAP | 1078 | 69.3 | 2.8 | | | 731 | 64.3 | 2.5 | | |
| BMI ($kg/m^2$) | FAP Test | 32 | 27.2 | 3.7 | <0.01 | 0.31 | 73 | 24.6 | 3.2 | <0.01 | 0.76 |
| | FAP Control | 64 | 28.4 | 3.8 | | | 94 | 24.3 | 3.4 | | |
| | Not-FAP | 1078 | 25.0 | 3.8 | | | 731 | 23.2 | 2.8 | | |

[a]From one-way ANOVA comparing all three groups
[b]From Tukey Test following One-Way ANOVA; compares FAP Test and Control
[c]If One-Way ANOVA was not significant, no Tukey Test was performed.

**b. Training Outcomes.** Table 31 shows the training outcomes. The proportion of full cycle trainees differed among the 3 groups. More of the FAP Control trainees completed the cycle than the FAP Test both among the men and the women. There were no differences in the proportion of FAP Control and Not-FAP men who were full cycle; the proportion of Not-FAP women who were full cycle tended to be higher than the proportion of FAP Control women. A much larger proportion of Not-FAP completed the cycle compared to FAP Test trainees. When men and women were combined, the proportions of full cycle trainees were 54.3%, 74.7%, and 83.4% for the FAP Test, FAP Control, and Not-FAP, respectively ($p<0.01$ for all comparisons).

The proportions of newstart-outs tended to differ among the 3 groups. FAP Test personnel tended to have more newstart-outs than the FAP Control among the men but the proportions of newstart-outs were similar among the women. FAP Test personnel had a larger proportion of newstart-outs than the Not-FAP among both men and women. FAP Control and Not FAP had similar proportions of newstart-outs among both men and women. Overall, there tended to be a larger proportion of

newstart-outs among the FAP Test trainees while differences the FAP Control and Not FAP were small.

The proportions of discharges differed among the 3 groups. Discharges tended to be higher among the FAP Test men and women than among the FAP Control men and women. The proportion of FAP Test personnel who were discharged was larger than the proportion of Not FAP. The proportion of FAP Control personnel who were discharged did not differ from the proportion of Not-FAP. Overall, a larger proportion of FAP Test personnel were discharged compared to the other 2 groups; there were no differences among FAP Control and Not-FAP.

The proportion of trainees sent to the APFTEP differed among the 3 groups. There were no statistically significant differences among the FAP Test and Control, although more of the FAP Test group tended to go to the APFTEP. More of FAP Test and Control groups went to the APFTEP compared to the Not-FAP among both men and women. Overall, results indicate that a similar proportion of the FAP Test and Control were sent to the APFTEP and fewer Not-FAP were sent.

Table 31. Training Outcomes

| | | | Proportion In Group (%) | p-value, all 3 Groups | p-value, FAP Test vs FAP Control | p-value, FAP Test vs Not-FAP | p-value, FAP Control vs Not-FAP |
|---|---|---|---|---|---|---|---|
| Men | Full Cycle | FAP Test | 59.4 | <0.01 | <0.01 | <0.01 | 0.32 |
| | | FAP Control | 82.8 | | | | |
| | | Not-FAP | 87.1 | | | | |
| | Newstart-Out | FAP Test | 12.5 | 0.10 | 0.07 | 0.04 | 0.57 |
| | | FAP Control | 3.1 | | | | |
| | | Not-FAP | 4.6 | | | | |
| | Discharge | FAP Test | 18.8 | 0.03 | 0.06 | <0.01 | 0.91 |
| | | FAP Control | 6.3 | | | | |
| | | Not-FAP | 6.6 | | | | |
| | APFT Enhancement Program | FAP Test | 12.5 | <0.01 | 0.46 | <0.01 | <0.01 |
| | | FAP Control | 7.8 | | | | |
| | | Not-FAP | 1.7 | | | | |
| Women | Full Cycle | FAP Test | 52.1 | <0.01 | 0.02 | <0.01 | 0.06 |
| | | FAP Control | 69.1 | | | | |
| | | Not-FAP | 77.8 | | | | |
| | Newstart-Out | FAP Test | 15.1 | 0.09 | 0.39 | 0.03 | 0.34 |
| | | FAP Control | 10.6 | | | | |
| | | Not-FAP | 7.8 | | | | |
| | Discharge | FAP Test | 21.9 | 0.04 | 0.08 | 0.01 | 0.98 |
| | | FAP Control | 11.7 | | | | |
| | | Not-FAP | 11.8 | | | | |
| | APFT Enhancement Program | FAP Test | 11.0 | <0.01 | 0.59 | <0.01 | <0.01 |
| | | FAP Control | 8.5 | | | | |
| | | Not-FAP | 2.7 | | | | |

Tables 32 and 33 show reasons for newstarting and reasons for discharge, respectively. It can be seen that the portion of FAP Test personnel is higher in virtually all categories except for "Other" among newstarts.

Table 32. Reasons for Newstarting (Numbers are proportion (%) of particular group in category)

| | PTRP | Motivational | Missed Training | Other |
|---|---|---|---|---|
| FAP Test | 7.6 | 2.8 | 3.8 | 0.0 |
| FAP Control | 6.3 | 0.6 | 0.6 | 0.0 |
| Not-FAP | 2.9 | 2.4 | 0.5 | 0.1 |

Table 33. Reasons for Discharge(Numbers are proportion (%) of particular group in category)

| | ELS | EPTS | Other |
|---|---|---|---|
| FAP Test | 11.4 | 7.6 | 1.9 |
| FAP Control | 5.7 | 3.8 | 0.0 |
| Not-FAP | 3.6 | 3.8 | 1.2 |

### c. Physical Fitness Outcomes

Only trainees who completed the fitness tests could be included in the analysis of the physical fitness outcomes. Table 34 shows the proportion of trainees who took the Initial Fitness Assessment and the Week 7 APFT. There was a tendency for fewer trainees in the FAP Test group to take the Initial Fitness Assessment compared to the FAP Control and Not-FAP. Because of attrition, substantially fewer trainees in the FAP Test group took the final APFT (Week 7) compared to the FAP Control or the Not-FAP. There were no differences between the proportion of FAP Control and Not-FAP who took the Initial Fitness Assessment or the final APFT.

Table 34. Trainees Taking Initial Fitness Test and Final (Week 7) APFT

| Test | Group | N | Proportion Taking Test (%) | p-value, All 3 Groups | FAP Test vs. FAP Control | FAP Test vs. Not-FAP[a] | FAP Control vs Not-FAP |
|---|---|---|---|---|---|---|---|
| Initial Fitness Assessment | FAP Test | 105 | 92.4 | 0.16 | 0.10 | 0.08 | 0.59 |
| | FAP Control | 158 | 96.8 | | | | |
| | Not-FAP | 1809 | 96.0 | | | | |
| Final APFT (Week 7) | FAP Test | 105 | 62.9 | <0.01 | <0.01 | <0.01 | 0.40 |
| | FAP Control | 158 | 83.5 | | | | |
| | Not-FAP | 1809 | 86.0 | | | | |

[a]From chi-square statistic

Table 35 shows the reasons for not taking the Initial Fitness Assessment. All FAP Test trainees who did not take the initial test were on profile. Reasons for not taking the test were more varied among the FAP Control and Not-FAP. Reasons for not taking the final APFT was not obtained in this study.

Table 35. Proportion of Trainees in Each Group[a] by Reasons for Not Taking Initial Fitness Test

| | Profile | Kitchen Police | Pending Discharge | Guard Duty | Sick Call |
|---|---|---|---|---|---|
| FAP Test | 8.5 | 0 | 0 | 0 | 0 |
| FAP Control | 1.3 | 0.3 | 1.6 | 0 | 0 |
| Not-FAP | 1.1 | 1.9 | 0.1 | 0.7 | 0.2 |

[a]Numbers are proportion of trainees (%) who did not take the test in each group

## (1) Initial Fitness Assessment

Table 36 shows the Initial Fitness Assessment scores of the three groups. At the start of training, there were substantial differences between the three groups. For all three events, the Not-FAP demonstrated higher performance levels than the FAP Test or Control among both men and women. On PUs, performance of the FAP Control was similar to the performance of the FAP Test for both men and women. However, for both SU and the 1-mile run, performance of the FAP Control trainees exceeded that of the FAP Test trainees. Overall, the Not FAP group was the most fit at the start of the study followed by the FAP Control group and finally the FAP Test group.

Table 36. Initial Fitness Assessment Scores

| | | | Mean | SD | p-value All 3 Groups[a] | p-value FAP Test vs FAP Control[b] | p-value FAP Test vs Not-FAP[b] | p-value FAP Control vs Not-FAP[b] |
|---|---|---|---|---|---|---|---|---|
| MEN | PU | FAP Test | 18 | 11 | <0.01 | 0.45 | <0.01 | <0.01 |
| | | FAP Control | 21 | 10 | | | | |
| | | Not-FAP | 29 | 11 | | | | |
| | SU | FAP Test | 24 | 8 | <0.01 | 0.05 | <0.01 | <0.01 |
| | | FAP Control | 28 | 5 | | | | |
| | | Not-FAP | 31 | 7 | | | | |
| | 1-Mile Run | FAP Test | 10.1 | 1.5 | <0.01 | 0.02 | <0.01 | <0.01 |
| | | FAP Control | 9.4 | 1.8 | | | | |
| | | Not-FAP | 8.3 | 1.3 | | | | |
| WOMEN | PU | FAP Test | 4 | 6 | <0.01 | 0.96 | <0.01 | <0.01 |
| | | FAP Control | 4 | 5 | | | | |
| | | Not-FAP | 10 | 9 | | | | |
| | SU | FAP Test | 18 | 10 | <0.01 | <0.01 | <0.01 | <0.01 |
| | | FAP Control | 22 | 8 | | | | |
| | | Not-FAP | 25 | 9 | | | | |
| | 1-Mile Run | FAP Test | 11.8 | 1.6 | <0.01 | <0.01 | <0.01 | <0.01 |
| | | FAP Control | 10.8 | 1.5 | | | | |
| | | Not-FAP | 10.2 | 1.6 | | | | |

[a]From One-Way ANOVA
[b]From Tukey Test

### (2) Initial Fitness Assessment and Week 2 Fitness Assessment

Table 37 compares performance of the 3 groups on the Initial Fitness Assessment and the Week 2 Assessment. Only trainees in the SG group could be included in this analysis because only SG trainees took the Week 2 Fitness Assessment.

Performance improved on all 3 events from Week 1 to Week 2. The Group by Week interaction showed that improvements among the groups were similar on all 3 events with the exception of PU for women. Here, the FAP Test trainees did not improve as much as the FAP Controls or the Not-FAPs. PU improvements for the female FAP Test group averaged 3 repetitions while the other 2 groups improved an average of 6 repetitions.

There was a significant group effect on all three tests. The Not-FAP group demonstrated higher performance than the FAP Test and FAP Control groups on all tests ($p<0.01$ for all test and both genders). The FAP Control group demonstrated higher performance than the FAP Test group on male PU ($p=0.04$), male SU ($p=0.07$) and female SU ($p<0.01$). Differences between the FAP Test and Control groups were smaller for the female PU ($p=0.22$), male 1-mile run ($p=0.18$), and female 1-mile run ($p=0.46$).

Table 37. Initial and Week 2 Fitness Assessment Scores

| | | | Initial | | Week 2 | | 2-Way ANOVA p-values | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Mean | SD | Mean | SD | Weeks | Groups | Groups by Weeks |
| MEN | PU | FAP Test | 18 | 12 | 24 | 14 | <0.01 | <0.01 | 0.45 |
| | | FAP Control | 21 | 9 | 27 | 10 | | | |
| | | Not-FAP | 31 | 11 | 37 | 10 | | | |
| | SU | FAP Test | 24 | 9 | 29 | 7 | <0.01 | <0.01 | 0.86 |
| | | FAP Control | 28 | 5 | 32 | 5 | | | |
| | | Not-FAP | 32 | 7 | 36 | 7 | | | |
| | Run | FAP Test | 10.0 | 1.6 | 8.9 | 1.3 | <0.01 | <0.01 | 0.12 |
| | | FAP Control | 9.5 | 2.1 | 8.4 | 0.8 | | | |
| | | Not-FAP | 8.2 | 1.5 | 7.5 | 1.1 | | | |
| WOMEN | PU | FAP Test | 4 | 6 | 7 | 7 | <0.01 | <0.01 | 0.07 |
| | | FAP Control | 5 | 5 | 11 | 8 | | | |
| | | Not-FAP | 12 | 9 | 18 | 9 | | | |
| | SU | FAP Test | 18 | 10 | 24 | 10 | <0.01 | <0.01 | 0.83 |
| | | FAP Control | 22 | 7 | 29 | 6 | | | |
| | | Not-FAP | 27 | 8 | 33 | 7 | | | |
| | Run | FAP Test | 11.6 | 1.6 | 10.6 | 1.3 | <0.01 | <0.01 | 0.49 |
| | | FAP Control | 11.2 | 1.4 | 10.4 | 1.2 | | | |
| | | Not-FAP | 10.1 | 1.4 | 9.0 | 1.0 | | | |

[a]From One-Way ANOVA
[b]From Tukey Test

Table 38 shows the proportion of individuals in each group who passed the Week 2 Fitness Assessment based on the criteria for the Reception Station Physical Fitness Test (see Background Section). The Not-FAP had a larger proportion of trainees passing than the other 2 group among both men and women and men and women combined. The FAP Control group tended to have a larger proportion of trainees passing than the FAP Test group.

Table 38. Proportion of Trainees Passing the Week 2 Fitness Assessment Based on the Criteria of the Reception Station Physical Fitness Test

| Gender | Group | Proportion Passing Test (%) | p-value, All 3 Groups[a] | FAP Test vs. FAP Control[a] | FAP Test vs. Not-FAP[a] | FAP Control vs Not-FAP[a] |
|---|---|---|---|---|---|---|
| Men | FAP Test | 30.8 | <0.01 | 0.17 | <0.01 | <0.01 |
| | FAP Control | 47.6 | | | | |
| | Not-FAP | 85.6 | | | | |
| Women | FAP Test | 26.7 | <0.01 | 0.06 | <0.01 | <0.01 |
| | FAP Control | 44.2 | | | | |
| | Not-FAP | 84.5 | | | | |
| Men and Women | FAP Test | 27.9 | <0.01 | <0.01 | <0.01 | <0.01 |
| | FAP Control | 45.9 | | | | |
| | Not-FAP | 85.2 | | | | |

[a]From chi-square statistic

### (3) APFT Raw Scores

Table 39 shows the APFT raw scores for men and women in the three groups. Note that the FAP Test trainees did not take Weeks 1 and 3 tests because they were in the SG which only took tests at Weeks 5 and 7. FAP Controls who were in the SG (58% of FAP Control cohort) did not take the Weeks 1 and 3 APFT for the same reason.

For all 3 events among both men and women, there was a significant main effect of Weeks ($p<0.01$) and groups ($p<0.01$). Most interactions were not significant ($p>0.30$) except for the female SU ($p<0.01$). For the female SU, the Group by Week interaction indicated that the FAP Test and Control groups improved more than the Not-FAP from Week 5 to Week 7.

The post-hoc Tukey Test on the group main effect indicated that for all 3 events among both men and women the Not-FAP demonstrated higher performance than the FAP Test and FAP Control ($p<0.01$). There were no differences between the FAP Test and FAP Control ($p>0.58$).

Table 39. APFT Raw Scores

| | | | Men | | Women | |
|---|---|---|---|---|---|---|
| | | | Mean (reps or min) | SD (reps or min) | Mean | SD |
| PUs (reps) | Week 1 | FAP Test | --- | --- | --- | --- |
| | | FAP Control | 22 | 11 | 5 | 6 |
| | | Not-FAP | 34 | 12 | 13 | 10 |
| | Week 3 | FAP Test | --- | --- | --- | --- |
| | | FAP Control | 29 | 12 | 9 | 7 |
| | | Not-FAP | 39 | 13 | 18 | 10 |
| | Week 5 | FAP Test | 36 | 12 | 15 | 10 |
| | | FAP Control | 33 | 12 | 13 | 9 |
| | | Not-FAP | 44 | 12 | 23 | 9 |
| | Week 7 | FAP Test | 37 | 12 | 18 | 9 |
| | | FAP Control | 36 | 11 | 18 | 9 |
| | | Not-FAP | 47 | 12 | 26 | 10 |
| SUs (reps) | Week 1 | FAP Test | --- | --- | --- | --- |
| | | FAP Control | 37 | 11 | 35 | 12 |
| | | Not-FAP | 46 | 12 | 40 | 14.6 |
| | Week 3 | FAP Test | --- | --- | --- | --- |
| | | FAP Control | 43 | 7 | 44 | 12 |
| | | Not-FAP | 53 | 11 | 50 | 13 |
| | Week 5 | FAP Test | 46 | 11 | 44 | 14 |
| | | FAP Control | 49 | 10 | 46 | 12 |
| | | Not-FAP | 56 | 11 | 54 | 12 |
| | Week 7 | FAP Test | 54 | 9 | 52 | 12 |
| | | FAP Control | 54 | 9 | 55 | 10 |
| | | Not-FAP | 61 | 11 | 60 | 11 |
| 2-Mile Run (min) | Week 1 | FAP Test | --- | --- | --- | --- |
| | | FAP Control | 20.7 | 3.1 | 23.2 | 2.6 |
| | | Not-FAP | 17.1 | 2.7 | 21.4 | 2.9 |
| | Week 3 | FAP Test | --- | --- | --- | --- |
| | | FAP Control | 18.1 | 2.1 | 20.7 | 2.3 |
| | | Not-FAP | 16.0 | 2.0 | 19.9 | 2.7 |
| | Week 5 | FAP Test | 17.3 | 1.6 | 20.4 | 2.6 |
| | | FAP Control | 17.3 | 1.6 | 20.3 | 2.5 |
| | | Not-FAP | 15.4 | 1.6 | 18.6 | 2.2 |
| | Week 7 | FAP Test | 16.5 | 1.4 | 19.2 | 2.0 |
| | | FAP Control | 16.7 | 1.1 | 19.2 | 1.7 |
| | | Not-FAP | 14.7 | 1.2 | 17.7 | 1.6 |

### (4) APFT Pass Rates

Tables 40 and 41 show the proportion of men and women, respectively, passing the APFT in each of the three FAP groups. At both Weeks 1 and 3, a greater proportion of Not-FAP passed the APFT and each APFT event compared to the FAP Control. Differences were smaller for male SU at Week 3 and the female 2-mile run at Week 3.

At Week 5 there were significant differences between the 3 groups. Not-FAP had a greater proportion of trainees passing the APFT and each event of the APFT compared to the FAP Test and Control; differences were smaller for the male SU. The proportion of FAP Test and Control trainees who passed the APFT or any APFT event was similar. One exception was the male SU where more FAP Control passed than FAP Test.

At Week 7 there were significant differences between the 3 groups. The Not-FAP had a greater proportion of trainees passing the APFT and each APFT event than the FAP Test and Control with one exception. That exception was for the male SU where the proportions passing were similar among all 3 groups. There were no differences between the FAP Test and Control with one exception. This exception was the female SU where a greater proportion of FAP Control trainees tended to pass the test compared to FAP Test.

Table 40. Proportion of Male Trainees Passing the APFT and Each APFT Event

| | | | Proportion Passing (%) | p-value, All 3 Groups[a] | p-value FAP Test vs FAP Control[b] | p-value FAP Test vs Not-FAP[b] | p-value FAP Control vs Not-FAP[b] |
|---|---|---|---|---|---|---|---|
| Total APFT | Week 1 | FAP Test | --- | | | | 0.01 |
| | | FAP Control | 0 | | | | |
| | | Not-FAP | 26.5 | | | | |
| | Week 3 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 16.7 | | | | |
| | | Not-FAP | 49.3 | | | | |
| | Week 5 | FAP Test | 20.0 | <0.01 | 0.30 | <0.01 | 0.01 |
| | | FAP Control | 32.6 | | | | |
| | | Not-FAP | 67.1 | | | | |
| | Week 7 | FAP Test | 54.5 | <0.01 | 0.42 | <0.01 | <0.01 |
| | | FAP Control | 64.4 | | | | |
| | | Not-FAP | 90.3 | | | | |
| PUs | Week 1 | FAP Test | --- | | | | 0.06 |
| | | FAP Control | 29.4 | | | | |
| | | Not-FAP | 54.8 | | | | |
| | Week 3 | FAP Test | --- | | | | 0.04 |
| | | FAP Control | 44.4 | | | | |
| | | Not-FAP | 67.9 | | | | |
| | Week 5 | FAP Test | 60.0 | <0.01 | 0.56 | <0.01 | <0.01 |
| | | FAP Control | 52.2 | | | | |
| | | Not-FAP | 84.1 | | | | |
| | Week 7 | FAP Test | 72.7 | <0.01 | 0.99 | <0.01 | <0.01 |
| | | FAP Control | 72.9 | | | | |
| | | Not-FAP | 94.6 | | | | |
| SUs | Week 1 | FAP Test | --- | | | | 0.09 |
| | | FAP Control | 35.3 | | | | |
| | | Not-FAP | 55.8 | | | | |
| | Week 3 | FAP Test | --- | | | | 0.15 |
| | | FAP Control | 66.7 | | | | |
| | | Not-FAP | 80.6 | | | | |
| | Week 5 | FAP Test | 50.0 | <0.01 | 0.01 | <0.01 | 0.09 |
| | | FAP Control | 80.4 | | | | |
| | | Not-FAP | 88.7 | | | | |
| | Week 7 | FAP Test | 90.9 | 0.34 | 0.29 | 0.14 | 0.97 |
| | | FAP Control | 96.6 | | | | |
| | | Not-FAP | 96.7 | | | | |
| 2-Mile Run | Week 1 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 5.9 | | | | |
| | | Not-FAP | 51.3 | | | | |
| | Week 3 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 43.8 | | | | |
| | | Not-FAP | 73.2 | | | | |
| | Week 5 | FAP Test | 50.0 | <0.01 | 0.39 | <0.01 | <0.01 |
| | | FAP Control | 61.4 | | | | |
| | | Not-FAP | 86.7 | | | | |
| | Week 7 | FAP Test | 77.3 | <0.01 | 0.81 | <0.01 | <0.01 |
| | | FAP Control | 79.7 | | | | |
| | | Not-FAP | 96.9 | | | | |

[a]From chi-square test of proportions

Table 41. Proportion of Female Trainees Passing the APFT and Each APFT Event

| | | | Proportion Passing (%) | p-value All 3 Groups[a] | p-value FAP Test vs FAP Control[b] | p-value FAP Test vs Not-FAP[b] | p-value FAP Control vs Not-FAP[b] |
|---|---|---|---|---|---|---|---|
| Total APFT | Week 1 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 0 | | | | |
| | | Not-FAP | 15.9 | | | | |
| | Week 3 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 2.7 | | | | |
| | | Not-FAP | 33.6 | | | | |
| | Week 5 | FAP Test | 24.3 | <0.01 | 0.32 | <0.01 | <0.01 |
| | | FAP Control | 16.2 | | | | |
| | | Not-FAP | 55.2 | | | | |
| | Week 7 | FAP Test | 54.5 | <0.01 | 0.54 | <0.01 | <0.01 |
| | | FAP Control | 60.3 | | | | |
| | | Not-FAP | 84.6 | | | | |
| PUs | Week 1 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 14.6 | | | | |
| | | Not-FAP | 52.3 | | | | |
| | Week 3 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 35.1 | | | | |
| | | Not-FAP | 70.6 | | | | |
| | Week 5 | FAP Test | 62.2 | <0.01 | 0.44 | <0.01 | <0.01 |
| | | FAP Control | 54.4 | | | | |
| | | Not-FAP | 84.4 | | | | |
| | Week 7 | FAP Test | 77.3 | <0.01 | 0.14 | <0.01 | <0.01 |
| | | FAP Control | 87.7 | | | | |
| | | Not-FAP | 95.4 | | | | |
| SUs | Week 1 | FAP Test | --- | | | | 0.01 |
| | | FAP Control | 19.5 | | | | |
| | | Not-FAP | 39.1 | | | | |
| | Week 3 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 42.2 | | | | |
| | | Not-FAP | 66.4 | | | | |
| | Week 5 | FAP Test | 56.8 | <0.01 | 0.95 | <0.01 | <0.01 |
| | | FAP Control | 57.4 | | | | |
| | | Not-FAP | 80.9 | | | | |
| | Week 7 | FAP Test | 72.7 | <0.01 | 0.07 | <0.01 | 0.02 |
| | | FAP Control | 86.3 | | | | |
| | | Not-FAP | 93.9 | | | | |
| 2-Mile Run | Week 1 | FAP Test | --- | | | | <0.01 |
| | | FAP Control | 7.5 | | | | |
| | | Not-FAP | 36.1 | | | | |
| | Week 3 | FAP Test | --- | | | | 0.15 |
| | | FAP Control | 44.4 | | | | |
| | | Not-FAP | 57.0 | | | | |
| | Week 5 | FAP Test | 50.0 | <0.01 | 0.42 | <0.01 | <0.01 |
| | | FAP Control | 58.5 | | | | |
| | | Not-FAP | 78.1 | | | | |
| | Week 7 | FAP Test | 79.1 | <0.01 | 0.77 | <0.01 | <0.01 |
| | | FAP Control | 76.7 | | | | |
| | | Not-FAP | 91.5 | | | | |

[a]From chi-square test of proportions

Table 42 shows the proportion of APFT failures in each group after all APFT retakes. The Not-FAP group had fewer failures than either the FAP test or Control. The FAP Test group tended to have more APFT failures than the FAP Control but this was not statistically significant.

Table 42. APFT Failures After All Retakes

| | | Proportion In Group (%) | p-value, all 3 Groups | p-value, FAP Test vs FAP Control | p-value, FAP Test vs Not-FAP | p-value, FAP Control vs Not-FAP |
|---|---|---|---|---|---|---|
| Men | FAP Test | 12.5 | <0.01 | 0.46 | <0.01 | <0.01 |
| | FAP Control | 7.8 | | | | |
| | Not-FAP | 1.7 | | | | |
| Women | FAP Test | 11.0 | <0.01 | 0.59 | <0.01 | <0.01 |
| | FAP Control | 8.5 | | | | |
| | Not-FAP | 2.7 | | | | |
| Men and Women | FAP Test | 11.4 | <0.01 | 0.38 | <0.01 | <0.01 |
| | FAP Control | 8.2 | | | | |
| | Not-FAP | 2.1 | | | | |

### (5) APFT Total Points

Table 43 shows the APFT total points for the three groups. On Weeks 1 and 3 the Not-FAP scored more points than the FAP Control.

The groups improved their performance from Weeks 5 to 7 and the lack of an interaction effect in the ANOVA showed that this improvement was similar in all the groups. On Weeks 5 and 7, the FAP Test and Control scored a similar number of points ($p=0.93$ for men and $p=0.49$ for women). The Not-FAP scored more points than either of the other 2 groups ($p<0.01$ for both men and women).

Table 43. APFT Total Points of the 3 Groups

| Gender | Week | Group | Mean | SD | 2-Way ANOVA p-values[a] | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Groups | Weeks | Groups by Weeks | p-value[c] FAP Control vs Not FAP |
| MEN | Week 1 | FAP Test | --- | --- | | | | <0.01 |
| | | FAP Control | 103 | 34 | | | | |
| | | Not-FAP | 150 | 48 | | | | |
| | Week 3 | FAP Test | --- | --- | | | | <0.01 |
| | | FAP Control | 133 | 43 | | | | |
| | | Not-FAP | 179 | 45 | | | | |
| | Week 5 | FAP Test | 158 | 39 | | | | |
| | | FAP Control | 156 | 33 | | | | |
| | | Not-FAP | 198 | 40 | | | | |
| | Week 7 | FAP Test | 182 | 29 | <0.01 | <0.01 | 0.89 | |
| | | FAP Control | 177 | 27 | | | | |
| | | Not-FAP | 219 | 33 | | | | |
| WOMEN | Week 1 | FAP Test | --- | --- | | | | <0.01 |
| | | FAP Control | 82 | 37 | | | | |
| | | Not-FAP | 125 | 57 | | | | |
| | Week 3 | FAP Test | --- | --- | | | | <0.01 |
| | | FAP Control | 128 | 43 | | | | |
| | | Not-FAP | 159 | 54 | | | | |
| | Week 5 | FAP Test | 144 | 54 | | | | |
| | | FAP Control | 155 | 37 | | | | |
| | | Not-FAP | 189 | 50 | <0.01 | <0.01 | 0.50 | |
| | Week 7 | FAP Test | 177 | 38 | | | | |
| | | FAP Control | 186 | 30 | | | | |
| | | Not-FAP | 218 | 39 | | | | |

[a]From 2-Way ANOVA.
[c]From t-test comparing FAP Test and Control on Weeks 1 and 3

### d. Injury Outcomes

#### (1) Person-Time Injury Incidence Rates

Table 44 shows the person-time injury incidence rates for the 3 groups. For all indices, the Not-FAP had a lower injury rate than either the FAP Test or FAP Control. Among the men, the FAP Control had lower injury rates than the FAP Test for the TII, CII and OII. However, the FAP Test had a lower injury rate on the III, EIII and AII. Among the women, the FAP Control had lower injury rates than the FAP Test for all six indices.

Table 44. Person-Time Injury Incidence Rates (injuries/1000 trainee-days) for the 3 FAP Groups

| Injury Index | Group | Men | Women |
|---|---|---|---|
| Installation Injury Index | FAP Test | 5.60 | 11.40 |
| | FAP Control | 5.92 | 8.95 |
| | Not-FAP | 4.03 | 8.10 |
| Expanded Installation Injury Index | FAP Test | 5.68 | 11.66 |
| | FAP Control | 5.92 | 8.95 |
| | Not-FAP | 4.17 | 8.21 |
| Training Injury Index | FAP Test | 5.11 | 10.37 |
| | FAP Control | 4.37 | 8.39 |
| | Not-FAP | 2.74 | 6.81 |
| Comprehensive Injury Index | FAP Test | 6.81 | 12.18 |
| | FAP Control | 5.94 | 9.33 |
| | Not-FAP | 4.35 | 8.29 |
| Overuse Injury Index | FAP Test | 4.54 | 9.59 |
| | FAP Control | 4.37 | 7.65 |
| | Not-FAP | 2.98 | 6.93 |
| Acute Injury Index | FAP Test | 1.14 | 2.27 |
| | FAP Control | 1.29 | 1.03 |
| | Not-FAP | 0.58 | 0.40 |

**(2) Univariate Analysis of Injury Risk.** Table 45 shows the univariate Cox regression analyses of injury risk using the Not-FAP as the reference group. In general, injury risk tended to be higher for the FAP Test and Control compared to the Not-FAP.

Table 45. Univariate Cox Regression Results for the Six Injury Indices For the Three FAP Groups

| | | Men | | | Women | | |
|---|---|---|---|---|---|---|---|
| | | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio[a] | 95% CI[b] | p-value[c] |
| Installation Injury Index | FAP Test | 1.51 | 0.82-2.86 | 0.19 | 1.41 | 1.02-1.92 | 0.04 |
| | FAP Control | 1.61 | 1.05-2.46 | 0.03 | 1.17 | 0.87-1.58 | 0.31 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Expanded Installation Injury Index | FAP Test | 1.46 | 0.78-2.74 | 0.24 | 1.43 | 1.05-1.95 | 0.03 |
| | FAP Control | 1.54 | 1.01-2.37 | 0.05 | 1.15 | 0.85-1.56 | 0.36 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Training Injury Index | FAP Test | 2.05 | 1.05-4.00 | 0.04 | 1.56 | 1.12-2.17 | <0.01 |
| | FAP Control | 1.68 | 1.02-2.77 | 0.04 | 1.28 | 0.94-1.78 | 0.12 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Comprehensive Injury Index | FAP Test | 1.71 | 0.96-3.05 | 0.07 | 1.54 | 1.13-2.09 | <0.01 |
| | FAP Control | 1.48 | 0.97-2.26 | 0.07 | 1.19 | 0.89-1.60 | 0.25 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Overuse Injury Index | FAP Test | 1.60 | 0.79-3.24 | 0.20 | 1.39 | 0.99-1.95 | 0.06 |
| | FAP Control | 1.54 | 0.94-2.53 | 0.09 | 1.15 | 0.83-1.60 | 0.39 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Acute Injury Index | FAP Test | 2.24 | 0.88-5.70 | 0.34 | 1.65 | 0.58-4.74 | 0.35 |
| | FAP Control | 2.01 | 0.49-8.35 | 0.09 | 1.21 | 0.42-3.48 | 0.72 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |

[a]Reference Group is Not-FAP [b]CI=confidence interval [c]From Wald statistic

Table 46 shows the univariate Cox regression analyses of injury risk comparing only the FAP Test and Control and using the FAP Control as the reference group (i.e., risk ratio=1.0). For the men, the injury indices tended to cluster around a risk of 1.0 indicating little difference between the groups. None of the p-values indicated a high probability of a difference between the groups. For the women, the FAP Test group tended to have higher injury risk than the FAP Control but as with the men, none of the p-values indicated a high probability of group differences.

Table 46. Univariate Cox Regression Results for the Six Injury Indices For FAP Test and FAP Control Trainees

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio[a] | 95% CI[b] | p-value[c] |
| Installation Injury Index | 0.93 | 0.44-1.95 | 0.84 | 1.21 | 0.80-1.82 | 0.35 |
| Expanded Installation Injury Index | 0.93 | 0.44-1.95 | 0.84 | 1.26 | 0.84-1.89 | 0.26 |
| Training Injury Index | 1.20 | 0.54-2.70 | 0.65 | 1.43 | 0.91-2.25 | 0.12 |
| Comprehensive Injury Index | 1.14 | 0.56-2.28 | 0.72 | 1.31 | 0.88-1.96 | 0.18 |
| Overuse Injury Index | 1.03 | 0.44-2.38 | 0.95 | 1.21 | 0.77-1.89 | 0.40 |
| Acute Injury Index | 0.89 | 0.17-4.58 | 0.89 | 1.40 | 0.34-5.58 | 0.64 |

[a]FAP Control/FAP Test
[b]CI=confidence interval
[c]From Wald statistic

### (3) Multivariate Analysis of Injury Risk

Table 47 shows the results of the multivariate Cox regression comparing the three groups and including age, BMI, and the 3 events from the Initial Fitness Assessment in the regression model. The Not-FAP served as the reference group and the injury risks in the FAP Test and Control are expressed relative to the Not-FAP group. In general, the injury risk in the FAP Test and Control groups are only slightly elevated above that of the Not-FAP indicating that injury risk is very similar in all three groups with the other covariates in the regression model.

