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A STUDY OF THE NEW JERSEY STATE POLICE PHYSICAL QUALIFICATION
TEST AND ITS RELATIONSHIP TO LEADERSHIP, ORGANIZATIONAL
DECISION MAKING, AND POLICY IMPLEMENTATION

BY

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Submitted in partial fulfillment
Of the Requirements for the Degree
Doctor of Education
Seton Hall University

2006

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The following is offered as an expression of gratitude to those I had encountered through this educational peregrination, first as teachers and mentors, and now call friends.

To Dr. Anthony J. Colella, The consummate professional, you have influenced my life in a very powerful way through your expressed love of education. This had led to the creation of my own personal journey in the world of academia.

To Dr. John W. Collins Jr., The quintessential advisor, versed in all disciplines, succinct in all forms of communications, and readily available for consultation.

To Reverend Christopher J. Hynes, A complex individual with boundless energy and constantly striving for perfection. This energy personally affected me and so the journey began.

To Anthony P. Sciarrillo, A quiet demure individual, became an important part of the journey as a study group partner, and finally openly offered his sound advice in an advisory capacity for this committee.

DEDICATION

To the memory of Eleanor and Joseph Cosgrove, for providing a strong family environment filled with Irish culture and the requisite core values, which spawned an unequivocal desire to succeed in life.

To my wife Colleen, for providing the steadfast support necessary to allow for the completion of this research study, and her understanding during this major intrusion into our family environment.

To Alanna and Liam, You are both beginning to understand the importance of education and each have initiated your own personal journey in school. I hope this experience will give you the drive and confidence to accomplish your own dreams.

“What else are we in life, but the mirror image of our accomplishments”
Cosgrove, 2001

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	iii
DEDICATION.....	iv
LIST OF TABLES.....	vii
I INTRODUCTION.....	1
Statement of the Problem.....	5
Purpose of the Study.....	9
Primary Research Question	10
Subsidiary Questions.....	10
Definition of Terms.....	10
Significance of the Study.....	12
Limitations of the Study.....	14
Organization of the Study.....	14
Summary.....	15
II REVIEW OF RELATED LITERATURE.....	17
Introduction.....	17
Leadership, Decision Making, and Policy Implementation.....	22
Civil Rights Litigation.....	35
Physiological Gender Differences.....	49
Physical Agility Testing.....	52
III METHODOLOGY.....	61
Introduction.....	61
Primary Research Question.....	63
Data Sources.....	63
Materials.....	63
Procedures.....	65
Subsidiary Question #1	66
Data Sources.....	66
Materials.....	66
Procedures.....	67

	Subsidiary Question #2.....	67
	Data Sources.....	68
	Materials.....	68
	Procedures.....	68
	Subsidiary Question #3.....	70
	Summary.....	70
IV	DATA ANALYSIS.....	72
	Introduction.....	72
	Primary Research Questions.....	74
	Subsidiary Question #1.....	100
	Subsidiary Question #2.....	102
	Subsidiary Question #3.....	104
V	SUMMMARY, CONCLUSIONS, AND RECOMMENDATIONS	112
	Summary.....	112
	Conclusions.....	115
	Recommendations.....	119
	Policy.....	119
	Practice.....	120
	Future Research.....	121
	REFERENCES.....	122
	APPENDECES.....	131
	APPENDIX A - Letter of Introduction.....	132
	APPENDIX B - 2003 & 2004 Physical Qualification Test Data.....	134
	APPENDIX C -118 th New Jersey State Police Physical Qualification Data	161
	APPENDIX D – Army Physical Fitness Standards.....	166

LIST OF TABLES

Table 1	State Police Agency Physical Standards.....	58
Table 2	2003 & 2004 year comparison, male/female	76
Table 3	Independent Samples Test, female/male comparison.....	76
Table 4	2003 & 2004 year comparison.....	79
Table 5	Independent Sample Test, 2003 & 2004 comparison.....	79
Table 6	2003 & 2004 years, female comparison	82
Table 7	Independent Sample Test, female comparison 2003 & 2004 years...	82
Table 8	2003 & 2004 years, male comparison.....	85
Table 9	Independent Sample Test, male comparison 2003 & 2004.....	85
Table 10	Frequencies table, male female statistics.....	88
Table 11	Frequency table, gender.....	88
Table 12	Frequency table, All - male/female candidates, push ups.....	89
Table 13	Frequency Table, All - male/female candidates, sit ups.....	90
Table 14	Frequency Table, 2003 & 2004.....	91
Table 15	Frequency Table, female candidates.....	92
Table 16	Frequency Table, female candidates, push ups.....	93
Table 17	Frequency Table, female candidates, sit ups.....	94
Table 18	Frequency Table, male candidates.....	96
Table 19	Frequency Table, male candidates, push ups.....	97
Table 20	Frequency Table, male candidates, sit ups.....	98

