

THE AIR FORCE FITNESS PROGRAM AND THE
CHALLENGE OF CREATING A MORE
FIT FORCE

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The United States Air Force believes that the current fitness test has placed a demand on airman to stay fit year round. The semi-annual test results are showing there is a positive trend in fitness scores among all ranks and ages, and Air Force leadership is claiming these results as a success. The 2011 pass rate of 91 percent was impressive; however, this thesis will examine the numbers and reveal that although the pass rate is significantly high, the desired goal of airman maintaining fitness year-round has not met with the same success. To achieve this goal the Air Force must establish a program that focuses on four factors: testing, educating, training, and assessment. These four factors will guide airman to becoming more physically fit, and not just prepare them to pass the fitness test. This thesis will review literature that connects a person's level of fitness to their job performance. With a direct connection to job performance, a member's fitness level has a direct impact on mission accomplishment. Therefore, an airman's fitness level has an impact on the how the Air Force mission is accomplished. . If fitness is vital to the mission, then it is a part of the mission. Fitness must become a part of the Air Force, and not used as a tool to keep airman on the edge of fitness.					
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

THE AIR FORCE FITNESS PROGRAM AND THE CHALLENGE OF CREATING A MORE FIT FORCE, by Major Darren P. Bemis, pages 76.

The United States Air Force believes that the current fitness test has placed a demand on airman to stay fit year round. The semi-annual test results are showing there is a positive trend in fitness scores among all ranks and ages, and Air Force leadership is claiming these results as a success. The 2011 pass rate of 91 percent was impressive; however, this thesis will examine the numbers and reveal that although the pass rate is significantly high, the desired goal of airman maintaining fitness year-round has not met with the same success. To achieve this goal the Air Force must establish a program that focuses on four factors: testing, educating, training, and assessment. These four factors will guide airman to becoming more physically fit, and not just prepare them to pass the fitness test.

This thesis will review literature that connects a person's level of fitness to their job performance. With a direct connection to job performance, a member's fitness level has a direct impact on mission accomplishment. Therefore, an airman's fitness level has an impact on the how the Air Force mission is accomplished. . If fitness is vital to the mission, then it is a part of the mission. Fitness must become a part of the Air Force, and not used as a tool to keep airman on the edge of fitness.

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CHAPTER 1

INTRODUCTION

It is every Airman's responsibility to maintain the standards set forth in this AFI 365 days a year. Being physically fit allows you to properly support the Air Force mission. The goal of the Fitness Program (FP) is to motivate all members to participate in a year-round physical conditioning program that emphasizes total fitness, to include proper aerobic conditioning, strength/flexibility training, and healthy eating. Health benefits from an active lifestyle will increase productivity, optimize health, and decrease absenteeism while maintaining a higher level of readiness. Commanders and supervisors must incorporate fitness into the AF culture establishing an environment for members to maintain physical fitness and health to meet expeditionary mission requirements. The Fitness Assessment (FA) provides commanders with a tool to assist in the determination of overall fitness of their military personnel. Commander driven physical fitness training is the backbone of the AF physical fitness program and an integral part of mission requirements. The program promotes aerobic and muscular fitness, flexibility, and optimal body composition of each member in the unit.

— United States Air Force, AFI 36-2905

Background

Fitness is a vital part of every military organization. This chapter will provide an overview of the United States Air Force fitness program. This walk through fitness history will provide insight on changes over the past 65 years. In addition, provide a close review of recent changes and the responsibilities of the commanders to ensure the program is organized and executed in accordance with the Air Force Instruction.

History of Air Force Fitness

In 1947 the United States government passed the National Security Act of 1947 creating the youngest military service, the Air Force. With the then-recent completion of World War II, the focus of the new Air Force leadership was on developing war-fighting capabilities. There was little emphasis placed on fitness. In 1948 the Air Force

established its first fitness program; it was very simple and was based on what the member did. There was no testing or evaluation or even any fitness standards.

Over the next couple of years the need for a program surfaced. General Omar Bradley stated that the overall fitness of the Army was poor, and it started with the recruits coming into basic training. The Air Force took heed and created a program; however, the program only consisted of one required exercise per week and included no established means of measuring the progress of members' fitness level. In 1960, Kenneth Cooper, an Air Force Major, developed an aerobic fitness program for NASA (Cooper 1982). The focus of the program was on aerobic fitness, as Cooper called it, and covered proper weight, nutrition, exercise, and supplements.

Cooper focused on fitness shortly after hearing that; if he did not change his lifestyle, he was going to die. He had just completed medical school and was 40 pounds overweight. He spent the next year focusing on getting fit (Cooper 1982, 21).

The Air Force adopted a portion of his recommendation and implemented a new fitness program based on his plan. The fitness program was initiated in 1969, but the Air Force failed to understand total fitness as defined by Cooper and focused only on the mile-and-a-half run. The new fitness test was completed annually and, with the exception of reducing the time for the run in 1989, there were no changes.

During this same time-frame, the Air Force implemented the "Weight Management Program" and members were weighed and taped once per year. The scale for this program, like the other services, was based on height and weight. If the member fails the weight portion, then the neck and waist are measured. Those assigned to administer the body fat test subtract the neck measurement from the waist measurement.

The result must be under a predetermined number. If the difference is less than that number then the member passes the test.

If members fail the weigh-in and the tape, they are entered into a weight management program. There were several rules that included not allowing a member to be promoted while on the program. Once members lost the weight and could pass the weigh-in, they still had to pass the tape. If they passed the tape, they were taken off the program. If they failed they remained in the program.

In my experience, as a Flight Commander and Operations Officer, I saw several people remain in the Weight Management program for more than two years, never changing their fitness habits.

In the early 1990s the Air Force transitioned to the bike test. The Weight Management Program continued with little change. The bike test was established to test the overall fitness of a member based on their maximal oxygen uptake, also known as VO2 max. The measurement of VO2 max establishes the aerobic capacity of an individual. During the bike test members wore a heart-rate monitor and rode a bike at different resistance levels.

The Ergonomic Bike test monitor would input the heart rate into the program every minute, and then the program would change the resistance. The bike ride generally lasted from eight to fourteen minutes and more times than not would end with an invalid test. Each member that passed did not have to take it again for another year. Members who failed were generally retested within the next month. If the test came back invalid, they were allowed to retest whenever they wanted.

The problem with this program is that it simply tested current fitness; it did not provide a means to increase the overall fitness level of the Air Force. In 2003 that changed the Air Force introduced the first version of the current fitness test.

Current Fitness Program and Rules

The new fitness program includes push-ups, sit-ups, a waist measurement and a one and a half mile run. From 2004 to 2010 the test was administered annually. In 2010 with the release of the new version of the program testing was completed semiannually. The goal was to encourage members to exercise year-round instead of last minute preparation for the annual test.

The Test

The Air Force established a matrix to measure members based on age and gender. The age categories were: under 30, 30-39, 40-49, and 50-59. Each of the four categories has minimums that must be attained or the member fails, no matter the composite score.

Thirty-five inches for abdominal circumference has been set as ideal in the new program, the original program had thirty-two inches as ideal. Although the scoring varies based on age for the other categories, the abdominal circumference scale does not vary. The maximum waist measurement for all males is thirty-nine inches. A member with a waist measurement of thirty-nine and a quarter inch automatically fails the fitness test.

The second portion of the test is push-ups. The member is required to complete as many push-ups as possible in a one minute time frame. The Fitness Assessment Cell members monitor the form of the individuals while another member there for the test counts the push-ups. The same is repeated for sit-ups.

The run is the final portion of the test. The run is timed and monitored by Fitness Assessment Cell personnel. Once the run is complete, the member signs, verifying that all portions of the scoring are correct. Then the Fitness Assessment Cell inputs the data into the system, and the member receives a notice of the scoring.

Fitness Test Failure

When the member fails the test they are enrolled in the Fitness Improvement Program. Within this program there are several actions that take place. Members are sent for medical evaluation to determine level of health. Follow-up appointments include lab for blood work and a visit to the nutritionist. Once it is determined by the medical staff that there is no medical issues leading to the member's failure, they are cleared to begin the Fitness Improvement Program. The members must provide a weekly journal of fitness and diet, this journal is submitted to the unit fitness monitor for inclusion into the fitness folder. However, they are not a part of an organized fitness program where they are monitored. The only measurement to determine if the Fitness Improvement Program has worked is when the member has to test again at either the 90 day point for Active Duty or 180 day point for Guard.

Commander's Responsibility

The commander plays a crucial role in the fitness program, from ensuring that members test to levying administrative action against those who fail. Since 2003 the program has made many changes to give more responsibility to the commander. In the Air Force Instruction the commander is given a broad selection of actions to take against members that fail.

One major change in 2010 was the inclusion of the “does not meet standards” on annual Officer and Enlisted Performance Reports for failure to pass the physical fitness test. In the past this area had been used for those who do not show up to work on time, whose uniforms look unkempt, and who generally do not follow the rules of the Air Force. This change inspired many members to take action and work harder to pass the annual fitness test.

The commander is responsible for assigning and providing the training for Unit Fitness Monitors. These individuals are responsible for the overall execution of the program after the member fails. They assist in scheduling the semi-annual test, but with the changes in the 2010 Air Force Instruction 36-2903; commanders have little input until a member fails. Once the member fails, he/she is entered into the Fitness Improvement Program, and has to chart their workouts and dietary intake. The charts are created by the Unit Fitness Monitor, kept by the commander and inspected by members of the Military Personnel Flight on occasion.

Once a member fails, the commander is required to administer negative action. Typically the first action taken for a single fail is a verbal warning, but can include a deferred or delayed promotion. After the second failure a commander can make the member reenlistment ineligible. After the third failure, the member—whether officer or enlisted—can be demoted. After the forth failure, the command can administratively discharge the member. The chart below is provided as a guide to the commander on actions that can be taken based on each failure.

Table 1. Air Force Instruction 36-2902 Administrative and Personnel Actions for Failing to Attain Physical Fitness Standards

Unsatisfactory Fitness Score	1 st	2 nd	3 rd	4 th
Verbal Counseling				
Letter of Counseling	X	X		
Letter of Admonition	X	X		
Defer Promotion (Enlisted)	X	X	X	X
Delay Promotion (Officer)	X	X	X	X
Limited Supervisory Responsibilities	X	X	X	X
Letter of Reprimand	X	X	X	X
Establish Unfavorable Information File (UIF)		X	X	X
Reenlistment Ineligibility (see note 1)		X	X	X
No Recommended for Promotion (Enlisted)		X	X	X
Remove Supervisory Responsibilities			X	X
Deny Voluntary Retraining			X	X
Deny Formal Training			X	X
Placement on Control Roster			X	X
Reenlistment Non-selection (see note 1-2)			X	X
Withhold Promotion (Enlisted)			X	X
Remove Promotion (Officer)			X	X
Administrative Demotion			X	X
Administrative Separation				X
(Air Reserve Component) Transfer to Obligated Reserve Section or Non-obligated, Non-participating Ready Personnel Section				X

Source: Department of the Air Force, Air Force Instruction (AFI) 36-2903, *Fitness Program* (Washington, DC: Government Printing Office, 2010), 105.