Table 47. Multivariate Cox Regression Results for the Six Injury Indices For the Three FAP Groups

| | | Men | | | Women | | |
|---|---|---|---|---|---|---|---|
| | | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio[a] | 95% CI[b] | p-value[c] |
| Installation Injury Index | FAP Test | 1.07 | 0.53-2.14 | 0.84 | 1.00 | 0.69-1.44 | 0.99 |
| | FAP Control | 1.01 | 0.41-2.01 | 0.96 | 0.95 | 0.68-1.32 | 0.75 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Expanded Installation Injury Index | FAP Test | 1.04 | 0.52-2.07 | 0.92 | 1.02 | 0.71-1.47 | 0.91 |
| | FAP Control | 1.10 | 0.74-2.05 | 0.45 | 0.94 | 0.67-1.31 | 0.71 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Training Injury Index | FAP Test | 1.16 | 0.69-3.08 | 0.31 | 1.17 | 0.80-1.72 | 0.41 |
| | FAP Control | 1.15 | 0.89-2.53 | 0.24 | 1.06 | 0.75-1.51 | 0.73 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Comprehensive Injury Index | FAP Test | 1.11 | 0.64-2.27 | 0.56 | 1.08 | 0.76-1.54 | 0.67 |
| | FAP Control | 1.14 | 0.79-1.96 | 0.35 | 0.97 | 0.70-1.34 | 0.84 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Overuse Injury Index | FAP Test | 1.21 | 0.55-2.66 | 0.64 | 0.89 | 0.60-1.33 | 0.57 |
| | FAP Control | 1.22 | 0.84-2.38 | 0.29 | 0.90 | 0.62-1.29 | 0.55 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |
| Acute Injury Index | FAP Test | 1.62 | 0.56-9.25 | 0.12 | 1.74 | 0.52-5.85 | 0.37 |
| | FAP Control | 1.25 | 0.79-7.36 | 0.25 | 1.11 | 0.37-3.35 | 0.85 |
| | Not-FAP | 1.00 | --- | --- | 1.00 | --- | --- |

[a]Reference Group is Not-FAP [b]CI=confidence interval [c]From Wald statistic

Table 48 shows the multivariate Cox regression results comparing the relative risk of injury in the FAP Test and Control subjects. The reference group is the FAP Control group. Age, BMI, and the 3 events from the Initial Fitness Assessment are included in the regression model. The relative risk of injury is similar in the FAP Test and Control groups.

Table 48. Multivariate Cox Regression Results for the Six Injury Indices For FAP Test and FAP Control Trainees

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | Risk Ratio[a] | 95% CI[b] | p-value[c] | Risk Ratio[a] | 95% CI[b] | p-value[c] |
| Installation Injury Index | 0.97 | 0.41-2.30 | 0.94 | 1.32 | 0.79-2.20 | 0.28 |
| Expanded Installation Injury Index | 0.97 | 0.41-2.30 | 0.94 | 1.31 | 0.79-2.16 | 0.30 |
| Training Injury Index | 1.19 | 0.46-3.07 | 0.72 | 1.22 | 0.72-2.07 | 0.47 |
| Comprehensive Injury Index | 1.22 | 0.53-2.78 | 0.64 | 1.33 | 0.81-2.17 | 0.26 |
| Overuse Injury Index | 0.99 | 0.37-2.66 | 0.99 | 1.10 | 0.63-1.90 | 0.75 |
| Acute Injury Index | 1.52 | 0.05-47.98 | 0.81 | 2.74 | 0.39-19.20 | 0.31 |

[a]FAP Control/FAP Test [b]CI=confidence interval [c]From Wald statistic

### (4) PTRP Injuries

Table 49 shows the proportion of trainees sent to the PTRP in each FAP category. Differences between the FAP Test and Control were not statistically significant, especially after men and women were combined. The Not-FAP tended to have a smaller proportion of PTRP injuries than the FAP Test, especially after men and women were combined. The Not-FAP men and the FAP Control men tended to have a similar proportion of PTRP injuries. This was not true for the women and when men and women were combined the FAP Control had a larger proportion of PTRP injuries than the Not-FAP.

Table 49. PTRP Injuries

| | | Proportion (%) | p-value, all 3 groups[a] | p-value, FAP Test vs FAP Control[a] | p-value FAP Test vs Not-FAP[a] | p-value, FAP Control vs. Not FAP[a] |
|---|---|---|---|---|---|---|
| Men | FAP Test | 6.3 | <0.01 | 0.21 | 0.07 | 0.90 |
| | FAP Control | 1.6 | | | | |
| | Not-FAP | 1.8 | | | | |
| Women | FAP Test | 8.2 | 0.08 | 0.76 | 0.18 | 0.04 |
| | FAP Control | 9.6 | | | | |
| | Not-FAP | 4.7 | | | | |
| Men and Women | FAP Test | 7.6 | <0.01 | 0.68 | <0.01 | 0.02 |
| | FAP Control | 6.3 | | | | |
| | Not-FAP | 2.9 | | | | |

[a]From chi-square test of proportions

## 8. DISCUSSION

The SG that used the TRADOC Standardized Physical Training Program had more favorable outcomes than the NSG that used a traditional physical training program. When FAP Test personnel were eliminated from the analysis, the SG had lower injury risk, a higher APFT pass rate at Week 7, and a higher APFT pass rate after all APFT retakes had been completed. There were no differences in attrition between the SG and NSG.

With regard to the analysis of the FAP, the FAP Control group that physically trained prior to BCT had less BCT attrition than the FAP Test group that did not physically train prior to BCT. Compared to the FAP Test group, the FAP Control group tended to have a higher APFT pass rate at Week 7 and after all APFT retakes but the differences were not statistically significant. Due to attrition, only 63% of the FAP Test group was present for the Week 7 APFT compared to 84% of the FAP Control group. The FAP Control group tended to have a lower injury risk compared to the FAP Test group but this was not statistically significant.

### a. TRADOC Standardized Physical Training Program

Although the FAP Test personnel made up only 6% and 18% of the SG men and women, respectively, they contributed to significantly higher attrition in the SG compared to the NSG. This higher attrition in the SG resulted in fewer FAP Test personnel who were still in BCT when the Week 5 and Week 7 APFTs were administered. The attrition of these lower fit individuals partly accounted for the similar overall performance of the SG and NSG on these 2 APFTs. The NSG and SG did not differ on the proportion of trainees who passed the APFT at Week 7 or after all retakes. Injury risk was still lower in the SG even with the FAP Test personnel included in the analysis.

The remainder of this section of the Discussion focuses on findings with the FAP Test personnel removed from the analysis. This type of analysis provides a more reasonable evaluation of the TRADOC Standardized Physical Training Program by itself. Inclusion of the FAP would tend to disadvantage the SG since lower fit individuals were shown to have higher injury rates and greater attrition in the present study as well as in past studies (8,11,12,20,22,25,26,38,53).

#### (1) Physical Fitness Changes

The training days that the APFTs were administered were almost identical for the SG and NSG. This indicated that both groups were tested at similar times in their BCT programs. There were initial differences between the NSG and SG on PU performance, but these differences were small (2 PUs for both genders) and covariance analysis was used to adjust in subsequent analysis. There were no initial group differences on SUs or the 1-mile run.

After adjusting for the initial group differences in PU performance, the SG still demonstrated higher PU performance than the NSG at Weeks 5 and 7. A past BCT investigation evaluated a program similar to the one tested here but that earlier program deemphasized PU training (23,24). In this past evaluation, the PU performance of the group using the special program was lower than that of a group using a traditional program. In the present evaluation, more emphasis was placed on PU training since PUs were included in both Conditioning Drills 1 and 2. This greater emphasis on PU training probably accounted for the higher PU performance of the SG. It should be noted that the NSG placed emphasis on the APFT test items also.

The SU performance of the NSG was higher than that of the SG at Week 5. However, by Week 7 the performances of the SG and NSG were almost identical for both men and women. On the 2-mile run there were some gender differences. Run performances of the NSG and SG men were almost identical at Weeks 5 and 7. On the other hand, the SG women were running an average of 0.6 minutes faster than

the NSG women at Week 5. By Week 7, the SG was only an average 0.2 minutes faster than the NSG women. But overall, by Week 7 the 2-mile run performances of the SG and NSG were very similar for both genders.

The similar Week 7 2-mile run performances of the SG and NSG appear to have been achieved with fewer total running miles on the part of the SG. The SG running mileage was estimated from the training schedules. Estimated distances for the A and D Ability Groups were 39 and 26 miles, respectively. Examination of training schedules and conversations with the training company of the NSG suggested a total run distance of 44 and 34 miles for Groups A and D, respectively. Thus, the SG Ability Group D ran an estimated 8 fewer miles (31% less) while the SG Ability Group A ran an estimated 5 fewer miles (13% less) over the course of BCT.

Speed running performed by SG trainees probably assisted in improving APFT run speed in the face of this reduced total running mileage. Speed running is referred to as interval training in the general exercise physiology literature (5,54). Interval training has been shown to result in greater improvements in running speed than long-distance running alone, especially in sedentary and recreationally active individuals (30).

The proportion of trainees passing the APFT at Week 7 was higher in the SG than in the NSG. This was probably accounted for by superior raw score performance on the PU since the group differences on SU and the 2-mile run were small. Raw score performance should reflect pass/fail success in this cohort because there was no age difference between the two groups (the passing criteria are adjusted for age (1)). Had there been age differences, the group with younger individuals would have needed to achieve a higher raw score to pass the test.

The difference in the Week 7 APFT pass rates of the SG and NSG was 4.0% (men and women combined). While this difference appears to be small, it means that 40 more trainees passed the test, assuming a 1000 trainee battalion. The difference in the final APFT pass rate after all retakes between the SG and NSG was 1.6% (men and women combined). This represents 16 fewer trainees sent to the APFTEP assuming a 1000 trainee battalion.

**(2) Injuries**

Virtually all injury indices were lower in the SG. Person-time injury incidence rates and the univariate analysis of injury risk by Cox regression all showed lower injury rates and risks in the SG. Even when age, BMI, and initial fitness were included in a multivariate analysis the SG still had lower injury risk on all indices except for All among the men. In a previous evaluation of a BCT physical training program similar to the one tested here, overuse injuries were reduced but acute

(traumatic) injuries were not (23,24). Overuse injuries are those that result in tissue breakdown in association with the repetitive use of a body part. Examples include inflammatory injuries (stress fractures, fasciitis, tendonitis) that might occur in association with the repetitive use of the feet in running or inflammatory injuries occurring in the arms and associated with repetitive PUs. Acute (traumatic) injuries are those due to a sudden overload event. Examples include an ankle sprain that occurs after stepping in a hole during a road march or a fracture that results from a fall from a tower. It appears that the training program here was more successful in reducing overuse injuries among the men compared to acute (traumatic) injuries.

The lower injury rates in the SG may be associated with certain characteristics of the physical training program that include 1) a lower total amount of running, 2) the gradual, progressive introduction of exercise stress, and 3) the greater variety of exercise in the program. As noted above, the SG ran fewer miles than the NSG. Numerous studies have demonstrated an association between higher injury rates and longer running distances (13,27,28,33,39,44,49). Studies in Army, Navy, and Marine basic training have demonstrated that groups with lower running mileage have lower injury rates and that groups running fewer miles show improvements in run times similar to those running much longer distances (13,44,49).

Speed running (interval training) was a key feature of the TRADOC Standardized PT Program. A number of studies (23,24,37,42) suggest that increasing training time devoted to interval training while reducing time devoted to distance running can assist in reducing injuries in BCT. However, all these previous studies were confounded with multiple interventions making it difficult to determine the effectiveness of interval training alone. A past study using a training program similar to the one used in the present study in BCT demonstrated a reduction in injuries in association with a reduction in running mileage and the introduction of interval training (23,24).

Another feature of the TRADOC program that may have influenced injury rates was the gradual introduction of the exercises following the principle of progressive overload (34). In the present study the training drills were introduced slowly and the number of repetitions increased gradually over the training sessions. Running mileage was gradually increased as was the number of repetitions in the interval training (See Appendix H). It should be noted that while the principle of progressive overload has widespread endorsement among trainers and exercise physiologists (2,34,54), there is no study that demonstrates that this technique reduces injuries. One study that partially supports this concept was conducted in Combat Medic AIT training and was reviewed in detail in the Background section of this paper. This study showed that the gradual, progressive introduction of running resulted in fewer profiles and fewer clinic visits than a more sudden introduction of running mileage (41). However, the total mileage in the program was also reduced

making it difficult to partition out the effects of the progressive overload training alone.

A final physical training-related factor that may partially account for the lower overuse injury incidence in the SG group was the variety of exercises in the program. There are no studies indicating that a greater variety of exercise will reduce injuries, but sports medicine professionals often recommend "cross-training" for this purpose (47). The cross-training concept simply involves alternating different types of exercises on different days. Exercises are "different" in the sense that they involve different energy systems (i.e., aerobic, anaerobic) or different body parts. Reducing the repetitive use of particular energy systems or different body parts may allow more time for recovery and reduce the probability of overuse injuries. The TRADOC program involved calisthenics in most sessions but alternated days for the other types of exercises.

**(3) Physical Fitness Testing**

APFTs were administered 4 times in the NSG, as is the case with most traditional BCT physical training programs. There were only 2 APFTs administered by the SG and a higher APFT pass rate was achieved by this group. These results suggest that the usual process of administering 4 APFTs is not necessary if the goal is to pass as many trainees as possible on the APFT. The prescriptive nature of the TRADOC Standardized program and the success it demonstrated appears to reduce the need for additional fitness evaluations. The 1/1/1 test administered at the start of training appears to be adequate to provide an evaluation of initial fitness and alert trainers to unusual situations where they might receive a group of trainees that have very low fitness levels.

Not only did the SG have fewer fitness tests, they were also less intense. The SG had 4 tests, 2 of which were APFTs and 2 of which were 1/1/1/ tests. The NSG had a total of 5 fitness tests, 4 of which were APFTs and one of which was a 1/1/1 test. The additional maximal effort tests and their more intensive nature could have played a role in the higher injury rate in the NSG. As noted above, a number of training studies indicate that as running distance increases, the number of injuries increase. Some studies also suggest that more intense running increases the number of injuries (33,43) but the total distance appears to be a more important factor than intensity (13)

**b. FAP Evaluation**

FAP Test trainees were nested within the group undergoing the TRADOC program Standardized Physical Training Program because of a desire on the part of the TRADOC leadership to test the new physical training program without the additional training that is normally conducted in the FAP. It was expected that

certain characteristics of the new program along with an administrative change might serve to reduce attrition and lower injuries in low-fit trainees. The administrative change was to take the Reception Station Physical Fitness Test at Week 2 of BCT. Those failing the test at Week 2 would enter the FAP and the number of trainees in this unit could be reduced.

However, as seen in Table 38 only 28% of the FAP Test group passed the Week 2 test meaning that 72% of these trainees would have entered the FAP. No one was actually returned to the FAP in the evaluation phase of this investigation because during the pilot phase sending Week 2 failures to the FAP caused considerable disruption of the training mission. Most of those returned to the FAP at Week 2 passed the test within a few days. Rather than have these individuals enter a new BCT unit, they were accepted back into their original units. However, there was some lost training time along with the administrative trouble of moving the trainee to the FAP unit and back to the training unit.

It is interesting that a large proportion of the FAP Control and Not-FAP failed the Week 2 test. The total number of failures in all 3 FAP groups was over 3-fold higher than the number of trainees who actually failed the test in the Reception Station (i.e., FAP Test trainees). The reasons for this are not clear but may relate to the fact that the Week 2 test was not conducted in exactly the same manner as in the Reception Station. No "pacers" or "chasers" were provided for the 1-mile run, the single event that was failed by the largest number of trainees in this evaluation (data not shown). Also, the PU and SU events were administered as maximal effort tests (trainees performed as many as they could) rather than "to the standard" as it is conducted at the Reception Station. Finally, by the time the Week 2 was administered, the decision had been made not to send failures to the FAP (because of the pilot phase results) and this may have reduced the motivation of lower-fit trainees to meet the minimum standards. Because of these differences, this may not have been an adequate evaluation of this concept.

### (1) Training Outcomes

The most significant finding from the FAP evaluation was the fact that the FAP Test group had less favorable training outcomes than the FAP Control and Not-FAP. FAP Test personnel were 1.5 times less likely to complete BCT than Not-FAP personnel (men and women combined). FAP Control personnel were only 1.1 times less likely to complete training compared to the Not-FAP (men and women combined). All types of outcomes were less favorable for the FAP Test group including newstarts, discharges, and APFT failures (APFTEP). Attrition was higher among FAP Test personnel regardless of the reason for newstarting (PTRP, motivational, and missed training) or being discharged (ELS, EPTS). On the other hand, there were a similar proportions of FAP Controls and Not-FAPs that were

newstarted or discharged. This indicates that the training program in the FAP was successful in reducing attrition for these reasons.

The one unfavorable training outcome for the FAP Control group was final APFT failures. The FAP Control group sent a larger proportion of trainees to the APFTEP than the Not-FAP but a somewhat smaller proportion than the FAP Test group. Individuals who fail the Reception Station Physical Fitness Test obviously demonstrate their low physical fitness on entry to service. The FAP is only designed to increase the fitness to the minimal standards of the Reception Station Fitness Test. While in BCT, recruits received physical training designed to improve their physical fitness. However, both initial training status and genetic endowment play a role in the adaptive response to a physical training program. Past studies have shown that individuals engaged in exercise programs of virtually identical frequency, intensity, and duration show great variations in improvements in aerobic power, endurance performance (3,10,32), and anaerobic capacity (45). Groups with low initial aerobic fitness are those most likely to show the largest relative and absolute improvements in aerobic power (35,50,52) and this may also be the case for absolute muscular endurance (29) and other components of fitness (55). However, some studies suggest that some individuals with low initial aerobic power also demonstrate small absolute changes in performance (10,50), possibly due to heritable factors (3,14,36,40). Thus, a small proportion of individuals may have difficulty meeting the minimum passing standards on the APFT even with training, presumably due to low initial fitness combined with lower genetically-related trainability.

The FAP company in the Reception Station provided us with a list of trainees who were discharged from among the recruits who entered the FAP while the NSG was filling for BCT. This included 3 men and 10 women. A comparison of the FAP Test and Control groups was made with these additional 13 discharges included in the analysis. Assuming that those discharged in the FAP would have been discharged in BCT, this is roughly equivalent to asking what the discharge rate would have been if FAP Controls had not participated in the FAP. Results are shown in Table 50. There are no significant differences between the groups. This suggests that attrition in BCT would have been similar in the FAP Control group had they not had the benefit of the FAP.

Table 50. Comparison of FAP Test and Control Groups with FAP Discharges Included in the FAP Control Group

| Gender | Group | Proportion Discharged (%) | p-value[a] |
|---|---|---|---|
| Men | FAP Test | 18.8 | 0.29 |
| | FAP Control | 10.9 | |
| Women | FAP Test | 21.9 | 0.94 |
| | FAP Control | 22.3 | |

[a]From chi-square statistic

A major advantage of the FAP appears to be its ability to "screen" out trainees before they enter BCT. Conversations with drill sergeants, company commanders, a battalion commander, and 2 brigade commanders revealed an appreciation for this screening function and virtually everyone placed great value in the FAP for this reason. This support was anecdotal since no comparison of FAP participants and non-participants had previously been conducted. No one we talked to desired to move attrition "downrange" into the BCT training unit. Everyone who had an opinion on the issue desired to retain the FAP.

It may be possible to have a physical fitness test at an earlier point in the accessions process than the Reception Station. Physical fitness testing as part of the recruiting process has been suggested in a number of reports as a possible way of reducing early attrition from the military (6,7,9,46,48,51). In fact, in 1998, the General Accounting Office (GAO) recommended a fitness evaluation prior to BCT and the Department of Defense concurred with this recommendation (7). It is our understanding that the U.S. Army Recruiting Command is considering implementation of a pre-accession physical fitness screen at the time of the publication of this report. The form this test would take is not clear at this time. How this will affect the recruiting process would have to be determined but cost saving may be realized by disqualifying potential recruits with very low physical capability even before they enter the BCT Reception Station.

### (2) Physical Fitness

One problem with determining changes in fitness in the 3 FAP groups is that only trainees who took the test could be evaluated. On the final APFT (Week 7) substantially fewer FAP Test personnel took the APFT because of attrition in this group. In fact, trainees in the FAP Test group were 1.4 times less likely to take the Week 7 APFT compared to the Not-FAP group. The proportion of FAP Controls taking the test was almost identical to the Not-FAP.

On the Initial Fitness Assessment, the FAP Test group had lower fitness than the other 2 groups. This difference was minimal on PUs but much larger for the SUs and the 1-mile run. The higher initial fitness of the FAP Control group relative to the Not-FAP would be expected since this group had an average of about 18 days of physical training in the FAP before starting BCT (Appendix J). However, the 18 days of training did not result in fitness equivalence between the FAP Control and Not-FAP.

On the Week 2 test, the 3 groups retained their relative ranks with regard to the test scores: the Not-FAP demonstrated the highest performance, the FAP Control the second highest, and the FAP Test the lowest. All groups showed similar absolute improvements in performance. On the Week 5 and Week 7 APFT, the FAP

Test personnel who did not suffer attrition performed about as well as the FAP Control group, although neither group performed as well as the Not-FAP. APFT pass rates at Week 7 and APFT pass rates after all retakes were also similar in the FAP Test and Control trainees, although not as high as the Not-FAP group.

The results generally confirm an earlier investigation (21) that examined differences between an FAP Control and Not FAP group of men. In this study the fitness levels of the FAP Control men at the start of training were lower than the Not-FAP group, absolute improvements were about the same, and at the end of training final fitness levels of the FAP Control were still lower than that of the Not-FAP.

**(3) Injuries**

Injury risk in the FAP Test and Control groups were uniformly higher than for the Not-FAP. When the FAP Test and Control were compared, there were no differences in injury risk among the men; FAP Test women tended to have higher injury rates than the FAP Control but this was not statistically significant. Thus, there did not appear to be a very large difference in injury risk between the FAP Test and Control cohorts.

The results generally confirm those of an earlier study (21). In this previous study, FAP Control and Not-FAP women who had similar aerobic fitness at the start of training also had similar injury rates during training. FAP Control men, who had lower aerobic fitness and higher injury rates when compared to Not-FAP men, had higher injury rates during training. In the present study, both FAP Control men and women had lower fitness and higher injury rates than their respective Not-FAP groups. It has been demonstrated in numerous studies that low physical fitness is a risk factor for injuries in BCT (8,11,12,22,25,26,38,53). The present study emphasizes this fact by showing higher injury risk in the least fit trainees. Apparently, the initial fitness differences between the FAP Test and Control groups were not large enough to result in a large difference in injury risk.

The present evaluation may suggest that aerobic fitness at the start of BCT is a more important factor in injury risk than is physical training per se. Trainees were in the FAP an average of about 18 days and received about 16 days of training (physical training was conducted 6 days per week). This training period was not sufficient to bring the FAP Control group to the same level of fitness as the Not-FAP at the start of training. This lower fitness level was associated with higher injury risk despite the physical training. In the past study (21), when initial fitness levels were similar, BCT injury rates were similar. It would be of interest to bring the aerobic fitness level of FAP trainees up to the average level of all recruits and examine injuries subsequently.

Another study that examined pre-conditioning of trainees before basic training was conducted in the Singapore Army and was reviewed in detail in the Background section of this paper (31). This study examined only medically-related attrition. Medically-related attrition was defined as an injury or illness that disqualified the recruit from training, or an injury or illness that resulted in medical leave for 14 days or more. The study found that individuals who failed an initial physical fitness test and participated in a 4-6 week physical conditioning program had lower medical attrition (6.9%) than those who failed the test, did not participate in the conditioning program, and had a longer BCT cycle (13.4%). Those participating in the conditioning program still had higher medical attrition rates than those passed the test and went on directly to BCT (3.7%).

To do a partial comparison of the results of the present study with those of Lee et al. (31), we defined medical attrition as a discharge for an EPTS condition or being sent to the PTRP. We calculated the proportion attriting for these reasons in each group and compared these proportions. Table 51 shows the results. The highest medical attrition rate is in the group who failed the test and went directly on to BCT (FAP Test group) while those who participated in the conditioning program (FAP Control group) had lower attrition. The results generally support the finding of Lee et al. (31) but caution must be exercised in making direct comparisons. The groups in the two studies are somewhat different, American and Singapore basic training are conducted differently, our definition of medical attrition was not exactly the same as that of Lee et al., and the lengths of physical conditioning program and basic training programs differed.

Table 51. Attrition from BCT for Medically-Related Reasons

| | Proportion Attriting (%) | p-value[a], all 3 groups | p-value[a], FAP Test vs FAP Control | p-value[a], FAP Test vs Not-FAP | p-value[a], FAP Control vs. Not FAP |
|---|---|---|---|---|---|
| FAP Test | 15.2 | <0.01 | 0.21 | <0.01 | 0.11 |
| FAP Control | 10.1 | | | | |
| Not-FAP | 6.7 | | | | |

[a]From chi-square test

### (4) Other Considerations

Lower initial fitness levels may not influence overall attrition to the same extend as fitness influences injuries. In the past study (21) the FAP Control men with lower initial fitness had higher attrition than the Not-FAP men. The FAP Control women with aerobic fitness similar to the Not-FAP women had similar attrition. In the present study, lower initial fitness among the FAP Control men and women was associated with attrition similar to the Not-FAP. Attrition from BCT can be due to many factors and these mixed results may reflect this fact.

We cannot discount changes that may have occurred in the FAP over time that may have influenced comparisons with our previous study (21). Our previous study was conducted in the Summer of 1998 while the present evaluation was conducted in the Spring of 2003. In the Summer of 1998, the FAP and the PTRP were combined under a single command while in the Spring of 2003 there were separate PTRP and FAP companies. The FAP company was dedicated to physical fitness testing and training and was responsible for the Initial Reception Station Physical Fitness Test, the FAP, and the APFTEP. The PTRP company contained only injured trainees and was responsible for their recovery. Changes may have occurred in how FAP training was conducted but because of cadre turnover there was no historical memory of these changes. Changes had definitely occurred in the testing procedures used for the Reception Station Physical Fitness Test and these have been outlined in the Background section.

## 9. RECOMMENDATIONS

1. Adopt the new TRADOC Standardized PT Program for BCT. Companies using the program demonstrated a higher APFT pass rate, lower injury risk, and similar attrition when compared to a traditional PT program.

2. Retain the FAP. The largest advantage of the FAP appears to be that it serves as a prescreening for very low fit individuals and identifies those likely to drop out of BCT early in the process. It is possible to move this attrition into BCT but this would increase the administrative burden on the BCT companies and distract from the training mission. Further study could be conducted on the feasibility of conducting the fitness test as part of the recruiting process.

3. Continue to administer the Reception Station Physical Fitness Test at the Reception Station and do not move it to Week 2 of BCT until a more adequate test of this concept can be conducted. A more adequate test would involve conducting the test exactly as it is done in the Reception Station. The Week 2 assessment appears to cause disruption of the training mission.

4. Reduce the number of APFTs in BCT. Results showed that the usual process of administering 4 APFTs is not necessary. The 1/1/1 test administered here appears to be adequate to evaluate initial fitness with full APFTs administered on Weeks 5 and Week 7 of the BCT cycle.

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# Appendix B
## Changes to the Physical Training Program After the Pilot Phase

1. Eliminated stretching drills during warm-up. There is little evidence that pre-exercise stretching will reduce the incidence of injury (23).
2. Conducted 5 repetitions of Conditioning Drill 1 as a warm-up for every PT session
3. Conducted the movement drills on cardiorespiratory days
4. Added precision and specificity to Conditioning Drill 2
5. Eliminated LMU and Grass Drills
6. Modified speed running with 30:60s, 60:120s, and 300 yard Shuttle Run
7. Provided more explanation to the drill sergeants of ability group run and speed running charts
8. Provided drill cards that named each exercise for the convenience of the drill sergeants
9. Conducted The Corrective Action Drill
10. Provided additional training support by supplying a video and draft manual

# Appendix C. Conditioning Drill 1

## Conditioning Drill 1

## Exercise 1: The Bend and Reach

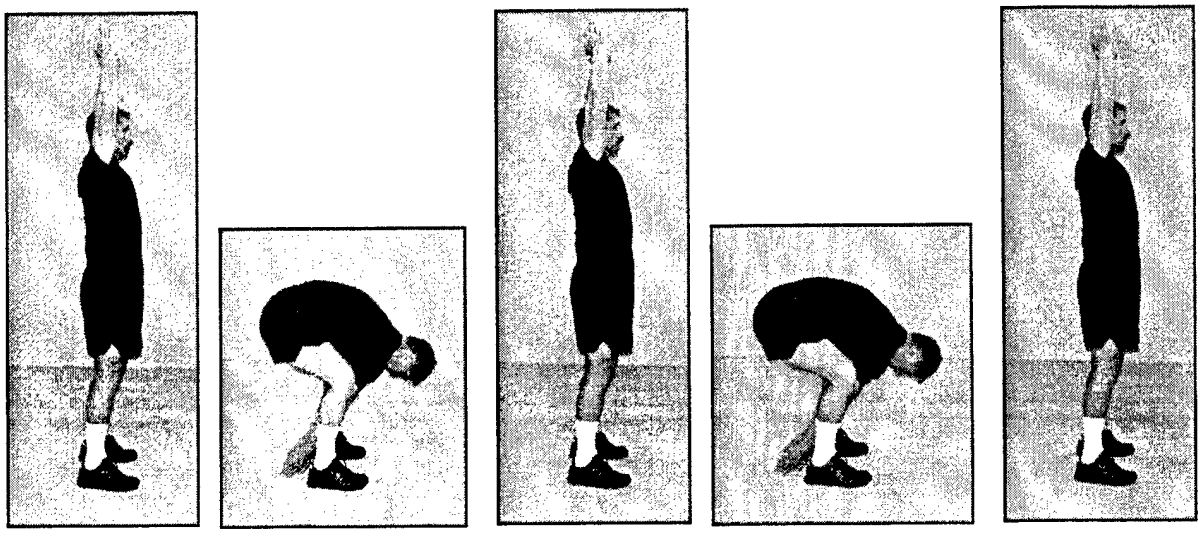
**Purpose:** This exercise develops the ability to squat and reach through the legs. It also serves to prepare the spine and extremities for more vigorous movements, moving the hips and spine through full flexion.

**Starting Position:** Straddle stance with arms overhead.

**Cadence:** Slow.

**Count:**

1. Squat with the heels flat as the spine rounds forward to allow the straight arms to reach as far as possible between the legs.
2. Return to the starting position.
3. Repeat count one.
4. Return to the starting position.



**Starting Position** **Count 1** **Count 2** **Count 3** **Count 4**

**Check Points:**

- From the starting position, ensure that soldiers have their hips set, their abdominals tight, and their arms fully extended overhead.
- The neck flexes to allow the gaze to the rear. This brings the head in line with the bend of the trunk.
- The heels and feet remain flat on the ground.
- On counts two and four, do not go past the starting position.

**Precautions:** To protect the back, **this exercise is always performed at a slow cadence.** Move into the count one position in a slow, controlled manner. Do not bounce into or out of this position in a ballistic manner, as this may place an excessive load on the back.

## Conditioning Drill 1

# Exercise 2: The Rear Lunge

**Purpose:** This exercise promotes balance, opens up the hip and trunk on the side of the lunge and develops leg strength.

**Starting Position:** Straddle stance with hands on hips.

**Cadence:** Slow.

**Count:**

1. Take an exaggerated step backward with the left leg, touching down with the ball of the foot.
2. Return to the starting position.
3. Repeat count one with the right leg.
4. Return to the starting position.

**Starting Position** **Count 1** **Count 2** **Count 3** **Count 4**

**Check Points:**

- ❑ Maintain straightness of the back by keeping the abdominal muscles tight throughout the motion.
- ❑ After the foot touches down, allow the body to continue to lower. This promotes flexibility of the hip and trunk.
- ❑ On counts one and three, step straight to the rear, keeping the feet directed forward. When viewed from the front, the feet maintain their distance apart both at the starting position and at the end of counts one and three.
- ❑ Keep the rear leg as straight as possible but not locked.

**Precautions:** On counts one and three, move into position in a slow, controlled manner. If the cadence is too fast, it will be difficult to go through a full range of motion.

## Conditioning Drill 1

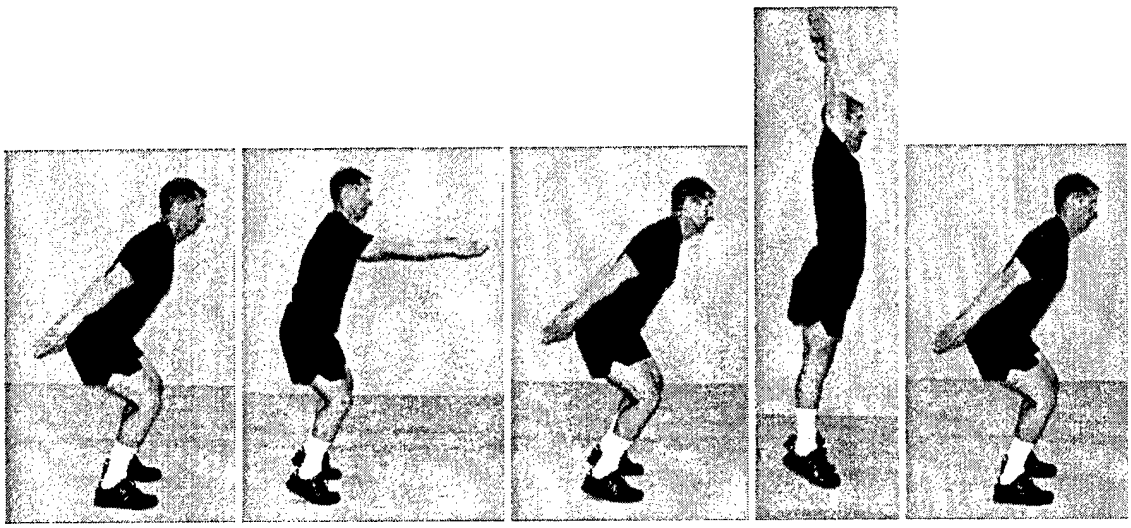
# Exercise 3: The High Jumper

**Purpose:** This exercise reinforces correct jumping and landing, stimulates balance and coordination, and develops explosive strength.

**Starting Position:** Forward Leaning Stance.
**Cadence:** Moderate.

**Count:**

1. Swing arms forward and jump a few inches.
2. Swing arms backward and jump a few inches.
3. Swing arms forward and vigorously overhead while jumping forcefully.
4. Repeat count two. On the last repetition, return to the starting position.



**Starting Position** **Count 1** **Count 2** **Count 3** **Count 4**

**Check Points:**

- ❑ At the starting position, the shoulders, the knees, and the balls of the feet should form a straight vertical line.
- ❑ On count one, the arms are parallel to the ground.
- ❑ On count three, the arms should be extended fully overhead. The trunk and legs should also be in line.
- ❑ On each landing, the feet should be directed forward and maintained at shoulder distance apart. The landing should be "soft" and proceed from balls of the feet to the heels. The vertical line from the shoulders through the knees to the balls of the feet should be demonstrated on each landing.

**Precautions:** N/A.

## Conditioning Drill 1

# Exercise 4: The Rower

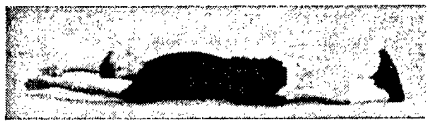
**Purpose:** This exercise improves the ability to move in and out of the supine position to a seated posture. It coordinates the action of the trunk and extremities while challenging the abdominal muscles.

**Starting Position:** Supine position, arms overhead, feet together and pointing upward. The chin is tucked and the head is 1-2 inches above the ground. Arms are shoulder-width, palms facing inward with fingers and thumbs extended and joined.

**Cadence:** Moderate.

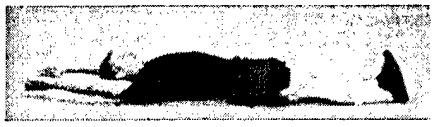
**Count:**

1. Sit up while swinging arms forward and bending at the hip and knees. At the end of the motion, the arms will be parallel to ground, palms facing inward.
2. Return to the starting position.
3. Repeat count one.
4. Return to the starting position.



**Starting Position**

**Count 1**



**Count 2**

**Count 3**

**Count 4**

**Check Points:**

- ❑ At the starting position, the low back must not be arched excessively off the ground. To prevent this, tighten the abdominal muscles to tilt the pelvis and low back toward the ground.
- ❑ At the end of counts one and three, the feet are flat and pulled near the buttocks. The legs stay together throughout the exercise and the arms are parallel to the ground.