CHAPTER I

INTRODUCTION

The New Jersey State Police had changed the physical agility test administered to all perspective candidates in 2000. The change was stimulated by a concern regarding the recruitment and retention of qualified female candidates. This modification encompasses the utilization of the established physical fitness standards adopted by the organization following a self-evaluation study completed by the New Jersey State Police. The self-evaluation study by the New Jersey State Police was conducted in 1984 to create a “bona fide occupational qualification” (BFOQ) for the established retirement at 55 years age.

The physical standards adopted were a compilation of a critical task analysis survey, a base line physical assessment of the incumbents, and the interpretation by cardiologists and exercise physiologists on the presented data. This data was presented in a “Report on the Establishment of a Mandatory Retirement Age as a Bona Fide Occupational Qualification for the New Jersey State Police”, submitted on December 19, 1984. The data was intended to reflect the overall duties and responsibilities of the New Jersey State Police. The physical standards adopted as a direct result of this self evaluation were predicated on the VO₂ maximum of 41 /ml/kg /min. This standard was the cornerstone of the New Jersey State Police organization’s position to defend the established retirement age of 55. This physical standard requirement reflected an attempt by the New Jersey State Police to initiate

physical agility standards into the organization in hope of defending the current litigation involving the complaint of age discrimination. This was not a concerted effort to determine the minimum physical abilities required to fulfill the duties and responsibilities as an enlisted member of the New Jersey State Police. This self evaluation research was initially conducted to establish a substantive retirement age for the New Jersey State Police that would withstand the anticipated challenges of the judicial system.

The current physical standard for the New Jersey State Police is regulated by Standing Operating Procedures (SOP) C 20 (1984) that requires all enlisted members to participate in a pass/fail annual physical test. The thought process for the adoption of this same physical test for the entrance physical examination was to memorialize one set of physical standards for the New Jersey State Police. The physical standards set forth in SOP C20 were the result of the New Jersey State Police self-evaluation study that had been conducted in 1984. The critical task analysis survey had queried the enlisted members for components of their daily performance regimens, and related these same prescribed functions to physical requirements. There was no correlation conducted during this study between the documented critical tasks and the established physical standards. This process ultimately served to establish the mandatory physical fitness requirements for the incumbents serving within the New Jersey State Police. The prescribed physical testing was not applied to the physical entrance test required for all candidates seeking employment within the New Jersey State Police.

According to a report published by the National Center for Women and Policing (2000), Colonel Dunbar sought to facilitate a change in the physical entrance testing requirements for all New Jersey State Police candidates. The conceptual idea was that the data reflected enlisted incumbent members of the New Jersey State Police completing this same pass/fail physical fitness test at rates of 93 percent. It was anticipated that any potential female candidates would experience minimal problems qualifying and remaining in the selection process. The leadership of this organization failed to account for the cultural aspects of this selection process. The mind set of recruiters and academy staff differ immensely with respect to the selection process. The recruiters cast a wide net to entice all individuals in an effort to bolster a large pool of qualified candidates. The recruitment process ends and the selection process begin with the administration of the first battery of testing. The selection process entails the written, physical, medical, psychological, and background investigation as the core components. A potential candidate does not progress within the selection process with the failure in any of the aforementioned categories. The recruitment and selection process has now changed from one of inclusion to one of exclusion. The culture inherent in the New Jersey State Police is to select only the finest high caliber candidates for invitation to the academy. This is fostered by the strict adherence to the military style training instituted by Colonel Swarzkopf in 1921.

A problem manifested itself at the onset of the New Jersey State Police utilizing the pass/fail SOP C20 physical test for the entrance examination. This physical test consists of two strength exercises and an endurance run. The candidates are required to complete 32 push-ups, 34 sit-ups, each in a two minute time period, and these

exercises are followed by the 1.5 mile run within thirteen minutes. A failure by a candidate to complete any portion of this physical test would cause that perspective candidate to be removed from the selection process. The utilization of anecdotal research by this researcher has led to a compilation of numerous observations, while providing the supervisory oversight to this same physical entrance examination. There were an inordinate number of female candidates failing to meet the minimal qualification for the push-up exercise.