Notes: (1) Commanders may render an individual ineligible for reenlistment rather than denying reenlistment by specifying ineligibility versus non-selection on the AF Form 418, Selective Reenlistment Program Consideration. This allows the flexibility of authorizing an individual to extend their reenlistment for either 4 or 7 months (7 or 12 for Air Reserve Component) to improve their fitness level. Individuals non-selected for reenlistment are not allowed to extend for any reason and will separate on the date of separation. Commanders may complete a second AF Form 418 changing the member's ineligibility or non-selection status at any time; (2) For ARC, the use of this option should be weighed against use of administrative separation and is applicable where recall of this member would not jeopardize mission readiness.

In June of 2010, I sat down with a member who had failed five physical fitness tests. The 43-year-old staff sergeant had recently had a heart attack and had stints. To make matters worse he had a waist measurement of forty-eight inches. The sergeant was

told that he was not going to be re-enlisted but he would be extended six months in order to give him time to get in shape and pass the fitness test by March of 2011. Shortly after our talk the member reported that he had lost ten pounds and was walking every day.

I along with my Chief Master Sergeant continued to monitor the progress of the sergeant and push him to get into shape. One year later, in June of 2011, the sergeant sat in the office with tears in his eyes begging to be reenlisted. However, the damage was done, he now had seven fails, his waist was forty-eight inches and he scored a zero on his fitness test in March. This individual was a 22 year veteran, a knowledgeable technician and a hard worker.

2010 Program Changes

Chief Master Sergeant Mark Long, chief of enlisted promotion, evaluation and fitness believed that the initial failure rate would be around 30 percent (Fontaine 2011, 23). The testing was taken from the squadron fitness monitors and turned over to a contracted company, which will be addressed in the next section. The initial testing at Aviano AB, Italy, July 2010, one of 13 bases selected as a field test unit, supported their expectations of a higher failure rate with an incredible 33 percent failure rate in the first two months (Fontaine 2011, 22).

The justification the Air Force had for higher failure rate was the belief that the Unit Fitness Monitors were not accurately executing or reporting the results of the test. With the possible negative impact of failures increasing, leadership in the Air Force believed that these monitors would lean toward helping out their tested co-worker versus administering a thorough test (Fontaine 2011).

One year later, in 2011, the pass rate was over 90 percent across the Air Force (Fontaine 2011, 22). General Schwartz, Air Force Chief of Staff, attributed the outstanding results to airmen responding to guidance. In the same *Air Force Times* article, several Air Force personnel expressed their opinions of why the pass rate is so much higher than expected. Lieutenant Colonel Cain, health promotion flight commander, said the program is too easy and if a member exercise just 30 minutes per day or exercises five days a week the fitness test is a breeze (Fontaine 2011, 23). A Technical Sergeant attributed the pass rate to the fear of getting kicked out of the Air Force during this time of downsizing, a tool of force management. And a young Senior Airman said he believes it was not just that the test is easier than the originally established program, but that it is fairer across the board, specifically the waist measurement change (Fontaine 2011, 23). In this article, Fontaine did not discuss a significant increase in the number of medical profiles that limit the exercises that can be accomplished.

The article further breaks down the pass rate based on rank with General Officers having a passing rate of 98.8 percent second only to Second Lieutenants and coming in just ahead of Airman Basic, First Lieutenants and Captains. These results will be further discussed in chapter 4 of this thesis (Fontaine 2011, 23).

Fitness Assessment Cell

Once the testing by the Fitness Assessment Cell kicked off at Lackland Air Force Base, there were reports across the base of negative action, from yelling at members while they were testing, to not telling members they were not counting push-ups that were not done correctly. This information quickly made its way to Air Education and

Training Command Headquarters where the Command Chief got involved. He made a trip across San Antonio to witness the actions of the civilian contractors administering the test.

What he discovered was the Fitness Assessment Cell was executing the program differently at the different bases. Although the program was laid out by Air Force Instruction, training the teams had operated differently. In the minds of some commanders the Fitness Assessment Cell at Lackland Air Force Base acted like drill-sergeants.

The Fitness Assessment Cell personnel were interpreting the instruction different from how the Fitness Assessment Cell across town at Randolph Air Force Base was interpreting the instruction. Case in point: a sergeant at Lackland went to take the test, his counter counted that he had completed sixty-one sit-ups. When they reported sixty-one to the monitor, the FAC team member said he only did thirty one, two less than his minimum required to pass. When he asked why, the response was that a palm of his hand came off his chest. The instruction specifically states, the hand must remain in contact with the chest, it does not however state that the entire hand must remain in contact and that is how the Fitness Assessment Cell at Lackland (Department of the Air Force 2010). The Command Chief addressed this issue and the proper changes were made.

Over 300 Fitness Assessment Cell monitors were under contract to cover all the active duty bases for around 13.5 million dollars per year. The Air Force tested their concerns with the fitness program by pulling people in that had just passed their fitness test administered by their fellow airman, but had waists that measure on the upper side of the scale. When they were re-measured by Fitness Assessment Cell staff the average was

three inches larger than the passing average of the same members. This was one of many factors that convinced the Air Force that the money had to be spent to get an accurate assessment.

Due to budget constraints the Fitness Assessment Cell program was reduced. The civilians administering the test were eliminated and the Air Force established a new way of administering the test. The Fitness Assessment Cell office still remains in place and there are a few civilians that run the office. The testing teams now consist of member of the units that work on the base. The airmen that are volunteers are provided training and assigned to work at the Fitness Assessment Cell at certain times. These members are not allowed to test personnel from their organization, or friends. They administer the test, document the results and input them into the system.

Research Question

Has the Air Force established a program of training, testing and assessing to achieve a fitness level conducive to the overall improvement of fitness in the Air Force?"

Significance of the Study

This study is an attempt to look into the significance of testing individuals on a semiannual basis and determine whether there is more that can be and should be done to bring the fitness level across the Air Force to a higher standard. The study looks into the overall goals of the Air Force as presented in the Air Force Instruction and determines whether the semiannual test simply establishes a baseline of fitness or whether it actually ensures that the fitness level of airmen remains at a continually high standard. The study

will show that the current Air Force fitness program does provide a basic view of fitness, but it does not provide a strong indication of total health and fitness.

Assumptions

In order to accomplish the study the author made assumptions about the current plans for the fitness program. First, based on the most recent Air Force Instruction covering the fitness program, which was released January 2012, there are no changes currently being reviewed. Second, there is no funding available for a comprehensive overhaul of the program. Third, commanders accept responsibility for themselves and their personnel's fitness levels.

Limitations

Current data available from the Air Force is over one year old. Additional data has not been released to the public. Working with Air Force Personnel Center to acquire the data was not possible. There are numerous views of what fitness is; therefore, establishing a true understanding and meaning will be difficult.

Delimitations

The research makes use of unclassified and public sources of information. The completed thesis is also unclassified with unlimited distribution.

Summary

Although there have only been six changes in the Air Force fitness program in the past 65 years those changes have moved the Air Force toward a more comprehensive program for testing fitness levels.

The establishment of the Fitness Assessment Cell provided the Air Force with an overview of the established program. The professionals assigned to the Fitness Assessment Cell were trained extensively on proper fitness form. The Air Force spent an enormous amount of money establishing and maintaining the Fitness Assessment Cell; however, due to current budget restraints this office has been eliminated.

CHAPTER 2

LITERATURE REVIEW

The U.S. Army War College's (USAWC) Army Physical Fitness Research Institute (APFRI) provides the Training and Doctrine Command (TRADOC) the ability to educate leaders on mental and physical health issues and concerns affecting the Soldiers, Civilians, and family members influenced under their leadership. APFRI was originally created in response to senior leader health and fitness trends that were of great concern to Army senior leaders. Those concerns were addressed by a General Officer Steering Committee (GOSC) which determined we were losing too many of our senior leaders to premature medical retirements and sudden cardiac death because, in part, they were physically unprepared for the physical and mental demands of strategic leadership. These findings prompted General Glenn Otis, Commanding General (CG), Training and Doctrine Command (TRADOC) to first establish APFRI at the Army War College in 1982. General Otis approved the GOSC recommendation to target senior leaders with education at the USAWC to ensure our strategic leaders would set the conditions for improving force readiness.

— APFRI

There is a significant amount of data available concerning fitness and diet. Much of the information available provides significant recommendations for achieving and maintaining a healthy lifestyle. The literature selected for this review covers a wide variety of authors and ideas, but most of the information gathered focuses on the connection between fitness, health and work output.

The review in chapter 2 covers data dating back to the 1960s, although some of this data is over 50 years old; it is still relevant to the discussion.

Dr. Cooper's book *The Aerobic Program for Total Fitness* is the most significant piece of literature for my thesis. The Air Force selected the 1-1/2 mile run as the fitness program in the late 1970s, which was a small piece of what Cooper recommended.

The Aerobic Program for Total Well-Being

Lieutenant Colonel Cooper (Retired) is considered to be the “Father” of aerobic fitness. During high school Cooper competed in several sports, focusing on baseball and track upon recommendation from coaches. As a senior, Cooper developed his own training regimen for track called the long slow mile (Cooper 1982, 21).

He received a scholarship to compete in track and field at the University of Oklahoma. Cooper continued to improve his running times, but now, unlike in high school, he was receiving coaching from every direction. This led to confusion; they reduced his running from 50 miles a week to just 20 miles a week. Cooper states that his lack of understanding and the coach’s lack of understanding hurt his long-term fitness goals (Cooper 1982).

When Cooper was 28, he was enjoying a day on the lake with family and friends. He was now forty pounds heavier than his college running weight and was not exercising on a regular basis. Cooper jumped in the water strapped on the skies and gave the driver the thumbs up to start. Within three minutes he was tired, sick and dizzy. He motioned for the driver to stop, and he crawled back in the boat. He did not seek medical attention, but because he was a doctor, he knew he suffered from a cardiac arrhythmia (Cooper 1982).