**Precautions:** Do not arch the back to assume counts one and three.

## Conditioning Drill 1

# Exercise 5: The Knee Bender

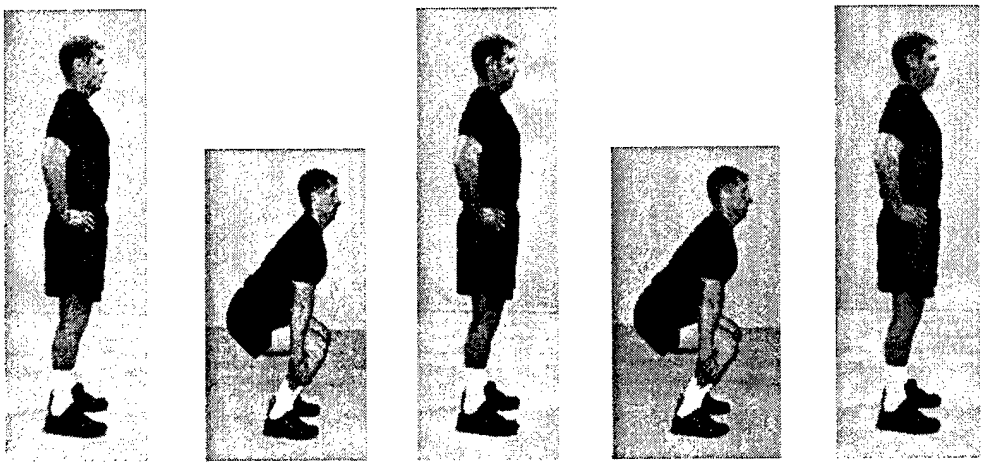
**Purpose:** This exercise develops strength, endurance and flexibility of the lower extremities.

**Starting Position:** Straddle stance with hands on hips.

**Cadence:** Moderate.

**Count:**

1. Squat while leaning slightly forward at the waist with the head up and slide the hands to the outside of the legs until the extended fingers reach the middle of the lower leg.
2. Return to the starting position.
3. Repeat count one.
4. Return to the starting position.



**Starting Position** **Count 1** **Count 2** **Count 3** **Count 4**

**Check Point:**

- ❑ At the end of counts one and three, the shoulders, knees and balls of the feet should be aligned. The heels remain on the ground and the back is straight.

**Precautions:** Soldiers who round their backs do not receive the full benefit of this exercise and may be placing their backs at risk for injury. Allowing the knees to go beyond the toes on counts one and three will increase stress to the knees.

## Conditioning Drill 1

# Exercise 6: The Windmill

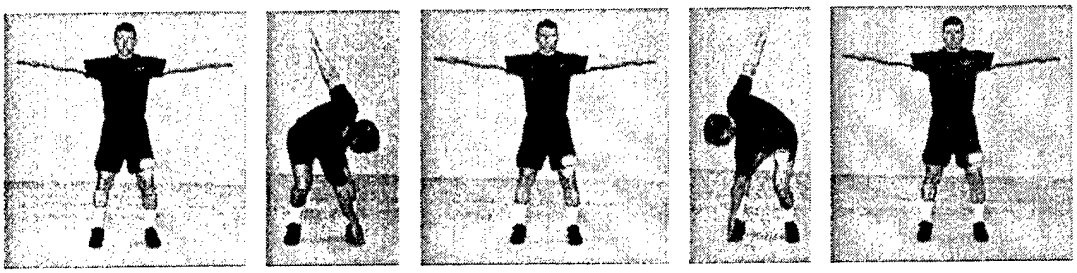
**Purpose:** This exercise develops the ability to safely bend and rotate the trunk. It conditions the muscles of the trunk, legs, and shoulders.

**Starting Position:** Straddle stance with arms sideward, palms facing down.

**Cadence:** Moderate.

**Count:**

1. Bend the hips and knees while rotating to the left. Reach down and touch the outside of the left foot with the right hand. The left arm is pulled rearward to maintain a straight line with the right arm.
2. Return to the starting position.
3. Repeat count one to the right.
4. Return to the starting position.



**Starting Position** **Count 1** **Count 2** **Count 3** **Count 4**

**Check Points:**

- From the starting position, feet are straight ahead, arms parallel to the ground, hips set, and abdominals tight.
- On counts one and three, ensure that the knees bend during the rotation. Head and eyes are directed to the left foot on count one and the right foot on count three.

**Precautions:** N/A.

## Conditioning Drill 1

# Exercise 7: The Forward Lunge

**Purpose:** This exercise promotes balance and develops leg strength.

**Starting Position:** Straddle stance with hands on hips.

**Cadence:** Moderate.

**Count:**

1. Take an exaggerated step forward with the left leg, allowing the left knee to bend until the thigh is parallel to the ground. Lean slightly forward, keeping the back straight.
2. Return to the starting position.
3. Repeat count one with the right leg.
4. Return to the starting position.

**Starting Position** **Count 1** **Count 2** **Count 3** **Count 4**

**Check Points:**

- Keep the abdominal muscles tight throughout the motion.
- On counts one and three, step straight forward, keeping the feet directed forward. When viewed from the front, the feet maintain their distance apart both at the starting position and at the end of counts one and three.
- On counts one and three, the rear knee may bend naturally but do not touch the ground. The heel of the rear foot should be off the ground.

**Precautions:** On counts one and three, move into position in a controlled manner. Spring off of the forward leg to return to the starting position. This avoids jerking the trunk to create momentum.

## Conditioning Drill 1

# Exercise 8: The Prone Row

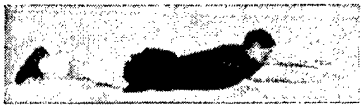
**Purpose:** This exercise develops strength of the back and shoulders.

**Starting Position:** Prone position with the arms overhead, palms down 1-2 inches off the ground and toes pointed to the rear.

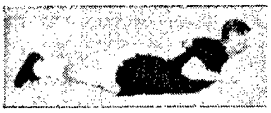
**Cadence:** Moderate.

**Count:**

1. Raise the head and chest slightly while lifting the arms and pulling them rearward. Hands make fists as they move toward the shoulders.
2. Return to the starting position.
3. Repeat count one.
4. Return to the starting position.



**Starting Position**



**Count 1**

**Count 2**

**Count 3**

**Count 4**

**Check Points:**

- ❑ At the starting position, the abdominal muscles are tight and the head is inline with the spine.
- ❑ On counts one and three, the forearms are parallel to the ground and slightly higher than the trunk.
- ❑ On counts one and three, the head is raised to look forward but not skyward.
- ❑ Throughout the exercise, the legs and toes remain in contact with the ground.

**Precautions:** Prevent overarching of the back by maintaining contractions of the abdominal and buttocks muscles throughout the exercise.

## Conditioning Drill 1

# Exercise 9: The Supine Bicycle

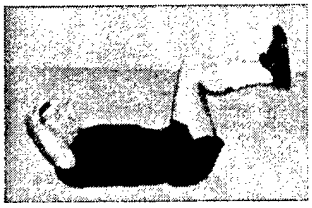
**Purpose:** This exercise strengthens trunk muscles and promotes control of trunk rotation.

**Starting Position:** Supine position with the hips and knees bent to 90-degrees. Hands on top of the head with fingers interlaced.

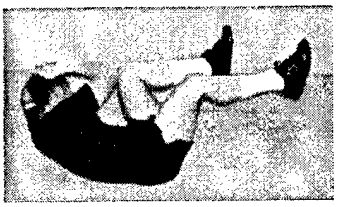
**Cadence:** Slow.

**Count:**

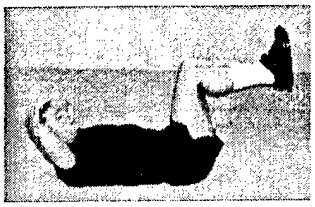
1. Raise the left knee toward the chest, slightly extending the right leg, while rotating the trunk to the left and touch the right elbow to the left knee.
2. Return to the starting position.
3. Repeat count one to the right.
4. Return to the starting position.



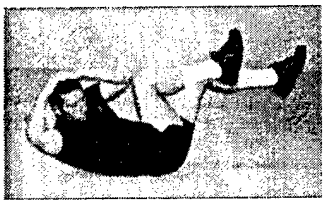
**Starting Position**



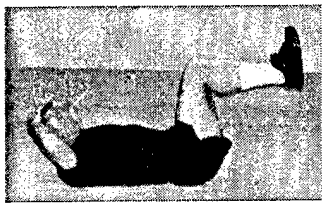
**Count 1**



**Count 2**



**Count 3**



**Count 4**

**Check Points:**

- ❑ Tighten the abdominal muscles in the starting position and maintain this contraction throughout the exercise.
- ❑ The head should be off the ground with the chin slightly tucked.

**Precautions:** N/A.

## Conditioning Drill 1

# Exercise 10: The Push-up

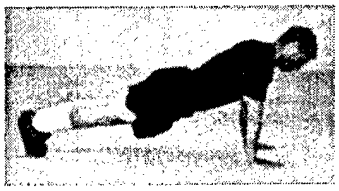
**Purpose:** This exercise strengthens the muscles of the chest, shoulders, arms, and trunk.

**Starting Position:** Front Leaning Rest position.

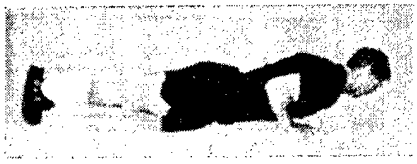
**Cadence:** Moderate.

**Count:**

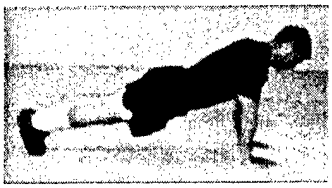
1. Bend the elbows, lowering the body until the upper arms are parallel with the ground.
2. Return to the starting position.
3. Repeat count one.
4. Return to the starting position.



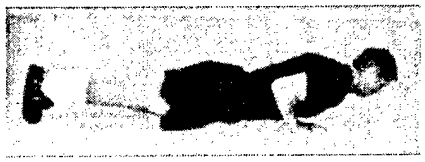
**Starting Position**



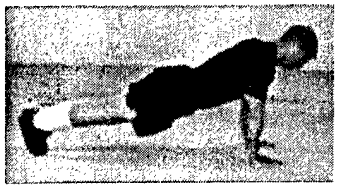
**Count 1**



**Count 2**



**Count 3**



**Count 4**

**Check Points:**

- ❑ The hands are directly below the shoulders with fingers spread (middle fingers point straight ahead).
- ❑ On counts one and three the upper arms stay close to the trunk, elbows pointing rearward.
- ❑ On counts two and four the elbows straighten but do not lock.
- ❑ The trunk should not sag. To prevent this, tighten the abdominal muscles while in the starting position and maintain this contraction throughout the exercise.

**Precautions:** N/A.

**Variation:** Soldiers should go to their knees when unable to perform repetitions correctly to cadence.

# Appendix D. Conditioning Drill 2

## Conditioning Drill 2

## Exercise 1: The Push-up

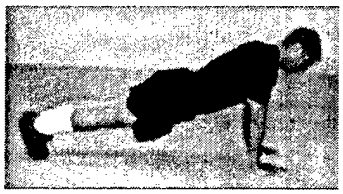
**Purpose:** This exercise strengthens muscles of the chest, shoulders, arms, and trunk.

**Starting Position:** Front Leaning Rest position with feet together or up to twelve inches apart. Place the hands on the ground where they are comfortable.

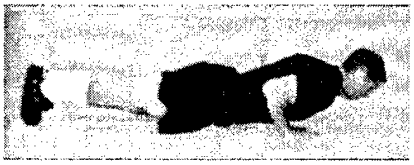
**Cadence:** Moderate.

**Count:**

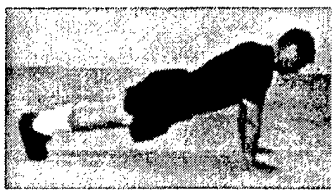
1. Bend the elbows, lowering the body until the upper arms are parallel with the ground.
2. Return to the starting position.
3. Repeat count one.
5. Return to the starting position.



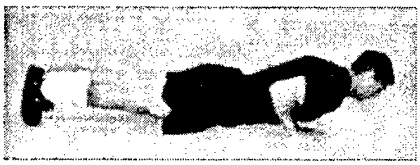
**Starting Position**



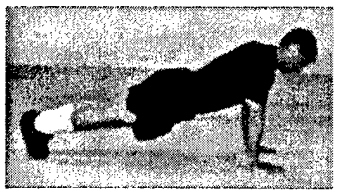
**Count 1**



**Count 2**



**Count 3**



**Count 4**

**Check Points:**

- On counts two and four the elbows straighten but do not lock.
- The trunk should not sag. To prevent this, tighten the abdominal muscles while in the starting position and maintain this contraction throughout the exercise.

**Precautions:** N/A.

**Variations: Soldiers may perform the push-up from their fists if wrist discomfort is an issue. When no longer able to execute the push-up with proper form, soldiers drop to their knees and continue to perform the push-up. They must still maintain a straight line from head to knees.**

# Conditioning Drill 2

## Exercise 2: The Sit-up

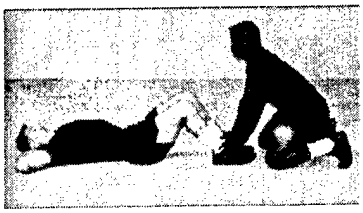
**Purpose:** This exercise strengthens the abdominal and hip-flexor muscles.

**Starting Position:** Supine position with hands behind head, fingers interlaced and knees bent at 90-degrees. Feet are together or up to twelve inches apart and flat on the ground. Hands are touching the ground.

**Cadence:** Moderate.

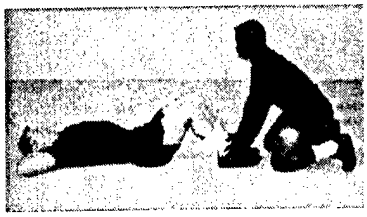
**Count:**

1. Raise the upper body to the vertical position so that the base of the neck is above the base of the spine.
2. Return to the starting position in a controlled manner until the bottom of the shoulder blades touch the ground. The head and hands need not touch the ground.
3. Repeat count one.
4. Repeat count two and return to the starting position at the completion of the final repetition.



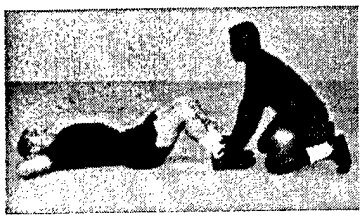
**Starting Position**

**Count 1**



**Count 2**

**Count 3**



**Count 4**

**Check Points:**

- ❑ The hands are behind the head with the fingers interlaced.
- ❑ Feet are together or up to twelve inches apart and both heels must remain in contact with the ground throughout the exercise.
- ❑ On counts one and three do not raise the hips or arch the back to assume the vertical position.

**Precautions:** Soldiers should not jerk on the head or neck to assume the vertical position.

# Conditioning Drill 2

## Exercise 3: The Pull-up

**Purpose:** This exercise strengthens the forearm, arm and back muscles.

**Starting Position:** Extended hang using the overhand grip with the thumbs around the bar.

**Cadence:** Moderate.

**Count:**

1. Pull the body upward keeping the body straight until the chin is above the bar.
2. Return to the starting position in a controlled manner.

**Starting Position**

**Count 1**

**Count 2**

**Check Points:**

- Throughout the exercise keep the feet and legs together.
- Throughout the exercise, arms are shoulder width, palms facing away from the body, with thumbs around the bar.
- Avoid kipping or swinging to achieve the up position.

**Precautions:** Spotters standing to the front and rear of the exerciser are used to ensure precision and safety by assisting soldiers when fatigued or unable to properly execute the desired number of repetitions. As soldiers become more proficient, they will need less assistance and will eventually be able to perform the exercises unassisted. Spotters must provide as much or as little assistance as needed so that the exercise is performed with precision.

# APPENDIX E. Movement Drills

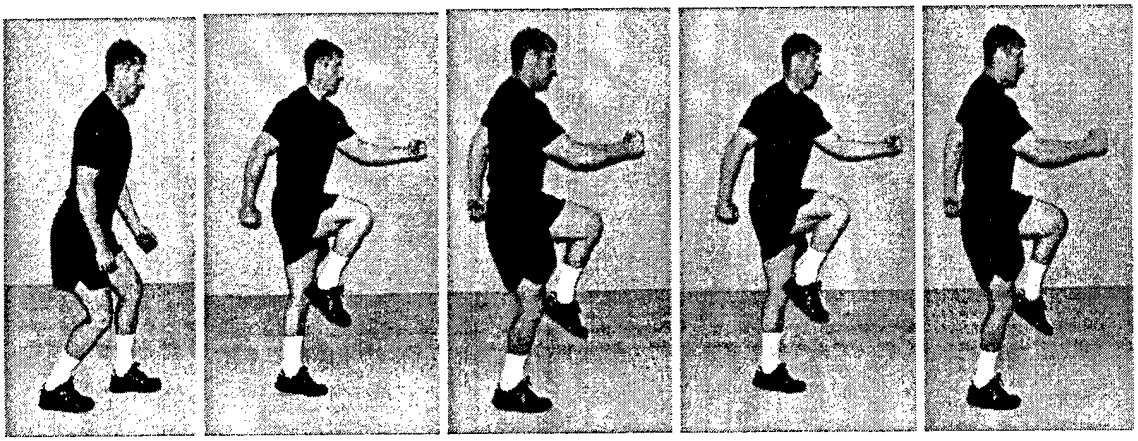
## Movement Drill

## Exercise 1: Verticals

**Purpose:** This exercise helps to develop proper running form.

**Starting Position:** Staggered Stance.

**Movement:** Raise the knee so that the thigh is parallel to the ground. Ground contact should be primarily with the balls of the feet. When the left leg is forward, the right arm swings forward and the left arm swings to the rear. When the right leg is forward, the left arm swings forward and the right arm swings to the rear.



**Starting Position**

**Checkpoints:**

- Arm swing is strong and smooth with the forward arm at 90-degrees and the rearward arm relatively straight.
- Arm swing is from front to rear, not side to side, with the upper part of the forward arm reaching parallel to the ground as it swings to the front.
- Keep a tall stance with a stable, upright trunk. The back remains perpendicular to the ground. There should not be any back swing of the legs.

Precautions: **N/A.**

## Movement Drill

# Exercise 2: Laterals

**Purpose:** This exercise develops the ability to move laterally.

**Starting Positon:** Straddle stance, slightly crouched, with the back straight, arms at the side with elbows bent at 90-degrees and palms facing forward. Face perpendicular to the direction of movement.

**Movement:** Step to the side by rising slightly and bringing the trailing leg to the lead leg. Quickly hop to the side and land back in the crouch with the feet shoulder width apart. Always face the same direction so that the first 25-yards is moving to the left and the second 25-yards is moving to the right.

**Starting Position** ⟶

**Checkpoints:**

- Pick the feet up with each step. Avoid dragging the feet along the ground.
- Crouch slightly while keeping the back straight.
- Avoid hitting the feet and ankles together on each step.
- Rank leaders will face their rank throughout the exercise.

**Precautions:** N/A.

**Variation:** Soldiers may perform this exercise holding a weapon at port arms.

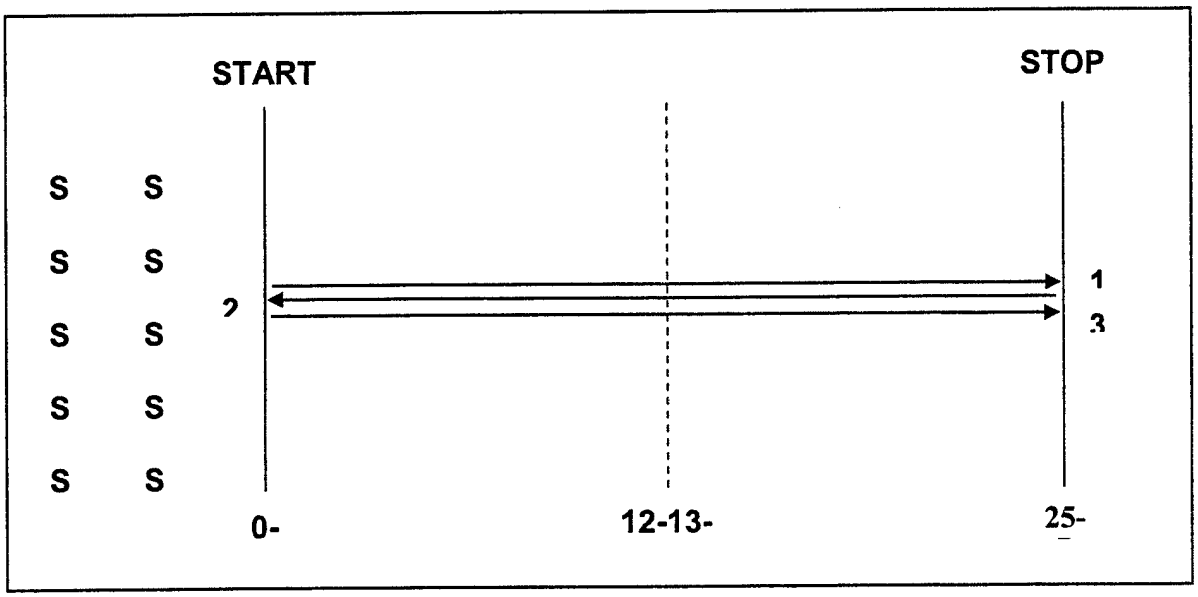
## Movement Drill

# Exercise 3: The Shuttle Sprint

**Purpose:** This exercise develops anaerobic endurance, leg speed, and agility.

**Starting Position:** Staggered Stance.

**Movement:** Run quickly to the 25-yard mark. Turn clockwise while planting the left foot and bending and squatting to touch the ground with the left hand. Run quickly back to the starting line and plant the right foot, turn counter-clockwise and touch the ground with the right hand. Run back to the 25-yard mark gradually accelerating to near maximum speed.




**Checkpoints:**

- Soldiers should slow their movement before planting feet and changing direction.
- Soldiers should squat while bending the trunk when reaching to touch the ground.
- Soldiers touch the ground with their left hand on the first turn, then with their right hand on the second turn.
- Accelerate to near maximum speed during the last 25-yards.

**Precautions:** Soldiers should use caution when performing this exercise on wet terrain.

# APPENDIX F. Stretch Drill 1

## Stretch Drill 1

## Exercise 1: The Groin Stretch

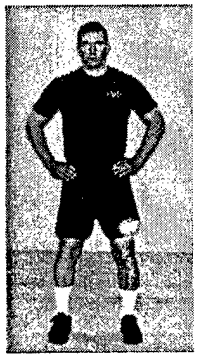
**Purpose:** This exercise develops flexibility of the groin muscles.

**Starting Position:** Straddle stance, hands on hips.

- On the command, **"*Ready*, STRETCH",** lunge wide to the left (the left foot is at the 9 o'clock position) as both hands are placed on the left thigh above the knee. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position*, *Ready*, STRETCH",** lunge wide to the right (the right foot is at the 3 o'clock position) as both hands are placed on the right thigh above the knee. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.

**Starting Position**

**Position 1**



**Starting Position**

**Position 2**

**Starting Position**

**Check Points:**

- In position 1, the trunk and head remain directed to the side. The right foot is flat on the ground and directed at 12 o'clock. The left foot is flat on the ground and directed at 9 o'clock.
- In position 2, the trunk and head remain directed to the side. The left foot is flat on the ground and directed at 12 o'clock. The right foot is flat on the ground and directed at 3 o'clock.

**Precaution:** When lunging to the left or right do not let the knee move forward of the toes.

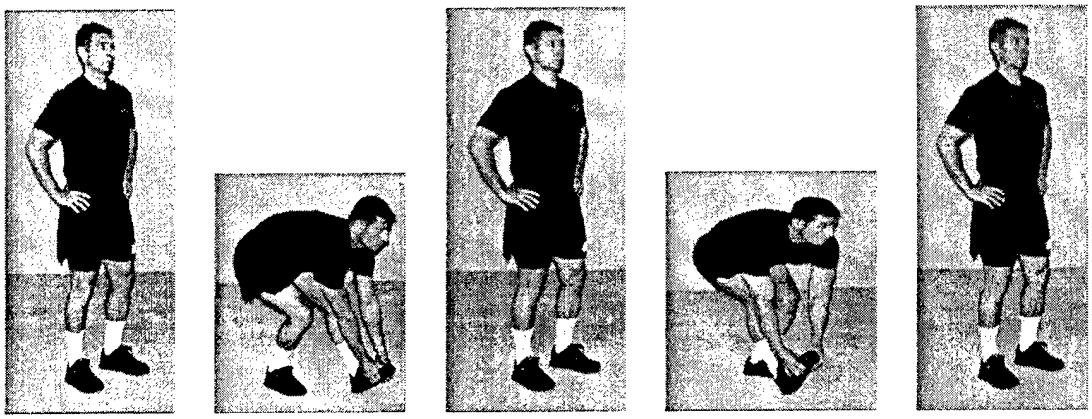
## Stretch Drill 1

## Exercise 2: The Calf Stretch

**Purpose:** This exercise develops flexibility of the calf muscles.

**Starting Position:** Straddle stance with hands on hips.

- On the command, **"*Ready*, STRETCH",** step forward 8-10 inches with the left foot and place the heel on the ground with the toes up. Bend forward and grasp the sides of the left foot with both hands. Straighten the knee of the left foot and simultaneously pull the ball of the foot back toward the shin. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position*, *Ready*, STRETCH",** step forward 8-10 inches with the right foot and place the heel on the ground with the toes up. Bend forward and grasp the sides of the right foot with both hands. Straighten the knee of the right foot and simultaneously pull the ball of the foot back toward the shin. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.



**Starting Position** **Position 1** **Starting Position** **Position 2**
**Starting Position**

**Check Point:** N/A.

**Precaution:** N/A.

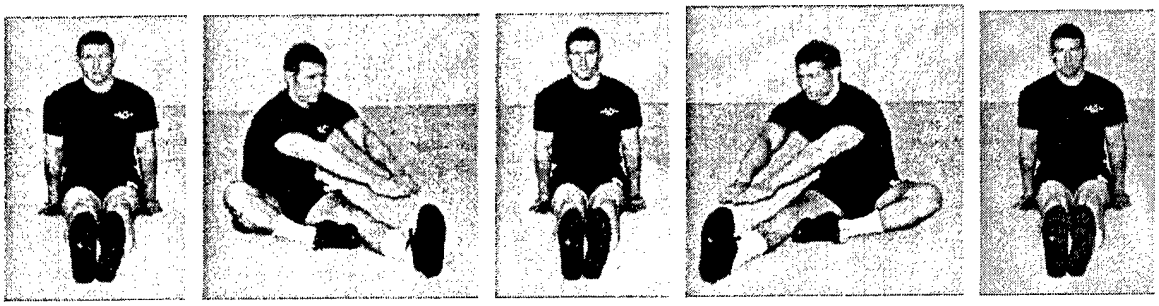
## Stretch Drill 1

# Exercise 3: The Hamstring Stretch

**Purpose:** This exercise develops flexibility of the hamstrings.

**Starting Position:** Seated with legs together, arms at sides, with palms on the ground.

- On the command, **"*Ready*, STRETCH",** place the right foot on the inside of left thigh. Reach forward toward the toes, keeping the head up. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position*, *Ready*, STRETCH",** place the left foot on the inside of right thigh. Reach forward toward the toes, keeping the head up. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.



**Starting Position** **Position 1** **Starting Position** **Position 2**
**Starting Position**

**Check Points:**

- In positions 1 and 2, the arms are straight with fingers and thumbs extended and joined, palms facing downward.
- In positions 1 and 2, the back is held straight with the head up and eyes directed forward.

**Precaution:** N/A.

## Stretch Drill 1

# Exercise 4: The Thigh Stretch

**Purpose:** This exercise develops flexibility of the front of the thigh and the hip flexor muscles.

**Starting Position:** Seated position, arms at sides and palms on the ground.

- On the command, **"*Ready*, STRETCH",** roll onto the left side and place the left forearm on the ground, perpendicular to the chest. The left hand makes a fist on the ground with the thumb side up. Grasp the right ankle with the right hand and pull the right heel toward the buttocks and pull the entire leg rearward. Push the right thigh further to the rear with the bottom of the left foot. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position*, *Ready*, STRETCH",** lay on the right side and place the right forearm on the ground, perpendicular to the chest. The right hand makes a fist on the ground with the thumb side up. Grasp the left ankle with the left hand and pull the left heel toward the buttocks and pull the entire leg rearward. Push the left thigh further to the rear with the bottom of the right foot. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.

**Starting Position** **Position 1** **Starting Position** **Position 2** **Starting Position**

**Check Points:**

- Keep the abdominal muscles tight throughout this stretch in order to keep the trunk straight.
- Do not pull the heel forcefully to the buttock if there is discomfort in the knee joint.

**Precaution:** N/A.

## Stretch Drill 1

# Exercise 5: The Hip Stretch

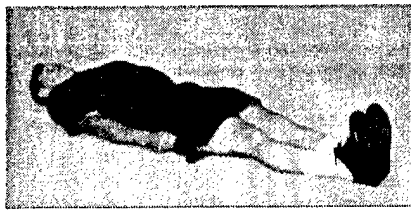
**Purpose:** This exercise develops flexibility of the lower back and hip muscles.

**Starting Position:** Supine position.

- On the command, " ***Ready*, STRETCH",** raise both feet off the ground and cross the right ankle over the left thigh. Grasp the right knee with both hands and pull it toward the left shoulder while raising the left knee toward the chest. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position, Ready*, STRETCH",** cross the left ankle over the right thigh. Grasp the left knee with both hands and pull it toward the right shoulder while raising the right thigh toward the chest. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.

**Starting Position**

**Position 1**



**Starting Position**

**Position 2**

**Starting Position**

**Check Points:**

- ❑ Keep the back flat on the ground.
- ❑ In positions 1 and 2, raise the head 1-2 inches from the ground with the chin tucked.
- ❑ In positions 1 and 2, use the lower leg to push the thigh toward the shoulder.

**Precaution:** N/A.

# APPENDIX G. Stretch Drill 2

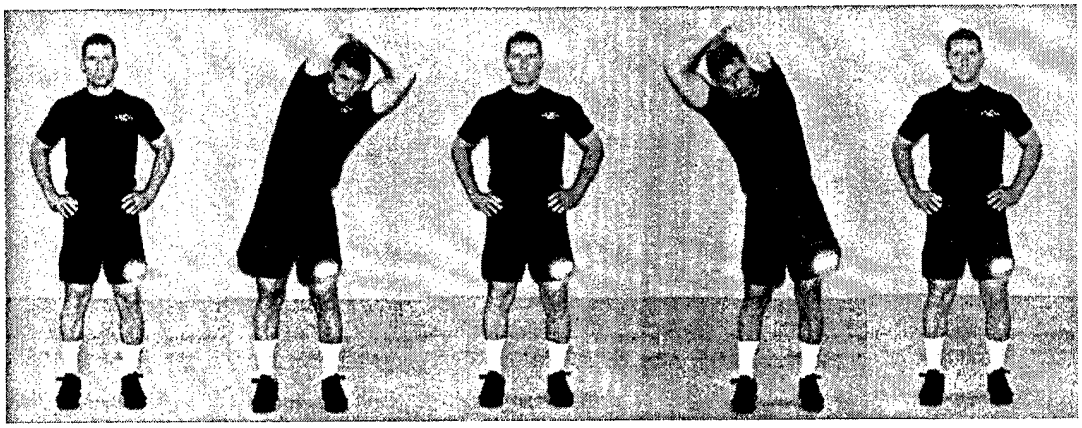
## Stretch Drill 2

## Exercise 1: The Overhead Arm Pull

**Purpose:** This exercise develops flexibility of the arms, shoulders, and trunk muscles.

**Starting Position:** Straddle stance with hands on hips.

- On the command, **"*Ready*, STRETCH",** raise the right arm overhead and place the right hand behind the head. Grasp above the right elbow with the left hand and pull to the left, leaning the body to the left. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position, Ready*, STRETCH",** raise the left arm overhead and place the left hand behind the head. Grasp above the left elbow with the right hand and pull to the right, leaning the body to the right. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.



**Starting Position** **Position 1** **Starting Position** **Position 2** **Starting Position**

**Check Points:**

- Throughout the exercise, keep the hips set and the abdominals tight.
- In positions 1 and 2, lean the body straight to the side, not to the front or back.

**Precautions:** N/A.

## Stretch Drill 2

# Exercise 2: The Turn and Reach

**Purpose:** This exercise develops the ability to control trunk rotation while increasing chest, shoulder, and trunk range of motion.

**Starting Position:** Straddle stance with arms sideward, palms up.

- On the command, , **"*Ready*, STRETCH",** rotate the trunk to the left while keeping the hips directed forward to bring the arms in line from front to rear. The head and eyes remain directed forward. Continue to reach with the arms toward the front and rear. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position, Ready*, STRETCH",** rotate the trunk to the right while keeping the hips directed forward to bring the arms in line from front to rear. The head and eyes remain directed forward. Continue to reach with the arms toward the front and rear. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.

**Starting Position Position 1 Starting Position Position 2 Starting Position**

**Check Points:**

- ❑ Keep the hips set and abdominal muscles tight throughout the exercise to prevent excessive rotation.
- ❑ Keep the feet directed forward, do not allow the hips to rotate with the trunk.
- ❑ Maintain straightness of the trunk throughout the exercise. Do not lean forward or back.
- ❑ Throughout the exercise, the arms are parallel to the ground at shoulder height. Rotate the arms to the rear so that the palms are facing up and the shoulders and chest are open.
- ❑ In position 1, reach forward with the right arm and to the rear with the left arm.
- ❑ In position 2, reach forward with the left arm and to the rear with the right arm.

**Precautions:** If soldiers cannot reach the standard of positions 1 and 2, they should rotate their trunk to their individual limitations while keeping the hips, head, and eyes directed forward.

## Stretch Drill 2

# Exercise 3: The Rear Lunge

**Purpose:** This exercise develops flexibility of the hip flexors and trunk muscles.
**Starting Position:** Straddle stance, hands on hips.

- On the command, **"*Ready*, STRETCH",** take an exaggerated step backward with the left leg, touching down with the ball of the foot. This is the same position as count 1 of The Rear Lunge in Conditioning Drill 1. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position*, *Ready*, STRETCH",** take an exaggerated step backward with the right leg, touching down with the ball of the foot. This is the same position as count 3 of The Rear Lunge in Conditioning Drill 1. Hold this position for 30 seconds.
- On the command, **"*Starting Position*, MOVE",** return to the starting position.

**Starting Position**

**Position 1**

**Starting Position**

**Position 2**

**Starting Position**

**Check Points:**

- ❑ Maintain straightness of the back by keeping the abdominal muscles tight throughout the motion.
- ❑ After the foot touches down on positions 1and 2, allow the body to continue to lower.
- ❑ Lunge and step in a straight line, keeping the feet directed forward. Viewed from the front, the feet are shoulder width apart, both at the starting position, and at the end of positions 1and 2.
- ❑ Keep the forward knee over the ball of the foot on positions 1and 2.

**Precaution:** When lunging to the left or right do not let the knee move forward of the toes.

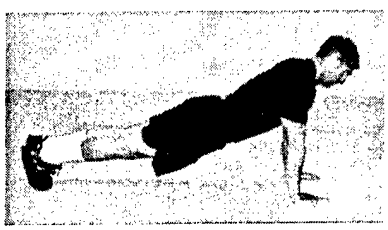
## Stretch Drill 2

# Exercise 4: The Extend and Flex

**Purpose:** This exercise develops flexibility of the low back, hip, hip flexor, and abdominal muscles.

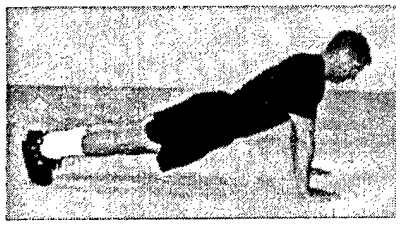
**Starting Position:** The front leaning rest position.

- On the command, "***Ready,* STRETCH",** lower the body, sagging in the middle, keeping the arms straight and look upward. Hold this position for 30 seconds.
- On the command, "***Starting Position*, MOVE",** assume the starting position.
- On the command, "***Change Position*, *Ready,* STRETCH",** drop to the knees and sit back onto the leg by moving the buttocks toward the heels. Hold this position for 30 seconds.
- On the command, "***Starting Position*, MOVE",** return to the starting position.



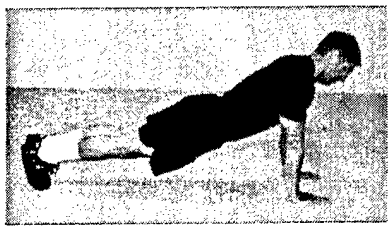
**Starting Position**

**Position 1**



**Starting Position**

**Position 2**



**Starting Position**

**Check Points:**

- In position 1, the thighs and pelvis rest on the ground. Relax the back muscles while bearing the bodyweight on the straight arms. Toes point to the rear.
- In position 2, the toes are pointed to the rear and the arms are shoulder width apart, palms down on the ground.
- In position 2, slide the hands to the rear to allow the buttocks to move toward the heels.
- Feet are together throughout the exercise.

**Precaution:** N/A.

## Stretch Drill 2

# Exercise 5: The Single-leg Over

**Purpose:** This exercise develops flexibility of the hips and lower back muscles.

**Starting Position:** Supine position with arms sideward, palms down.

- On the command, **"*Ready,* STRETCH",** turn the body to the left, bend the right knee to 90-degrees over

The left leg, and grasp the outside of the right knee with the left hand and pull toward the left. Hold this position for 30 seconds.

- On the command, **"*Starting Position*, MOVE",** assume the starting position.
- On the command, **"*Change Position, Ready,* STRETCH",** turn the body to the right, bend the left knee

to 90-degrees over the right leg, and grasp the outside of the left knee with the right hand and pull toward the right. Hold this position for 30 seconds.

- On the command, **"*Starting Position*, MOVE",** return to the starting position.

**Starting Position** **Position 1** **Starting Position**

**Position 2**

**Starting Position**

**Check Points:**

- ❑ At the starting position, the arms are directed to the sides at 90-degrees to the trunk, the fingers and thumbs are extended and joined.
- ❑ In position 1, keep the right shoulder, arm, and hand on the ground.
- ❑ In position 2, keep the left shoulder, arm, and hand on the ground.

**Precaution:** N/A.

# APPENDIX H
# 9-Week Training Schedules

Week 1

Objectives: Demonstrate basic proficiency in execution of Warm-up, Conditioning Drills 1 and 2, Ability Group Running, Speed Running and Cool-down. Develop physical fitness.

Planning Guidance:
1. The sessions should be conducted in the order listed below.

| | |
|---|---|
| Session 1-1 | Conditioning Drill 1 **(INSTRUCTION)** |
| Session 1-2 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activity: 1-mile timed run (to establish ability groups)<br>Cool-down: Stretch Drill 1 **(INSTRUCTION)** |
| Session 1-3 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (5 repetitions) and<br>Conditioning Drill 2 **(INSTRUCTION)**<br>Cool-down: Stretch Drill 2 **(INSTRUCTION)** |
| Session 1-4 | Warm-up: Conditioning Drill 1 (5 repetitions) and<br>The Movement Drill **(INSTRUCTION)**<br>Activities: Ability Group Run **(INSTRUCTION)** and<br>Conditioning Drill 1 (5 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 1-5 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (5 repetitions) and<br>Conditioning Drill 2 (1 set: 5 repetitions of each exercise)<br>Cool-down: Stretch Drill 2 |
| Session 1-6 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 30:60s and 60:120s **(INSTRUCTION)** and<br>Conditioning Drill 1 (5 repetitions)<br>Cool-down: Stretch Drill 1 |

Week 2

Objectives: Develop physical fitness. Administer initial fitness assessment.

Planning Guidance:

1. The sessions should be conducted in the order listed below whenever possible. If not:
    a. Sessions 2-1 and 2-4 should not be conducted on consecutive days.
    b. Sessions 2-1, 2-3, 2-6, and a foot march should not be conducted on consecutive days.

| | |
|---|---|
| Session 2-1 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 2-2 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and<br>Conditioning Drill 2 (2 sets: 5 repetitions of each exercise)<br>Cool-down: Stretch Drill 2 |
| Session 2-3 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 30:60s and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 2-4 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and<br>Conditioning Drill 2 (2 sets: 5 repetitions of each exercise)<br>Cool-down: Stretch Drill 1 |
| Session 2-5 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1(10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 2-6 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Initial Fitness Assessment: (1 minute push-ups, 1 minute sit-ups, 1-mile run)<br>Cool-down: Stretch Drill 1 |

Week 3

Objectives: Demonstrate basic proficiency in execution of speed running and the 300-yard shuttle run. Develop physical fitness.

Planning Guidance:

1. The sessions should be conducted in the order listed below whenever possible. If not:
    a. Sessions 3-2 and 3-4 should not be conducted on consecutive days.
    b. Sessions 3-1, 3-3, 3-5, and a foot march should not be conducted on consecutive days.
2. If a foot march is conducted, it should be substituted for the activities in session 3-5.

| | |
|---|---|
| Session 3-1 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 300-yard Shuttle Run **(INSTRUCTION)** and<br>Ability Group Run<br>Cool-down: Stretch Drill 1 |
| Session 3-2 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2<br>(1 set: 10 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 3-3 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 30:60s and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 3-4 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 and Conditioning Drill 2<br>(1 set: 10 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 3-5 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 300-yard Shuttle Run and Ability Group Run<br>Cool-down: Stretch Drill 1 |
| Session 3-6 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2<br>(2 sets: 10 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |

Week 4

Objective: Develop physical fitness.

Planning Guidance:

1. The sessions should be conducted in the order listed below whenever possible. If not:
    a. Sessions 4-2, 4-4, and 4-6 should not be conducted on consecutive days.
    b. Sessions 4-1, 4-3, 4-5, and a foot march should not be conducted on consecutive days.
2. If a foot march is conducted, it should be substituted for the activities in session 4-5.

| | |
|---|---|
| Session 4-1 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 4-2 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 10 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 4-3 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 300-yard Shuttle Run and 60:120s<br>Cool-down: Stretch Drill 1 |
| Session 4-4 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 10 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 4-5 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 4-6 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (1 set: 15 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |

Week 5

Objectives: Develop physical fitness. Administer diagnostic APFT.

Planning Guidance:

1. The sessions should be conducted in the order listed below whenever possible. If not:
    a. Sessions 5-2, and 5-4 should not be conducted on consecutive days.
    b. Sessions 5-1, 5-3, 5-6, and a foot march should not be conducted on consecutive days.
    c. No PT is conducted on session 5-5.

| | |
|---|---|
| Session 5-1 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 5-2 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (1 set: 15 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 5-3 | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 300-yard Shuttle Run and 60:120s<br>Cool-down: Stretch Drill 1 |
| Session 5-4 | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (1 set: 15 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 5-5 | NO PT |
| Session 5-6 | Stretch Drills 1 and 2<br>APFT (diagnostic)<br>Stretch Drills 1 and 2 |

Week 6

Objective: Develop physical fitness.

Planning Guidance:
1. The sessions should be conducted in the order listed below whenever possible. If not:
    a. Sessions 6-2, 6-4, and 6-6 should not be conducted on consecutive days.
    b. Sessions 6-1, 6-3, and 6-5 should not be conducted on consecutive days.
2. If a foot march is conducted, it should be substituted for the activities in session 6-5.

| | |
|---|---|
| Session 6-1 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities:, Ability Group Run and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 6-2 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 15 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 6-3 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 300-yard Shuttle Run and 60:120s<br>Cool-down: Stretch Drill 1 |
| Session 6-4 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 15 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 6-5 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 6-6 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 15 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |

Week 7

Objectives: Develop physical fitness. Complete APFT (at least 50 points in each event).

Planning Guidance:

1. The sessions should be conducted in the order listed below whenever possible. If not:
   a. Sessions 7-2, and 7-4 should not be conducted on consecutive days.
   b. Sessions 7-1, 7-3, 7-6, and a foot march should not be conducted on consecutive days.
   c. No PT is conducted on session 7-5.

| | |
|---|---|
| Session 7-1 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run<br>Cool-down: Stretch Drill1 |
| Session 7-2 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (1 set: 20 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 7-3 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 1-mile Timed Confidence Run and Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 1 |
| Session 7-4 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions)<br>Cool-down: Stretch Drill 2 |
| Session 7-5 | **NO PT** |
| Session 7-6 CR/MSE | Stretch Drills 1 and 2<br>APFT (record)<br>Stretch Drills 1 and 2 |

Weeks 8 and 9

Objectives: Maintain physical fitness levels and progress toward AIT APFT graduation standard.

Planning Guidance:

1. The sessions should be conducted in the order listed below whenever possible. If not:
    a. Sessions 8/9-2 and 8/9-4 should not be conducted on consecutive days.
    b. Sessions 8/9-1, 8/9-3, 8/9-5, and a foot march should not be conducted on consecutive days.
    c. Session 8/9-6 can be conducted when in the field.
2. If a foot march is conducted, it should be substituted for the activities in sessions 8/9-5.

| | |
|---|---|
| Session 8/9-1 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run<br>Cool-down: Stretch Drill 1 |
| Session 8/9-2 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 20 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 8/9-3 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: 60:120s<br>Cool-down: Stretch 1 |
| Session 8/9-4 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 20 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |
| Session 8/9-5 CR | Warm-up: Conditioning Drill 1 (5 repetitions) and The Movement Drill<br>Activities: Ability Group Run<br>Cool-down: Stretch Drill 1 |
| Session 8/9-6 MSE | Warm-up: Conditioning Drill 1 (5 repetitions)<br>Activities: Conditioning Drill 1 (10 repetitions) and Conditioning Drill 2 (2 sets: 20 repetitions of PU/SU and 5 repetitions of the pull-up)<br>Cool-down: Stretch Drill 2 |

# Appendix I
## ICD-9 Codes Used For Injury Indices (if there is a "1" in the column then that ICD-9 code was used for that injury index)

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 337.20 | | 1 | | 1 | | |
| 337.21 | | 1 | | 1 | | |
| 337.22 | | 1 | | 1 | | |
| 337.29 | | 1 | | 1 | | |
| 344.60 | | | | | | |
| 344.61 | | | | | | |
| 344.61 | | | | | | |
| 353 | | | | | | |
| 353.0 | | 1 | | 1 | | |
| 353.1 | | 1 | | 1 | | |
| 353.2 | | 1 | | 1 | | |
| 353.3 | | 1 | | 1 | | |
| 353.4 | | 1 | | 1 | | |
| 353.8 | | 1 | | 1 | | |
| 353.9 | | 1 | | 1 | | |
| 354 | | | | | | |
| 354.0 | 1 | 1 | | 1 | 1 | |
| 354.1 | 1 | 1 | | 1 | | |
| 354.2 | 1 | 1 | | 1 | | |
| 354.3 | 1 | 1 | | 1 | | |
| 354.4 | | 1 | | 1 | | |
| 354.8 | | 1 | | 1 | | |
| 354.9 | | 1 | | 1 | | |
| 355 | | | | | | |
| 355.0 | | 1 | | 1 | | |
| 355.1 | | 1 | | 1 | | |
| 355.2 | | 1 | | 1 | | |
| 355.3 | | 1 | | 1 | | |
| 355.4 | | 1 | | 1 | | |
| 355.5 | | 1 | | 1 | | |
| 355.60 | | 1 | | 1 | | |
| 355.7 | | | | 1 | | |
| 355.71 | | 1 | | 1 | | |
| 355.79 | | 1 | | 1 | | |
| 525.11 | 1 | | | | | |
| 692 | | | | | | |
| 692.0 | | | | 1 | | |
| 692.1 | | | | 1 | | |
| 692.2 | | | | 1 | | |
| 692.3 | | | | 1 | | |
| 692.4 | | | | 1 | | |
| 692.5 | | | | 1 | | |
| 692.60 | | 1 | | 1 | | |
| 692.7 | | | | 1 | | |
| 692.71 | 1 | 1 | | 1 | | |
| 692.72 | | | | 1 | | |
| 692.74 | | | | 1 | | |
| 692.76 | 1 | | | 1 | | |
| 692.77 | 1 | | | 1 | | |
| 692.79 | | | | | | |
| 703.0 | | | | 1 | | 1 |
| 715 | | | | | | |
| 715.04 | | | | 1 | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 715.09 | | | | 1 | 1 | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 715.10 | | | | 1 | 1 | |
| 715.11 | | | | 1 | 1 | |
| 715.12 | | | | 1 | 1 | |
| 715.13 | | | | 1 | 1 | |
| 715.14 | | | | 1 | 1 | |
| 715.15 | | | | 1 | 1 | |
| 715.16 | | | | 1 | 1 | |
| 715.17 | | | | 1 | 1 | |
| 715.18 | | | | 1 | 1 | |
| 715.20 | | | | 1 | 1 | |
| 715.21 | | | | 1 | 1 | |
| 715.22 | | | | 1 | 1 | |
| 715.23 | | | | 1 | 1 | |
| 715.24 | | | | 1 | 1 | |
| 715.25 | | | | 1 | 1 | |
| 715.26 | | | | 1 | 1 | |
| 715.27 | | | | 1 | 1 | |
| 715.28 | | | | 1 | 1 | |
| 715.30 | | | | 1 | 1 | |
| 715.31 | | | | 1 | 1 | |
| 715.32 | | | | 1 | 1 | |
| 715.33 | | | | 1 | 1 | |
| 715.34 | | | | 1 | 1 | |
| 715.35 | | | | 1 | 1 | |
| 715.36 | | | | 1 | 1 | |
| 715.37 | | | | 1 | 1 | |
| 715.38 | | | | 1 | 1 | |
| 715.80 | | | | 1 | 1 | |
| 715.81 | | | | 1 | 1 | |
| 715.82 | | | | 1 | 1 | |
| 715.83 | | | | 1 | 1 | |
| 715.84 | | | | 1 | 1 | |
| 715.85 | | | | 1 | 1 | |
| 715.86 | | | | 1 | 1 | |
| 715.87 | | | | 1 | 1 | |
| 715.88 | | | | 1 | 1 | |
| 715.89 | | | | 1 | 1 | |
| 715.90 | | | | 1 | 1 | |
| 715.91 | | | | 1 | 1 | |
| 715.92 | | | | 1 | 1 | |
| 715.93 | | | | 1 | 1 | |
| 715.94 | | | | 1 | 1 | |
| 715.95 | | | | 1 | 1 | |
| 715.96 | | | | 1 | 1 | |
| 715.97 | | | | 1 | 1 | |
| 715.98 | | | | 1 | 1 | |
| 716.1 | | 1 | | 1 | | 1 |
| 716.10 | 1 | 1 | | 1 | | 1 |
| 716.11 | 1 | 1 | | 1 | | 1 |
| 716.12 | 1 | 1 | | 1 | | 1 |
| 716.13 | 1 | 1 | | 1 | | 1 |
| 716.14 | 1 | 1 | | 1 | | 1 |
| 716.15 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 716.16 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 716.17 | 1 | 1 | | 1 | | 1 |
| 716.18 | 1 | 1 | | 1 | | 1 |
| 716.19 | 1 | 1 | | 1 | | 1 |
| 716.80 | | 1 | | 1 | 1 | |
| 716.81 | | 1 | | 1 | 1 | |
| 716.82 | | 1 | | 1 | 1 | |
| 716.83 | | 1 | | 1 | 1 | |
| 716.84 | | 1 | | 1 | 1 | |
| 716.85 | | 1 | | 1 | 1 | |
| 716.86 | | 1 | | 1 | 1 | |
| 716.87 | | 1 | | 1 | 1 | |
| 716.88 | | 1 | | 1 | 1 | |
| 716.89 | | 1 | | 1 | 1 | |
| 716.9 | | | | | | |
| 716.90 | | 1 | | 1 | 1 | |
| 716.91 | | 1 | | 1 | 1 | |
| 716.92 | | 1 | | 1 | 1 | |
| 716.93 | | 1 | | 1 | 1 | |
| 716.94 | | 1 | | 1 | 1 | |
| 716.95 | | 1 | | 1 | 1 | |
| 716.96 | | 1 | | 1 | 1 | |
| 716.97 | | 1 | | 1 | 1 | |
| 716.98 | | 1 | | 1 | 1 | |
| 716.99 | | 1 | | 1 | 1 | |
| 717 | 1 | | | | | |
| 717.0 | 1 | 1 | | 1 | | |
| 717.1 | 1 | 1 | | 1 | | |
| 717.2 | 1 | 1 | | 1 | | |
| 717.3 | 1 | 1 | | 1 | | |
| 717.4 | 1 | | | | | |
| 717.40 | 1 | 1 | | 1 | | |
| 717.41 | 1 | 1 | | 1 | | |
| 717.42 | 1 | 1 | | 1 | | |
| 717.43 | 1 | 1 | | 1 | | |
| 717.49 | 1 | 1 | | 1 | | |
| 717.5 | 1 | 1 | | 1 | | |
| 717.60 | 1 | 1 | | 1 | | |
| 717.7 | 1 | 1 | 1 | 1 | | |
| 717.8 | 1 | | | | | |
| 717.81 | 1 | 1 | | 1 | | |
| 717.82 | 1 | 1 | | 1 | | |
| 717.83 | 1 | 1 | | 1 | | |
| 717.84 | 1 | 1 | | 1 | | |
| 717.85 | 1 | 1 | | 1 | | |
| 717.89 | 1 | 1 | | 1 | | |
| 717.9 | 1 | 1 | | 1 | | |
| 718 | | | | | | |
| 718.0 | | | | | | |
| 718.00 | 1 | 1 | | 1 | | |
| 718.01 | 1 | 1 | | 1 | | |
| 718.02 | 1 | 1 | | 1 | | |
| 718.03 | 1 | 1 | | 1 | | |
| 718.04 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 718.05 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 718.07 | 1 | 1 | | 1 | | |
| 718.08 | 1 | 1 | | 1 | | |
| 718.09 | 1 | 1 | | 1 | | |
| 718.1 | | | | | | |
| 718.10 | 1 | 1 | | 1 | | |
| 718.11 | 1 | 1 | | 1 | | |
| 718.12 | 1 | 1 | | 1 | | |
| 718.13 | 1 | 1 | | 1 | | |
| 718.14 | 1 | 1 | | 1 | | |
| 718.15 | 1 | 1 | | 1 | | |
| 718.17 | 1 | 1 | | 1 | | |
| 718.18 | 1 | 1 | | 1 | | |
| 718.19 | 1 | 1 | | 1 | | |
| 718.2 | | | | | | |
| 718.20 | | | | 1 | | |
| 718.21 | | | | 1 | | |
| 718.22 | | | | 1 | | |
| 718.23 | | | | 1 | | |
| 718.24 | | | | 1 | | |
| 718.25 | | | | 1 | | |
| 718.26 | | | | 1 | | |
| 718.27 | | | | 1 | | |
| 718.28 | | | | 1 | | |
| 718.29 | | | | 1 | | |
| 718.3 | | | | | | |
| 718.30 | 1 | 1 | | 1 | | 1 |
| 718.31 | 1 | 1 | | 1 | | 1 |
| 718.32 | 1 | 1 | | 1 | | 1 |
| 718.33 | 1 | 1 | | 1 | | 1 |
| 718.34 | 1 | 1 | | 1 | | 1 |
| 718.35 | 1 | 1 | | 1 | | 1 |
| 718.36 | 1 | 1 | | 1 | | 1 |
| 718.37 | 1 | 1 | | 1 | | 1 |
| 718.38 | 1 | 1 | | 1 | | 1 |
| 718.39 | 1 | 1 | | 1 | | 1 |
| 718.4 | | | | | | |
| 718.40 | | | | 1 | | |
| 718.41 | | | | 1 | | |
| 718.42 | | | | 1 | | |
| 718.43 | | | | 1 | | |
| 718.44 | | | | 1 | | |
| 718.45 | | | | 1 | | |
| 718.46 | | | | 1 | | |
| 718.47 | | | | 1 | | |
| 718.48 | | | | 1 | | |
| 718.49 | | | | 1 | | |
| 718.5 | | | | | | |
| 718.50 | | | | 1 | | |
| 718.51 | | | | 1 | | |
| 718.52 | | | | 1 | | |
| 718.53 | | | | 1 | | |
| 718.54 | | | | 1 | | |
| 718.55 | | | | 1 | | |

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|---|---|---|---|---|---|---|
| 718.56 | | | | 1 | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 718.57 | | | | 1 | | |
| 718.58 | | | | 1 | | |
| 718.59 | | | | 1 | | |
| 718.8 | | | | | | |
| 718.80 | 1 | 1 | | 1 | | |
| 718.81 | 1 | 1 | | 1 | | |
| 718.82 | 1 | 1 | | 1 | | |
| 718.83 | 1 | 1 | | 1 | | |
| 718.84 | 1 | 1 | | 1 | | |
| 718.85 | 1 | 1 | | 1 | | |
| 718.86 | 1 | 1 | | 1 | | |
| 718.87 | 1 | 1 | | 1 | | |
| 718.88 | 1 | 1 | | 1 | | |
| 718.89 | 1 | 1 | | 1 | | |
| 718.90 | 1 | 1 | | 1 | | |
| 718.91 | 1 | 1 | | 1 | | |
| 718.92 | 1 | 1 | | 1 | | |
| 718.93 | 1 | 1 | | 1 | | |
| 718.94 | 1 | 1 | | 1 | | |
| 718.95 | 1 | 1 | | 1 | | |
| 718.97 | 1 | 1 | | 1 | | |
| 718.98 | 1 | 1 | | 1 | | |
| 718.99 | 1 | 1 | | 1 | | |
| 719.0 | | | | | | |
| 719.00 | | 1 | 1 | 1 | | |
| 719.01 | 1 | 1 | | 1 | | |
| 719.02 | 1 | 1 | | 1 | | |
| 719.03 | 1 | 1 | | 1 | | |
| 719.04 | 1 | 1 | | 1 | | |
| 719.05 | 1 | 1 | 1 | 1 | | |
| 719.06 | 1 | 1 | 1 | 1 | | |
| 719.07 | 1 | 1 | 1 | 1 | | |
| 719.08 | 1 | 1 | 1 | 1 | | |
| 719.09 | 1 | 1 | 1 | 1 | | |
| 719.1 | | | | | | |
| 719.10 | 1 | 1 | | 1 | | 1 |
| 719.11 | 1 | 1 | | 1 | | 1 |
| 719.12 | 1 | 1 | | 1 | | 1 |
| 719.13 | 1 | 1 | | 1 | | 1 |
| 719.14 | 1 | 1 | | 1 | | 1 |
| 719.15 | 1 | 1 | | 1 | | 1 |
| 719.16 | 1 | 1 | | 1 | | 1 |
| 719.17 | 1 | 1 | | 1 | | 1 |
| 719.18 | 1 | 1 | | 1 | | 1 |
| 719.19 | 1 | 1 | | 1 | | 1 |
| 719.4 | | | | | | |
| 719.40 | 1 | 1 | 1 | 1 | 1 | |
| 719.41 | 1 | 1 | | 1 | 1 | |
| 719.42 | 1 | 1 | | 1 | 1 | |
| 719.43 | 1 | 1 | | 1 | 1 | |
| 719.44 | 1 | 1 | | 1 | 1 | |
| 719.45 | 1 | 1 | 1 | 1 | 1 | |
| 719.46 | 1 | 1 | 1 | 1 | 1 | |

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|---|---|---|---|---|---|---|
| 719.47 | 1 | 1 | 1 | 1 | 1 | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 719.48 | 1 | 1 | 1 | 1 | 1 | |
| 719.49 | 1 | 1 | 1 | 1 | 1 | |
| 719.5 | | | | | | |
| 719.50 | | | | 1 | 1 | |
| 719.51 | | | | 1 | 1 | |
| 719.52 | | | | 1 | 1 | |
| 719.53 | | | | 1 | 1 | |
| 719.54 | | | | 1 | 1 | |
| 719.55 | | | | 1 | 1 | |
| 719.56 | | | | 1 | 1 | |
| 719.57 | | | | 1 | 1 | |
| 719.58 | | | | 1 | 1 | |
| 719.59 | | | | 1 | 1 | |
| 719.60 | | | | | | |
| 719.60 | | 1 | | 1 | 1 | |
| 719.61 | | 1 | | 1 | 1 | |
| 719.62 | | 1 | | 1 | 1 | |
| 719.63 | | 1 | | 1 | 1 | |
| 719.64 | | 1 | | 1 | 1 | |
| 719.65 | | 1 | | 1 | 1 | |
| 719.66 | | 1 | | 1 | 1 | |
| 719.67 | | 1 | | 1 | 1 | |
| 719.68 | | 1 | | 1 | 1 | |
| 719.69 | | 1 | | 1 | 1 | |
| 719.7 | | | | | | |
| 719.70 | | | | 1 | | |
| 719.75 | | | | 1 | | |
| 719.76 | | | | 1 | | |
| 719.77 | | | | 1 | | |
| 719.78 | | | | 1 | | |
| 719.79 | | | | 1 | | |
| 719.8 | | | | | | |
| 719.80 | | 1 | | 1 | | |
| 719.81 | | 1 | | 1 | | |
| 719.82 | | 1 | | 1 | | |
| 719.83 | | 1 | | 1 | | |
| 719.84 | | 1 | | 1 | | |
| 719.85 | | 1 | | 1 | | |
| 719.86 | | 1 | | 1 | | |
| 719.87 | | 1 | | 1 | | |
| 719.88 | | 1 | | 1 | | |
| 719.89 | | 1 | | 1 | | |
| 719.9 | | | | | | |
| 719.90 | | 1 | | 1 | | |
| 719.91 | | 1 | | 1 | | |
| 719.92 | | 1 | | 1 | | |
| 719.93 | | 1 | | 1 | | |
| 719.94 | | 1 | | 1 | | |
| 719.95 | | 1 | | 1 | | |
| 719.96 | | 1 | | 1 | | |
| 719.97 | | 1 | | 1 | | |
| 719.98 | | 1 | | 1 | | |
| 719.99 | | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 720.1 | | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 720.2 | 1 | 1 | | 1 | 1 | |
| 721.0 | | 1 | | 1 | 1 | |
| 721.1 | | 1 | | 1 | 1 | |
| 721.2 | | 1 | | 1 | 1 | |
| 721.3 | | 1 | | 1 | 1 | |
| 721.4 | | | | 1 | 1 | |
| 721.41 | | 1 | | 1 | 1 | |
| 721.42 | | 1 | | 1 | 1 | |
| 721.7 | 1 | 1 | | 1 | | 1 |
| 721.9 | | | | | | |
| 721.90 | | 1 | | 1 | 1 | |
| 721.91 | | 1 | | 1 | 1 | |
| 722 | | | | 1 | | |
| 722.0 | 1 | 1 | | 1 | | |
| 722.1 | 1 | | | 1 | | |
| 722.10 | 1 | 1 | | 1 | | |
| 722.11 | 1 | 1 | | 1 | | |
| 722.2 | 1 | 1 | | 1 | | |
| 722.4 | | | | 1 | 1 | |
| 722.5 | | | | 1 | 1 | |
| 722.51 | | 1 | | 1 | 1 | |
| 722.52 | | 1 | | 1 | 1 | |
| 722.60 | | 1 | | 1 | 1 | |
| 722.7 | | | | | | |
| 722.70 | 1 | 1 | | 1 | 1 | |
| 722.71 | 1 | 1 | | 1 | 1 | |
| 722.72 | 1 | 1 | | 1 | 1 | |
| 722.73 | 1 | 1 | | 1 | 1 | |
| 723.0 | | 1 | | 1 | 1 | |
| 723.1 | 1 | 1 | | 1 | 1 | |
| 723.3 | | 1 | | 1 | 1 | |
| 723.4 | 1 | 1 | | 1 | 1 | |
| 723.5 | | | | 1 | 1 | |
| 723.9 | | 1 | | 1 | 1 | |
| 724 | | | | | | |
| 724.0 | | | | | | |
| 724.00 | | 1 | | 1 | 1 | |
| 724.01 | | 1 | | 1 | 1 | |
| 724.02 | | 1 | | 1 | 1 | |
| 724.09 | | 1 | | 1 | 1 | |
| 724.1 | | 1 | | | | |
| 724.2 | 1 | 1 | 1 | 1 | 1 | |
| 724.3 | 1 | 1 | | 1 | 1 | |
| 724.4 | 1 | 1 | | 1 | 1 | |
| 724.5 | 1 | 1 | 1 | 1 | 1 | |
| 724.60 | | 1 | | 1 | 1 | |
| 724.7 | | | | | | |
| 724.70 | | 1 | | 1 | 1 | |
| 724.71 | | 1 | | 1 | 1 | |
| 724.79 | | 1 | | 1 | 1 | |
| 724.8 | | 1 | | 1 | 1 | |
| 724.9 | 1 | | 1 | | | |
| 726.0 | 1 | 1 | | 1 | | |

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|---|---|---|---|---|---|---|
| 726.1 | 1 | | | | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 726.10 | 1 | 1 | | 1 | 1 | |
| 726.11 | 1 | 1 | | 1 | 1 | |
| 726.12 | 1 | 1 | | 1 | 1 | |
| 726.19 | 1 | 1 | | 1 | 1 | |
| 726.2 | 1 | 1 | | 1 | 1 | |
| 726.3 | 1 | | | | | |
| 726.30 | 1 | 1 | | 1 | 1 | |
| 726.31 | 1 | 1 | | 1 | 1 | |
| 726.32 | 1 | 1 | | 1 | 1 | |
| 726.33 | 1 | 1 | | 1 | 1 | |
| 726.39 | 1 | 1 | | 1 | 1 | |
| 726.4 | 1 | 1 | | 1 | 1 | |
| 726.5 | 1 | 1 | 1 | 1 | 1 | |
| 726.60 | 1 | | 1 | | | |
| 726.60 | 1 | 1 | 1 | 1 | 1 | |
| 726.61 | 1 | 1 | 1 | 1 | 1 | |
| 726.62 | 1 | 1 | 1 | 1 | 1 | |
| 726.63 | 1 | 1 | 1 | 1 | 1 | |
| 726.64 | 1 | 1 | 1 | 1 | 1 | |
| 726.65 | 1 | 1 | 1 | 1 | 1 | |
| 726.69 | 1 | 1 | 1 | 1 | 1 | |
| 726.7 | 1 | | 1 | | | |
| 726.70 | 1 | 1 | 1 | 1 | 1 | |
| 726.71 | 1 | 1 | 1 | 1 | 1 | |
| 726.72 | 1 | 1 | 1 | 1 | 1 | |
| 726.73 | 1 | 1 | 1 | 1 | 1 | |
| 726.79 | 1 | 1 | 1 | 1 | 1 | |
| 726.8 | 1 | 1 | 1 | 1 | 1 | |
| 726.9 | 1 | | 1 | | | |
| 726.90 | 1 | 1 | 1 | 1 | 1 | |
| 726.91 | 1 | 1 | 1 | 1 | 1 | |
| 727.0 | | | | | | |
| 727.00 | | 1 | | 1 | 1 | |
| 727.03 | | 1 | | 1 | 1 | |
| 727.04 | | 1 | | 1 | 1 | |
| 727.05 | | 1 | | 1 | 1 | |
| 727.06 | | 1 | | 1 | 1 | |
| 727.09 | | 1 | | 1 | 1 | |
| 727.1 | | | | | 1 | |
| 727.2 | 1 | 1 | 1 | 1 | 1 | |
| 727.3 | 1 | 1 | 1 | 1 | 1 | |
| 727.5 | | | | | | |
| 727.50 | | 1 | | 1 | | 1 |
| 727.51 | | 1 | | 1 | | 1 |
| 727.59 | | | | 1 | 1 | |
| 727.60 | | | | 1 | | |
| 727.60 | 1 | 1 | | 1 | 1 | |
| 727.61 | 1 | 1 | | | | |
| 727.62 | 1 | 1 | | 1 | 1 | |
| 727.63 | 1 | 1 | | 1 | 1 | |
| 727.64 | 1 | 1 | | 1 | 1 | |
| 727.65 | 1 | 1 | 1 | 1 | 1 | |
| 727.66 | 1 | 1 | 1 | 1 | 1 | |

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|---|---|---|---|---|---|---|
| 727.67 | 1 | 1 | 1 | 1 | 1 | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 727.68 | 1 | 1 | 1 | 1 | 1 | |
| 727.69 | 1 | 1 | | 1 | 1 | |
| 727.82 | | 1 | | 1 | 1 | |
| 727.83 | | 1 | | 1 | 1 | |
| 727.9 | | 1 | | 1 | 1 | |
| 728.12 | | 1 | | 1 | | 1 |
| 728.4 | | 1 | | 1 | | |
| 728.5 | | | | 1 | | |
| 728.9 | | 1 | | 1 | 1 | |
| 728.71 | 1 | 1 | 1 | 1 | 1 | |
| 728.83 | 1 | 1 | | 1 | 1 | |
| 728.85 | | 1 | | 1 | 1 | |
| 729.1 | 1 | 1 | 1 | 1 | 1 | |
| 729.2 | 1 | 1 | | 1 | 1 | |
| 729.4 | | 1 | | 1 | 1 | |
| 729.5 | | 1 | | 1 | 1 | |
| 729.60 | | 1 | | | | |
| 729.8 | | | | | | |
| 729.81 | | 1 | | 1 | 1 | |
| 729.82 | | 1 | | 1 | 1 | |
| 729.89 | | | | 1 | 1 | |
| 729.9 | | 1 | | 1 | 1 | |
| 733 | | | | 1 | | |
| 733.10 | 1 | 1 | 1 | 1 | 1 | |
| 733.11 | 1 | | | 1 | 1 | |
| 733.12 | 1 | | | | | |
| 733.13 | 1 | | | 1 | 1 | |
| 733.14 | 1 | 1 | 1 | 1 | 1 | |
| 733.15 | 1 | 1 | 1 | 1 | 1 | |
| 733.16 | 1 | 1 | 1 | 1 | 1 | |
| 733.19 | 1 | 1 | 1 | 1 | 1 | |
| 733.60 | | 1 | 1 | | | |
| 733.93 | 1 | | 1 | 1 | 1 | |
| 733.94 | 1 | | 1 | 1 | 1 | |
| 733.95 | 1 | | 1 | 1 | 1 | |
| 734 | 1 | 1 | | 1 | 1 | |
| 735 | | | | | | |
| 735.0 | | | | | 1 | |
| 735.1 | | | | | 1 | |
| 735.2 | | | | | 1 | |
| 735.3 | | | | | 1 | |
| 735.4 | | | | | 1 | |
| 735.5 | | | | | 1 | |
| 735.8 | | | | | 1 | |
| 735.9 | | | | | 1 | |
| 736 | | | | | | |
| 736.0 | | | | | | |
| 736.00 | | | | | 1 | |
| 736.01 | | | | | 1 | |
| 736.02 | | | | | 1 | |
| 736.03 | | | | | 1 | |
| 736.04 | | | | | 1 | |
| 736.05 | | | | | 1 | |