This was young Captain Cooper’s wake-up call to fitness. He spent the next few years studying different ways to achieve a healthy body through a balanced lifestyle. He earned his Master’s Degree in public health at Harvard. Cooper was determined to establish a preventative health program that would focus on preventing injury and sickness, instead of waiting until treatment was needed (Cooper 1982).

While working in the Air Force to create a comprehensive fitness program and preventive medicine program, he became very frustrated with the Air Force's desire to continue to treat rather than prevent the problem. Of his total fitness program, which was very balanced, the Air Force only adopted the one and one half mile run, dropping everything else he recommended. He continued to argue and the Air Force decided to move him out of his job and to a hospital. This move prevented him from completing the work he wanted to accomplish, so with just three years till retirement, he resigned.

Cooper's plan was more complex than a one and one-half mile run. The assessment he most believed in was a twelve minute run. This run would be difficult to track when testing a large group of people but Cooper knew that it gave a more complete evaluation of the individual's fitness level (Cooper 1982, 141).

Cooper claims that balance is the key to a healthy lifestyle. He focused on three areas in The Aerobics Program for Total Well Being; The Food Factor, The Fitness Factor, and the Emotional Factor in Total Well Being.

The Food Factor in Total Well Being

Cooper explains that when a person truly wants to achieve a higher level of fitness it must start with a proper balance diet. This is explained through eight fundamental principles. He refers to a person's diet as the foundation of their physical fitness and well-being (Cooper 1982).

Principle One: For maximum personal energy, you should strike a 50-20-30 percent balance among the three main food types. Cooper describes this as 50 percent of calories should come from complex carbohydrates, 20 percent from protein, and 30 percent from fat (Cooper 1982).

Principle Two: Follow the 25-50-25 rule to determine the amount of food you should eat at each meal to achieve weight loss. He explains this as 25 percent of consumed calories at breakfast, 50 percent at lunch, and 25 percent at supper. Cooper says these numbers can be adjusted, but provides evidence that this meal plan will assist in weight loss.

Principle Three: Engage in aerobic exercise prior to a meal, preferably the evening meal. The argument is that exercise reduces appetite, but the late afternoon workout will also increase the body's metabolism in the evening. It has been proven that as the day comes to an end the body starts to slow down in preparation for sleep.

Principle Four: Develop a healthy fear of obesity. Obesity has been linked to many life-changing issues from diabetes to heart trouble. Having a healthy fear and understanding your body will provide the encouragement you need to pursue a healthy lifestyle.

Principle Five: Be Careful not to starve your body with too few calories. This is becoming a concern not just among civilians but also military. The desire to pass to the fitness test has led to drastic measures on the part of many. The limitation of calories through fad and crash diets leads to long-term side effects and negative results.

Principle Six: Know the formula for determining your ideal weight. The military has determined ideal body weight based on height of the individual. Cooper describes under this principle the need for balance in the body, a balance that is critical to survival.

Principle Seven: Know the formula for the number of calories you need each day to maintain your ideal weight.

Principle Eight: If you are carrying too much fat, get started on your own personal positive eating plan for losing weight. Diets are trouble. For success in maintaining a healthy body an individual must understand how to eat. Dieting to lose weight, only to become frustrated and quit, is hard on the body and creates an ebb and flow effect of lose weight-gain weight (Cooper 1982, 39-79).

The Fitness Factor in Total Well Being

Diet is not the only aspect that Cooper covers, aerobic fitness is very important to becoming physically fit. However, there are numerous benefits that a person will enjoy as they incorporate a complete physical fitness program (Cooper 1982).

Benefit One: Aerobic exercise promotes strong and healthy bones. Cooper rejects the idea that bones become weaker with age. Instead he argues that bones become weaker with decreased activity. If a person remains active and fit, bones and muscles will grow stronger and bigger. Therefore as a person ages as long as they stay active their bones will remain strong.

Benefits two and three: Aerobic exercise helps a person control the physical and emotional stress in daily life and acts as an antidote for emotional disturbances. As a person becomes more physically fit the resting heart-rate generally decreases. There are two factors that lead to this. First, the heart is slightly larger, so the volume of blood the heart can pump with each beat is greater. Therefore, fewer beats per minute are required. Secondly, “better cardiovascular fitness tends to put a ‘governor’ on the effect that the adrenal gland’s secretion can have on the heart” (Cooper 1982, 188). This ‘governor’ controls the body’s desires to increase the output of adrenalin. This control allows a

person to maintain a level-head, and can prevent over-reaction or excitement caused by an event.

The examples used by Cooper included teachers that had low resting heart-rates until they began to teach. Most teachers' heart rates increased dramatically when addressing the class; however, one college professor that was described as being in great shape only saw an increase of a few beats per minute due to the superior condition of his body (Cooper 1982, 189).

Benefit four: Aerobic exercise can improve your intellectual capacity and increase your productivity. There are several correlations Cooper found when testing young Air Force officers at Maxwell AFB, comparing their 12 minute run times with their overall academic performance in class. They were able to draw a similar pattern that showed both the education output and physical output being directly related. He also states, based on a study by Florida psychiatrist Dr. Ray Killinger, that fitness level also contributes to greater awareness, originality, and concentration (Cooper 1982, 117).

Benefit five: Aerobic exercise is a realistic way to lose weight and keep it off. Combined with a positive eating plan, exercise can aid in the challenge to lose weight. Cooper does not suggest that exercise alone can help you lose weight, especially when you want to lose weight quickly. He associates calorie burn as being a long process. It is common knowledge that to lose one pound you have to burn 3,500 calories (Cooper 1982, 117).

Benefit six: Aerobic exercise provides significant protection from heart disease. Aerobic exercise increases the body's ability to produce HDL, the "good cholesterol," in the blood (Cooper 1982, 118).

Benefit seven: You can get the maximum benefits in a minimum amount of time in a variety of aerobic programs. It does not take much according to Cooper to start on the right path of health when it comes to fitness. 80 to 90 minutes a week is all it takes. That is less than one percent of a week dedicated to fitness. Cooper encourages those not training for sports or an event not to work out any longer than these prescribed times. The chance of injury increases as you increase the time and distance you run. Therefore, when a person simply wants to achieve a healthy lifestyle these limits are suggested (Cooper 1982, 119).

The Emotional Factor in Total Well Being

In The Aerobics Program for Total Well-Being, Cooper addresses three areas of emotions connected to fitness: stress reduction factor, the endorphin effect, and the personality change principle

The stress reduction factor: “There are at least two levels on which the principle operates (1) Your ability to deal with specific stress situations that occur during the course of each ordinary day, and (2) your ability to relieve yourself of stress at the end of an especially pressure-filled day, so that you are more relaxed and energized and ready to work or play, even in the evening hours” (Cooper 1982, 187).

Having an unconditioned heart can lead to devastation. The inability of the heart to adjust to stress can lead to heart attacks, even in younger people. In a study of firefighters, in which they examined 101 deaths the percentage related to falls or fire was only 55 percent. 45 percent was due to heart attacks and the average age was 51. In the study they attribute the heart attacks to the deteriorated physical fitness level of the 45 firefighters.

Cooper also recommended exercise at the end of a stressful day because it helps relax a person. This relaxation leads to better rest and recovery from the day's events and prepares individuals for the next day (Cooper 1982, 191).

The endorphin effect: When a woman goes into labor and delivers a baby, the endorphin levels are elevated. This seems to be why they can tolerate the pain of delivery. This same effect happens in athletes from boxing to football. The increase in endorphins continues even several hours after exercise is completed. When comparing the effects that endorphins have on the body, Cooper found them to be stronger than the effect morphine has on the body.

Cooper goes on to explain that psychiatrists have begun prescribing fitness to patients experiencing depression. The link between the level of endorphins and depression was established when psychiatrists determined that patients suffering from depression have abnormally low levels of endorphins.

A study conducted at Baylor College of Medicine in 1977 by Dr. G. H. Hartung studied the lives of 48 men from the ages of 48 to 59 that regularly worked out through running. They compared these men to non-runners in the same age group. Hartung concluded from the study that the runners had actually “developed high levels of self-sufficiency and imagination” (Cooper 1982, 194).

The “Personality Change Principle”: This final stage is described by Cooper as a catch all. It looks at the self-confidence and self-esteem increase due to a variety of accomplishments (Cooper 1982).

APFRI Website Overview

The Army Physical Fitness Research Institute came into existence in 1982. The Army had become concerned with the physical well-being of senior leaders. APFRI provided a perfect solution to the lingering question of fitness in the military. The concept behind APFRI was to look at the human body through, “Physical, Cognitive and Moral Human Dimension” (APFRI n.d., 6).

The APFRI program started with an overall assessment of the individual. After the physical, “bod-pod,” and interviews, the medical staff put together a comprehensive plan to improve the member’s well-being. The plan consisted of the following three areas

Executive Nutrition Program

Eating is the human fuel; the proper fuel determines the ability of the body to run correctly. APFRI addressed this through meal planning with the member. The dietary guidance provided by APFRI was just that: guidance. They did not force individuals to follow the plan; they simply provided accurate diet plans based on the individual. The areas focused on with the APFRI executive nutrition program were, “hypertension, hyperlipidemia, elevated glucose, excessive body fat, and/or proper diet habits” (APFRI n.d., 7).

Executive Fitness Program

As Cooper discussed, APFRI also provided insight on how fitness levels and stress control are interconnected. When a military member is fit, they are better able to cope with situations that come their way. That being said, fitness does not cure all mental

problems; neither APFRI, Cooper, nor I would ascribe to that. The condition of the heart does, however, determine how stress and anxiety are handled and controlled by the body.

Executive Distance Learning Program

Due to budget constraints, APFRI was limited and has since been eliminated. Prior to the elimination of APFRI, there was limited availability only at Senior Level Professional Military Education (PME) locations. Once the senior leader left the PME location there was reach-back availability for the purpose of continued support.

APFRI also addressed several major medical conditions: heart disease, diabetes, and high cholesterol. Besides diet the medical staff highly recommended exercise. They directed and oversaw an exercise program to ensure that it was accomplished safely and in the member's best health interest.

What is CrossFit; CrossFit Journal

This fitness journal provides a comprehensive look into CrossFit. In the journal Glassman thoroughly explains the philosophy and methodology of CrossFit. The journal provides the reader with an understanding of the concept that has become a very popular fitness program that encourages not only competition with friends but also an internal competition to be better.

This atypical fitness regimen combines all elements of fitness from powerlifting to gymnastics. The idea of CrossFit started in 2000 by Greg Glassman, and has since expanded to over 3,000 gyms nationwide including several military installations.