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|---|---|---|---|---|---|---|
| 736.06 | | | | | 1 | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 736.07 | | | | | 1 | |
| 736.1 | | | | | 1 | |
| 736.2 | | | | | | |
| 736.20 | | | | | 1 | |
| 736.21 | | | | | 1 | |
| 736.22 | | | | | 1 | |
| 736.29 | | | | | 1 | |
| 736.4 | | | | | | |
| 736.41 | | | | | 1 | |
| 736.42 | | | | | 1 | |
| 736.5 | | | | | 1 | |
| 736.60 | | | | | 1 | |
| 736.7 | | | | | | |
| 736.70 | | | | | 1 | |
| 736.71 | | | | | 1 | |
| 736.72 | | | | | 1 | |
| 736.73 | | | | | 1 | |
| 736.74 | | | | | 1 | |
| 736.75 | | | | | 1 | |
| 736.76 | | | | | 1 | |
| 736.79 | | | | | 1 | |
| 736.8 | | | | | | |
| 736.81 | | | | | 1 | |
| 736.89 | | | | | 1 | |
| 736.9 | | | | | 1 | |
| 737 | | | | | | |
| 737.0 | | | | | 1 | |
| 737.1 | | | | | | |
| 737.10 | | | | | 1 | |
| 737.19 | | | | | 1 | |
| 737.2 | | | | | | |
| 737.20 | | | | | 1 | |
| 737.21 | | | | | 1 | |
| 737.22 | | | | | 1 | |
| 737.29 | | | | | 1 | |
| 737.3 | | | | | | |
| 737.30 | | | | | 1 | |
| 737.31 | | | | | 1 | |
| 737.32 | | | | | 1 | |
| 737.33 | | | | | 1 | |
| 737.34 | | | | | 1 | |
| 737.39 | | | | | 1 | |
| 737.8 | | | | | 1 | |
| 737.9 | | | | | 1 | |
| 738 | | | | | | |
| 738.4 | | | | | 1 | |
| 738.7 | | | | | 1 | |
| 738.8 | | | | | 1 | |
| 738.9 | | | | | 1 | |
| 739 | | | | | | |
| 739.0 | | 1 | | 1 | | |
| 739.1 | | 1 | | 1 | 1 | |
| 739.2 | | 1 | | 1 | 1 | |

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| 739.3 | | 1 | | 1 | 1 | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 739.4 | | 1 | | 1 | 1 | |
| 739.5 | | 1 | | 1 | 1 | |
| 739.60 | | 1 | | 1 | 1 | |
| 739.7 | | 1 | | 1 | 1 | |
| 739.8 | | 1 | | 1 | 1 | |
| 782.3 | | | | 1 | | |
| 800 | | | | | | |
| 800.0 | 1 | | | | | |
| 800.00 | 1 | 1 | | 1 | | |
| 800.01 | 1 | 1 | | 1 | | |
| 800.02 | 1 | 1 | | 1 | | |
| 800.03 | 1 | 1 | | 1 | | |
| 800.04 | 1 | 1 | | 1 | | |
| 800.05 | 1 | 1 | | 1 | | |
| 800.06 | 1 | 1 | | 1 | | |
| 800.09 | 1 | 1 | | 1 | | |
| 800.1 | 1 | | | | | |
| 800.10 | 1 | 1 | | 1 | | |
| 800.11 | 1 | 1 | | 1 | | |
| 800.12 | 1 | 1 | | 1 | | |
| 800.13 | 1 | 1 | | 1 | | |
| 800.14 | 1 | 1 | | 1 | | |
| 800.15 | 1 | 1 | | 1 | | |
| 800.16 | 1 | 1 | | 1 | | |
| 800.19 | 1 | 1 | | 1 | | |
| 800.2 | 1 | | | | | |
| 800.20 | 1 | 1 | | 1 | | |
| 800.21 | 1 | 1 | | 1 | | |
| 800.22 | 1 | 1 | | 1 | | |
| 800.23 | 1 | 1 | | 1 | | |
| 800.24 | 1 | 1 | | 1 | | |
| 800.25 | 1 | 1 | | 1 | | |
| 800.26 | 1 | 1 | | 1 | | |
| 800.29 | 1 | 1 | | 1 | | |
| 800.3 | 1 | | | | | |
| 800.30 | 1 | 1 | | 1 | | |
| 800.31 | 1 | 1 | | 1 | | |
| 800.32 | 1 | 1 | | 1 | | |
| 800.33 | 1 | 1 | | 1 | | |
| 800.34 | 1 | 1 | | 1 | | |
| 800.35 | 1 | 1 | | 1 | | |
| 800.36 | 1 | 1 | | 1 | | |
| 800.39 | 1 | 1 | | 1 | | |
| 800.4 | 1 | | | | | |
| 800.40 | 1 | 1 | | 1 | | |
| 800.41 | 1 | 1 | | 1 | | |
| 800.42 | 1 | 1 | | 1 | | |
| 800.43 | 1 | 1 | | 1 | | |
| 800.44 | 1 | 1 | | 1 | | |
| 800.45 | 1 | 1 | | 1 | | |
| 800.46 | 1 | 1 | | 1 | | |
| 800.49 | 1 | 1 | | 1 | | |
| 800.5 | 1 | | | | | |

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|---|---|---|---|---|---|---|
| 800.50 | 1 | 1 | | 1 | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 800.51 | 1 | 1 | | 1 | | |
| 800.52 | 1 | 1 | | 1 | | |
| 800.53 | 1 | 1 | | 1 | | |
| 800.54 | 1 | 1 | | 1 | | |
| 800.55 | 1 | 1 | | 1 | | |
| 800.56 | 1 | 1 | | 1 | | |
| 800.57 | | 1 | | 1 | | |
| 800.59 | 1 | 1 | | 1 | | |
| 800.60 | 1 | | | | | |
| 800.60 | 1 | 1 | | 1 | | |
| 800.61 | 1 | 1 | | 1 | | |
| 800.62 | 1 | 1 | | 1 | | |
| 800.63 | 1 | 1 | | 1 | | |
| 800.64 | 1 | 1 | | 1 | | |
| 800.65 | 1 | 1 | | 1 | | |
| 800.66 | 1 | 1 | | 1 | | |
| 800.69 | 1 | 1 | | 1 | | |
| 800.7 | 1 | | | | | |
| 800.70 | 1 | 1 | | 1 | | |
| 800.71 | 1 | 1 | | 1 | | |
| 800.72 | 1 | 1 | | 1 | | |
| 800.73 | 1 | 1 | | 1 | | |
| 800.74 | 1 | 1 | | 1 | | |
| 800.75 | 1 | 1 | | 1 | | |
| 800.76 | 1 | 1 | | 1 | | |
| 800.79 | 1 | 1 | | 1 | | |
| 800.8 | 1 | | | | | |
| 800.80 | 1 | 1 | | 1 | | |
| 800.81 | 1 | 1 | | 1 | | |
| 800.82 | 1 | 1 | | 1 | | |
| 800.83 | 1 | 1 | | 1 | | |
| 800.84 | 1 | 1 | | 1 | | |
| 800.85 | 1 | 1 | | 1 | | |
| 800.86 | 1 | 1 | | 1 | | |
| 800.89 | 1 | 1 | | 1 | | |
| 800.9 | 1 | | | | | |
| 800.90 | 1 | 1 | | 1 | | |
| 800.91 | 1 | 1 | | 1 | | |
| 800.92 | 1 | 1 | | 1 | | |
| 800.93 | 1 | 1 | | 1 | | |
| 800.94 | 1 | 1 | | 1 | | |
| 800.95 | 1 | 1 | | 1 | | |
| 800.96 | 1 | 1 | | 1 | | |
| 800.99 | 1 | 1 | | 1 | | |
| 801 | 1 | | | | | |
| 801.0 | 1 | | | | | |
| 801.00 | 1 | 1 | | 1 | | |
| 801.01 | 1 | 1 | | 1 | | |
| 801.02 | 1 | 1 | | 1 | | |
| 801.03 | 1 | 1 | | 1 | | |
| 801.04 | 1 | 1 | | 1 | | |
| 801.05 | 1 | 1 | | 1 | | |
| 801.06 | 1 | 1 | | 1 | | |

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|---|---|---|---|---|---|---|
| 801.09 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 801.1 | | | | | | |
| 801.10 | 1 | 1 | | 1 | | |
| 801.11 | 1 | 1 | | 1 | | |
| 801.12 | 1 | 1 | | 1 | | |
| 801.13 | 1 | 1 | | 1 | | |
| 801.14 | 1 | 1 | | 1 | | |
| 801.15 | 1 | 1 | | 1 | | |
| 801.16 | 1 | 1 | | 1 | | |
| 801.19 | 1 | 1 | | 1 | | |
| 801.2 | 1 | | | | | |
| 801.20 | 1 | 1 | | 1 | | |
| 801.21 | 1 | 1 | | 1 | | |
| 801.22 | 1 | 1 | | 1 | | |
| 801.23 | 1 | 1 | | 1 | | |
| 801.24 | 1 | 1 | | 1 | | |
| 801.25 | 1 | 1 | | 1 | | |
| 801.26 | 1 | 1 | | 1 | | |
| 801.29 | 1 | 1 | | 1 | | |
| 801.3 | 1 | | | | | |
| 801.30 | 1 | 1 | | 1 | | |
| 801.31 | 1 | 1 | | 1 | | |
| 801.32 | 1 | 1 | | 1 | | |
| 801.33 | 1 | 1 | | 1 | | |
| 801.34 | 1 | 1 | | 1 | | |
| 801.35 | 1 | 1 | | 1 | | |
| 801.36 | 1 | 1 | | 1 | | |
| 801.39 | 1 | 1 | | 1 | | |
| 801.4 | 1 | | | | | |
| 801.40 | 1 | 1 | | 1 | | |
| 801.41 | 1 | 1 | | 1 | | |
| 801.42 | 1 | 1 | | 1 | | |
| 801.43 | 1 | 1 | | 1 | | |
| 801.44 | 1 | 1 | | 1 | | |
| 801.45 | 1 | 1 | | 1 | | |
| 801.46 | 1 | 1 | | 1 | | |
| 801.49 | 1 | 1 | | 1 | | |
| 801.5 | 1 | | | | | |
| 801.50 | 1 | 1 | | 1 | | |
| 801.51 | 1 | 1 | | 1 | | |
| 801.52 | 1 | 1 | | 1 | | |
| 801.53 | 1 | 1 | | 1 | | |
| 801.54 | 1 | 1 | | 1 | | |
| 801.55 | 1 | 1 | | 1 | | |
| 801.56 | 1 | 1 | | 1 | | |
| 801.57 | 1 | 1 | | 1 | | |
| 801.59 | 1 | 1 | | 1 | | |
| 801.60 | 1 | | | | | |
| 801.60 | 1 | 1 | | 1 | | |
| 801.61 | 1 | 1 | | 1 | | |
| 801.62 | 1 | 1 | | 1 | | |
| 801.63 | 1 | 1 | | 1 | | |
| 801.64 | 1 | 1 | | 1 | | |
| 801.65 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 801.66 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 801.69 | 1 | 1 | | 1 | | |
| 801.7 | 1 | | | | | |
| 801.70 | 1 | 1 | | 1 | | |
| 801.71 | 1 | 1 | | 1 | | |
| 801.72 | 1 | 1 | | 1 | | |
| 801.73 | 1 | 1 | | 1 | | |
| 801.74 | 1 | 1 | | 1 | | |
| 801.75 | 1 | 1 | | 1 | | |
| 801.76 | 1 | 1 | | 1 | | |
| 801.79 | 1 | 1 | | 1 | | |
| 801.8 | 1 | | | | | |
| 801.80 | 1 | 1 | | 1 | | |
| 801.81 | 1 | 1 | | 1 | | |
| 801.82 | 1 | 1 | | 1 | | |
| 801.83 | 1 | 1 | | 1 | | |
| 801.84 | 1 | 1 | | 1 | | |
| 801.85 | 1 | 1 | | 1 | | |
| 801.86 | 1 | 1 | | 1 | | |
| 801.89 | 1 | 1 | | 1 | | |
| 801.9 | 1 | | | | | |
| 801.90 | 1 | 1 | | 1 | | |
| 801.91 | 1 | 1 | | 1 | | |
| 801.92 | 1 | 1 | | 1 | | |
| 801.93 | 1 | 1 | | 1 | | |
| 801.94 | 1 | 1 | | 1 | | |
| 801.95 | 1 | 1 | | 1 | | |
| 801.96 | 1 | 1 | | 1 | | |
| 801.99 | 1 | 1 | | 1 | | |
| 802 | 1 | | | | | |
| 802.0 | 1 | 1 | | 1 | | |
| 802.1 | 1 | 1 | | 1 | | |
| 802.2 | 1 | | | | | |
| 802.20 | 1 | 1 | | 1 | | |
| 802.21 | 1 | 1 | | 1 | | |
| 802.22 | 1 | 1 | | 1 | | |
| 802.23 | 1 | 1 | | 1 | | |
| 802.24 | 1 | 1 | | 1 | | |
| 802.25 | 1 | 1 | | 1 | | |
| 802.26 | 1 | 1 | | 1 | | |
| 802.27 | 1 | 1 | | 1 | | |
| 802.28 | 1 | 1 | | 1 | | |
| 802.29 | 1 | 1 | | 1 | | |
| 802.3 | 1 | | | | | |
| 802.30 | 1 | 1 | | 1 | | |
| 802.31 | 1 | 1 | | 1 | | |
| 802.32 | 1 | 1 | | 1 | | |
| 802.33 | 1 | 1 | | 1 | | |
| 802.34 | 1 | 1 | | 1 | | |
| 802.35 | 1 | 1 | | 1 | | |
| 802.36 | 1 | 1 | | 1 | | |
| 802.37 | 1 | 1 | | 1 | | |
| 802.38 | 1 | 1 | | 1 | | |
| 802.39 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 802.4 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 802.5 | 1 | 1 | | 1 | | |
| 802.60 | 1 | 1 | | 1 | | |
| 802.7 | 1 | 1 | | 1 | | |
| 802.8 | 1 | 1 | | 1 | | |
| 802.9 | 1 | 1 | | 1 | | |
| 803 | 1 | | | | | |
| 803.0 | 1 | | | | | |
| 803.00 | 1 | 1 | | 1 | | |
| 803.01 | 1 | 1 | | 1 | | |
| 803.02 | 1 | 1 | | 1 | | |
| 803.03 | 1 | 1 | | 1 | | |
| 803.04 | 1 | 1 | | 1 | | |
| 803.05 | 1 | 1 | | 1 | | |
| 803.06 | 1 | 1 | | 1 | | |
| 803.09 | 1 | 1 | | 1 | | |
| 803.1 | 1 | | | | | |
| 803.10 | 1 | 1 | | 1 | | |
| 803.11 | 1 | 1 | | 1 | | |
| 803.12 | 1 | 1 | | 1 | | |
| 803.13 | 1 | 1 | | 1 | | |
| 803.14 | 1 | 1 | | 1 | | |
| 803.15 | 1 | 1 | | 1 | | |
| 803.16 | 1 | 1 | | 1 | | |
| 803.19 | 1 | 1 | | 1 | | |
| 803.2 | 1 | | | | | |
| 803.20 | 1 | 1 | | 1 | | |
| 803.21 | 1 | 1 | | 1 | | |
| 803.22 | 1 | 1 | | 1 | | |
| 803.23 | 1 | 1 | | 1 | | |
| 803.24 | 1 | 1 | | 1 | | |
| 803.25 | 1 | 1 | | 1 | | |
| 803.26 | 1 | 1 | | 1 | | |
| 803.29 | 1 | 1 | | 1 | | |
| 803.3 | 1 | | | | | |
| 803.30 | 1 | 1 | | 1 | | |
| 803.31 | 1 | 1 | | 1 | | |
| 803.32 | 1 | 1 | | 1 | | |
| 803.33 | 1 | 1 | | 1 | | |
| 803.34 | 1 | 1 | | 1 | | |
| 803.35 | 1 | 1 | | 1 | | |
| 803.36 | 1 | 1 | | 1 | | |
| 803.39 | 1 | 1 | | 1 | | |
| 803.4 | 1 | | | | | |
| 803.40 | 1 | 1 | | 1 | | |
| 803.41 | 1 | 1 | | 1 | | |
| 803.42 | 1 | 1 | | 1 | | |
| 803.43 | 1 | 1 | | 1 | | |
| 803.44 | 1 | 1 | | 1 | | |
| 803.45 | 1 | 1 | | 1 | | |
| 803.46 | 1 | 1 | | 1 | | |
| 803.49 | 1 | 1 | | 1 | | |
| 803.5 | 1 | | | | | |
| 803.50 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 803.51 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 803.52 | 1 | 1 | | 1 | | |
| 803.53 | 1 | 1 | | 1 | | |
| 803.54 | 1 | 1 | | 1 | | |
| 803.55 | 1 | 1 | | 1 | | |
| 803.56 | 1 | 1 | | 1 | | |
| 803.57 | 1 | 1 | | 1 | | |
| 803.59 | 1 | 1 | | 1 | | |
| 803.60 | 1 | | | | | |
| 803.60 | 1 | 1 | | 1 | | |
| 803.61 | 1 | 1 | | 1 | | |
| 803.62 | 1 | 1 | | 1 | | |
| 803.63 | 1 | 1 | | 1 | | |
| 803.64 | 1 | 1 | | 1 | | |
| 803.65 | 1 | 1 | | 1 | | |
| 803.66 | 1 | 1 | | 1 | | |
| 803.69 | 1 | 1 | | 1 | | |
| 803.7 | 1 | | | | | |
| 803.70 | 1 | 1 | | 1 | | |
| 803.71 | 1 | 1 | | 1 | | |
| 803.72 | 1 | 1 | | 1 | | |
| 803.73 | 1 | 1 | | 1 | | |
| 803.74 | 1 | 1 | | 1 | | |
| 803.75 | 1 | 1 | | 1 | | |
| 803.76 | 1 | 1 | | 1 | | |
| 803.79 | 1 | 1 | | 1 | | |
| 803.8 | 1 | | | | | |
| 803.80 | 1 | 1 | | 1 | | |
| 803.81 | 1 | 1 | | 1 | | |
| 803.82 | 1 | 1 | | 1 | | |
| 803.83 | 1 | 1 | | 1 | | |
| 803.84 | 1 | 1 | | 1 | | |
| 803.85 | 1 | 1 | | 1 | | |
| 803.86 | 1 | 1 | | 1 | | |
| 803.89 | 1 | 1 | | 1 | | |
| 803.9 | 1 | | | | | |
| 803.90 | 1 | 1 | | 1 | | |
| 803.91 | 1 | 1 | | 1 | | |
| 803.92 | 1 | 1 | | 1 | | |
| 803.93 | 1 | 1 | | 1 | | |
| 803.94 | 1 | 1 | | 1 | | |
| 803.95 | 1 | 1 | | 1 | | |
| 803.96 | 1 | 1 | | 1 | | |
| 803.99 | 1 | 1 | | 1 | | |
| 804 | 1 | | | | | |
| 804.0 | 1 | | | | | |
| 804.00 | 1 | 1 | | 1 | | |
| 804.01 | 1 | 1 | | 1 | | |
| 804.02 | 1 | 1 | | 1 | | |
| 804.03 | 1 | 1 | | 1 | | |
| 804.04 | 1 | 1 | | 1 | | |
| 804.05 | 1 | 1 | | 1 | | |
| 804.06 | 1 | 1 | | 1 | | |
| 804.09 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 804.1 | 1 | | | | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 804.10 | 1 | 1 | | 1 | | |
| 804.11 | 1 | 1 | | 1 | | |
| 804.12 | 1 | 1 | | 1 | | |
| 804.13 | 1 | 1 | | 1 | | |
| 804.14 | 1 | 1 | | 1 | | |
| 804.15 | 1 | 1 | | 1 | | |
| 804.16 | 1 | 1 | | 1 | | |
| 804.19 | 1 | 1 | | 1 | | |
| 804.2 | 1 | | | | | |
| 804.20 | 1 | 1 | | 1 | | |
| 804.21 | 1 | 1 | | 1 | | |
| 804.22 | 1 | 1 | | 1 | | |
| 804.23 | 1 | 1 | | 1 | | |
| 804.24 | 1 | 1 | | 1 | | |
| 804.25 | 1 | 1 | | 1 | | |
| 804.26 | 1 | 1 | | 1 | | |
| 804.29 | 1 | 1 | | 1 | | |
| 804.3 | 1 | | | | | |
| 804.30 | 1 | 1 | | 1 | | |
| 804.31 | 1 | 1 | | 1 | | |
| 804.32 | 1 | 1 | | 1 | | |
| 804.33 | 1 | 1 | | 1 | | |
| 804.34 | 1 | 1 | | 1 | | |
| 804.35 | 1 | 1 | | 1 | | |
| 804.36 | 1 | 1 | | 1 | | |
| 804.39 | 1 | 1 | | 1 | | |
| 804.4 | | | | | | |
| 804.40 | 1 | 1 | | 1 | | |
| 804.41 | 1 | 1 | | 1 | | |
| 804.42 | 1 | 1 | | 1 | | |
| 804.43 | 1 | 1 | | 1 | | |
| 804.44 | 1 | 1 | | 1 | | |
| 804.45 | 1 | 1 | | 1 | | |
| 804.46 | 1 | 1 | | 1 | | |
| 804.49 | 1 | 1 | | 1 | | |
| 804.5 | 1 | | | | | |
| 804.50 | 1 | 1 | | 1 | | |
| 804.51 | 1 | 1 | | 1 | | |
| 804.52 | 1 | 1 | | 1 | | |
| 804.53 | 1 | 1 | | 1 | | |
| 804.54 | 1 | 1 | | 1 | | |
| 804.55 | 1 | 1 | | 1 | | |
| 804.56 | 1 | 1 | | 1 | | |
| 804.57 | 1 | 1 | | 1 | | |
| 804.59 | 1 | 1 | | 1 | | |
| 804.60 | 1 | | | | | |
| 804.60 | 1 | 1 | | 1 | | |
| 804.61 | 1 | 1 | | 1 | | |
| 804.62 | 1 | 1 | | 1 | | |
| 804.63 | 1 | 1 | | 1 | | |
| 804.64 | 1 | 1 | | 1 | | |
| 804.65 | 1 | 1 | | 1 | | |
| 804.66 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 804.69 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 804.7 | 1 | | | | | |
| 804.70 | 1 | 1 | | 1 | | |
| 804.71 | 1 | 1 | | 1 | | |
| 804.72 | 1 | 1 | | 1 | | |
| 804.73 | 1 | 1 | | 1 | | |
| 804.74 | 1 | 1 | | 1 | | |
| 804.75 | 1 | 1 | | 1 | | |
| 804.76 | 1 | 1 | | 1 | | |
| 804.79 | 1 | 1 | | 1 | | |
| 804.8 | 1 | | | | | |
| 804.80 | 1 | 1 | | 1 | | |
| 804.81 | 1 | 1 | | 1 | | |
| 804.82 | 1 | 1 | | 1 | | |
| 804.83 | 1 | 1 | | 1 | | |
| 804.84 | 1 | 1 | | 1 | | |
| 804.85 | 1 | 1 | | 1 | | |
| 804.86 | 1 | 1 | | 1 | | |
| 804.89 | 1 | 1 | | 1 | | |
| 804.9 | 1 | | | | | |
| 804.90 | 1 | 1 | | 1 | | |
| 804.91 | 1 | 1 | | 1 | | |
| 804.92 | 1 | 1 | | 1 | | |
| 804.93 | 1 | 1 | | 1 | | |
| 804.94 | 1 | 1 | | 1 | | |
| 804.95 | 1 | 1 | | 1 | | |
| 804.96 | 1 | 1 | | 1 | | |
| 804.99 | 1 | 1 | | 1 | | |
| 805 | | | | | | |
| 805.0 | 1 | | | | | |
| 805.00 | 1 | 1 | | 1 | | 1 |
| 805.01 | 1 | 1 | | 1 | | 1 |
| 805.02 | 1 | 1 | | 1 | | 1 |
| 805.03 | 1 | 1 | | 1 | | 1 |
| 805.04 | 1 | 1 | | 1 | | 1 |
| 805.05 | 1 | 1 | | 1 | | 1 |
| 805.06 | 1 | 1 | | 1 | | 1 |
| 805.07 | 1 | 1 | | 1 | | 1 |
| 805.08 | 1 | 1 | | 1 | | 1 |
| 805.1 | 1 | | | | | |
| 805.10 | 1 | 1 | | 1 | | 1 |
| 805.11 | 1 | 1 | | 1 | | 1 |
| 805.12 | 1 | 1 | | 1 | | 1 |
| 805.13 | 1 | 1 | | 1 | | 1 |
| 805.14 | 1 | 1 | | 1 | | 1 |
| 805.15 | 1 | 1 | | 1 | | 1 |
| 805.16 | 1 | 1 | | 1 | | 1 |
| 805.17 | 1 | 1 | | 1 | | 1 |
| 805.18 | 1 | 1 | | 1 | | 1 |
| 805.2 | | | | | | |
| 805.20 | | 1 | | 1 | | 1 |
| 805.21 | | 1 | | 1 | | 1 |
| 805.22 | | 1 | | 1 | | 1 |
| 805.23 | | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 805.24 | | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 805.25 | | 1 | | 1 | | 1 |
| 805.26 | | 1 | | 1 | | 1 |
| 805.27 | | 1 | | 1 | | 1 |
| 805.28 | | 1 | | 1 | | 1 |
| 805.3 | 1 | | | | | |
| 805.30 | | 1 | | 1 | | 1 |
| 805.31 | | 1 | | 1 | | 1 |
| 805.32 | | 1 | | 1 | | 1 |
| 805.33 | | 1 | | 1 | | 1 |
| 805.34 | | 1 | | 1 | | 1 |
| 805.35 | | 1 | | 1 | | 1 |
| 805.36 | | 1 | | 1 | | 1 |
| 805.37 | | 1 | | 1 | | 1 |
| 805.38 | | 1 | | 1 | | 1 |
| 805.4 | 1 | | | | | |
| 805.40 | | 1 | | 1 | | 1 |
| 805.41 | | 1 | | 1 | | 1 |
| 805.42 | | 1 | | 1 | | 1 |
| 805.43 | | 1 | | 1 | | 1 |
| 805.44 | | 1 | | 1 | | 1 |
| 805.45 | | 1 | | 1 | | 1 |
| 805.46 | | 1 | | 1 | | 1 |
| 805.47 | | 1 | | 1 | | 1 |
| 805.48 | | 1 | | 1 | | 1 |
| 805.5 | 1 | | | | | |
| 805.50 | | 1 | | 1 | | 1 |
| 805.51 | | 1 | | 1 | | 1 |
| 805.52 | | 1 | | 1 | | 1 |
| 805.53 | | 1 | | 1 | | 1 |
| 805.54 | | 1 | | 1 | | 1 |
| 805.55 | | 1 | | 1 | | 1 |
| 805.56 | | 1 | | 1 | | 1 |
| 805.57 | | 1 | | 1 | | 1 |
| 805.58 | | 1 | | 1 | | 1 |
| 805.60 | 1 | | | | | |
| 805.60 | | 1 | | 1 | | 1 |
| 805.61 | | 1 | | 1 | | 1 |
| 805.62 | | 1 | | 1 | | 1 |
| 805.63 | | 1 | | 1 | | 1 |
| 805.64 | | 1 | | 1 | | 1 |
| 805.65 | | 1 | | 1 | | 1 |
| 805.66 | | 1 | | 1 | | 1 |
| 805.67 | | 1 | | 1 | | 1 |
| 805.68 | | 1 | | 1 | | 1 |
| 805.7 | 1 | | | | | |
| 805.70 | | 1 | | 1 | | 1 |
| 805.71 | | 1 | | 1 | | 1 |
| 805.72 | | 1 | | 1 | | 1 |
| 805.73 | | 1 | | 1 | | 1 |
| 805.74 | | 1 | | 1 | | 1 |
| 805.75 | | 1 | | 1 | | 1 |
| 805.76 | | 1 | | 1 | | 1 |
| 805.77 | | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 805.78 | | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 805.8 | 1 | | | | | |
| 805.80 | | 1 | | 1 | | 1 |
| 805.81 | | 1 | | 1 | | 1 |
| 805.82 | | 1 | | 1 | | 1 |
| 805.83 | | 1 | | 1 | | 1 |
| 805.84 | | 1 | | 1 | | 1 |
| 805.85 | | 1 | | 1 | | 1 |
| 805.86 | | 1 | | 1 | | 1 |
| 805.87 | | 1 | | 1 | | 1 |
| 805.88 | | 1 | | 1 | | 1 |
| 805.9 | 1 | | | | | |
| 805.90 | | 1 | | 1 | | 1 |
| 805.91 | | 1 | | 1 | | 1 |
| 805.92 | | 1 | | 1 | | 1 |
| 805.93 | | 1 | | 1 | | 1 |
| 805.94 | | 1 | | 1 | | 1 |
| 805.95 | | 1 | | 1 | | 1 |
| 805.96 | | 1 | | 1 | | 1 |
| 805.97 | | 1 | | 1 | | 1 |
| 805.98 | | 1 | | 1 | | 1 |
| 806 | | | | | | |
| 806.0 | 1 | | | | | |
| 806.00 | 1 | | | | | |
| 806.01 | 1 | 1 | | 1 | | 1 |
| 806.02 | 1 | 1 | | 1 | | 1 |
| 806.03 | 1 | 1 | | 1 | | 1 |
| 806.04 | 1 | 1 | | 1 | | 1 |
| 806.05 | 1 | 1 | | 1 | | 1 |
| 806.06 | 1 | 1 | | 1 | | 1 |
| 806.07 | 1 | 1 | | 1 | | 1 |
| 806.08 | 1 | 1 | | 1 | | 1 |
| 806.09 | 1 | 1 | | 1 | | 1 |
| 806.1 | 1 | | | | | |
| 806.10 | 1 | 1 | | 1 | | 1 |
| 806.11 | 1 | 1 | | 1 | | 1 |
| 806.12 | 1 | 1 | | 1 | | 1 |
| 806.13 | 1 | 1 | | 1 | | 1 |
| 806.14 | 1 | 1 | | 1 | | 1 |
| 806.15 | 1 | 1 | | 1 | | 1 |
| 806.16 | 1 | 1 | | 1 | | 1 |
| 806.17 | 1 | 1 | | 1 | | 1 |
| 806.18 | 1 | 1 | | 1 | | 1 |
| 806.19 | 1 | 1 | | 1 | | 1 |
| 806.2 | 1 | | | | | |
| 806.20 | 1 | 1 | | 1 | | 1 |
| 806.21 | 1 | 1 | | 1 | | 1 |
| 806.22 | 1 | 1 | | 1 | | 1 |
| 806.23 | 1 | 1 | | 1 | | 1 |
| 806.24 | 1 | 1 | | 1 | | 1 |
| 806.25 | 1 | 1 | | 1 | | 1 |
| 806.26 | 1 | 1 | | 1 | | 1 |
| 806.27 | 1 | 1 | | 1 | | 1 |
| 806.28 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 806.29 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 806.3 | 1 | | | | | |
| 806.30 | 1 | 1 | | 1 | | 1 |
| 806.31 | 1 | 1 | | 1 | | 1 |
| 806.32 | 1 | 1 | | 1 | | 1 |
| 806.33 | 1 | 1 | | 1 | | 1 |
| 806.34 | 1 | 1 | | 1 | | 1 |
| 806.35 | 1 | 1 | | 1 | | 1 |
| 806.36 | 1 | 1 | | 1 | | 1 |
| 806.37 | 1 | 1 | | 1 | | 1 |
| 806.38 | 1 | 1 | | 1 | | 1 |
| 806.39 | 1 | 1 | | 1 | | 1 |
| 806.4 | 1 | 1 | | 1 | | 1 |
| 806.5 | 1 | 1 | | 1 | | 1 |
| 806.60 | 1 | | | | | |
| 806.60 | 1 | 1 | | 1 | | 1 |
| 806.61 | 1 | 1 | | 1 | | 1 |
| 806.62 | 1 | 1 | | 1 | | 1 |
| 806.69 | 1 | 1 | | 1 | | 1 |
| 806.7 | 1 | | | | | |
| 806.70 | 1 | 1 | | 1 | | 1 |
| 806.71 | 1 | 1 | | 1 | | 1 |
| 806.72 | 1 | 1 | | 1 | | 1 |
| 806.79 | 1 | 1 | | 1 | | 1 |
| 806.8 | 1 | 1 | | 1 | | 1 |
| 806.9 | 1 | 1 | | 1 | | 1 |
| 807.0 | 1 | | | | | |
| 807.00 | 1 | | | | | |
| 807.01 | 1 | 1 | | 1 | | 1 |
| 807.02 | 1 | 1 | | 1 | | 1 |
| 807.03 | 1 | 1 | | 1 | | 1 |
| 807.04 | 1 | 1 | | 1 | | 1 |
| 807.05 | 1 | 1 | | 1 | | 1 |
| 807.06 | 1 | 1 | | 1 | | 1 |
| 807.07 | 1 | 1 | | 1 | | 1 |
| 807.08 | 1 | 1 | | 1 | | 1 |
| 807.09 | 1 | 1 | | 1 | | 1 |
| 807.1 | 1 | | | | | |
| 807.10 | 1 | 1 | | 1 | | 1 |
| 807.11 | 1 | 1 | | 1 | | 1 |
| 807.12 | 1 | 1 | | 1 | | 1 |
| 807.13 | 1 | 1 | | 1 | | 1 |
| 807.14 | 1 | 1 | | 1 | | 1 |
| 807.15 | 1 | 1 | | 1 | | 1 |
| 807.16 | 1 | 1 | | 1 | | 1 |
| 807.17 | 1 | 1 | | 1 | | 1 |
| 807.18 | 1 | 1 | | 1 | | 1 |
| 807.19 | 1 | 1 | | 1 | | 1 |
| 807.2 | 1 | 1 | | 1 | | 1 |
| 807.3 | 1 | 1 | | 1 | | 1 |
| 807.4 | 1 | 1 | | 1 | | 1 |
| 807.5 | 1 | 1 | | 1 | | 1 |
| 807.60 | 1 | 1 | | 1 | | 1 |
| 808.0 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 808.1 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 808.2 | 1 | 1 | | 1 | | 1 |
| 808.3 | 1 | 1 | | 1 | | 1 |
| 808.4 | 1 | | | | | |
| 808.41 | 1 | 1 | | 1 | | 1 |
| 808.42 | 1 | 1 | | 1 | | 1 |
| 808.43 | 1 | 1 | | 1 | | 1 |
| 808.49 | 1 | 1 | | 1 | | 1 |
| 808.5 | 1 | | | | | |
| 808.51 | 1 | 1 | | 1 | | 1 |
| 808.52 | 1 | 1 | | 1 | | 1 |
| 808.53 | 1 | 1 | | 1 | | 1 |
| 808.59 | 1 | 1 | | 1 | | 1 |
| 808.8 | 1 | 1 | | 1 | | 1 |
| 808.9 | 1 | 1 | | 1 | | 1 |
| 809 | 1 | | | | | |
| 809.0 | 1 | 1 | | 1 | | 1 |
| 809.1 | 1 | 1 | | 1 | | 1 |
| 810 | 1 | | | | | |
| 810.0 | 1 | | | | | |
| 810.00 | 1 | 1 | | 1 | | 1 |
| 810.01 | 1 | 1 | | 1 | | 1 |
| 810.02 | 1 | 1 | | 1 | | 1 |
| 810.03 | 1 | 1 | | 1 | | 1 |
| 810.10 | | 1 | | 1 | | 1 |
| 810.11 | 1 | 1 | | 1 | | 1 |
| 810.12 | 1 | 1 | | 1 | | 1 |
| 810.13 | 1 | 1 | | 1 | | 1 |
| 811 | 1 | | | | | |
| 811.0 | 1 | | | | | |
| 811.00 | 1 | 1 | | 1 | | 1 |
| 811.01 | 1 | 1 | | 1 | | 1 |
| 811.02 | 1 | 1 | | 1 | | 1 |
| 811.03 | 1 | 1 | | 1 | | 1 |
| 811.09 | 1 | 1 | | 1 | | 1 |
| 811.1 | 1 | | | | | |
| 811.10 | 1 | 1 | | 1 | | 1 |
| 811.11 | 1 | 1 | | 1 | | 1 |
| 811.12 | 1 | 1 | | 1 | | 1 |
| 811.13 | 1 | 1 | | 1 | | 1 |
| 811.19 | 1 | 1 | | 1 | | 1 |
| 812 | 1 | | | | | |
| 812.0 | 1 | | | | | |
| 812.00 | 1 | 1 | | 1 | | 1 |
| 812.01 | 1 | 1 | | 1 | | 1 |
| 812.02 | 1 | 1 | | 1 | | 1 |
| 812.03 | 1 | 1 | | 1 | | 1 |
| 812.09 | 1 | 1 | | 1 | | 1 |
| 812.1 | 1 | | | | | |
| 812.10 | 1 | 1 | | 1 | | 1 |
| 812.11 | 1 | 1 | | 1 | | 1 |
| 812.12 | 1 | 1 | | 1 | | 1 |
| 812.13 | 1 | 1 | | 1 | | 1 |
| 812.19 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 812.2 | 1 | | | | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 812.20 | 1 | 1 | | 1 | | 1 |
| 812.21 | 1 | 1 | | 1 | | 1 |
| 812.3 | 1 | | | | | |
| 812.30 | 1 | 1 | | 1 | | 1 |
| 812.31 | 1 | 1 | | 1 | | 1 |
| 812.4 | 1 | | | | | |
| 812.40 | 1 | 1 | | 1 | | 1 |
| 812.41 | 1 | 1 | | 1 | | 1 |
| 812.42 | 1 | 1 | | 1 | | 1 |
| 812.43 | 1 | 1 | | 1 | | 1 |
| 812.44 | 1 | 1 | | 1 | | 1 |
| 812.49 | 1 | 1 | | 1 | | 1 |
| 812.5 | 1 | | | | | |
| 812.50 | 1 | 1 | | 1 | | 1 |
| 812.51 | 1 | 1 | | 1 | | 1 |
| 812.52 | 1 | 1 | | 1 | | 1 |
| 812.53 | 1 | 1 | | 1 | | 1 |
| 812.54 | 1 | 1 | | 1 | | 1 |
| 812.59 | 1 | 1 | | 1 | | 1 |
| 813 | 1 | | | | | |
| 813.0 | 1 | | | | | |
| 813.00 | 1 | 1 | | 1 | | 1 |
| 813.01 | 1 | 1 | | 1 | | 1 |
| 813.02 | 1 | 1 | | 1 | | 1 |
| 813.03 | 1 | 1 | | 1 | | 1 |
| 813.04 | 1 | 1 | | 1 | | 1 |
| 813.05 | 1 | 1 | | 1 | | 1 |
| 813.06 | 1 | 1 | | 1 | | 1 |
| 813.07 | 1 | 1 | | 1 | | 1 |
| 813.08 | 1 | 1 | | 1 | | 1 |
| 813.1 | 1 | | | | | |
| 813.10 | 1 | 1 | | 1 | | 1 |
| 813.11 | 1 | 1 | | 1 | | 1 |
| 813.12 | 1 | 1 | | 1 | | 1 |
| 813.13 | 1 | 1 | | 1 | | 1 |
| 813.14 | 1 | 1 | | 1 | | 1 |
| 813.15 | 1 | 1 | | 1 | | 1 |
| 813.16 | 1 | 1 | | 1 | | 1 |
| 813.17 | 1 | 1 | | 1 | | 1 |
| 813.18 | 1 | 1 | | 1 | | 1 |
| 813.2 | 1 | | | | | |
| 813.20 | 1 | 1 | | 1 | | 1 |
| 813.21 | 1 | 1 | | 1 | | 1 |
| 813.22 | 1 | 1 | | 1 | | 1 |
| 813.23 | 1 | 1 | | 1 | | 1 |
| 813.3 | 1 | | | | | |
| 813.30 | 1 | 1 | | 1 | | 1 |
| 813.31 | 1 | 1 | | 1 | | 1 |
| 813.32 | 1 | 1 | | 1 | | 1 |
| 813.33 | 1 | 1 | | 1 | | 1 |
| 813.4 | 1 | | | | | |
| 813.40 | 1 | 1 | | 1 | | 1 |
| 813.41 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 813.42 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 813.43 | 1 | 1 | | 1 | | 1 |
| 813.44 | 1 | 1 | | 1 | | 1 |
| 813.5 | 1 | | | | | |
| 813.50 | 1 | 1 | | 1 | | 1 |
| 813.51 | 1 | 1 | | 1 | | 1 |
| 813.52 | 1 | 1 | | 1 | | 1 |
| 813.53 | 1 | 1 | | 1 | | 1 |
| 813.54 | 1 | 1 | | 1 | | 1 |
| 813.8 | 1 | | | | | |
| 813.80 | 1 | 1 | | 1 | | 1 |
| 813.81 | 1 | 1 | | 1 | | 1 |
| 813.82 | 1 | 1 | | 1 | | 1 |
| 813.83 | 1 | 1 | | 1 | | 1 |
| 813.9 | 1 | | | | | |
| 813.90 | 1 | 1 | | 1 | | 1 |
| 813.91 | 1 | 1 | | 1 | | 1 |
| 813.92 | 1 | 1 | | 1 | | 1 |
| 813.93 | 1 | 1 | | 1 | | 1 |
| 814 | 1 | | | | | |
| 814.0 | 1 | | | | | |
| 814.00 | 1 | 1 | | 1 | | 1 |
| 814.01 | 1 | 1 | | 1 | | 1 |
| 814.02 | 1 | 1 | | 1 | | 1 |
| 814.03 | 1 | 1 | | 1 | | 1 |
| 814.04 | 1 | 1 | | 1 | | 1 |
| 814.05 | 1 | 1 | | 1 | | 1 |
| 814.06 | 1 | 1 | | 1 | | 1 |
| 814.07 | 1 | 1 | | 1 | | 1 |
| 814.08 | 1 | 1 | | 1 | | 1 |
| 814.09 | 1 | 1 | | 1 | | 1 |
| 814.1 | 1 | | | | | |
| 814.10 | 1 | 1 | | 1 | | 1 |
| 814.11 | 1 | 1 | | 1 | | 1 |
| 814.12 | 1 | 1 | | 1 | | 1 |
| 814.13 | 1 | 1 | | 1 | | 1 |
| 814.14 | 1 | 1 | | 1 | | 1 |
| 814.15 | 1 | 1 | | 1 | | 1 |
| 814.16 | 1 | 1 | | 1 | | 1 |
| 814.17 | 1 | 1 | | 1 | | 1 |
| 814.18 | 1 | 1 | | 1 | | 1 |
| 814.19 | 1 | 1 | | 1 | | 1 |
| 815 | 1 | | | | | |
| 815.0 | 1 | | | | | |
| 815.00 | 1 | | | | | |
| 815.01 | 1 | 1 | | 1 | | 1 |
| 815.02 | 1 | 1 | | 1 | | 1 |
| 815.03 | 1 | 1 | | 1 | | 1 |
| 815.04 | 1 | 1 | | 1 | | 1 |
| 815.05 | | 1 | | 1 | | 1 |
| 815.06 | | 1 | | 1 | | 1 |
| 815.07 | | 1 | | 1 | | 1 |
| 815.08 | | 1 | | 1 | | 1 |
| 815.09 | 1 | 1 | | 1 | | 1 |

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|---|---|
| 815.1 | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 815.10 | 1 | 1 | | 1 | | 1 |
| 815.11 | 1 | 1 | | 1 | | 1 |
| 815.12 | 1 | 1 | | 1 | | 1 |
| 815.13 | 1 | 1 | | 1 | | 1 |
| 815.14 | 1 | 1 | | 1 | | 1 |
| 815.15 | | 1 | | 1 | | 1 |
| 815.16 | | 1 | | 1 | | 1 |
| 815.17 | | 1 | | 1 | | 1 |
| 815.18 | | 1 | | 1 | | 1 |
| 815.19 | 1 | 1 | | 1 | | 1 |
| 816 | 1 | | | | | |
| 816.0 | 1 | | | | | |
| 816.00 | 1 | 1 | | 1 | | 1 |
| 816.01 | 1 | 1 | | 1 | | 1 |
| 816.02 | 1 | 1 | | 1 | | 1 |
| 816.03 | 1 | 1 | | 1 | | 1 |
| 816.1 | 1 | | | | | |
| 816.11 | 1 | 1 | | 1 | | 1 |
| 816.12 | 1 | 1 | | 1 | | 1 |
| 816.13 | 1 | 1 | | 1 | | 1 |
| 817 | 1 | | | | | |
| 817.0 | 1 | 1 | | 1 | | 1 |
| 817.1 | 1 | 1 | | 1 | | 1 |
| 818 | 1 | | | | | |
| 818.0 | 1 | 1 | | 1 | | 1 |
| 818.1 | 1 | 1 | | 1 | | 1 |
| 819 | 1 | | | | | |
| 819.0 | 1 | 1 | | 1 | | 1 |
| 819.1 | 1 | 1 | | 1 | | 1 |
| 820 | 1 | | | | | |
| 820.0 | 1 | | | | | |
| 820.00 | 1 | 1 | | 1 | | 1 |
| 820.01 | 1 | 1 | | 1 | | 1 |
| 820.02 | 1 | 1 | | 1 | | 1 |
| 820.03 | 1 | 1 | | 1 | | 1 |
| 820.09 | 1 | 1 | | 1 | | 1 |
| 820.1 | 1 | | | | | |
| 820.10 | 1 | 1 | | 1 | | 1 |
| 820.11 | 1 | 1 | | 1 | | 1 |
| 820.12 | 1 | 1 | | 1 | | 1 |
| 820.13 | 1 | 1 | | 1 | | 1 |
| 820.19 | 1 | 1 | | 1 | | 1 |
| 820.2 | 1 | | | | | |
| 820.20 | 1 | 1 | | 1 | | 1 |
| 820.21 | 1 | 1 | | 1 | | 1 |
| 820.22 | 1 | 1 | | 1 | | 1 |
| 820.3 | 1 | | | | | |
| 820.30 | 1 | 1 | | 1 | | 1 |
| 820.31 | 1 | 1 | | 1 | | 1 |
| 820.32 | 1 | 1 | | 1 | | 1 |
| 820.8 | 1 | 1 | | 1 | | 1 |
| 820.9 | 1 | 1 | | 1 | | 1 |
| 821 | 1 | | | | | |

821.0 1

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 821.00 | 1 | 1 | | 1 | | 1 |
| 821.01 | 1 | 1 | | 1 | | 1 |
| 821.1 | 1 | | | | | |
| 821.10 | 1 | 1 | | 1 | | 1 |
| 821.11 | 1 | 1 | | 1 | | 1 |
| 821.2 | 1 | | | | | |
| 821.20 | 1 | 1 | | 1 | | 1 |
| 821.21 | 1 | 1 | | 1 | | 1 |
| 821.22 | 1 | 1 | | 1 | | 1 |
| 821.23 | 1 | 1 | | 1 | | 1 |
| 821.29 | 1 | 1 | | 1 | | 1 |
| 821.3 | 1 | | | | | |
| 821.30 | 1 | 1 | | 1 | | 1 |
| 821.31 | 1 | 1 | | 1 | | 1 |
| 821.32 | 1 | 1 | | 1 | | 1 |
| 821.33 | 1 | 1 | | 1 | | 1 |
| 821.39 | 1 | 1 | | 1 | | 1 |
| 822 | 1 | | | | | |
| 822.0 | 1 | 1 | | 1 | | 1 |
| 822.1 | 1 | 1 | | 1 | | 1 |
| 823 | 1 | | | | | |
| 823.0 | 1 | | | | | |
| 823.00 | 1 | 1 | | 1 | | 1 |
| 823.01 | 1 | 1 | | 1 | | 1 |
| 823.02 | 1 | 1 | | 1 | | 1 |
| 823.1 | 1 | | | | | |
| 823.10 | 1 | 1 | | 1 | | 1 |
| 823.11 | 1 | 1 | | 1 | | 1 |
| 823.12 | 1 | 1 | | 1 | | 1 |
| 823.2 | 1 | | | | | |
| 823.20 | 1 | 1 | | 1 | | 1 |
| 823.21 | 1 | 1 | | 1 | | 1 |
| 823.22 | 1 | 1 | | 1 | | 1 |
| 823.3 | 1 | | | | | |
| 823.30 | 1 | 1 | | 1 | | 1 |
| 823.31 | 1 | 1 | | 1 | | 1 |
| 823.32 | 1 | 1 | | 1 | | 1 |
| 823.8 | 1 | | | | | |
| 823.80 | 1 | 1 | | 1 | | 1 |
| 823.81 | 1 | 1 | | 1 | | 1 |
| 823.82 | 1 | 1 | | 1 | | 1 |
| 823.9 | 1 | | | | | |
| 823.90 | 1 | 1 | | 1 | | 1 |
| 823.91 | 1 | 1 | | 1 | | 1 |
| 823.92 | 1 | 1 | | 1 | | 1 |
| 824 | 1 | | | | | |
| 824.0 | 1 | 1 | | 1 | | 1 |
| 824.1 | 1 | 1 | | 1 | | 1 |
| 824.2 | 1 | 1 | | 1 | | 1 |
| 824.3 | 1 | 1 | | 1 | | 1 |
| 824.4 | 1 | 1 | | 1 | | 1 |
| 824.5 | 1 | 1 | | 1 | | 1 |
| 824.60 | 1 | 1 | | 1 | | 1 |

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|---|---|---|---|---|---|---|
| 824.7 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 824.8 | 1 | 1 | | 1 | | 1 |
| 824.9 | 1 | 1 | | 1 | | 1 |
| 825 | 1 | | | | | |
| 825.0 | 1 | 1 | | 1 | | 1 |
| 825.1 | 1 | 1 | | 1 | | 1 |
| 825.2 | 1 | | | | | |
| 825.20 | 1 | 1 | | 1 | | 1 |
| 825.21 | 1 | 1 | | 1 | | 1 |
| 825.22 | 1 | 1 | | 1 | | 1 |
| 825.23 | 1 | 1 | | 1 | | 1 |
| 825.24 | 1 | 1 | | 1 | | 1 |
| 825.25 | 1 | 1 | | 1 | | 1 |
| 825.29 | 1 | 1 | | 1 | | 1 |
| 825.3 | 1 | | | | | |
| 825.30 | 1 | 1 | | 1 | | 1 |
| 825.31 | 1 | 1 | | 1 | | 1 |
| 825.32 | 1 | 1 | | 1 | | 1 |
| 825.33 | 1 | 1 | | 1 | | 1 |
| 825.34 | 1 | 1 | | 1 | | 1 |
| 825.35 | 1 | 1 | | 1 | | 1 |
| 825.39 | 1 | 1 | | 1 | | 1 |
| 826 | 1 | | | | | |
| 826.0 | 1 | 1 | | 1 | | 1 |
| 826.1 | 1 | 1 | | 1 | | 1 |
| 827 | 1 | | | | | |
| 827.0 | 1 | 1 | | 1 | | 1 |
| 827.1 | 1 | 1 | | 1 | | 1 |
| 828 | 1 | | | | | |
| 828.0 | 1 | 1 | | 1 | | 1 |
| 828.1 | 1 | 1 | | 1 | | 1 |
| 829 | 1 | | | | | |
| 829.0 | 1 | 1 | | 1 | | 1 |
| 829.1 | 1 | 1 | | 1 | | 1 |
| 830 | 1 | | | | | |
| 830.0 | 1 | 1 | | 1 | | |
| 830.1 | 1 | 1 | | 1 | | |
| 831 | 1 | | | | | |
| 831.0 | 1 | | | | | |
| 831.00 | 1 | 1 | | 1 | | 1 |
| 831.01 | 1 | 1 | | 1 | | 1 |
| 831.02 | 1 | 1 | | 1 | | 1 |
| 831.03 | 1 | 1 | | 1 | | 1 |
| 831.04 | 1 | 1 | | 1 | | 1 |
| 831.09 | 1 | 1 | | 1 | | 1 |
| 831.1 | 1 | | | 1 | | |
| 831.10 | 1 | 1 | | 1 | | 1 |
| 831.11 | 1 | 1 | | 1 | | 1 |
| 831.12 | 1 | 1 | | 1 | | 1 |
| 831.13 | 1 | 1 | | 1 | | 1 |
| 831.14 | 1 | 1 | | 1 | | 1 |
| 831.19 | 1 | 1 | | 1 | | 1 |
| 832 | 1 | | | | | |
| 832.0 | 1 | | | | | |

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|---|---|---|---|---|---|---|
| 832.00 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 832.01 | 1 | 1 | | 1 | | 1 |
| 832.02 | 1 | 1 | | 1 | | 1 |
| 832.03 | 1 | 1 | | 1 | | 1 |
| 832.04 | 1 | 1 | | 1 | | 1 |
| 832.09 | 1 | 1 | | 1 | | 1 |
| 832.1 | 1 | | | | | |
| 832.11 | 1 | 1 | | 1 | | 1 |
| 832.12 | 1 | 1 | | 1 | | 1 |
| 832.13 | 1 | 1 | | 1 | | 1 |
| 832.14 | 1 | 1 | | 1 | | 1 |
| 832.19 | 1 | 1 | | 1 | | 1 |
| 833 | 1 | | | | | |
| 833.0 | 1 | | | | | |
| 833.00 | 1 | 1 | | 1 | | 1 |
| 833.01 | 1 | 1 | | 1 | | 1 |
| 833.02 | 1 | 1 | | 1 | | 1 |
| 833.03 | 1 | 1 | | 1 | | 1 |
| 833.04 | 1 | 1 | | 1 | | 1 |
| 833.05 | 1 | 1 | | 1 | | 1 |
| 833.09 | 1 | 1 | | 1 | | 1 |
| 833.1 | 1 | | | | | |
| 833.10 | 1 | 1 | | 1 | | 1 |
| 833.11 | 1 | 1 | | 1 | | 1 |
| 833.12 | 1 | 1 | | 1 | | 1 |
| 833.13 | 1 | 1 | | 1 | | 1 |
| 833.14 | 1 | 1 | | 1 | | 1 |
| 833.15 | 1 | 1 | | 1 | | 1 |
| 833.19 | 1 | 1 | | 1 | | 1 |
| 834 | 1 | | | | | |
| 834.0 | 1 | | | | | |
| 834.00 | 1 | 1 | | 1 | | 1 |
| 834.01 | 1 | 1 | | 1 | | 1 |
| 834.02 | 1 | 1 | | 1 | | 1 |
| 834.1 | 1 | | | 1 | | |
| 834.10 | 1 | 1 | | 1 | | 1 |
| 834.11 | 1 | 1 | | 1 | | 1 |
| 834.12 | 1 | 1 | | 1 | | 1 |
| 835 | 1 | | | | | |
| 835.0 | 1 | | | | | |
| 835.00 | 1 | 1 | | 1 | | 1 |
| 835.01 | 1 | 1 | | 1 | | 1 |
| 835.02 | 1 | 1 | | 1 | | 1 |
| 835.03 | 1 | 1 | | 1 | | 1 |
| 835.1 | 1 | | | | | |
| 835.10 | 1 | 1 | | 1 | | 1 |
| 835.11 | 1 | 1 | | 1 | | 1 |
| 835.12 | 1 | 1 | | 1 | | 1 |
| 835.13 | 1 | 1 | | 1 | | 1 |
| 836 | 1 | | | | | |
| 836.0 | 1 | 1 | | 1 | | 1 |
| 836.1 | 1 | 1 | | 1 | | 1 |
| 836.2 | 1 | 1 | | 1 | | 1 |
| 836.3 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 836.4 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 836.5 | 1 | | | | | |
| 836.50 | 1 | 1 | | 1 | | 1 |
| 836.51 | 1 | 1 | | 1 | | 1 |
| 836.52 | 1 | 1 | | 1 | | 1 |
| 836.53 | 1 | 1 | | 1 | | 1 |
| 836.54 | 1 | 1 | | 1 | | 1 |
| 836.59 | 1 | 1 | | 1 | | 1 |
| 836.60 | 1 | | | | | |
| 836.60 | 1 | 1 | | 1 | | 1 |
| 836.61 | 1 | 1 | | 1 | | 1 |
| 836.62 | 1 | 1 | | 1 | | 1 |
| 836.63 | 1 | 1 | | 1 | | 1 |
| 836.64 | 1 | 1 | | 1 | | 1 |
| 836.69 | 1 | 1 | | 1 | | 1 |
| 837 | 1 | | | 1 | | |
| 837.0 | 1 | 1 | | 1 | | 1 |
| 837.1 | 1 | 1 | | 1 | | 1 |
| 838 | 1 | | | | | |
| 838.0 | 1 | | | | | |
| 838.00 | 1 | | | | | |
| 838.01 | 1 | 1 | | 1 | | 1 |
| 838.02 | 1 | 1 | | 1 | | 1 |
| 838.03 | 1 | 1 | | 1 | | 1 |
| 838.04 | 1 | 1 | | 1 | | 1 |
| 838.05 | 1 | 1 | | 1 | | 1 |
| 838.06 | 1 | 1 | | 1 | | 1 |
| 838.09 | 1 | 1 | | 1 | | 1 |
| 838.1 | 1 | | | | | |
| 838.10 | 1 | 1 | | 1 | | 1 |
| 838.11 | 1 | 1 | | 1 | | 1 |
| 838.12 | 1 | 1 | | 1 | | 1 |
| 838.13 | 1 | 1 | | 1 | | 1 |
| 838.14 | 1 | 1 | | 1 | | 1 |
| 838.15 | 1 | 1 | | 1 | | 1 |
| 838.16 | 1 | 1 | | 1 | | 1 |
| 838.19 | 1 | 1 | | 1 | | 1 |
| 839.0 | 1 | | | | | |
| 839.00 | 1 | 1 | | 1 | | 1 |
| 839.01 | 1 | 1 | | 1 | | 1 |
| 839.02 | 1 | 1 | | 1 | | 1 |
| 839.03 | 1 | 1 | | 1 | | 1 |
| 839.04 | 1 | 1 | | 1 | | 1 |
| 839.05 | 1 | 1 | | 1 | | 1 |
| 839.06 | 1 | 1 | | 1 | | 1 |
| 839.07 | 1 | 1 | | 1 | | 1 |
| 839.08 | 1 | 1 | | 1 | | 1 |
| 839.1 | 1 | | | | | |
| 839.10 | 1 | 1 | | 1 | | 1 |
| 839.11 | 1 | 1 | | 1 | | 1 |
| 839.12 | 1 | 1 | | 1 | | 1 |
| 839.13 | 1 | 1 | | 1 | | 1 |
| 839.14 | 1 | 1 | | 1 | | 1 |
| 839.15 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 839.16 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 839.17 | 1 | 1 | | 1 | | 1 |
| 839.18 | 1 | 1 | | 1 | | 1 |
| 839.2 | 1 | | | | | |
| 839.20 | 1 | 1 | | 1 | | 1 |
| 839.21 | 1 | 1 | | 1 | | 1 |
| 839.3 | 1 | | | | | |
| 839.30 | 1 | 1 | | 1 | | 1 |
| 839.31 | 1 | 1 | | 1 | | 1 |
| 839.4 | | | | | | |
| 839.40 | 1 | 1 | | 1 | | 1 |
| 839.41 | 1 | 1 | | 1 | | 1 |
| 839.42 | 1 | 1 | | 1 | | 1 |
| 839.49 | 1 | 1 | | 1 | | 1 |
| 839.5 | | | | | | |
| 839.50 | 1 | 1 | | 1 | | 1 |
| 839.51 | 1 | 1 | | 1 | | 1 |
| 839.52 | 1 | 1 | | 1 | | 1 |
| 839.59 | 1 | 1 | | 1 | | 1 |
| 839.60 | | | | | | |
| 839.61 | 1 | 1 | | 1 | | 1 |
| 839.69 | 1 | 1 | | 1 | | 1 |
| 839.7 | | | | | | |
| 839.71 | 1 | 1 | | 1 | | 1 |
| 839.79 | 1 | 1 | | 1 | | 1 |
| 839.8 | 1 | 1 | | 1 | | 1 |
| 839.9 | 1 | 1 | | 1 | | 1 |
| 840 | 1 | | | | | |
| 840.0 | 1 | 1 | | 1 | | |
| 840.1 | 1 | 1 | | 1 | | |
| 840.2 | 1 | 1 | | 1 | | |
| 840.3 | 1 | 1 | | 1 | | |
| 840.4 | 1 | 1 | | 1 | | |
| 840.5 | 1 | 1 | | 1 | | |
| 840.60 | 1 | 1 | | 1 | | |
| 840.7 | 1 | 1 | | 1 | | |
| 840.8 | 1 | 1 | | 1 | | |
| 840.9 | 1 | 1 | | 1 | | |
| 841 | 1 | | | | | |
| 841.0 | 1 | 1 | | 1 | | |
| 841.1 | 1 | 1 | | 1 | | |
| 841.2 | 1 | 1 | | 1 | | |
| 841.3 | 1 | 1 | | 1 | | |
| 841.8 | 1 | 1 | | 1 | | |
| 841.9 | 1 | 1 | | 1 | | |
| 842 | 1 | | | | | |
| 842.0 | 1 | | | | | |
| 842.00 | 1 | 1 | | 1 | | |
| 842.01 | 1 | 1 | | 1 | | |
| 842.02 | 1 | 1 | | 1 | | |
| 842.09 | 1 | 1 | | 1 | | |
| 842.1 | 1 | | | | | |
| 842.10 | 1 | 1 | | 1 | | |
| 842.11 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 842.12 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 842.13 | 1 | 1 | | 1 | | |
| 842.19 | 1 | 1 | | 1 | | |
| 843 | 1 | | 1 | | | |
| 843.0 | 1 | 1 | 1 | 1 | | |
| 843.1 | 1 | 1 | 1 | 1 | | |
| 843.8 | 1 | 1 | 1 | 1 | | |
| 843.9 | 1 | 1 | 1 | 1 | | |
| 844 | | | | | | |
| 844.0 | 1 | 1 | 1 | 1 | | |
| 844.1 | 1 | 1 | 1 | 1 | | |
| 844.2 | 1 | 1 | 1 | 1 | | |
| 844.3 | 1 | 1 | 1 | 1 | | |
| 844.8 | 1 | 1 | 1 | 1 | | |
| 844.9 | 1 | 1 | 1 | 1 | | |
| 845 | 1 | | 1 | | | |
| 845.0 | 1 | | 1 | | | |
| 845.00 | 1 | 1 | 1 | 1 | | |
| 845.01 | 1 | 1 | 1 | 1 | | |
| 845.02 | 1 | 1 | 1 | 1 | | |
| 845.03 | 1 | 1 | 1 | 1 | | |
| 845.09 | 1 | 1 | 1 | 1 | | |
| 845.1 | 1 | | 1 | | | |
| 845.10 | 1 | 1 | 1 | 1 | | |
| 845.11 | 1 | 1 | 1 | 1 | | |
| 845.12 | 1 | 1 | 1 | 1 | | |
| 845.13 | 1 | 1 | 1 | 1 | | |
| 845.19 | 1 | 1 | 1 | 1 | | |
| 846 | 1 | | 1 | | | |
| 846.0 | 1 | 1 | 1 | 1 | | |
| 846.1 | 1 | 1 | 1 | 1 | | |
| 846.2 | 1 | 1 | 1 | 1 | | |
| 846.3 | 1 | 1 | 1 | 1 | | |
| 846.8 | 1 | 1 | 1 | 1 | | |
| 846.9 | 1 | 1 | 1 | 1 | | |
| 847.0 | 1 | 1 | | 1 | | |
| 847.1 | 1 | 1 | | 1 | | |
| 847.2 | 1 | 1 | 1 | 1 | | |
| 847.3 | 1 | 1 | 1 | 1 | | |
| 847.4 | 1 | 1 | 1 | 1 | | |
| 847.9 | 1 | 1 | 1 | 1 | | |
| 848 | | | | | | |
| 848.0 | 1 | 1 | | 1 | | |
| 848.1 | 1 | 1 | | 1 | | |
| 848.2 | 1 | 1 | | 1 | | |
| 848.3 | 1 | 1 | | 1 | | |
| 848.4 | 1 | | | | | |
| 848.40 | 1 | 1 | | 1 | | |
| 848.41 | 1 | 1 | | 1 | | |
| 848.42 | 1 | 1 | | 1 | | |
| 848.49 | 1 | 1 | | 1 | | |
| 848.5 | 1 | 1 | 1 | 1 | | |
| 848.8 | 1 | 1 | 1 | 1 | | |
| 848.9 | 1 | 1 | 1 | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 850 | 1 | | | | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 850.0 | 1 | 1 | | 1 | | |
| 850.1 | 1 | 1 | | 1 | | |
| 850.2 | 1 | 1 | | 1 | | |
| 850.3 | 1 | 1 | | 1 | | |
| 850.4 | 1 | 1 | | 1 | | |
| 850.5 | 1 | 1 | | 1 | | |
| 850.9 | 1 | 1 | | 1 | | |
| 851 | 1 | | | | | |
| 851.0 | 1 | | | | | |
| 851.00 | 1 | 1 | | 1 | | |
| 851.01 | 1 | 1 | | 1 | | |
| 851.02 | 1 | 1 | | 1 | | |
| 851.03 | 1 | 1 | | 1 | | |
| 851.04 | 1 | 1 | | 1 | | |
| 851.05 | 1 | 1 | | 1 | | |
| 851.06 | 1 | 1 | | 1 | | |
| 851.09 | 1 | 1 | | 1 | | |
| 851.1 | 1 | | | | | |
| 851.10 | 1 | 1 | | 1 | | |
| 851.11 | 1 | 1 | | 1 | | |
| 851.12 | 1 | 1 | | 1 | | |
| 851.13 | 1 | 1 | | 1 | | |
| 851.14 | 1 | 1 | | 1 | | |
| 851.15 | 1 | 1 | | 1 | | |
| 851.16 | 1 | 1 | | 1 | | |
| 851.19 | 1 | 1 | | 1 | | |
| 851.2 | 1 | | | | | |
| 851.20 | 1 | 1 | | 1 | | |
| 851.21 | 1 | 1 | | 1 | | |
| 851.22 | 1 | 1 | | 1 | | |
| 851.23 | 1 | 1 | | 1 | | |
| 851.24 | 1 | 1 | | 1 | | |
| 851.25 | 1 | 1 | | 1 | | |
| 851.26 | 1 | 1 | | 1 | | |
| 851.29 | 1 | 1 | | 1 | | |
| 851.3 | 1 | | | | | |
| 851.30 | 1 | 1 | | 1 | | |
| 851.31 | 1 | 1 | | 1 | | |
| 851.32 | 1 | 1 | | 1 | | |
| 851.33 | 1 | 1 | | 1 | | |
| 851.34 | 1 | 1 | | 1 | | |
| 851.35 | 1 | 1 | | 1 | | |
| 851.36 | 1 | 1 | | 1 | | |
| 851.39 | 1 | 1 | | 1 | | |
| 851.4 | 1 | | | | | |
| 851.40 | 1 | 1 | | 1 | | |
| 851.41 | 1 | 1 | | 1 | | |
| 851.42 | 1 | 1 | | 1 | | |
| 851.43 | 1 | 1 | | 1 | | |
| 851.44 | 1 | 1 | | 1 | | |
| 851.45 | 1 | 1 | | 1 | | |
| 851.46 | 1 | 1 | | 1 | | |
| 851.49 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 851.5 | 1 | | | | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 851.50 | 1 | 1 | | 1 | | |
| 851.51 | 1 | 1 | | 1 | | |
| 851.52 | 1 | 1 | | 1 | | |
| 851.53 | 1 | 1 | | 1 | | |
| 851.54 | 1 | 1 | | 1 | | |
| 851.55 | 1 | 1 | | 1 | | |
| 851.56 | 1 | 1 | | 1 | | |
| 851.59 | 1 | 1 | | 1 | | |
| 851.60 | 1 | | | | | |
| 851.60 | 1 | 1 | | 1 | | |
| 851.61 | 1 | 1 | | 1 | | |
| 851.62 | 1 | 1 | | 1 | | |
| 851.63 | 1 | 1 | | 1 | | |
| 851.64 | 1 | 1 | | 1 | | |
| 851.65 | 1 | 1 | | 1 | | |
| 851.66 | 1 | 1 | | 1 | | |
| 851.69 | 1 | 1 | | 1 | | |
| 851.7 | 1 | | | | | |
| 851.70 | 1 | 1 | | 1 | | |
| 851.71 | 1 | 1 | | 1 | | |
| 851.72 | 1 | 1 | | 1 | | |
| 851.73 | 1 | 1 | | 1 | | |
| 851.74 | 1 | 1 | | 1 | | |
| 851.75 | 1 | 1 | | 1 | | |
| 851.76 | 1 | 1 | | 1 | | |
| 851.79 | 1 | 1 | | 1 | | |
| 851.8 | 1 | | | | | |
| 851.80 | 1 | 1 | | 1 | | |
| 851.81 | 1 | 1 | | 1 | | |
| 851.82 | 1 | 1 | | 1 | | |
| 851.83 | 1 | 1 | | 1 | | |
| 851.84 | 1 | 1 | | 1 | | |
| 851.85 | 1 | 1 | | 1 | | |
| 851.86 | 1 | 1 | | 1 | | |
| 851.89 | 1 | 1 | | 1 | | |
| 851.9 | 1 | | | | | |
| 851.90 | 1 | 1 | | 1 | | |
| 851.91 | 1 | 1 | | 1 | | |
| 851.92 | 1 | 1 | | 1 | | |
| 851.93 | 1 | 1 | | 1 | | |
| 851.94 | 1 | 1 | | 1 | | |
| 851.95 | 1 | 1 | | 1 | | |
| 851.96 | 1 | 1 | | 1 | | |
| 851.99 | 1 | 1 | | 1 | | |
| 852 | 1 | | | | | |
| 852.0 | 1 | | | | | |
| 852.00 | 1 | 1 | | 1 | | |
| 852.01 | 1 | 1 | | 1 | | |
| 852.02 | 1 | 1 | | 1 | | |
| 852.03 | 1 | 1 | | 1 | | |
| 852.04 | 1 | 1 | | 1 | | |
| 852.05 | 1 | 1 | | 1 | | |
| 852.06 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 852.09 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 852.1 | 1 | | | | | |
| 852.10 | 1 | 1 | | 1 | | |
| 852.11 | 1 | 1 | | 1 | | |
| 852.12 | 1 | 1 | | 1 | | |
| 852.13 | 1 | 1 | | 1 | | |
| 852.14 | 1 | 1 | | 1 | | |
| 852.15 | 1 | 1 | | 1 | | |
| 852.16 | 1 | 1 | | 1 | | |
| 852.19 | 1 | 1 | | 1 | | |
| 852.2 | 1 | | | | | |
| 852.20 | 1 | 1 | | 1 | | |
| 852.21 | 1 | 1 | | 1 | | |
| 852.22 | 1 | 1 | | 1 | | |
| 852.23 | 1 | 1 | | 1 | | |
| 852.24 | 1 | 1 | | 1 | | |
| 852.25 | 1 | 1 | | 1 | | |
| 852.26 | 1 | 1 | | 1 | | |
| 852.29 | 1 | 1 | | 1 | | |
| 852.3 | 1 | | | | | |
| 852.30 | 1 | 1 | | 1 | | |
| 852.31 | 1 | 1 | | 1 | | |
| 852.32 | 1 | 1 | | 1 | | |
| 852.33 | 1 | 1 | | 1 | | |
| 852.34 | 1 | 1 | | 1 | | |
| 852.35 | 1 | 1 | | 1 | | |
| 852.36 | 1 | 1 | | 1 | | |
| 852.39 | 1 | 1 | | 1 | | |
| 852.4 | 1 | | | | | |
| 852.40 | 1 | 1 | | 1 | | |
| 852.41 | 1 | 1 | | 1 | | |
| 852.42 | 1 | 1 | | 1 | | |
| 852.43 | 1 | 1 | | 1 | | |
| 852.44 | 1 | 1 | | 1 | | |
| 852.45 | 1 | 1 | | 1 | | |
| 852.46 | 1 | 1 | | 1 | | |
| 852.49 | 1 | 1 | | 1 | | |
| 852.5 | 1 | | | | | |
| 852.50 | 1 | 1 | | 1 | | |
| 852.51 | 1 | 1 | | 1 | | |
| 852.52 | 1 | 1 | | 1 | | |
| 852.53 | 1 | 1 | | 1 | | |
| 852.54 | 1 | 1 | | 1 | | |
| 852.55 | 1 | 1 | | 1 | | |
| 852.56 | 1 | 1 | | 1 | | |
| 852.59 | 1 | 1 | | 1 | | |
| 853 | 1 | | | | | |
| 853.0 | 1 | | | | | |
| 853.01 | 1 | 1 | | 1 | | |
| 853.02 | 1 | 1 | | 1 | | |
| 853.03 | 1 | 1 | | 1 | | |
| 853.04 | 1 | 1 | | 1 | | |
| 853.05 | 1 | 1 | | 1 | | |
| 853.06 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 853.09 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 853.1 | 1 | | | | | |
| 853.10 | 1 | 1 | | 1 | | |
| 853.11 | 1 | 1 | | 1 | | |
| 853.12 | 1 | 1 | | 1 | | |
| 853.13 | 1 | 1 | | 1 | | |
| 853.14 | 1 | 1 | | 1 | | |
| 853.15 | 1 | 1 | | 1 | | |
| 853.16 | 1 | 1 | | 1 | | |
| 853.19 | 1 | 1 | | 1 | | |
| 854 | 1 | | | | | |
| 854.0 | 1 | | | | | |
| 854.00 | 1 | 1 | | 1 | | |
| 854.01 | 1 | 1 | | 1 | | |
| 854.02 | 1 | 1 | | 1 | | |
| 854.03 | 1 | 1 | | 1 | | |
| 854.04 | 1 | 1 | | 1 | | |
| 854.05 | 1 | 1 | | 1 | | |
| 854.06 | 1 | 1 | | 1 | | |
| 854.09 | 1 | 1 | | 1 | | |
| 854.1 | 1 | | | | | |
| 854.10 | 1 | 1 | | 1 | | |
| 854.11 | 1 | 1 | | 1 | | |
| 854.12 | 1 | 1 | | 1 | | |
| 854.13 | 1 | 1 | | 1 | | |
| 854.14 | 1 | 1 | | 1 | | |
| 854.15 | 1 | 1 | | 1 | | |
| 854.16 | 1 | 1 | | 1 | | |
| 854.19 | 1 | 1 | | 1 | | |
| 860 | 1 | | | | | |
| 860.0 | 1 | 1 | | 1 | | |
| 860.1 | 1 | 1 | | 1 | | |
| 860.2 | 1 | 1 | | 1 | | |
| 860.3 | 1 | 1 | | 1 | | |
| 860.4 | 1 | 1 | | 1 | | |
| 860.5 | 1 | 1 | | 1 | | |
| 861 | 1 | | | | | |
| 861.0 | 1 | | | | | |
| 861.01 | 1 | 1 | | 1 | | |
| 861.02 | 1 | 1 | | 1 | | |
| 861.03 | 1 | 1 | | 1 | | |
| 861.1 | 1 | | | | | |
| 861.10 | 1 | 1 | | 1 | | |
| 861.11 | 1 | 1 | | 1 | | |
| 861.12 | 1 | 1 | | 1 | | |
| 861.13 | 1 | 1 | | 1 | | |
| 861.2 | 1 | | | | | |
| 861.20 | 1 | 1 | | 1 | | |
| 861.21 | 1 | 1 | | 1 | | |
| 861.22 | 1 | 1 | | 1 | | |
| 861.3 | 1 | | | | | |
| 861.30 | 1 | 1 | | 1 | | |
| 861.31 | 1 | 1 | | 1 | | |
| 861.32 | 1 | 1 | | 1 | | |