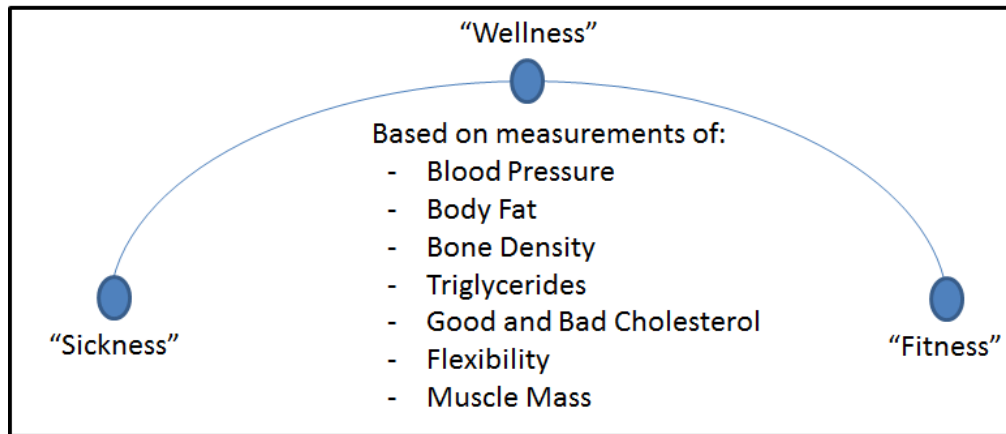


Figure 1. CrossFit Continuum for measuring Sickness, Wellness and Fitness

Source: Mark Glassman, “What is Fitness,” *CrossFit Journal* (2002): 3.

In the article “What is Fitness?” experts categorized people into three areas: ill, healthy, and fit. An individual’s level of health can be measured through these categories: blood pressure, body fat, bone density, triglycerides, good and bad cholesterol, flexibility, and muscle mass (Glassman 2002, 3).

They go on to define ten general physical criteria that must be met for a person to be considered fit.

1. Cardiovascular/respiratory endurance—the ability of a body system to gather, process, and deliver oxygen.
2. Stamina—The ability of the body systems to process, deliver, store, and utilize energy.
3. Strength—The ability of a muscular unit, or combination of muscular units, to apply force.
4. Flexibility—The ability to maximize the range of motion at a given joint.

5. Power–The ability of a muscular unit, or combination of muscular units, to apply maximum force in minimum time.
6. Speed–The ability to minimize the time cycle of a repeated movement.
7. Coordination–The ability to combine several distinct movement patterns into a singular distinct movement.
8. Agility–The ability to minimize transition time from one movement pattern to another.
9. Balance–The ability to control the placement of the body’s center of gravity in relation to its support base.
10. Accuracy–The ability to control movement in a given direction or at a given intensity (Glassman 2002, 4).

From here the definition of fitness as viewed by CrossFit can be broken into three very distinct components. Number one is training. The ability to complete the above items and the level at which each can be completed indicates overall fitness. The body’s ability to complete these ten items is not natural; it comes with training (Glassman 2002).

Number two is doing things well. In order to do all things well members must be able to take chances, by doing things that a person is not comfortable doing, in order to get better. These chances push people outside the normal realm of fitness (Glassman 2002).

Number three is metabolic training. “the fitness that CrossFit promotes and develops requires competency and training in each of these three pathways or engines. Balancing the effects of these three pathways largely determine the how and why of the metabolic conditioning or ‘cardio’ that we do at CrossFit” (Glassman 2002, 2).

These three areas that are mentioned are Phosphagen, Glycolytic, and Oxidative. As defined by Glassman, these three pathways correspond to three different forms of or types of activities. Phosphagen dominates during the highest-power/shortest-time portion of fitness: power-lifting. Glycolytic dominates during the moderate-power/moderate-time portion that may take a little longer: sit-ups, push-ups, or bench-pressing. The final pathway defined in “What is Fitness?” is oxidative; this pathway is dominant during long work-outs: aerobic, running, and swimming (Glassman 2002, 2). In order for a person to achieve success in fitness and to achieve desired goals, training must correspond to all three pathways.



Figure 2. CrossFit Fitness Pyramid

Source: Mark Glassman, “What is Fitness,” *CrossFit Journal* (2002): 8.

In the figure 2, CrossFit has graphically presented fitness in a “theoretical hierarchy” (Glassman 2002, 8). Each layer builds on the layer below it.

According to Glassman, the foundation of fitness is nutrition. The way you eat directly attributes to the way your fitness training progresses. Like Cooper, Glassman believes that fitness is about a balanced diet. “Forget about the fad high carbohydrate, low fat, low protein diet. 70% carbohydrate, 20% protein, and 10% fat may work for your rabbit, but it won’t do anything for you except increase your risk of cancer, diabetes, and heart disease or leave you weak and sickly” (Glassman 2002, 8).

In order to provide the body with the proper balance it is recommended that the percentages be balanced. The recommended balance of a diet is 40 percent (carbohydrate mostly from non-starchy vegetables and fruits), 30 percent protein (low-fat protein), and 30 percent good fat, like olive oil and nuts (Glassman 2002, 8).

Marine Fitness Order

The Marine Fitness Order is a complete explanation of Marine physical fitness program. It provides a detailed plan for execution of the complete program from testing to handling of Marines that fail the Physical Fitness Test. Additionally, the order covers the body composition program.

“The habits of self-discipline required to gain and maintain a high level of physical fitness are inherent to the Marine Corps way of life and must be a part of the character of every Marine” (Marine Corps Physical Fitness Test and Body Composition Program Manual 2003, 1.3).

The Manual details four basic goals of the Marine Corps Physical Fitness Program:

1. To contribute to the health and well-being of every Marine through regular exercise, fitness testing, and health education.
2. To develop Marines who are physically capable of performing their duties in garrison and in combat.
3. To develop in Marines a reserve level of physical fitness and endurance that will enhance their chances of success in a combat situation.
4. To provide a medium for developing the individual Marine's self-confidence and desire to excel, thereby enhancing the unit's overall discipline, morale, esprit de corps, and combat readiness (Marine Corps Physical Fitness Test and Body Composition Program Manual 2003, 1-3).

The importance of fitness in the Marine Corps is evident in their requirement of mandatory fitness. The fitness requirement is for three hours per week of either group or individual training.

In addition to mandatory fitness, the Marines incorporate a semi-annual fitness evaluation and body composition standard. The semi-annual test is scored and includes pull-ups, flex-arm hang, abdominal crunches, and a timed three-mile run. Like the other services the Marines score each category based on age. The total score determines pass or fail.

Failure of a Marine to pass the semi-annual fitness test requires participation in the Remedial Physical Conditioning Program. This program is designed to re-establish the proper physical condition of the Marine. It provides a basis for proper physical fitness through a comprehensive 4 day per week fitness training plan. The plan focuses on all

aspects of fitness as defined by the Marines. The program consists of a small group of Marines so that individual focus can be provided.

Once a Marine fails the fitness test they may not be eligible for promotion, or reenlistment. Continued failure is cause for discharge from the Marine Corps. Additionally, the Marine's continued stay on medical waivers is also grounds for discharge.

The Body Composition Program is a critical aspect of the Marine Fitness Program. The overall height and weight of the individual is scored. When it is determined the Marine is over the minimum weight for height, measurements to determine body fat percentage are taken. The neck measurement is subtracted from waist measurement, and then the difference is compared to the acceptable height.

When a determination is made that Marines do not meet the body fat standard they are entered into the Body Composition Program. Once in the program marines remain in the program for six months. There are numerous milestones that must be reached throughout the six month period.

At the end of the six months, if the Marine has shown improvement and has been dedicated to the program but still does not meet standards, the Commanding Office may extend the Marine for another six months, but the extension can only be made once. At the end of the second six months if the Marine does not pass, the Marine is discharged.

If the Marine does not make improvement and has not been dedicated to the program, the Commanding Officer will administratively discharge the Marine. This can also happen throughout the six month process when it is determined that progress is not being made.

Marine Corps White Paper; A Concept of Functional Fitness

The previous section explained the Marine Corps fitness and body composition program. Over the past few years, the Marines began to review their fitness plan and determine if it met the goals prescribed in the above order to prepare a Marine to serve. In this paper the team looks at Marines and their ability to accomplish tasks required, and the move to Functional Fitness as a means to achieve the desired endstate.

“Functional Fitness can be described as the ability to perform a broad array of natural or realistic physical work. For Marines, their work involves all the tasks associated with performance in combat” (Doyle 2006, 6). The idea of incorporating Functional Fitness provides the Marines with the ability to train for their jobs, and not train for the physical fitness tests.

To understand the concept, one must understand that the Marines are viewed not just as military, but also as combat athletes (Doyle 2006). As combat athletes, they must train and accept their jobs as if they are professional athletes.

Doyle breaks down functional fitness into nine elements. These nine elements help establish balance within the Marines life. These elements guide them through to the ultimate goal of becoming a fit Marine. The elements of Functional Fitness are:

1. Fitness should follow combat function.
2. Functional Fitness programs must be balanced in approach so that a Marine athlete develops power, strength, flexibility, speed, endurance, agility, and coordination.
3. Functional Fitness must have intensity and great variety.

4. Function Fitness program must be scalable, allowing for the range of fitness levels of various unit members.
5. Emphasis must be placed on making Marines “injury proof,” by strengthening the muscles and joints and increasing bone density.
6. When a Marine is injured through physical stress, he or she is more likely to recover more rapidly if the body has been exposed to Functional Fitness exercise.
7. When a Marine is injured in combat, he or she may face a daunting task of rehabilitation. Physical fitness can help speed the recovery process.
8. Physical fitness can prepare the Marine not only for the physical problems associated with combat but also psychological problems.
9. The program belongs to the commander and must be adaptive to individuals and units to fit within the requirements of the unit (Doyle 2006, 4).

When it comes to testing in the Marines, they are encouraged to use the physical fitness test as a way to measure their fitness, not a test to determine if they are fit.

Training specifically for the physical fitness test can create physical issues and injuries.

By training to be a Marine, the fitness test is simply another workout.

There is no doubt that the operations tempo of all the services has been incredibly high the past ten years. This high operation’s tempo has allowed for service members and commanders alike to accept the excuse of being too busy to workout. Through Function Fitness the Marines work to eliminate this excuse through work-outs that not only benefit the Marine but also the unit.

The Functional Fitness program is not an easy program. It pushes Marines both physically and mentally. However, the program prepares the Marines to face the challenges that battle may bring and it aids in the recovery from both physical and psychological injury (Doyle 2006).