862 1

| ICD-9 code | III | MIII | THI | CII | OII | AII |
|---|---|---|---|---|---|---|
| 862.0 | 1 | 1 | | 1 | | |
| 862.1 | 1 | 1 | | 1 | | |
| 862.2 | 1 | | | | | |
| 862.21 | 1 | 1 | | 1 | | |
| 862.22 | 1 | 1 | | 1 | | |
| 862.29 | 1 | 1 | | 1 | | |
| 862.3 | 1 | | | | | |
| 862.31 | 1 | 1 | | 1 | | |
| 862.32 | 1 | 1 | | 1 | | |
| 862.39 | 1 | 1 | | 1 | | |
| 862.8 | 1 | 1 | | 1 | | |
| 862.9 | 1 | 1 | | 1 | | |
| 863 | 1 | | | 1 | | |
| 863.0 | 1 | 1 | | 1 | | |
| 863.1 | 1 | 1 | | 1 | | |
| 863.2 | 1 | | | | | |
| 863.20 | 1 | 1 | | 1 | | |
| 863.21 | 1 | 1 | | 1 | | |
| 863.29 | 1 | 1 | | 1 | | |
| 863.3 | 1 | | | 1 | | |
| 863.30 | 1 | 1 | | 1 | | |
| 863.31 | 1 | 1 | | 1 | | |
| 863.39 | 1 | 1 | | 1 | | |
| 863.4 | 1 | | | | | |
| 863.40 | 1 | 1 | | 1 | | |
| 863.41 | 1 | 1 | | 1 | | |
| 863.42 | 1 | 1 | | 1 | | |
| 863.43 | 1 | 1 | | 1 | | |
| 863.44 | 1 | 1 | | 1 | | |
| 863.45 | 1 | 1 | | 1 | | |
| 863.46 | 1 | 1 | | 1 | | |
| 863.49 | 1 | 1 | | 1 | | |
| 863.5 | 1 | | | | | |
| 863.50 | 1 | 1 | | 1 | | |
| 863.51 | 1 | 1 | | 1 | | |
| 863.52 | 1 | 1 | | 1 | | |
| 863.53 | 1 | 1 | | 1 | | |
| 863.54 | 1 | 1 | | 1 | | |
| 863.55 | 1 | 1 | | 1 | | |
| 863.56 | 1 | 1 | | 1 | | |
| 863.59 | 1 | 1 | | 1 | | |
| 863.8 | 1 | | | | | |
| 863.80 | 1 | 1 | | 1 | | |
| 863.81 | 1 | 1 | | 1 | | |
| 863.82 | 1 | 1 | | 1 | | |
| 863.83 | 1 | 1 | | 1 | | |
| 863.84 | 1 | 1 | | 1 | | |
| 863.85 | 1 | 1 | | 1 | | |
| 863.89 | 1 | 1 | | 1 | | |
| 863.9 | 1 | | | | | |
| 863.90 | 1 | 1 | | 1 | | |
| 863.91 | 1 | 1 | | 1 | | |
| 863.92 | 1 | 1 | | 1 | | |

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|---|---|---|---|---|---|---|
| 863.93 | 1 | 1 | | 1 | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 863.94 | 1 | 1 | | 1 | | |
| 863.95 | 1 | 1 | | 1 | | |
| 863.99 | 1 | 1 | | 1 | | |
| 864 | 1 | | | | | |
| 864.0 | 1 | | | | | |
| 864.00 | 1 | 1 | | 1 | | |
| 864.01 | 1 | 1 | | 1 | | |
| 864.02 | 1 | 1 | | 1 | | |
| 864.03 | 1 | 1 | | 1 | | |
| 864.04 | 1 | 1 | | 1 | | |
| 864.05 | 1 | 1 | | 1 | | |
| 864.09 | 1 | 1 | | 1 | | |
| 864.1 | 1 | | | | | |
| 864.10 | 1 | 1 | | 1 | | |
| 864.11 | 1 | 1 | | 1 | | |
| 864.12 | 1 | 1 | | 1 | | |
| 864.13 | 1 | 1 | | 1 | | |
| 864.14 | 1 | 1 | | 1 | | |
| 864.15 | 1 | 1 | | 1 | | |
| 864.19 | 1 | 1 | | 1 | | |
| 865 | 1 | | | | | |
| 865.0 | 1 | | | | | |
| 865.00 | 1 | 1 | | 1 | | |
| 865.01 | 1 | 1 | | 1 | | |
| 865.02 | 1 | 1 | | 1 | | |
| 865.03 | 1 | 1 | | 1 | | |
| 865.04 | 1 | 1 | | 1 | | |
| 865.09 | 1 | 1 | | 1 | | |
| 865.1 | 1 | | | | | |
| 865.10 | 1 | 1 | | 1 | | |
| 865.11 | 1 | 1 | | 1 | | |
| 865.12 | 1 | 1 | | 1 | | |
| 865.13 | 1 | 1 | | 1 | | |
| 865.14 | 1 | 1 | | 1 | | |
| 865.19 | 1 | 1 | | 1 | | |
| 866 | 1 | | | | | |
| 866.0 | 1 | | | | | |
| 866.00 | 1 | 1 | | 1 | | |
| 866.01 | 1 | 1 | | 1 | | |
| 866.02 | 1 | 1 | | 1 | | |
| 866.03 | 1 | 1 | | 1 | | |
| 866.1 | 1 | | | | | |
| 866.10 | 1 | 1 | | 1 | | |
| 866.11 | 1 | 1 | | 1 | | |
| 866.12 | 1 | 1 | | 1 | | |
| 866.13 | 1 | 1 | | 1 | | |
| 867 | 1 | | | | | |
| 867.0 | 1 | 1 | | 1 | | |
| 867.1 | 1 | 1 | | 1 | | |
| 867.2 | 1 | 1 | | 1 | | |
| 867.3 | 1 | 1 | | 1 | | |
| 867.4 | 1 | 1 | | 1 | | |
| 867.5 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 867.60 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 867.7 | 1 | 1 | | 1 | | |
| 867.8 | 1 | 1 | | 1 | | |
| 867.9 | 1 | 1 | | 1 | | |
| 868 | 1 | | | | | |
| 868.0 | 1 | | | | | |
| 868.01 | 1 | 1 | | 1 | | |
| 868.02 | 1 | 1 | | 1 | | |
| 868.03 | 1 | 1 | | 1 | | |
| 868.04 | 1 | 1 | | 1 | | |
| 868.09 | 1 | 1 | | 1 | | |
| 868.1 | 1 | | | | | |
| 868.10 | 1 | 1 | | 1 | | |
| 868.11 | 1 | 1 | | 1 | | |
| 868.12 | 1 | 1 | | 1 | | |
| 868.13 | 1 | 1 | | 1 | | |
| 868.14 | 1 | 1 | | 1 | | |
| 868.19 | 1 | 1 | | 1 | | |
| 869 | 1 | | | | | |
| 869.0 | 1 | 1 | | 1 | | |
| 869.1 | 1 | 1 | | 1 | | |
| 870 | 1 | | | | | |
| 870.0 | 1 | 1 | | 1 | | |
| 870.1 | 1 | 1 | | 1 | | |
| 870.2 | 1 | 1 | | 1 | | |
| 870.3 | 1 | 1 | | 1 | | |
| 870.4 | 1 | 1 | | 1 | | |
| 870.8 | 1 | 1 | | 1 | | |
| 870.9 | 1 | 1 | | 1 | | |
| 871 | 1 | | | | | |
| 871.0 | 1 | 1 | | 1 | | |
| 871.1 | 1 | 1 | | 1 | | |
| 871.2 | 1 | 1 | | 1 | | |
| 871.3 | 1 | 1 | | 1 | | |
| 871.4 | 1 | 1 | | 1 | | |
| 871.5 | 1 | 1 | | 1 | | |
| 871.60 | 1 | 1 | | 1 | | |
| 871.7 | 1 | 1 | | 1 | | |
| 871.9 | 1 | 1 | | 1 | | |
| 872 | 1 | | | | | |
| 872.0 | 1 | | | | | |
| 872.00 | 1 | 1 | | 1 | | |
| 872.01 | 1 | 1 | | 1 | | |
| 872.02 | 1 | 1 | | 1 | | |
| 872.1 | 1 | | | | | |
| 872.10 | 1 | 1 | | 1 | | |
| 872.11 | 1 | 1 | | 1 | | |
| 872.12 | 1 | 1 | | 1 | | |
| 872.60 | 1 | | | | | |
| 872.61 | 1 | 1 | | 1 | | |
| 872.62 | 1 | 1 | | 1 | | |
| 872.63 | 1 | 1 | | 1 | | |
| 872.64 | 1 | 1 | | 1 | | |
| 872.69 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 872.7 | 1 | | | | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 872.71 | 1 | 1 | | 1 | | |
| 872.72 | 1 | 1 | | 1 | | |
| 872.73 | 1 | 1 | | 1 | | |
| 872.74 | 1 | 1 | | 1 | | |
| 872.79 | 1 | 1 | | 1 | | |
| 872.8 | 1 | 1 | | 1 | | |
| 872.9 | 1 | 1 | | 1 | | |
| 873 | 1 | | | | | |
| 873.0 | 1 | 1 | | 1 | | |
| 873.1 | 1 | 1 | | 1 | | |
| 873.2 | 1 | | | | | |
| 873.20 | 1 | 1 | | 1 | | |
| 873.21 | 1 | 1 | | 1 | | |
| 873.22 | 1 | 1 | | 1 | | |
| 873.23 | 1 | 1 | | 1 | | |
| 873.29 | 1 | 1 | | 1 | | |
| 873.3 | 1 | | | | | |
| 873.30 | 1 | 1 | | 1 | | |
| 873.31 | 1 | 1 | | 1 | | |
| 873.32 | 1 | 1 | | 1 | | |
| 873.33 | 1 | 1 | | 1 | | |
| 873.39 | 1 | 1 | | 1 | | |
| 873.4 | 1 | | | | | |
| 873.40 | 1 | 1 | | 1 | | |
| 873.41 | 1 | 1 | | 1 | | |
| 873.42 | 1 | 1 | | 1 | | |
| 873.43 | 1 | 1 | | 1 | | |
| 873.44 | 1 | 1 | | 1 | | |
| 873.49 | 1 | 1 | | 1 | | |
| 873.5 | 1 | | | | | |
| 873.50 | 1 | 1 | | 1 | | |
| 873.51 | 1 | 1 | | 1 | | |
| 873.52 | 1 | 1 | | 1 | | |
| 873.53 | 1 | 1 | | 1 | | |
| 873.54 | 1 | 1 | | 1 | | |
| 873.59 | 1 | 1 | | 1 | | |
| 873.60 | 1 | | | | | |
| 873.60 | 1 | 1 | | 1 | | |
| 873.61 | 1 | 1 | | 1 | | |
| 873.62 | 1 | 1 | | 1 | | |
| 873.63 | 1 | 1 | | 1 | | |
| 873.64 | 1 | 1 | | 1 | | |
| 873.65 | 1 | 1 | | 1 | | |
| 873.69 | 1 | 1 | | 1 | | |
| 873.7 | 1 | | | | | |
| 873.70 | 1 | 1 | | 1 | | |
| 873.71 | 1 | 1 | | 1 | | |
| 873.72 | 1 | 1 | | 1 | | |
| 873.73 | 1 | 1 | | 1 | | |
| 873.74 | 1 | 1 | | 1 | | |
| 873.75 | 1 | 1 | | 1 | | |
| 873.79 | 1 | 1 | | 1 | | |
| 873.8 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 873.9 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 874 | 1 | | | | | |
| 874.0 | 1 | | | | | |
| 874.00 | 1 | 1 | | 1 | | |
| 874.01 | 1 | 1 | | 1 | | |
| 874.02 | 1 | 1 | | 1 | | |
| 874.1 | 1 | | | | | |
| 874.10 | 1 | 1 | | 1 | | |
| 874.11 | 1 | 1 | | 1 | | |
| 874.12 | 1 | 1 | | 1 | | |
| 874.2 | 1 | 1 | | 1 | | |
| 874.3 | 1 | 1 | | 1 | | |
| 874.4 | 1 | 1 | | 1 | | |
| 874.5 | 1 | 1 | | 1 | | |
| 874.8 | 1 | 1 | | 1 | | |
| 874.9 | 1 | 1 | | 1 | | |
| 875 | 1 | | | | | |
| 875.0 | 1 | 1 | | 1 | | |
| 875.1 | 1 | 1 | | 1 | | |
| 876 | 1 | | | | | |
| 876.0 | 1 | 1 | | 1 | | |
| 876.1 | 1 | 1 | | 1 | | |
| 877 | 1 | | | | | |
| 877.0 | 1 | 1 | | 1 | | |
| 877.1 | 1 | 1 | | 1 | | |
| 878 | 1 | | | | | |
| 878.0 | 1 | 1 | | 1 | | |
| 878.1 | 1 | 1 | | 1 | | |
| 878.2 | 1 | 1 | | 1 | | |
| 878.3 | 1 | 1 | | 1 | | |
| 878.4 | 1 | 1 | | 1 | | |
| 878.5 | 1 | 1 | | 1 | | |
| 878.60 | 1 | 1 | | 1 | | |
| 878.7 | 1 | 1 | | 1 | | |
| 878.8 | 1 | 1 | | 1 | | |
| 878.9 | 1 | 1 | | 1 | | |
| 879 | | | | | | |
| 879.0 | 1 | 1 | | 1 | | |
| 879.1 | 1 | 1 | | 1 | | |
| 879.2 | 1 | 1 | | 1 | | |
| 879.3 | 1 | 1 | | 1 | | |
| 879.4 | 1 | 1 | | 1 | | |
| 879.5 | 1 | 1 | | 1 | | |
| 879.60 | 1 | 1 | | 1 | | |
| 879.7 | 1 | 1 | | 1 | | |
| 879.8 | 1 | 1 | | 1 | | |
| 879.9 | 1 | 1 | | 1 | | |
| 880 | 1 | | | | | |
| 880.0 | 1 | | | | | |
| 880.00 | 1 | 1 | | 1 | | |
| 880.01 | 1 | 1 | | 1 | | |
| 880.02 | 1 | 1 | | 1 | | |
| 880.03 | 1 | 1 | | 1 | | |
| 880.09 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 880.1 | 1 | | | | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 880.10 | 1 | 1 | | 1 | | |
| 880.11 | 1 | 1 | | 1 | | |
| 880.12 | 1 | 1 | | 1 | | |
| 880.13 | 1 | 1 | | 1 | | |
| 880.19 | 1 | 1 | | 1 | | |
| 880.2 | 1 | | | | | |
| 880.20 | 1 | 1 | | 1 | | |
| 880.21 | 1 | 1 | | 1 | | |
| 880.22 | 1 | 1 | | 1 | | |
| 880.23 | 1 | 1 | | 1 | | |
| 880.29 | 1 | 1 | | 1 | | |
| 881 | | | | | | |
| 881.0 | | | | | | |
| 881.00 | 1 | 1 | | 1 | | |
| 881.01 | 1 | 1 | | 1 | | |
| 881.02 | | 1 | | 1 | | |
| 881.1 | | | | | | |
| 881.10 | 1 | 1 | | 1 | | |
| 881.11 | 1 | 1 | | 1 | | |
| 881.12 | 1 | 1 | | 1 | | |
| 881.2 | 1 | | | | | |
| 881.20 | 1 | 1 | | 1 | | |
| 881.21 | 1 | 1 | | 1 | | |
| 881.22 | 1 | 1 | | 1 | | |
| 882 | 1 | | | | | |
| 882.0 | 1 | 1 | | 1 | | |
| 882.1 | 1 | 1 | | 1 | | |
| 882.2 | 1 | 1 | | 1 | | |
| 883 | 1 | | | | | |
| 883.0 | 1 | 1 | | 1 | | |
| 883.1 | 1 | 1 | | 1 | | |
| 883.2 | 1 | 1 | | 1 | | |
| 884 | 1 | | | | | |
| 884.0 | 1 | 1 | | 1 | | |
| 884.1 | 1 | 1 | | 1 | | |
| 884.2 | 1 | 1 | | 1 | | |
| 885 | 1 | | | | | |
| 885.0 | 1 | 1 | | 1 | | 1 |
| 885.1 | 1 | 1 | | 1 | | 1 |
| 886 | 1 | | | | | |
| 886.0 | 1 | 1 | | 1 | | 1 |
| 886.1 | 1 | 1 | | 1 | | 1 |
| 887 | 1 | | | | | |
| 887.0 | 1 | 1 | | 1 | | 1 |
| 887.1 | 1 | 1 | | 1 | | 1 |
| 887.2 | 1 | 1 | | 1 | | 1 |
| 887.3 | 1 | 1 | | 1 | | 1 |
| 887.4 | 1 | 1 | | 1 | | 1 |
| 887.5 | 1 | 1 | | 1 | | 1 |
| 887.60 | 1 | 1 | | 1 | | 1 |
| 887.7 | 1 | 1 | | 1 | | 1 |
| 890 | 1 | | | | | |
| 890.0 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 890.1 | 1 | 1 | | 1 | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 890.2 | 1 | 1 | | 1 | | |
| 891 | 1 | | | | | |
| 891.0 | 1 | 1 | | 1 | | |
| 891.1 | 1 | 1 | | 1 | | |
| 891.2 | 1 | 1 | | 1 | | |
| 892 | 1 | | | | | |
| 892.0 | 1 | 1 | | 1 | | |
| 892.1 | 1 | 1 | | 1 | | |
| 892.2 | 1 | 1 | | 1 | | |
| 893 | 1 | | | | | |
| 893.0 | 1 | 1 | | 1 | | |
| 893.1 | 1 | 1 | | 1 | | |
| 893.2 | 1 | 1 | | 1 | | |
| 894 | 1 | | | | | |
| 894.0 | 1 | 1 | | 1 | | |
| 894.1 | 1 | 1 | | 1 | | |
| 894.2 | 1 | 1 | | 1 | | |
| 895 | 1 | | | 1 | | |
| 895.0 | 1 | 1 | | 1 | | 1 |
| 895.1 | 1 | 1 | | 1 | | 1 |
| 896 | 1 | | | | | |
| 896.0 | 1 | 1 | | 1 | | 1 |
| 896.1 | 1 | 1 | | 1 | | 1 |
| 896.2 | 1 | 1 | | 1 | | 1 |
| 896.3 | 1 | 1 | | 1 | | 1 |
| 897 | 1 | | | | | |
| 897.0 | 1 | 1 | | 1 | | 1 |
| 897.1 | 1 | 1 | | 1 | | 1 |
| 897.2 | 1 | 1 | | 1 | | 1 |
| 897.3 | 1 | 1 | | 1 | | 1 |
| 897.4 | 1 | 1 | | 1 | | 1 |
| 897.5 | 1 | 1 | | 1 | | 1 |
| 897.60 | 1 | 1 | | 1 | | 1 |
| 897.7 | 1 | 1 | | 1 | | 1 |
| 900 | 1 | | | | | |
| 900.0 | 1 | | | | | |
| 900.00 | 1 | 1 | | 1 | | |
| 900.01 | 1 | 1 | | 1 | | |
| 900.02 | 1 | 1 | | 1 | | |
| 900.03 | 1 | 1 | | 1 | | |
| 900.1 | 1 | 1 | | 1 | | |
| 900.8 | 1 | | | | | |
| 900.81 | 1 | 1 | | 1 | | |
| 900.82 | 1 | 1 | | 1 | | |
| 900.89 | 1 | 1 | | 1 | | |
| 900.9 | 1 | 1 | | 1 | | |
| 901 | 1 | | | | | |
| 901.0 | 1 | 1 | | 1 | | |
| 901.1 | 1 | 1 | | 1 | | |
| 901.2 | 1 | 1 | | 1 | | |
| 901.3 | 1 | 1 | | 1 | | |
| 901.4 | 1 | | | | | |
| 901.40 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 901.41 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 901.42 | 1 | 1 | | 1 | | |
| 901.8 | 1 | | | | | |
| 901.81 | 1 | 1 | | 1 | | |
| 901.82 | 1 | 1 | | 1 | | |
| 901.83 | 1 | 1 | | 1 | | |
| 901.89 | 1 | 1 | | 1 | | |
| 901.9 | 1 | 1 | | 1 | | |
| 902 | 1 | | | | | |
| 902.0 | 1 | 1 | | 1 | | |
| 902.1 | 1 | | | | | |
| 902.10 | 1 | 1 | | 1 | | |
| 902.11 | 1 | 1 | | 1 | | |
| 902.19 | 1 | 1 | | 1 | | |
| 902.2 | 1 | | | | | |
| 902.20 | 1 | 1 | | 1 | | |
| 902.21 | 1 | 1 | | 1 | | |
| 902.22 | 1 | 1 | | 1 | | |
| 902.23 | 1 | 1 | | 1 | | |
| 902.24 | 1 | 1 | | 1 | | |
| 902.25 | 1 | 1 | | 1 | | |
| 902.26 | 1 | 1 | | 1 | | |
| 902.27 | 1 | 1 | | 1 | | |
| 902.29 | 1 | 1 | | 1 | | |
| 902.3 | 1 | | | | | |
| 902.31 | 1 | 1 | | 1 | | |
| 902.32 | 1 | 1 | | 1 | | |
| 902.33 | 1 | 1 | | 1 | | |
| 902.34 | 1 | 1 | | 1 | | |
| 902.39 | 1 | 1 | | 1 | | |
| 902.4 | 1 | | | | | |
| 902.40 | 1 | 1 | | 1 | | |
| 902.41 | 1 | 1 | | 1 | | |
| 902.42 | 1 | 1 | | 1 | | |
| 902.49 | 1 | 1 | | 1 | | |
| 902.5 | 1 | | | | | |
| 902.50 | 1 | 1 | | 1 | | |
| 902.51 | 1 | 1 | | 1 | | |
| 902.52 | 1 | 1 | | 1 | | |
| 902.53 | 1 | 1 | | 1 | | |
| 902.54 | 1 | 1 | | 1 | | |
| 902.55 | 1 | 1 | | 1 | | |
| 902.56 | 1 | 1 | | 1 | | |
| 902.59 | 1 | 1 | | 1 | | |
| 902.8 | 1 | | | | | |
| 902.81 | 1 | 1 | | 1 | | |
| 902.82 | 1 | 1 | | 1 | | |
| 902.87 | 1 | 1 | | 1 | | |
| 902.89 | 1 | 1 | | 1 | | |
| 902.9 | 1 | 1 | | 1 | | |
| 903 | | | | | | |
| 903.0 | 1 | | | | | |
| 903.00 | 1 | 1 | | 1 | | |
| 903.01 | 1 | 1 | | 1 | | |

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|---|---|---|---|---|---|---|
| 903.02 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 903.1 | 1 | 1 | | 1 | | |
| 903.2 | 1 | 1 | | 1 | | |
| 903.3 | 1 | 1 | | 1 | | |
| 903.4 | 1 | 1 | | 1 | | |
| 903.5 | 1 | 1 | | 1 | | |
| 903.8 | 1 | 1 | | 1 | | |
| 903.9 | 1 | 1 | | 1 | | |
| 904.0 | 1 | 1 | | 1 | | |
| 904.1 | 1 | 1 | | 1 | | |
| 904.2 | 1 | 1 | | 1 | | |
| 904.3 | 1 | 1 | | 1 | | |
| 904.4 | 1 | | | | | |
| 904.40 | 1 | 1 | | 1 | | |
| 904.41 | 1 | 1 | | 1 | | |
| 904.42 | 1 | 1 | | 1 | | |
| 904.5 | 1 | | | | | |
| 904.50 | 1 | 1 | | 1 | | |
| 904.51 | 1 | 1 | | 1 | | |
| 904.52 | 1 | 1 | | 1 | | |
| 904.53 | 1 | 1 | | 1 | | |
| 904.54 | 1 | 1 | | 1 | | |
| 904.60 | 1 | 1 | | 1 | | |
| 904.7 | 1 | 1 | | 1 | | |
| 904.8 | 1 | 1 | | 1 | | |
| 904.9 | 1 | 1 | | 1 | | |
| 910 | | | | | | |
| 910.0 | 1 | 1 | | 1 | | |
| 910.1 | 1 | 1 | | 1 | | |
| 910.2 | 1 | 1 | | 1 | | |
| 910.3 | 1 | 1 | | 1 | | |
| 910.4 | 1 | 1 | | 1 | | |
| 910.5 | 1 | 1 | | 1 | | |
| 910.60 | 1 | 1 | | 1 | | |
| 910.7 | 1 | 1 | | 1 | | |
| 910.8 | 1 | 1 | | 1 | | |
| 910.9 | 1 | 1 | | 1 | | |
| 911 | | | | | | |
| 911.0 | 1 | 1 | | 1 | | |
| 911.1 | 1 | 1 | | 1 | | |
| 911.2 | 1 | 1 | | 1 | | |
| 911.3 | 1 | 1 | | 1 | | |
| 911.4 | 1 | 1 | | 1 | | |
| 911.5 | 1 | 1 | | 1 | | |
| 911.60 | 1 | 1 | | 1 | | |
| 911.7 | 1 | 1 | | 1 | | |
| 911.8 | 1 | 1 | | 1 | | |
| 911.9 | 1 | 1 | | 1 | | |
| 912 | 1 | | | | | |
| 912.0 | 1 | 1 | | 1 | | |
| 912.1 | 1 | 1 | | 1 | | |
| 912.2 | 1 | 1 | | 1 | | |
| 912.3 | 1 | 1 | | 1 | | |
| 912.4 | 1 | 1 | | 1 | | |

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|---|---|---|---|---|---|---|
| 912.5 | 1 | 1 | | 1 | | |
| **ICD-9 code** | **III** | **MIII** | **TIII** | **CII** | **OII** | **AII** |
| 912.60 | 1 | 1 | | 1 | | |
| 912.7 | 1 | 1 | | 1 | | |
| 912.8 | 1 | 1 | | 1 | | |
| 912.9 | 1 | 1 | | 1 | | |
| 913 | 1 | | | | | |
| 913.0 | 1 | 1 | | 1 | | |
| 913.1 | 1 | 1 | | 1 | | |
| 913.2 | 1 | 1 | | 1 | | |
| 913.3 | 1 | 1 | | 1 | | |
| 913.4 | 1 | 1 | | 1 | | |
| 913.5 | 1 | 1 | | 1 | | |
| 913.60 | 1 | 1 | | 1 | | |
| 913.7 | 1 | 1 | | 1 | | |
| 913.8 | 1 | 1 | | 1 | | |
| 913.9 | 1 | 1 | | 1 | | |
| 914 | | | | | | |
| 914.0 | 1 | 1 | | 1 | | |
| 914.1 | 1 | 1 | | 1 | | |
| 914.2 | 1 | 1 | | 1 | | |
| 914.3 | 1 | 1 | | 1 | | |
| 914.4 | 1 | 1 | | 1 | | |
| 914.5 | 1 | 1 | | 1 | | |
| 914.60 | 1 | 1 | | 1 | | |
| 914.7 | 1 | 1 | | 1 | | |
| 914.8 | 1 | 1 | | 1 | | |
| 914.9 | 1 | 1 | | 1 | | |
| 915 | | | | | | |
| 915.0 | 1 | 1 | | 1 | | |
| 915.1 | 1 | 1 | | 1 | | |
| 915.2 | 1 | 1 | | 1 | | |
| 915.3 | 1 | 1 | | 1 | | |
| 915.4 | 1 | 1 | | 1 | | |
| 915.5 | 1 | 1 | | 1 | | |
| 915.60 | 1 | 1 | | 1 | | |
| 915.7 | 1 | 1 | | 1 | | |
| 915.8 | 1 | 1 | | 1 | | |
| 915.9 | 1 | 1 | | 1 | | |
| 916 | | | | | | |
| 916.0 | 1 | 1 | | 1 | | |
| 916.1 | 1 | 1 | | 1 | | |
| 916.2 | 1 | 1 | | 1 | | |
| 916.3 | 1 | 1 | | 1 | | |
| 916.4 | 1 | 1 | | 1 | | |
| 916.5 | 1 | 1 | | 1 | | |
| 916.60 | 1 | 1 | | 1 | | |
| 916.7 | 1 | 1 | | 1 | | |
| 916.8 | 1 | 1 | | 1 | | |
| 916.9 | 1 | 1 | | 1 | | |
| 917 | | | | | | |
| 917.0 | 1 | 1 | | 1 | | |
| 917.1 | 1 | 1 | | 1 | | |
| 917.2 | 1 | 1 | | 1 | | |
| 917.3 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 917.4 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 917.5 | 1 | 1 | | 1 | | |
| 917.60 | 1 | 1 | | 1 | | |
| 917.7 | 1 | 1 | | 1 | | |
| 917.8 | 1 | 1 | | 1 | | |
| 917.9 | 1 | 1 | | 1 | | |
| 918 | 1 | | | | | |
| 918.0 | 1 | 1 | | 1 | | |
| 918.1 | 1 | 1 | | 1 | | |
| 918.2 | 1 | 1 | | 1 | | |
| 918.9 | 1 | 1 | | 1 | | |
| 919 | | | | | | |
| 919.0 | 1 | 1 | | 1 | | |
| 919.1 | 1 | 1 | | 1 | | |
| 919.2 | 1 | 1 | | 1 | | |
| 919.3 | 1 | 1 | | 1 | | |
| 919.4 | 1 | 1 | | 1 | | |
| 919.5 | 1 | 1 | | 1 | | |
| 919.60 | 1 | 1 | | 1 | | |
| 919.7 | 1 | 1 | | 1 | | |
| 919.8 | 1 | 1 | | 1 | | |
| 919.9 | 1 | 1 | | 1 | | |
| 920 | 1 | | | | | |
| 920.0 | 1 | | | | | |
| 921 | 1 | | | | | |
| 921.0 | 1 | 1 | | 1 | | |
| 921.1 | 1 | 1 | | 1 | | |
| 921.2 | 1 | 1 | | 1 | | |
| 921.3 | 1 | 1 | | 1 | | |
| 921.9 | 1 | 1 | | 1 | | |
| 922 | 1 | | | | | |
| 922.0 | 1 | 1 | | 1 | | 1 |
| 922.1 | 1 | 1 | | 1 | | 1 |
| 922.2 | 1 | 1 | | 1 | | 1 |
| 922.3 | 1 | | | | | |
| 922.31 | 1 | 1 | | 1 | | 1 |
| 922.32 | 1 | 1 | | 1 | | 1 |
| 922.33 | 1 | 1 | | 1 | | 1 |
| 922.4 | 1 | 1 | | 1 | | |
| 922.8 | 1 | 1 | | 1 | | 1 |
| 922.9 | 1 | 1 | | 1 | | 1 |
| 923 | | | | | | |
| 923.0 | 1 | | | | | |
| 923.00 | 1 | 1 | | 1 | | 1 |
| 923.01 | 1 | 1 | | 1 | | 1 |
| 923.02 | 1 | 1 | | 1 | | 1 |
| 923.03 | 1 | 1 | | 1 | | 1 |
| 923.09 | 1 | 1 | | 1 | | 1 |
| 923.1 | 1 | | | | | |
| 923.10 | 1 | 1 | | 1 | | 1 |
| 923.11 | 1 | 1 | | 1 | | 1 |
| 923.2 | 1 | | | | | |
| 923.20 | 1 | 1 | | 1 | | 1 |
| 923.21 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 923.3 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 923.8 | 1 | 1 | | 1 | | 1 |
| 923.9 | 1 | 1 | | 1 | | 1 |
| 924 | | | | | | |
| 924.0 | 1 | | | | | |
| 924.00 | 1 | 1 | | 1 | | 1 |
| 924.01 | 1 | 1 | | 1 | | 1 |
| 924.1 | | | | | | |
| 924.10 | 1 | 1 | | 1 | | 1 |
| 924.11 | 1 | 1 | | 1 | | 1 |
| 924.2 | 1 | | | | | |
| 924.20 | 1 | 1 | | 1 | | 1 |
| 924.21 | 1 | 1 | | 1 | | 1 |
| 924.3 | 1 | 1 | | 1 | | 1 |
| 924.4 | 1 | 1 | | 1 | | 1 |
| 924.5 | 1 | 1 | | 1 | | 1 |
| 924.8 | 1 | 1 | | 1 | | 1 |
| 924.9 | 1 | 1 | | 1 | | 1 |
| 925 | 1 | | | | | |
| 925.1 | 1 | 1 | | 1 | | 1 |
| 925.2 | 1 | 1 | | 1 | | 1 |
| 926 | 1 | | | | | |
| 926.0 | 1 | 1 | | 1 | | |
| 926.1 | 1 | | | | | |
| 926.11 | 1 | 1 | | 1 | | 1 |
| 926.12 | 1 | 1 | | 1 | | 1 |
| 926.19 | 1 | 1 | | 1 | | 1 |
| 926.8 | 1 | 1 | | 1 | | 1 |
| 926.9 | 1 | 1 | | 1 | | 1 |
| 927 | | | | | | |
| 927.0 | 1 | | | | | |
| 927.00 | 1 | 1 | | 1 | | 1 |
| 927.01 | 1 | 1 | | 1 | | 1 |
| 927.02 | 1 | 1 | | 1 | | 1 |
| 927.03 | 1 | 1 | | 1 | | 1 |
| 927.09 | 1 | 1 | | 1 | | 1 |
| 927.1 | 1 | | | | | |
| 927.10 | 1 | 1 | | 1 | | 1 |
| 927.11 | 1 | 1 | | 1 | | 1 |
| 927.2 | 1 | | | | | |
| 927.20 | 1 | 1 | | 1 | | 1 |
| 927.21 | 1 | 1 | | 1 | | 1 |
| 927.3 | 1 | 1 | | 1 | | 1 |
| 927.8 | 1 | 1 | | 1 | | 1 |
| 927.9 | 1 | 1 | | 1 | | 1 |
| 928 | | | | | | |
| 928.0 | 1 | | | | | |
| 928.00 | 1 | 1 | | 1 | | 1 |
| 928.01 | 1 | 1 | | 1 | | 1 |
| 928.1 | 1 | | | | | |
| 928.10 | 1 | 1 | | 1 | | 1 |
| 928.11 | 1 | 1 | | 1 | | 1 |
| 928.2 | 1 | | | | | |
| 928.20 | 1 | 1 | | 1 | | 1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 928.21 | 1 | 1 | | 1 | | 1 |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 928.3 | 1 | 1 | | 1 | | 1 |
| 928.8 | 1 | 1 | | 1 | | 1 |
| 928.9 | 1 | 1 | | 1 | | 1 |
| 929 | 1 | | | | | |
| 929.0 | 1 | 1 | | 1 | | 1 |
| 929.9 | 1 | 1 | | 1 | | 1 |
| 930 | 1 | | | | | |
| 930.0 | 1 | 1 | | 1 | | |
| 930.1 | 1 | 1 | | 1 | | |
| 930.2 | 1 | 1 | | 1 | | |
| 930.8 | 1 | 1 | | 1 | | |
| 930.9 | 1 | 1 | | 1 | | |
| 931 | 1 | 1 | | 1 | | |
| 932 | 1 | 1 | | 1 | | |
| 932.0 | 1 | | | | | |
| 933 | 1 | | | | | |
| 933.0 | 1 | 1 | | 1 | | |
| 933.1 | 1 | 1 | | 1 | | |
| 934 | 1 | | | | | |
| 934.0 | 1 | 1 | | 1 | | |
| 934.1 | 1 | 1 | | 1 | | |
| 934.8 | 1 | 1 | | 1 | | |
| 934.9 | 1 | 1 | | 1 | | |
| 935 | | | | | | |
| 935.0 | 1 | 1 | | 1 | | |
| 935.1 | 1 | 1 | | 1 | | |
| 935.2 | 1 | 1 | | 1 | | |
| 936 | 1 | 1 | | 1 | | |
| 936.0 | 1 | | | | | |
| 937 | 1 | 1 | | 1 | | |
| 937.0 | 1 | | | | | |
| 938 | 1 | 1 | | 1 | | |
| 938.0 | 1 | | | | | |
| 939 | 1 | | | | | |
| 939.0 | 1 | 1 | | 1 | | |
| 939.1 | 1 | 1 | | 1 | | |
| 939.2 | 1 | 1 | | 1 | | |
| 939.3 | 1 | 1 | | 1 | | |
| 939.9 | 1 | 1 | | 1 | | |
| 940 | 1 | | | | | |
| 940.0 | 1 | 1 | | 1 | | |
| 940.1 | 1 | 1 | | 1 | | |
| 940.2 | 1 | 1 | | 1 | | |
| 940.3 | 1 | 1 | | 1 | | |
| 940.4 | 1 | 1 | | 1 | | |
| 940.5 | 1 | 1 | | 1 | | |
| 940.9 | 1 | 1 | | 1 | | |
| 941 | 1 | | | | | |
| 941.0 | 1 | | | | | |
| 941.01 | 1 | 1 | | 1 | | |
| 941.02 | 1 | 1 | | 1 | | |
| 941.03 | 1 | 1 | | 1 | | |
| 941.04 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 941.05 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 941.06 | 1 | 1 | | 1 | | |
| 941.07 | 1 | 1 | | 1 | | |
| 941.08 | 1 | 1 | | 1 | | |
| 941.09 | 1 | 1 | | 1 | | |
| 941.1 | 1 | | | | | |
| 941.10 | 1 | 1 | | 1 | | |
| 941.11 | 1 | 1 | | 1 | | |
| 941.12 | 1 | 1 | | 1 | | |
| 941.13 | 1 | 1 | | 1 | | |
| 941.14 | 1 | 1 | | 1 | | |
| 941.15 | 1 | 1 | | 1 | | |
| 941.16 | 1 | 1 | | 1 | | |
| 941.17 | 1 | 1 | | 1 | | |
| 941.18 | 1 | 1 | | 1 | | |
| 941.19 | 1 | 1 | | 1 | | |
| 941.2 | 1 | | | | | |
| 941.20 | 1 | 1 | | 1 | | |
| 941.21 | 1 | 1 | | 1 | | |
| 941.22 | 1 | 1 | | 1 | | |
| 941.23 | 1 | 1 | | 1 | | |
| 941.24 | 1 | 1 | | 1 | | |
| 941.25 | 1 | 1 | | 1 | | |
| 941.26 | 1 | 1 | | 1 | | |
| 941.27 | 1 | 1 | | 1 | | |
| 941.28 | 1 | 1 | | 1 | | |
| 941.29 | 1 | 1 | | 1 | | |
| 941.3 | 1 | | | | | |
| 941.30 | 1 | 1 | | 1 | | |
| 941.31 | 1 | 1 | | 1 | | |
| 941.32 | 1 | 1 | | 1 | | |
| 941.33 | 1 | 1 | | 1 | | |
| 941.34 | 1 | 1 | | 1 | | |
| 941.35 | 1 | 1 | | 1 | | |
| 941.36 | 1 | 1 | | 1 | | |
| 941.37 | 1 | 1 | | 1 | | |
| 941.38 | 1 | 1 | | 1 | | |
| 941.39 | 1 | 1 | | 1 | | |
| 941.4 | 1 | | | | | |
| 941.40 | 1 | 1 | | 1 | | |
| 941.41 | 1 | 1 | | 1 | | |
| 941.42 | 1 | 1 | | 1 | | |
| 941.43 | 1 | 1 | | 1 | | |
| 941.44 | 1 | 1 | | 1 | | |
| 941.45 | 1 | 1 | | 1 | | |
| 941.46 | 1 | 1 | | 1 | | |
| 941.47 | 1 | 1 | | 1 | | |
| 941.48 | 1 | 1 | | 1 | | |
| 941.49 | 1 | 1 | | 1 | | |
| 941.5 | 1 | | | | | |
| 941.50 | 1 | 1 | | 1 | | |
| 941.51 | 1 | 1 | | 1 | | |
| 941.52 | 1 | 1 | | 1 | | |
| 941.53 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 941.54 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 941.55 | 1 | 1 | | 1 | | |
| 941.56 | 1 | 1 | | 1 | | |
| 941.57 | 1 | 1 | | 1 | | |
| 941.58 | 1 | 1 | | 1 | | |
| 941.59 | 1 | 1 | | 1 | | |
| 942 | 1 | | | | | |
| 942.0 | 1 | | | | | |
| 942.00 | 1 | 1 | | 1 | | |
| 942.01 | 1 | 1 | | 1 | | |
| 942.02 | 1 | 1 | | 1 | | |
| 942.03 | 1 | 1 | | 1 | | |
| 942.04 | 1 | 1 | | 1 | | |
| 942.05 | 1 | 1 | | 1 | | |
| 942.09 | 1 | 1 | | 1 | | |
| 942 | | | | | | |
| 942.1 | 1 | 1 | | 1 | | |
| 942.10 | 1 | 1 | | 1 | | |
| 942.11 | 1 | 1 | | 1 | | |
| 942.12 | 1 | 1 | | 1 | | |
| 942.13 | 1 | 1 | | 1 | | |
| 942.14 | 1 | 1 | | 1 | | |
| 942.15 | 1 | 1 | | 1 | | |
| 942.19 | 1 | 1 | | 1 | | |
| 942.2 | 1 | | | | | |
| 942.20 | 1 | 1 | | 1 | | |
| 942.21 | 1 | 1 | | 1 | | |
| 942.22 | 1 | 1 | | 1 | | |
| 942.23 | 1 | 1 | | 1 | | |
| 942.24 | 1 | 1 | | 1 | | |
| 942.25 | 1 | 1 | | 1 | | |
| 942.29 | 1 | 1 | | 1 | | |
| 942.3 | 1 | | | | | |
| 942.30 | 1 | 1 | | 1 | | |
| 942.31 | 1 | 1 | | 1 | | |
| 942.32 | 1 | 1 | | 1 | | |
| 942.33 | 1 | 1 | | 1 | | |
| 942.34 | 1 | 1 | | 1 | | |
| 942.35 | 1 | 1 | | 1 | | |
| 942.39 | 1 | 1 | | 1 | | |
| 942.4 | 1 | | | | | |
| 942.40 | 1 | 1 | | 1 | | |
| 942.41 | 1 | 1 | | 1 | | |
| 942.42 | 1 | 1 | | 1 | | |
| 942.43 | 1 | 1 | | 1 | | |
| 942.44 | 1 | 1 | | 1 | | |
| 942.45 | 1 | 1 | | 1 | | |
| 942.49 | 1 | 1 | | 1 | | |
| 942.5 | 1 | | | | | |
| 942.50 | 1 | 1 | | 1 | | |
| 942.51 | 1 | 1 | | 1 | | |
| 942.52 | 1 | 1 | | 1 | | |
| 942.53 | 1 | 1 | | 1 | | |
| 942.54 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 942.55 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 942.59 | 1 | 1 | | 1 | | |
| 943 | 1 | | | | | |
| 943.0 | 1 | | | | | |
| 943.00 | 1 | 1 | | 1 | | |
| 943.01 | 1 | 1 | | 1 | | |
| 943.02 | 1 | 1 | | 1 | | |
| 943.03 | 1 | 1 | | 1 | | |
| 943.04 | 1 | 1 | | 1 | | |
| 943.05 | 1 | 1 | | 1 | | |
| 943.06 | 1 | 1 | | 1 | | |
| 943.09 | 1 | 1 | | 1 | | |
| 943.1 | 1 | | | | | |
| 943.10 | 1 | 1 | | 1 | | |
| 943.11 | 1 | 1 | | 1 | | |
| 943.12 | 1 | 1 | | 1 | | |
| 943.13 | 1 | 1 | | 1 | | |
| 943.14 | 1 | 1 | | 1 | | |
| 943.15 | 1 | 1 | | 1 | | |
| 943.16 | 1 | 1 | | 1 | | |
| 943.19 | 1 | 1 | | 1 | | |
| 943.2 | 1 | | | | | |
| 943.20 | 1 | 1 | | 1 | | |
| 943.21 | 1 | 1 | | 1 | | |
| 943.22 | 1 | 1 | | 1 | | |
| 943.23 | 1 | 1 | | 1 | | |
| 943.24 | 1 | 1 | | 1 | | |
| 943.25 | 1 | 1 | | 1 | | |
| 943.26 | 1 | 1 | | 1 | | |
| 943.29 | 1 | 1 | | 1 | | |
| 943.3 | 1 | | | | | |
| 943.30 | 1 | 1 | | 1 | | |
| 943.31 | 1 | 1 | | 1 | | |
| 943.32 | 1 | 1 | | 1 | | |
| 943.33 | 1 | 1 | | 1 | | |
| 943.34 | 1 | 1 | | 1 | | |
| 943.35 | 1 | 1 | | 1 | | |
| 943.36 | 1 | 1 | | 1 | | |
| 943.39 | 1 | 1 | | 1 | | |
| 943.4 | 1 | | | | | |
| 943.40 | 1 | 1 | | 1 | | |
| 943.41 | 1 | 1 | | 1 | | |
| 943.42 | 1 | 1 | | 1 | | |
| 943.43 | 1 | 1 | | 1 | | |
| 943.44 | 1 | 1 | | 1 | | |
| 943.45 | 1 | 1 | | 1 | | |
| 943.46 | 1 | 1 | | 1 | | |
| 943.49 | 1 | 1 | | 1 | | |
| 943.5 | 1 | | | | | |
| 943.50 | 1 | 1 | | 1 | | |
| 943.51 | 1 | 1 | | 1 | | |
| 943.52 | 1 | 1 | | 1 | | |
| 943.53 | 1 | 1 | | 1 | | |
| 943.54 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 943.55 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 943.56 | 1 | 1 | | 1 | | |
| 943.59 | 1 | 1 | | 1 | | |
| 944 | 1 | | | | | |
| 944.0 | 1 | 1 | | 1 | | |
| 944.00 | 1 | 1 | | 1 | | |
| 944.01 | 1 | 1 | | 1 | | |
| 944.02 | 1 | 1 | | 1 | | |
| 944.03 | 1 | 1 | | 1 | | |
| 944.04 | 1 | 1 | | 1 | | |
| 944.05 | 1 | 1 | | 1 | | |
| 944.06 | 1 | 1 | | 1 | | |
| 944.07 | 1 | 1 | | 1 | | |
| 944.08 | 1 | 1 | | 1 | | |
| 944.1 | 1 | | | | | |
| 944.10 | 1 | 1 | | 1 | | |
| 944.11 | 1 | 1 | | 1 | | |
| 944.12 | 1 | 1 | | 1 | | |
| 944.13 | 1 | 1 | | 1 | | |
| 944.14 | 1 | 1 | | 1 | | |
| 944.15 | 1 | 1 | | 1 | | |
| 944.16 | 1 | 1 | | 1 | | |
| 944.17 | 1 | 1 | | 1 | | |
| 944.18 | 1 | 1 | | 1 | | |
| 944.2 | 1 | | | | | |
| 944.20 | 1 | 1 | | 1 | | |
| 944.21 | 1 | 1 | | 1 | | |
| 944.22 | 1 | 1 | | 1 | | |
| 944.23 | 1 | 1 | | 1 | | |
| 944.24 | 1 | 1 | | 1 | | |
| 944.25 | 1 | 1 | | 1 | | |
| 944.26 | 1 | 1 | | 1 | | |
| 944.27 | 1 | 1 | | 1 | | |
| 944.28 | 1 | 1 | | 1 | | |
| 944.3 | 1 | | | | | |
| 944.30 | 1 | 1 | | 1 | | |
| 944.31 | 1 | 1 | | 1 | | |
| 944.32 | 1 | 1 | | 1 | | |
| 944.33 | 1 | 1 | | 1 | | |
| 944.34 | 1 | 1 | | 1 | | |
| 944.35 | 1 | 1 | | 1 | | |
| 944.36 | 1 | 1 | | 1 | | |
| 944.37 | 1 | 1 | | 1 | | |
| 944.38 | 1 | 1 | | 1 | | |
| 944.4 | 1 | | | | | |
| 944.40 | 1 | 1 | | 1 | | |
| 944.41 | 1 | 1 | | 1 | | |
| 944.42 | 1 | 1 | | 1 | | |
| 944.43 | 1 | 1 | | 1 | | |
| 944.44 | 1 | 1 | | 1 | | |
| 944.45 | 1 | 1 | | 1 | | |
| 944.46 | 1 | 1 | | 1 | | |
| 944.47 | 1 | 1 | | 1 | | |
| 944.48 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 944.5 | 1 | | | | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 944.50 | 1 | 1 | | 1 | | |
| 944.51 | 1 | 1 | | 1 | | |
| 944.52 | 1 | 1 | | 1 | | |
| 944.53 | 1 | 1 | | 1 | | |
| 944.54 | 1 | 1 | | 1 | | |
| 944.55 | 1 | 1 | | 1 | | |
| 944.56 | 1 | 1 | | 1 | | |
| 944.57 | 1 | 1 | | 1 | | |
| 944.58 | 1 | 1 | | 1 | | |
| 945 | | | | | | |
| 945.0 | | | | | | |
| 945.00 | 1 | 1 | | 1 | | |
| 945.01 | 1 | 1 | | 1 | | |
| 945.02 | 1 | 1 | | 1 | | |
| 945.03 | 1 | 1 | | 1 | | |
| 945.04 | 1 | 1 | | 1 | | |
| 945.05 | 1 | 1 | | 1 | | |
| 945.06 | 1 | 1 | | 1 | | |
| 945.09 | 1 | 1 | | 1 | | |
| 945.10 | 1 | 1 | | 1 | | |
| 945.1 | 1 | | | | | |
| 945.10 | 1 | 1 | | 1 | | |
| 945.11 | 1 | 1 | | 1 | | |
| 945.12 | 1 | 1 | | 1 | | |
| 945.13 | 1 | 1 | | 1 | | |
| 945.14 | 1 | 1 | | 1 | | |
| 945.15 | 1 | 1 | | 1 | | |
| 945.16 | 1 | 1 | | 1 | | |
| 945.19 | 1 | 1 | | 1 | | |
| 945.2 | | | | | | |
| 945.20 | 1 | 1 | | 1 | | |
| 945.21 | 1 | 1 | | 1 | | |
| 945.22 | 1 | 1 | | 1 | | |
| 945.23 | 1 | 1 | | 1 | | |
| 945.24 | 1 | 1 | | 1 | | |
| 945.25 | 1 | 1 | | 1 | | |
| 945.26 | 1 | 1 | | 1 | | |
| 945.29 | 1 | 1 | | 1 | | |
| 945.3 | | | | | | |
| 945.30 | 1 | 1 | | 1 | | |
| 945.31 | 1 | 1 | | 1 | | |
| 945.32 | 1 | 1 | | 1 | | |
| 945.33 | 1 | 1 | | 1 | | |
| 945.34 | 1 | 1 | | 1 | | |
| 945.35 | 1 | 1 | | 1 | | |
| 945.36 | 1 | 1 | | 1 | | |
| 945.39 | 1 | 1 | | 1 | | |
| 945.4 | | | | | | |
| 945.40 | 1 | 1 | | 1 | | |
| 945.41 | 1 | 1 | | 1 | | |
| 945.42 | 1 | 1 | | 1 | | |
| 945.43 | 1 | 1 | | 1 | | |
| 945.44 | 1 | 1 | | 1 | | |

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|---|---|---|---|---|---|---|
| 945.45 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 945.46 | 1 | 1 | | 1 | | |
| 945.49 | 1 | 1 | | 1 | | |
| 945.5 | | | | | | |
| 945.50 | 1 | 1 | | 1 | | |
| 945.51 | 1 | 1 | | 1 | | |
| 945.52 | 1 | 1 | | 1 | | |
| 945.53 | 1 | 1 | | 1 | | |
| 945.54 | 1 | 1 | | 1 | | |
| 945.55 | 1 | 1 | | 1 | | |
| 945.56 | 1 | 1 | | 1 | | |
| 945.59 | 1 | 1 | | 1 | | |
| 946 | 1 | | | | | |
| 946.0 | 1 | 1 | | 1 | | |
| 946.1 | 1 | 1 | | 1 | | |
| 946.2 | 1 | 1 | | 1 | | |
| 946.3 | 1 | 1 | | 1 | | |
| 946.4 | 1 | 1 | | 1 | | |
| 946.5 | 1 | 1 | | 1 | | |
| 947 | | | | | | |
| 947.0 | 1 | 1 | | 1 | | |
| 947.1 | 1 | 1 | | 1 | | |
| 947.2 | 1 | 1 | | 1 | | |
| 947.3 | 1 | 1 | | 1 | | |
| 947.4 | 1 | 1 | | 1 | | |
| 947.8 | 1 | 1 | | 1 | | |
| 947.9 | 1 | 1 | | 1 | | |
| 948 | 1 | | | | | |
| 948.0 | 1 | 1 | | 1 | | |
| 948.00 | 1 | | | | | |
| 948.1 | 1 | 1 | | 1 | | |
| 948.10 | 1 | | | | | |
| 948.11 | 1 | | | | | |
| 948.2 | 1 | 1 | | 1 | | |
| 948.20 | 1 | | | | | |
| 948.21 | 1 | | | | | |
| 948.22 | 1 | | | | | |
| 948.3 | 1 | 1 | | 1 | | |
| 948.30 | 1 | | | | | |
| 948.31 | 1 | | | | | |
| 948.32 | 1 | | | | | |
| 948.33 | 1 | | | | | |
| 948.4 | 1 | 1 | | 1 | | |
| 948.40 | 1 | | | | | |
| 948.41 | 1 | | | | | |
| 948.42 | 1 | | | | | |
| 948.43 | 1 | | | | | |
| 948.44 | 1 | | | | | |
| 948.5 | 1 | 1 | | 1 | | |
| 948.50 | 1 | | | | | |
| 948.51 | 1 | | | | | |
| 948.52 | 1 | | | | | |
| 948.53 | 1 | | | | | |
| 948.54 | 1 | | | | | |

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|---|---|---|---|---|---|---|
| 948.55 | 1 | | | | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 948.60 | 1 | 1 | | 1 | | |
| 948.60 | 1 | | | | | |
| 948.61 | 1 | | | | | |
| 948.62 | 1 | | | | | |
| 948.63 | 1 | | | | | |
| 948.64 | 1 | | | | | |
| 948.65 | 1 | | | | | |
| 948.66 | 1 | | | | | |
| 948.7 | 1 | 1 | | 1 | | |
| 948.70 | 1 | | | | | |
| 948.71 | 1 | | | | | |
| 948.72 | 1 | | | | | |
| 948.73 | 1 | | | | | |
| 948.74 | 1 | | | | | |
| 948.75 | 1 | | | | | |
| 948.76 | 1 | | | | | |
| 948.77 | 1 | | | | | |
| 948.8 | 1 | 1 | | 1 | | |
| 948.80 | 1 | | | | | |
| 948.81 | 1 | | | | | |
| 948.82 | 1 | | | | | |
| 948.83 | 1 | | | | | |
| 948.84 | 1 | | | | | |
| 948.85 | 1 | | | | | |
| 948.86 | 1 | | | | | |
| 948.87 | 1 | | | | | |
| 948.88 | 1 | | | | | |
| 948.9 | 1 | 1 | | 1 | | |
| 948.90 | 1 | | | | | |
| 948.91 | 1 | | | | | |
| 948.92 | 1 | | | | | |
| 948.93 | 1 | | | | | |
| 948.94 | 1 | | | | | |
| 948.95 | 1 | | | | | |
| 948.96 | 1 | | | | | |
| 948.97 | 1 | | | | | |
| 948.98 | 1 | | | | | |
| 948.99 | 1 | | | | | |
| 949 | 1 | | | | | |
| 949.0 | 1 | 1 | | 1 | | |
| 949.1 | 1 | 1 | | 1 | | |
| 949.2 | 1 | 1 | | 1 | | |
| 949.3 | 1 | 1 | | 1 | | |
| 949.4 | 1 | 1 | | 1 | | |
| 949.5 | 1 | 1 | | 1 | | |
| 950 | 1 | | | | | |
| 950.0 | 1 | 1 | | 1 | | |
| 950.1 | 1 | 1 | | 1 | | |
| 950.2 | 1 | 1 | | 1 | | |
| 950.3 | 1 | 1 | | 1 | | |
| 950.9 | 1 | 1 | | 1 | | |
| 951 | 1 | | | | | |
| 951.0 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 951.1 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 951.2 | 1 | 1 | | 1 | | |
| 951.3 | 1 | 1 | | 1 | | |
| 951.4 | 1 | 1 | | 1 | | |
| 951.5 | 1 | 1 | | 1 | | |
| 951.60 | 1 | 1 | | 1 | | |
| 951.7 | 1 | 1 | | 1 | | |
| 951.8 | 1 | 1 | | 1 | | |
| 951.9 | 1 | 1 | | 1 | | |
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| 952.0 | 1 | | | | | |
| 952.00 | 1 | 1 | | 1 | | |
| 952.01 | 1 | 1 | | 1 | | |
| 952.02 | 1 | 1 | | 1 | | |
| 952.03 | 1 | 1 | | 1 | | |
| 952.04 | 1 | 1 | | 1 | | |
| 952.05 | 1 | 1 | | 1 | | |
| 952.06 | 1 | 1 | | 1 | | |
| 952.07 | 1 | 1 | | 1 | | |
| 952.08 | 1 | 1 | | 1 | | |
| 952.09 | 1 | 1 | | 1 | | |
| 952.1 | 1 | | | | | |
| 952.10 | 1 | 1 | | 1 | | |
| 952.11 | 1 | 1 | | 1 | | |
| 952.12 | 1 | 1 | | 1 | | |
| 952.13 | 1 | 1 | | 1 | | |
| 952.14 | 1 | 1 | | 1 | | |
| 952.15 | 1 | 1 | | 1 | | |
| 952.16 | 1 | 1 | | 1 | | |
| 952.17 | 1 | 1 | | 1 | | |
| 952.18 | 1 | 1 | | 1 | | |
| 952.19 | 1 | 1 | | 1 | | |
| 952.2 | 1 | 1 | | 1 | | |
| 952.3 | 1 | 1 | | 1 | | |
| 952.4 | 1 | 1 | | 1 | | |
| 952.8 | 1 | 1 | | 1 | | |
| 952.9 | 1 | 1 | | 1 | | |
| 953 | | | | | | |
| 953.0 | 1 | 1 | | 1 | | |
| 953.1 | 1 | 1 | | 1 | | |
| 953.2 | 1 | 1 | | 1 | | |
| 953.3 | 1 | 1 | | 1 | | |
| 953.4 | 1 | 1 | | 1 | | |
| 953.5 | 1 | 1 | | 1 | | |
| 953.8 | 1 | 1 | | 1 | | |
| 953.9 | 1 | 1 | | 1 | | |
| 954 | | | | | | |
| 954.0 | 1 | 1 | | 1 | | |
| 954.1 | 1 | 1 | | 1 | | |
| 954.8 | 1 | 1 | | 1 | | |
| 954.9 | 1 | 1 | | 1 | | |
| 955 | | | | | | |
| 955.0 | 1 | 1 | | 1 | | |
| 955.1 | 1 | 1 | | 1 | | |

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|---|---|---|---|---|---|---|
| 955.2 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 955.3 | 1 | 1 | | 1 | | |
| 955.4 | 1 | 1 | | 1 | | |
| 955.5 | 1 | 1 | | 1 | | |
| 955.60 | 1 | 1 | | 1 | | |
| 955.7 | 1 | 1 | | 1 | | |
| 955.8 | 1 | 1 | | 1 | | |
| 955.9 | 1 | 1 | | 1 | | |
| 956 | 1 | 1 | | 1 | | |
| 956.0 | 1 | | | | | |
| 956.1 | 1 | 1 | | 1 | | |
| 956.2 | 1 | 1 | | 1 | | |
| 956.3 | 1 | 1 | | 1 | | |
| 956.4 | 1 | 1 | | 1 | | |
| 956.5 | 1 | 1 | | 1 | | |
| 956.8 | 1 | 1 | | 1 | | |
| 956.9 | 1 | 1 | | 1 | | |
| 957 | | | | | | |
| 957.0 | 1 | 1 | | 1 | | |
| 957.1 | 1 | 1 | | 1 | | |
| 957.8 | 1 | 1 | | 1 | | |
| 957.9 | 1 | 1 | | 1 | | |
| 959 | | | | | | |
| 959.0 | 1 | | | | | |
| 959.01 | 1 | 1 | | 1 | | 1 |
| 959.02 | | 1 | | 1 | | 1 |
| 959.1 | 1 | 1 | | 1 | | 1 |
| 959.2 | 1 | 1 | | 1 | | 1 |
| 959.3 | 1 | 1 | | 1 | | 1 |
| 959.4 | 1 | 1 | | 1 | | 1 |
| 959.5 | 1 | 1 | | 1 | | 1 |
| 959.60 | 1 | 1 | | 1 | | 1 |
| 959.7 | 1 | 1 | | 1 | | 1 |
| 959.8 | 1 | 1 | | 1 | | 1 |
| 959.9 | 1 | 1 | | 1 | | 1 |
| 990 | 1 | 1 | | 1 | | |
| 991 | 1 | | | | | |
| 991.0 | 1 | 1 | | 1 | | |
| 991.1 | 1 | 1 | | 1 | | |
| 991.2 | 1 | 1 | | 1 | | |
| 991.3 | 1 | 1 | | 1 | | |
| 991.4 | 1 | 1 | | 1 | | |
| 991.5 | 1 | 1 | | 1 | | |
| 991.60 | 1 | 1 | | 1 | | |
| 991.8 | 1 | 1 | | 1 | | |
| 991.9 | 1 | 1 | | 1 | | |
| 992 | 1 | | | | | |
| 992.0 | 1 | 1 | | 1 | | |
| 992.1 | 1 | 1 | | 1 | | |
| 992.2 | 1 | 1 | | 1 | | |
| 992.3 | 1 | 1 | | 1 | | |
| 992.4 | 1 | 1 | | 1 | | |
| 992.5 | 1 | 1 | | 1 | | |
| 992.60 | 1 | 1 | | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 992.7 | 1 | 1 | | 1 | | |

| ICD-9 code | III | MIII | TIII | CII | OII | AII |
|---|---|---|---|---|---|---|
| 992.8 | 1 | 1 | | 1 | | |
| 992.9 | 1 | 1 | | 1 | | |
| 993 | 1 | | | | | |
| 993.0 | 1 | 1 | | 1 | | |
| 993.1 | 1 | 1 | | 1 | | |
| 993.2 | 1 | 1 | | 1 | | |
| 993.3 | 1 | 1 | | 1 | | |
| 993.4 | 1 | 1 | | 1 | | |
| 993.8 | 1 | 1 | | 1 | | |
| 993.9 | 1 | 1 | | 1 | | |
| 994 | 1 | | | | | |
| 994.0 | 1 | 1 | | 1 | | |
| 994.1 | 1 | 1 | | 1 | | |
| 994.2 | 1 | 1 | | | | |
| 994.3 | 1 | 1 | | | | |
| 994.4 | 1 | 1 | | 1 | | |
| 994.5 | 1 | 1 | | 1 | | |
| 994.60 | 1 | 1 | | | | |
| 994.7 | 1 | 1 | | 1 | | |
| 994.8 | 1 | 1 | | 1 | | |
| 994.9 | 1 | 1 | | 1 | | |
| 995.80 | | | | | | |
| 995.81 | 1 | 1 | | 1 | | |
| 995.82 | | | | | | |
| 995.83 | 1 | 1 | | 1 | | |
| 995.84 | | | | | | |
| 995.85 | | | | | | |

# Appendix J. Supplemental Data on the FAP Evaluation

This appendix contains the test scores from the Reception Station Physical Fitness Test and compares the proportion of trainees passing each test item in the FAP Test and Control groups. The average ±SD time in the FAP for the FAP Control group was 19±9 days for the men and 17±9 days for the women and 18±9 days for men and women combined.

Table J1 shows the Reception Station Physical Fitness Test results for the 3 Groups. No statistics were performed involving the Not-FAP group because there was no variance in the PU and SU test scores. Recall that the test was terminated after trainees reached a particular number of repetitions. The scores on all the tests are lower for the FAP Test and Control compared to the Not-FAP. Difference between the FAP Test and Control were small.

Table J1. Comparison of Reception Station Fitness Test Scores in the Three Groups

| | | PU | SU | 1-Mile Run |
|---|---|---|---|---|
| Men | FAP Test | 12±3 | 16±4 | 9.2±1.1 |
| | FAP Control | 11±4 | 15±4 | 9.1±1.0 |
| | Not-FAP | 13±0 | 17±0 | 7.3±0.8 |
| | p-value[a] | 0.48 | 0.36 | 0.59 |
| Women | FAP Test | 2±1 | 14±6 | 11.0±1.6 |
| | FAP Control | 2±1 | 12±6 | 11.0±1.1 |
| | Not-FAP | 3±0 | 17±0 | 9.3±1.0 |
| | p-value[a] | 0.70 | 0.10 | 0.93 |

[a]From t-test comparing FAP Test to FAP Control. No test was performed on Not-FAP because of the lack of variance in the PU and SU scores

Table J2 shows the proportion of trainees that failed each event in the Reception Station Physical Fitness Test. A trainee could have failed more than one test and in the analysis trainees are included for each test that was failed. There were no significant group differences in the proportion of trainees failing a test event either among men or women. The data also showed that the largest proportion of failures were due to the run. Additional analysis showed that the proportion of women failing each event was greater than the proportion of men when both groups (FAP Test and Control) were combined (PU: 23.1% vs. 38.5%, p=0.01; SU: 26.4% vs. 41.0%, p=0.02; 1-mile run: 73.3% vs. 61.6%, p=0.06)

Table J2. Proportion of Trainees Failing Each FAP Event

| Gender | Group | PU | SU | 1-Mile Run |
|---|---|---|---|---|
| Men | FAP Test (% failed) | 15.6 | 21.9 | 75.0 |
| | FAP Control (% failed) | 27.1 | 28.8 | 72.4 |
| | p-value[a] | 0.21 | 0.47 | 0.79 |
| Women | FAP Test (% failed) | 41.1 | 35.6 | 67.1 |
| | FAP Control (% failed) | 36.4 | 45.5 | 57.0 |
| | p-value[a] | 0.54 | 0.21 | 0.19 |

[a]From chi-square statistic

# Appendix K
# Acknowledgements

The leadership of COL Heaney, LTC Philip Kaiser and LTC Brian Reinwald was greatly appreciated. MAJ Werling of Moncrief Army Community Hospital provided information on the PTRP recommendations and CPT Daniel Fisher provided information on trainees who were actually assigned to the PTRP. CPT Natasha Hinds and MAJ Ousey served as our major liaisons for the companies involved in the evaluation and they provided us with much of the information used in this report. SFC Salyer and SFC Robertson provided us with daily status reports and the discharge data. We appreciate the insights into the training processes provided to us by CPT Elobt, CPT Rivers, CPT Brockman, CPT Truesdale and CPT Swaim.

CPT Bryant provided us with the FAP data and we had many conversations with him about the training program and structure and procedures followed in the FAP. Thanks also to LTC Barbara Zacharczyk, CPT Rachel Hill, CPT Snow, and CPT Allema Balkin, and CPT Lane who provided us with other insights into the various activities of the Reception Station. Ms Kerns and Mr Allen in the Reception Station provided the height and weight data from the RECBAS.

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