Doctoral Dissertation; Task Related Aerobic and Anaerobic
Physical Fitness Standards for the Canadian Army

In 1992 Major S. Wayne Lee completed his Ph.D. at the University of Alberta. His dissertation was on the Canadian Army's physical fitness program and the correlation to accomplishment of certain jobs and tasks; for example, extended marches with full combat weight for infantry personnel. He completed a broad overview of militaries in several countries.

The Canadian Forces define fitness in the 1981 Canadian Force Express Operations Manual as “the physical ability and energy to accomplish assigned tasks, to meet unforeseen emergencies with vigor and alertness . . . the ability to effectively withstand stress and [persevere] under difficult operational circumstance[s]” (Lee 1992, 3).

In his dissertation, Major Lee points out that as a person becomes less physically fit their decrease in job performance does not surface immediately, and that to some degree obesity has been accepted if not ignored among leadership in the Canadian Forces (Lee 1992, 4). For decades the Canadian Forces based fitness on “low body fat, ability to run fast for extended periods of time, and ability to do large number of pushups, sit-ups and/or chin-ups (Lee 1992, 4). The belief was that, if soldiers could accomplish these fitness activities successfully, then soldiers could accomplish their mission.

However, this theory was put to the test and proven incorrect. In 1982, during the Falklands War, those who had successfully passed the standard Canadian Forces' fitness test did not fare as well during this conflict. Commanders testified that those who were able to perform the best were large men that were strong. The smaller soldiers were unable to carry the large packs the distance required (Lee 1992, 5).

In 1972 the Canadian Forces discontinued standardized physical fitness testing; leadership felt that members were just preparing for the semi-annual test weeks prior to the test. Additionally, the test was the main focus, not getting or staying in shape. Although leadership had concluded that the test was not accomplishing what they wanted, they took a portion of Major Kenneth Cooper's research and implemented the one and one-half mile run. Canada also implemented the Astrand Nomogram test (first generation ergonomic bike test utilized by the Air Force from 1990 through 2004) (Lee 1992, 21).

According to Lee the policy was set in place that when people failed they would receive individual attention and training in order to pass. The test and individual training were poorly run by commanders and some units even ignored the testing altogether. Due to potential injury, the Canadian Surgeon General concluded, "that this method of fitness assessment carried an unacceptable risk of potential injury for participants aged 30 years or over" (Lee 1992, 21).

Canadian Forces introduced the Canadian Force Express in 1983. The Surgeon General determined that the one and one-half mile run was inadequate in determining a soldiers fitness levels. The assessment and standards were easily achieved and could be passed with little to no training or preparation (Lee 1992, 22). Therefore, the ability to

pass the Canadian Forces fitness test did not directly correlate to the soldier's ability to carry out required military tasks.

The CF Express consisted of four steps: pretest screening, physical fitness evaluation, exercise prescription, and training. These four areas were established to help each soldier achieve basic fitness. It also helped the Canadian Forces meet the prescribed definition of fitness (Lee 1992, 22).

1. Pretest screening: This step was to ensure the soldier did not have an ailment that could cause or prevent the soldier from effectively completing the CF Express
2. Physical fitness evaluation: This step was a standard evaluation of aerobic fitness, muscular strength, muscular endurance, and body composition.
3. Exercise prescription: This step was based on the individual soldier's evaluation results. This prescription allowed the soldier to better understand how to approach fitness based on individual body composition.
4. Training: The goal of this program was to establish a habit in soldiers to approach health and fitness as a voluntary lifestyle change (Lee 1992, 24).

Major Lee goes on to explore several other military forces around the world, including the United States Army, Australian Army, British Army, Israeli Army, Swedish Army, and Soviet Army. Each army had a different means of testing. However the Israeli military had eliminated testing and focused on mandatory training. The results were buy-in from the soldiers and a significant increase in the overall fitness of the force (Lee 1992, 29).

Major Lee's final recommendations were the creation of task-related physical fitness and continuation of study of the relationship between work task and fitness. He also recommended that training programs were important to help establish key for fostering a fitness mindset among soldiers. When the soldiers attain this, the goals of the Army Physical Fitness test will be met (Lee 1992, 155).

Summary

There is a significant amount of information that has been written over the past fifty years covering the correlation between diet, exercise, and health. This information should be considered when establishing a comprehensive fitness program. Understanding the connection between proper diet, fitness and health is necessary to achieve the desired goals of the United States Air Force.

A fit lifestyle is more than just being thin and looking good. Being healthy is the key to a long and productive life. Cooper's personal eating plan helps establish a diet that is adaptable and feasible for anyone. It can be tailored to fit the desires and needs of each individuals likes.

The fact stands, physical fitness and physical well-being is all encompassing. To separate these two is not possible. In order to achieve well-being, fitness must be included in a daily routine. Our body was made to be aggressive and active; our muscles develop and maintain dexterity through work.

CHAPTER 3

RESEARCH AND METHODOLOGY

The purpose of this thesis is to look at fitness in the Air Force and determine what improvements must be made in order to become a more fit fighting force. Chapter 1 provided a history lesson on where fitness in the Air Force started and the evolution that occurred over the past 65 years. Chapter 2 provided a look at literature from the past years concerning fitness and the connection it has with total well-being and the correlation fitness has to job performance.

In this chapter the methodology of data collection will be discussed. This will include a discussion covering strengths and weakness in the research; which includes relying on data collected through research verses actually testing personnel based on the recommendations in chapter 4.

Strength and Weakness of Research

Unlike a majority of the sources consulted for this project, the author of this thesis did not conduct tests on groups of military or civilian personnel to assess their fitness levels. Therefore, this thesis does not provide new data indicating which exercises are best suited to maintain a fit and healthful lifestyle. The ability to test individuals in a way that responds to different fitness testing techniques and diet within a controlled environment in the armed forces would have provide valuable additional data for the thesis.

The information gathered; however, provided in-depth data on how the body functions and how it responds to different stimuli aimed at improving health. Scholars

such as Cooper and Lee (both former military officers) provided excellent data on the need for fitness in the military. The results of their research provided first-hand data from test subjects and history.

Primary Research Question

Has the Air Force established a program of training, testing and assessing to achieve a fitness level conducive to the overall improvement of fitness in the Air Force? The health of an airman is very important both in the accomplishment of the mission and for the reduction of the cost of health care needed. As pointed out by Cooper in the 1960s, preventative medicine is a better approach to health care (Cooper 1982).

By defining fitness as more than just receiving a passing grade on the semi-annual fitness test, and by establishing a whole-person approach to health and fitness, the Air Force can better achieve the desired end-state. In order to improve fitness, leadership must be willing to accept that the overwhelming majority of military members prepare for the fitness test rather than staying in shape year round.

Secondary Research Question

Has the Air Force educated the Airman to put in the preparation necessary to be part of a fit force? The Air Force has very comprehensive online tutorials that provide the member with key information to be successful in this endeavor. When a member joins the Air Force, initial training provides a very strong fitness training plan. Daily mandatory fitness is very demanding. The desired goal is two-fold: provide the new recruits with a foundation of fitness, and get recruits into shape.

After graduation, when the newest airmen head to their Technical Training School or their first duty station, they are on their own. This new found freedom for many is overwhelming; mom, dad, and technical instructors are no longer there and the daily framework for good fitness habits is gone. The new recruits distracted by money and freedom, overlook the benefits of daily fitness plan.

Yes, the Air Force has established an adequate fitness training regimen for Air Force entrance schools. This same standard of fitness should be maintained once basic training is complete. The health of airmen is vital to the accomplishment of the mission.

Fitness Standards in the Air Force

Is Air Force testing able to achieve the desired end-state? There is a lot of debate in the Air Force concerning fitness standards, from the waist measurement, to the scoring of the test. The Air Force has spent numerous years researching and testing to establish the current fitness standards. These standards are based on age and gender, which is true in all the services.

In 2010 the Air Force changed from an annual test to a semi-annual test. This new format mirrored the other three military forces. However, with the exception of the Navy, the Air Force test is less rigorous than both the Army and Marines. The fitness standards adopted by the Air Force include the 1 1/2 mile run for time, push-ups and sit-ups accomplished in 1 minute, and a waist measurement. Each category is scored and the score must exceed seventy-five. The member is not allowed to fail any of the four areas of testing. Realistically, a member can score a seventy-five and still fail.

The fitness standards were established based on age and gender. The age categories are under 30, 30 to 39, 40 to 49, 50 to 59, and 60 and above. Each

component's minimum standards change with each age group except of the maximum measurement of 39 on the abdominal circumference chart (Department of the Air Force 2010, 70-79). Scoring a minimum in each category, i.e. passing each one, will not result in a passing overall fitness-test score. In the under 30 category, for instance, by scoring a minimum in each category the member would only score a 65.9, nearly ten points below the minimum total score of 75.

At the same time, a member can achieve a score of 75 or higher and still fail to pass all four components of the fitness test. For example, a 41-year old man can accomplish the run in 11.57 and score a 55.4, have an abdominal circumference of 37.5 and score a 15.1, accomplish 24 push-ups and score a 6.0, and only do 33 push-ups (one less the minimum) and score a 5.8 for a total composite score of 82.3. Since the minimum number of -ups was not met the member failed the fitness test (Department of the Air Force 2010, 72).

In 2004 the Air Force implemented mandatory fitness. Leadership at most bases resisted, claiming that operations tempo was too high to allow members to be involved in mandatory fitness. Within a few years there was little evidence that mandatory fitness was working. Instead of holding the commanders responsible, the verbiage in the Air Force Instruction was changed from "mandatory" to "commanders can allow."

CHAPTER 4

ANALYSIS

This chapter will provide recommendations for the Air Force fitness program based on an analysis of the data collected through research and covered in chapter 2. Chapter 4 will cover the current results of the Air Force fitness test and what the numbers are showing as far as fitness is concerned.

The second section of this chapter will discuss how the test results are being used to better the fitness program. The data shows that the current testing is falling short in creating a more fit force; although the numbers seem to be moving in a positive trend. However, the numbers being positive does not equal the written fitness goals in AFI 36-2905.

Chapter 4 will conclude with the recommendation of returning to mandatory fitness. The information collected in chapter 2 regarding fitness does not match the current fitness program which calls for testing twice a year instead of mandatory fitness.

Four important factors that must be included in the Air Force fitness program are test, educate, train, and assess. Each of these four factors is vital in reaching the goal of a fit fighting force. Successful implementation of these four factors will ensure, “that all members participate in a year-round physical conditioning program” (Department of the Air Force 2010).

Reported Fitness Results

Air Force leadership wrote in AFI 36-2905 “The goal of the fitness program is to motivate all members to participate in a year-round physical conditioning program that

emphasizes total fitness, to include proper aerobic conditioning, strength/flexibility training, and healthy eating” (Department of the Air Force 2010, 6).

If fitness is vital to the mission, then it is a part of the mission. Therefore, mandatory fitness is as much a part of the job as is training. Commanders must implement a plan that allows their members to be involved in physical fitness on a daily basis.

The 2011 fitness results have provided a false feeling of success. It is very easy for members to prepare for the fitness test without maintaining a fit lifestyle. Leadership believed that the failure rate in 2010 and 2011 would be around 25 percent. However, the fitness test’s pass rate for 2011 exceeded 90 percent.

There are several theories as to why the pass rate is higher than expected. The Chief of Staff of the Air Force, General Norton Schwartz, said, “The success is primarily a reflection that the force responds to guidance” (Fontaine 2011, 22). The assertion that the force is responding is accurate; the fear of career-ending or -altering results from failed fitness testing has increased short-term preparation for those facing the test.

In the same article General Schwartz goes on to say that, “[the results are] not only a good thing for performance in the field, but it [the results] also suggests that we have a healthier force” (Fontaine 2011, 6). This comment can be contested due to the fact that heart-related medical issues are still high, the obesity level in the military has remained the same, and the evasive actions being taken by members to lose weight and pass the Fitness Test have increased.

I have personally witnessed military members “cram” the several weeks prior to their fitness, through crash diet and exercise. This in and of itself is very unhealthful and

leads to future problems with weight. In my perception last minute preparation is the norm.

I have also seen a more extreme approach to preparation for passing the fitness test. When the new fitness standards were announced, a National Guard Chief Master Sergeant (civilian employee throughout the week) had gastric bypass surgery. Through the surgery he was able to lose almost 100 pounds and dropped his waist from 45 inches to 38 inches in a short period of time. He is healthier today. His medical condition prior to the surgery was poor.

In 2012 another service member, recently selected for Chief Master Sergeant, elected to have liposuction in order to reduce his waist from 42 inches to 38 inches. The gentleman is six-foot four-inches tall. In order to be promoted, he had to pass the Air Force fitness test. He passed the fitness test in April 2012 with a waist measurement of 37 inches.

Another practice that seems to be popular is the use of Saran Wrap and Preparation H. In 2011 there were several members of one section that used this practice prior to their test and were able to reduce over an inch from their waist, not due to fat loss, but due to tighter skin. The concept is a common practice throughout the military. It may seem extreme, but I have personally seen it work.

The above mentioned individual that had the liposuction procedure measured 38 inches on a Thursday, which is within the standard. However, he was on a profile and the calculation for a member on a profile requires the member to have less than a 37 inch waist to pass. He used the Preparation-H idea and re-taped the next day and passed with a 37 inch waist.

Another area of concern is the increased number of medical profiles across the Air Force. In the 149th Maintenance Squadron, the number of medical profiles that provided exemptions from certain components of the test increased from five to over thirty. This unit is a part of the Guard and unlike active duty, where the average age of an enlisted member is 28 and an officer is 35, in the Air National Guard the average age of enlisted guard members is 34, and officers, 40 (Center for Disease Control and Prevention 2012).

Results will be in a state of flux over the next few years until they stabilize. The results by base range from zero fails at twelve different locations to a 29.2 percent failure rate at Reno-Tahoe Airport, Nevada, 152nd Air Lift Wing. Of the 559 members 231 members failed the fitness assessment. There was one location with a higher failure rate than Reno, which was Biggs Army Airfield, Texas, with a failure rate of 35.4 percent; however, there were only 54 people tested (Fontaine 2011, 22).

The twelve units that had 100 percent pass rates were smaller units. And nine of the twelve units were located on Army posts. This included those Air Force personnel assigned to Fort Leavenworth (Fontaine 2011, 22). Several theories can be formulated drawn from these results. First, units at Army locations have adopted the Army mandatory fitness philosophy, training together and even joining Army units in their fitness. Second, there is the possibility that these units do not have an established Fitness Assessment Cell; therefore, they are still administering their own fitness test.

Guard and Reserve units have a higher proportion of failure. There were 21 units that exceeded a 20 percent failure rate: 20 are Air National Guard units and 1 is a reserve unit (Fontaine 2011, 22). There are several factors which might explain the higher failure

rate among these units. A majority of Guard and Reserve members do not work full-time in the unit, but hold full-time jobs outside the military. Like the units stationed on Army Post, a majority of these units are required to administer fitness test without the assistance of the Fitness Assessment Cell. Another factor is that Guard and Reserve units are located in areas away from Air Force Bases or Army Posts. Units being located in different geographical areas can lead to a lack of support from Health and Wellness Centers.

The increase in medical profiles and exemptions creates several areas of concern. The first concern is the overall ability for members to deploy. Once a member is placed on a profile, their ability to deploy in a “world-wide” status is jeopardized. This creates a strain on other military members, and units begin to feel the shortfall.

The second concern is the increase in medical costs. With the increase of medical profiles and exemptions, the requirement of members to seek medical attention also increases. Whether or not members have legitimate complaints of injuries is not important, because it results in a greater demand for Military Health Care either way.

Medical costs have increased throughout the nation. In Military Medical Service, this cost has increased from 17.5 billion dollars in 2000 to 47.4 billion dollars in 2010 to an estimated 64 billion dollars by 2015 (Jansen 2009, 2). The continued rise will erode the resources required to maintain a force ready to defend our nation.

Everywhere you look there is information on the proper food to eat and the best way to exercise. There is not a lot written on the idea of testing for fitness. Generally fitness tests are given to determine a starting point for exercise. This helps a trainer determine what program will best improve fitness levels.

Being fit is a lifestyle change. For a long time the military has been considered to be a fit organization. During Basic Training, Officer Training School, Air Force Reserve Officer Training Course, and at The Air Force Academy, fitness is a regular and expected routine.

During Officer Training School, an officer candidate takes four physical fitness tests. Prior to 2000, the requirement was five individual events and the candidate needs to pass four of the five events. They included: long jump, push-ups, sit-ups, pull-ups and a two-mile run. Failure on the fourth test administered meant an automatic recycle of six-weeks. In 2000 the test was reduced to sit-ups, push-ups and a two mile run, with the same consequences for failing the fourth test. The member had to pass all three components, the components scoring was based on age and sex.

During Officer Training School members still only have to accomplish three events but the minimum numbers have been reduced and a waist measurement has been added to the events. The current minimums for officer candidates are less than the current minimums for members already in the Air Force. To achieve this fitness standard the candidates at Officer Training School exercise every morning at 0515 as a group. Additionally, there are numerous exercises throughout the twelve-plus weeks that aid the candidate to get and stay in shape. The same can be said about The Air Force Academy.

For enlisted members at Basic Training the standards are more difficult and pull-ups are still required. Leadership has created several levels of achievement, for “bragging rights.” Just like the other Air Force entry schools—i.e. Officer Training School, Reserved Officer Training Corps, and Air Force Academy at Basic Training—new airmen work out together every morning. This is an attempt to create a culture of fitness

within the Air Force. Unfortunately, this culture is absent at the new airman's first duty station.

These same simple standards, which are expected but not sustained as a recruit has completed basic training and moved on to their assignment are all but lost in the business of life. These workout standards as stated in the AFI "will increase productivity, optimize health, and decrease absenteeism while maintaining a higher level of readiness" (Department of the Air Force 2010). Is the Air Force achieving this goal; is the current fitness test measuring the standard, and is it the best measure of attainment of this goal?

According to Stew Smith, former Navy SEAL and fitness trainer, "Standard fitness tests used today usually are good indicators of one's health, not necessarily an indication of satisfactory job performance. Basically, the run, pushups, [and] sit-ups test most groups perform will give a selection board only a minimal amount of information, but it is still a valid test to assess with current fitness standards scores" (Smith 2011).

The fitness test is but a snapshot of what airmen are achieving on a given test date. So does a 91 percent pass rate indicate that the Air Force has attained its desired endstate?

Is the Air Force Fitness Test Falling Short?

The Air Force has made significant strides toward establishing a valid and practical fitness program. The desire, on the part of leadership, to become a more fit force has led to drastic changes and advancement in the fitness program. The fitness program is off to a strong start in testing overall fitness. However, more can be done in training and education to achieve the desired endstate.

There is more to fitness than just a semi-annual assessment. Air Force leadership has assumed the program is successful by leading members to now maintain a significantly better fitness level than in the past due to the semi-annual assessment. However, the assessment is not challenging enough to force members to maintain the desired year-round fitness levels.

A return to mandatory fitness is necessary. Mandatory fitness that has complete support from commanders and airmen will achieve the endstate of a more fit force. Commanders accepting and embracing the program fully, not only as fitness, but also a part of mission completion, will create a more widespread acceptance of fitness as a constant norm rather than a semi-annual goal.

There are several options when it comes to mandatory fitness. Since the inception of a version of the current fitness test, our operations tempo has been extremely high. Most Air Force career fields face a 24 to 36 months dwell time, which is the time they spend at home station prior to a six month deployment. Although significantly less than the other services it has been a challenge.

Since the inception of Fit-to-Fight there have been numerous changes to the fitness program. In 2006 the idea of mandatory fitness was exercised, although not fully accepted. The challenge at that time was not specifically the operations tempo, although that was presented as a valid excuse. Mandatory fitness was mandatory, unless you had something more important to do. This philosophy must be changed, and it starts at the senior level of both the officer and enlisted level.

It is a fact that a more fit or healthy worker makes a more complete worker (Institute of Medicine and of the National Academies 2003). The reduction of lost days

due to sickness or injury due to unhealthy members would more than adequately make up for the short amount of time each day that mandatory fitness would require.

Several options could be presented to the commander.

1. Break the squadron down into 4 sub-groups per shift. Each sub-group would have a designated time that would permit the squadron to continue to run.
Provide a standard workout plan; directed by already assigned Unit Fitness Monitors. The workout would last 30 minutes and would take place three days per week.
2. Allow section chiefs to create a section specific workout. The workout would have to provide for coverage throughout the day and fulfill the specifics of the fitness plan.
3. Coordinate with the base clinic to support a healthy diet fair once quarterly.
Work with local restaurants that provide healthy eating options in the area to visit the squadron showing possible alternatives to the fast-food, high-fat options everyone is familiar with. Included in the fair would also be nutritionists who can provide invaluable information to airmen concerning proper diet.
4. Establishing a mandatory fitness program and changing the assessment for individuals that score excellent will be waived from fitness assessment except prior to being promotion eligible, permanent change of station, or professional military education.

The Air Force is not the Marines, and the mission of each service is distinctly different. The Marines have a very demanding job in combat, and are required to

maintain a high level of fitness. The level of fitness for an Air Force member is not as extreme; most Air Force personnel will never see intense combat, or the rigors that accompany such a job.

However, understanding that a high level of fitness provides more than just brute force will be instrumental in the future development of fitness in the Air Force. Physical fitness also increases mental alertness, ability to recover from injury, reduction in life threatening health conditions, and ultimately driving down the cost of medical care in the Air Force.

Commander's Responsibility

One can say that diet and fitness are similar to preparing for war, when the general must know the past to understand the future. Knowing why members are in the shape they are in will help them understand what it will take to get back into shape. Threatening a member's career may help them prepare to pass the test but will it ultimately create a more fit Air Force?

The commander has numerous responsibilities when it comes to leadership. Each and every career field has specifics that must be tracked, understood, and executed by the commander. The mission, as with every business, is the key action of the unit. Mission, as defined by Webster, is "a specific task with which a person is charged." The understanding of the mission is critical to the success of the unit.

AFI 36-2903 outlines specific tasks that must be carried out by the commander.

1. Ensures equitable administration of fitness assessment throughout the installation

2. Conducts monthly review of unit/squadron fitness metrics and forwards metrics to the MAJCOM/A1 quarterly.
3. Provides an environment that supports and motivates a healthy lifestyle through optimal fitness and nutrition.
4. Ensures commanders implement and maintain unit fitness programs.
5. Provides appropriate manpower, safe facilities, equipment, resources and funding to support the Fitness Assessment Cell and Fitness Program.
6. Air Reserve Component Wing commanders promote and support unit Fitness Programs as mission requirements allow. Wing commanders will establish local policy for subordinate unit commanders regarding use of duty time for physical training during unit training assemblies, annual tours and special tours (Department of the Air Force 2010, 11).

These actions are required for support and establishing the program. There are additional actions that must be taken by the commander once members fail. These actions are carried out at the squadron commander level.

1. Commanders may take adverse administrative action upon a member's unsatisfactory fitness score on an official Fitness Assessment.
2. Unit commander will document and take corrective action for members' unexcused failure to participate in the Fitness Program.
3. A commander may initiate and or recommend administrative discharge of a member when: member has received an unsatisfactory Fitness Assessment score following a conditioning period of 42 days (90 days in the Air Reserve Component) after the first unsatisfactory score; member failed to demonstrate

significant improvement; member remains in the unsatisfactory fitness category for a continuous period of 12-months (Department of the Air Force 2010, 36).

These are just a few actions a commander must take to maintain a functioning and legitimate fitness program within the unit. In reviewing the 2011 results, it appears that commanders are taking the action required to ensure members are passing the fitness assessment. However, a deeper look at the numbers may say something else.

Table 2. 2010-2011 Air Force Fitness Test Failures by Rank

2011-2010 Air Force By Rank PT Results						
	Fail #	Fail %			Fail #	Fail %
E1	99	2.2		O1	84	1.2
E2	292	6		O2	127	1.6
E3	3663	6.6		O3	673	2.5
E4	6792	10.4		O4	791	3.8
E5	10134	10.8		O5	663	4
E6	8639	13.1		O6	142	2.8
E7	5226	12.1		O7	4	1.7
E8	1190	10.5		O8	0	0
E9	366	7.7		O9	1	2.5
				O10	0	0

Source: Scott Fontaine, "Airmen Passing PT test with flying colors," *Air Force Times Online*, September 24, 2011, <http://www.airforcetimes.com/news/2011/09/air-force-airmen-passing-pt-test-with-flying-colors-092411/> (accessed March 1, 2012).

Among enlisted members the failure rate is 10.4 percent, that equates to over 36,000 airmen that have failed in all three areas of the Air Force (Active, Guard, and Reserve). The largest number of failures among enlisted members falls into the under 30

year old category. This coupled with the fact that over 30 percent of the military force today fall into the overweight or obese category, and the military has a larger issue when it comes to eating disorders compared to the civilian population is alarming (Institute of Medicine and of the National Academies 2003, 40).

According to The Institute of Medicine, in 1999, active duty personnel made over 40,000 ambulatory visits to medical facilities with issues related to obesity. This same time period 2,700 visits were made for anorexia or bulimia eating disorders (Institute of Medicine and of the National Academies 2003, 38).

These statistics when paired with the current rise of health care cost has created a concern in the Air Force. This concern led to the creation of the Fit-to-Fight program. However, the success of the program was placed in the hands of the commanders. Tools are currently in place to train and teach members, but health and wellness was perceived as a task that stood in the way of mission completion. The proper place for fitness should be a part of mission completion (figure 3).

It is debated often what is most important in both a military and a broader business context. Personally, I believe that mission is solely dependent upon people. The highest priority of the commander should be the force. Subsequently the mission is the highest priority of the force. This conforms to a central philosophy taught in most Professional Military Education: “People First, Mission Always.”

The figure 3 details the progression of the individual up through and including the mission. The commander has a responsibility—and in the Air Force it is generally taken seriously—and that is training. Training begins with technical school and continues throughout the military career through a four-tier progression: Apprentice, Journeyman,

Craftsman, and Superintendent. These levels take much time and effort to attain. They are directly related to the rank of the individual and demotion can occur if a member fails to achieve the required skill level commensurate to the rank. The attention placed on training creates the foundation of the force.

Feedback and evaluation is vital to the success and growth of the force. Providing service members with accurate and valid feedback ensures that members know how they are doing and what they need to do in order to be promoted and continue their Air Force career.

Promotion is vital to the continued progression of the service. Promotion only comes after the member has shown the ability to carry out the responsibilities of a higher rank. The possibility of promotion prevents members from becoming stagnant, and encourages study and good discipline.

These three key building blocks of mission are strengths within the Air Force. These areas are looked at very closely by successful commanders. The commander must ensure that his junior leaders are executing each building block properly in order to ensure mission success.

Fitness is just as important as the other blocks when it comes to mission success. There are numerous benefits to fielding a healthy and fit force. Aside from reducing the cost of health care and reducing the number of days missed due to sickness, Cooper and others point out that a physically fit person is not only better prepared physically, but also better equipped mentally. When a commander decides that fitness is as important as ancillary training or upgrade training, then the Air Force will achieve the goal of becoming a more fit force.



Figure 3. Suggested building blocks for Mission Accomplishment

Source: Created by author.

Testing Versus Mandatory Fitness

The Air Force has adopted the attitude that members are responsible for their own individual fitness and maintaining that fitness level is a part of their career progression. In viewing the current levels of obesity across the United States as well as the billion dollar fitness drug industry, this is no easy task. When a member joins the military, the task of fitness is accomplished in a group of people. During Basic Training this is a time where nascent teamwork and esprit de corps take root. It is during this time that bonds flourish most among the boys and girls becoming men/women.

This same attitude must prevail in the actual Air Force. For a short time the Air Force adopted “mandatory fitness.” Initially this was met with a very negative attitude from several levels of leadership. Within the Logistics Directorate at Air Education and Training Command, Monday and Wednesday fitness was accomplished as an office.

Friday however, was a directorate fitness day. Through several directors, fitness on Friday was attended by very few Air Force personnel.

When Major General Atkinson, a Colonel at the time, became the Director of Logistics, things changed. His first day at Friday fitness only 30 of the 200 military members showed up for mandatory fitness. His attitude was very simple, we had a job and people did not show up to work. He called a meeting with all the Chief Master Sergeants in the directorate and expressed his desires. The Chiefs presented several different arguments, which he quickly invalidated.

The following Friday 200 people were present for fitness. He turned it into an event. He challenged people and they stepped up. The level of participation increased during Monday and Wednesday fitness times and people accepted it as a part of their jobs. His implementation and demands for participation of mandatory fitness did have a few opponents, but they quickly became quiet after benefits were realized.

The fitness test was still new; the ergonomic bike test had just been eliminated. The scores were raw; there were not preexisting numbers to compare them to. There was concern about the waist measurement of 32 inches being considered the optimal waist.

In the beginning there were four scoring categories. The first rating was excellent, which was a score received of 90 percent or higher. The second rating was satisfactory, which was a score of 75 percent to 89.9 percent. The third rating was marginal, which was a composite score of 70 percent to 74.9 percent. The final rating was 69.9 percent or lower which was failing (Department of the Air Force 2010).

In 2010 these categories changed. In order to pass the fitness test members had to score higher than a 75 percent and could not fail any component of the fitness test. The

category of marginal was eliminated. The optimal waist measurement was changed from 32 inches to 35 inches. Any waist measurement over 39 was considered a failure, no matter how well the member completed the other components.

With these changes came the change to match the other services, and that was testing twice a year. The purpose for this change, as mentioned earlier, was to ensure members stayed fit year round instead of just preparing for the fitness test. This can be accomplished, but not with the current standards that are in place. In order to achieve this goal, the Air Force would ultimately have to adopt a more rigorous fitness standards. The Current Air Force fitness standards can be met with limited training and preparation.

Along with these changes came the elimination of mandatory fitness. Commanders are encouraged to allow member to participate in fitness as mission allows. They are also encouraged to provide additional time for those that have failed. This leaves a lot to the discretion and interpretation of the local commander.

Mandatory fitness provides several direct benefits to the squadron. By establishing a mandatory fitness program, members are encouraged through the participation of others. By establishing fitness goals and milestones in the squadron, the commander is able to track improvement and make adjustments as required to improve the program.

In his book, Brian Sharkey describes how fitness is related to work. He defines work capacity as “the ability to accomplish production goals without undue fatigue and without becoming a hazard to yourself or coworkers. Work capacity is the product of a number of factors including: natural endowment, skill, nutrition, aerobic fitness,

intelligence, experience, acclimation, muscular fitness and lean body weight” (Sharkey 1979, 242).

When referencing work and aerobic fitness for light work, such as office work, a person may not need to be the fittest person, but aerobic fitness is a contributing factor. When the job assignment is tougher physically, then aerobic fitness and energy required to complete the job must increase. Sharkey explains that when employees have a low level of fitness, they are only able to accomplish work at a slower, less effective rate than a highly fit employee (Sharkey 1979, 242).

Additionally, Sharkey explains that, “fit employees are a good investment” (Sharkey 1979, 244). This is explained in four categories: Production, Safety, Health, and Morale:

1. Production: Fit employees are more productive in any line of work.
2. Safety: Fit workers are safe workers; they are far less likely to experience debilitating lower back injuries.
3. Health: Fit workers miss fewer days of work; they are far less likely to suffer from degenerative problems like heart disease.
4. Morale: Fitness programs improve morale among employees (Sharkey 1979, 245).

These four areas serve to illustrate that mandatory fitness in the Air would be beneficial. By providing airmen with the means to achieve a successful fitness regimen, the Air Force will pave the way for more successful airmen. It is important that this program be successful for the betterment of the Air Force. In order to be successful I

recommend the implementation of a program that includes the following four factors; Testing, Education, Training and Assessment.

Testing

Testing should be utilized to determine the fitness level of each airman. Testing establishes a baseline to measure future success. Every new airman entering the Air Force will be required to test. This testing should be accomplished at the end of training and within the first few months at their first duty station.

The testing phase of the fitness program will be completed in conjunction with the airmen's health assessment. The medical staff must play an important role in this program to ensure the safety of all personnel. Once the member has been tested and cleared the next phase begins.

Education

Education of personnel concerning fitness is the most important part of the fitness program. Many times when programs are started there is a lot of negative feedback, based on a lack of understanding of the "why." Providing education that not only shows airman how to improve their fitness, but also negative impacts of improper fitness must be taught. Helping personnel understand the importance of health and fitness will provide an answer to "why" the program is important.

Training

It can be very intimidating to walk into the gym for the first time and not know how to use the equipment. This alone can keep some airman out of the gym. Another concern is airman not knowing exactly what their body needs based on strengths and

weaknesses. In the training factor, the already assigned Unit Fitness Monitors will provide members with as Cooper and Lee called it “a Fitness Prescription” (Cooper 1982; Lee 1992). This prescription will provide a starting point for each airman, based on their current strengths and weaknesses. The training factor is mandatory fitness.

Assessment

The final factor is assessment. This factor is established to ensure that airmen are executing the training factor correctly. The measurement of assessment should be established to show progress through the years instead of simply measuring the member’s current state of fitness. Under the current program as long as an airman scores above 75 they have passed, there is no requirement to increase the score, which does not encourage fitness improvement.

Summary

The Air Force has made several changes to the fitness program over the past nine years. The current state of fitness, according to results released by the Air Force, is positive. However successful the numbers appear to be, the true goal of the fitness program will be achieved when airman of all ranks and ages have accepted the year-round fitness mind-set.

This mind-set can only be changed through a fitness program that is sustainable and achievable. Chapter 4 looked at the commander’s role in the current program and revealed there is a lot of work that goes into administering the program.

Mandatory fitness needs to be viewed as important as other tasks that are accomplished on a daily basis. For this course of action to be successful it must be

accepted at all levels. As stated in this chapter, the implementation of a fitness program with four factors is necessary. By implementing the test, educate, train and assess factors at the unit level the Air Force will achieve the desired endstate defined in AFI36-2905.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

This paper proposes that fitness be taken serious at all levels of the Air Force in order to reverse any negative trends toward fitness. It provides a history of what the Air Force has experienced as far as fitness is concerned by looking at each era of fitness in the Air Force. This thesis purposed to answer the primary question of: Has the Air Force established a program of training, testing, assessing, and education in order to achieve a fitness level conducive to the overall improvement of fitness in the Air Force?” It is my opinion, based on the literature review that although the Air Force has established a means of testing, it has not established a consistent means of training, assessing, and educating.

If fitness is vital to the mission, then it is a part of the mission. Therefore, mandatory fitness is as much a part of the job as is technical and other sorts of training. Commanders must implement a plan that allows their members to be involved in physical fitness on a daily basis.

Although this research is completed, more must be done to improve the fitness mindset in the Air Force. This change does not start at the top it starts with each individual commander accepting responsibility for his/her subordinates.

Additional Recommendations

Additional recommendations that have been made fall in line with the Drug Demand Reduction Policy, created by President Nixon in the early 1970s, as the United States withdrew from Vietnam. With drug usage levels near 45 percent Air Force wide, a

random drug testing plan was put into place. The policy successfully reduced these levels. Drug levels reported in 2007 were lower than the goal of 2 percent (Roshetko 2009, 13).

Colonel Roshetko recommends the following changes to the fitness program based on several observations.

1. Members scoring a 90 percent or higher will be exempt for one year; this is the current practice.
2. Members scoring between 80 and 89.9 will be susceptible to random testing 90 days after their previous passing test.
3. Members scoring between 75 and 79.9 will be susceptible to random testing 45 days after their previous passing test.
4. Members can be randomly selected through a database, or selected by their commander.
5. Due to administrative issues the individual would be given a five-day notice prior to the required test (Roshetko 2009, 12-13).

The ultimate goal when it comes to fitness is to improve. When a member scores a 75 percent on the fitness test and another member scores a 73.4, although their fitness levels are the same, one member faces administrative action and the possibility of commanders and supervisors monitoring fitness and nutrition. In order for the Air Force to achieve the desired endstate of a more fit force, additional action must be taken.

Conclusion

Fitness is a lifestyle, and the choice is ultimately up to the individual. The Air Force has put the proper plan in place to increase the health of members and now the plan

must be executed and follow-through is required as the Air Force fitness program matures. However, there has to be acceptance at all levels; commanders must work hard to incorporate fitness within their units, fitness monitors must track and monitor progress of members, and members must accept that fitness is a requirement for job accomplishment.

There is much at risk when it comes to members' health. The way members treat their body cannot be taken for granted. Fitness is a large part of creating a healthy airman and a healthier Air Force. The commitment is an individual's choice, but the health of the individual is directly related to accomplishment of the Air Force Mission.

REFERENCE LIST

- Air Force Personnel Center. 2012. Air Force personnel demographics. February 29. <http://www.afpc.af.mil/library/airforcepersonnel demographics.asp> (accessed April 15, 2012).
- Anderson, Jon R. 2011. Off duty; Watch list fast food. *Army Times*. July 21. www.armytimes.com/offduty/health/offduty-watch-list-fastfood-072511 (accessed April 29, 2012).
- APFRI. n.d. Overview. <https://apfri.carlisle.army.mil/overview.cfm> (accessed September 24, 2011).
- Bates, Matthew, TSGT. 2011. Making the cut: Intense course prepares airman for army ranger school. *Airman Magazine* (March-April): 36-39.
- Bowles, Stephen V., James Picano, Ted Epperly, and Stephanie Myer. 2006. The life program: A wellness approach to weight loss. *Journal of Military Medicine*: 1089-1094.
- Caspersen, Carl J. PhD, Kenneth E. Powell, MD, and Gregory M. Christenson, PhD. 1985. Physical activity, exercise, and physical fitness: Definition and distinctions for health-related research. *Public Health Reports*: 126-130.
- Center for Disease Control and Prevention. 2010. U.S. obesity trends. <http://www.cdc.gov/obesity/data/trends.html> (accessed September 29, 2011).
- Cooper, Kenneth H. M.D., M.P.H. 1982. *The aerobics program for total well-being*. New York: M. Evans and Company.
- Doyle, Erik. 2006. A concept of functional fitness. Marine Corps Combat Command. Washington, DC.
- Department of the Air Force. 2010. Air Force Instruction (AFI) 36-2903, *Fitness program*. Washington, DC: Government Printing Office.
- Fontaine, Scott. 2011. Airmen passing PT test with flying colors. *Air Force Times Online*. September 24. <http://www.airforcetimes.com/news/2011/09/air-force-airmen-passing-pt-test-with-flying-colors-092411/> (accessed March 1, 2012).
- Gindhard, Richard T. Jr., Major. 1999. The Air Force physical fitness program: Is it adequate? Master's Thesis, Maxwell Air Force Base, AL: Air Command and General Staff College.
- Glassman, Greg. 2002 What is fitness. *CrossFit Journal*. 1-11.

- Institute of Medicine, and of the National Academies. 2003. *Weight management; State of the science and opportunities for military programs*. Washington, DC: The National Academies Press.
- Jansen, Don J. 2009. *Military medical care: Questions and answers*. Washington, DC: Congressional Research Service.
- James, Philip T., Rachel Leach, Eleni Kalamara, and Maryam Shayeghi. 2001. The worldwide obesity epidemic. *Obesity Research*.
- Komlos, John. 2010. The evolution of BMI. VOX. August 31. <http://www.voxeu.org/index.php?q=node/5448> (accessed September 29, 2011).
- Lee, Major S. Wayne. 1992 Task related aerobic and anaerobic physical fitness standards for the Canadian Army. Dissertation, Ann Arbor, Michigan.
- Libal, Autumn. 2006. *The importance of physical activity and exercise*. Broomall, PA: Mason Crest Publisher Inc.
- Low Fat Diet Plan. 2012. www.lowfatdietplan.com/bmi-chart (accessed April 30, 2012).
- US Marine Corps. 2003. *Marine Corps physical fitness test and body composition program manual*. Washington, DC: Government Printing Office.
- Miller, W.C., D.M. Koceja, and E.J. Hamilton. 1997. A meta-analysis of the past 25 years of weight loss research using diet, exercise, or diet plus exercise intervention. *International Journal of Obesity*: 941-947.
- Roshetko, Thomas F., Col, USAF. 2009. Air Force fitness culture; are we there yet? *Air Force Journal of Logistics*: 2-13.
- Sharkey, Brian J. 1997. *Physiology of fitness*. Champaign, IL: Human Kinetics.
- Smith, Stew. 2011. Assessing fitness test. *Military.com*. <http://www.military.com/military-fitness/fitness-test-prep/fair-way-to-judge-fitness-test> (accessed September 29, 2011).
- Wang, Youfa, May A. Beydoun, Lan Liang, Benjamin Caballero, and Shiriki K. Kumanyika. 2008. *Will all Americans become overweight or obese? estimating the progression and cost of the U.S. obesity epidemic*. Baltimore, MA: Nature Publishing Group.
- Web MD. n.d. Obesity. <http://www.webmd.com/diet/guide/what-is-obesity> (accessed September 29, 2011).
- Wei, Ming, MD, Larry W. Gibbons, PhD, James B. Kampert, MD, Milton Z. Nichaman, MD, and Steven Blair, PED. 2011. Low cardiorespiratory fitness and physical

Inactivity as predictors of mortality in men with type 2 diabetes. *Annals of Internal Medicine*: 605-611.

Weiglein, Laura Weiglein, MSED; Jeffery Herrick, PhD; Stacie Kirk, PhD; Erik P. Kirk, PhD. 2011. The 1-mile walk test is a valid predictor of VO2 max and is a reliable alternative fitness test to the 1.5-mile run in the U.S. Air Force males. Thesis, Military Medicine, Washington, DC.

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