The entry level selection process poses a great potential for liability on the issues of discrimination. The selection and recruitment process must be thoroughly reviewed to ensure it is fair and equitable for all candidates. The obstacles faced by women in this process have been deemed as biased against female candidates (National Center for Women and Policing, [NWCP], 1999). The present law enforcement environment of community oriented policing; citizens have been identified as customers. This has resulted in policing requiring more communication skills, and higher education standards to effectively police the modern society. Given these changes in society it is necessary to find new ways to assess a candidate's suitability for a position in policing.

The New Jersey State Police had devoted a host of resources in the recruitment of qualified female candidates. It was apparent that this same push-up exercise was defeating any of these same recruitment efforts. A cursory look into physiological differences between male and females provided information that a male has generally 50% more muscle mass in the upper body pectoral muscles (Shepard, 1991; Shepard & Bonneau, 2000). This would leave the female candidates at a severe disadvantage

for performing the same required repetitions of the push up exercise. The questions than arises as to what the standards are and do they reflect the minimum physical qualifications for performing the duties and responsibilities associated with the assigned law enforcement functions (Police Executive Research Forum, [PERF], 1998).

This study will perform an analysis on the changes implemented to the long standing physical fitness entrance examination of the New Jersey State Police. The study will reflect on the importance of a historical perspective creating a vision for the future. The study will attempt to solidify the importance of instituting a proper validation study prior to the adoption of any type of physical agility entrance examination (Farenholz & Rhodes, 1995). The ability of an organization to ensure the utilization of a formal process requiring research supported decisions and proper policy implementation will provide a sound organizational template. The many litigation cases prompted by both the Title VII Civil Rights Act of 1964 and the Civil Rights Act of 1991 have expounded this type of formal process. The responsibility lies within an organization to ensure a proper validated testing procedure is adopted prior to any organizational processes being implemented.

Background

The New Jersey State Police has a long history of touting itself as one of the preeminent law enforcement agencies in the country. In 1914 legislation was proposed for the formation of a uniformly well-trained rural police force (Coakley, 1971). This was a direct result to both an increasing population and crime rate within the state. There was some hard fought opposition o this legislation from those fearing

a police state or strikebreakers and public sentiment opposed to support this legislation proposal. On March 29, 1921, the State Police Bill passed into law and established the New Jersey State Police. This bill established that all appointed members of the New Jersey State Police will be of good health, good moral character, and has established his qualifications by passing a physical and mental examination based upon the standard provided by the rules and regulations of the United States Army (Laws of New Jersey, 1921). This law also designated the qualifications for the superintendent of the State Police and his officers. The eligibility requirements stipulated that any of the officers appointed were to have served at least two years as an officer in the United States Army. The officer was required to have been honorably discharged from service with a rank not lower than that of a lieutenant.

The legislators in the State of New Jersey realized the necessity to create a new state police organization fashioned after the United States Army. This type of reasoning would bring an established rank structure, chain of command, and recognizable rules and regulations. It would also serve to attract potential members who had previously served in the military. The duties of the superintendent of the State Police would arrange for the creation of a written examination for all potential applicants (Laws of New Jersey, 1921). The superintendent was also responsible for the instituting of the preliminary and subsequent instruction for these same applicants to successfully become members of the State Police. It was also in the superintendent's purview to establish the rule and regulations that would serve to make the rules and regulations for the discipline and control of the State Police.

Colonel Schwarzkopf's military style leadership remains the core component of the present day New Jersey State Police. There have many changes affecting the organization since its inception in 1921, but the core mission remains the organization's mantra today. The original Order number one is the current mission statement for the organization. The following enumerated the overall duties and responsibilities of the newly formed New Jersey State Police, as delineated in Chapter 102, Laws of 1921:

It shall be the duty of the members of the State Police to be peace officers of the State, and they are authorized and empowered to prevent crime, to pursue and apprehend offenders and to obtain legal evidence necessary to insure the conviction in the courts of such offenders; to execute any lawful warrant or order of arrest issued against any person or persons for any violation of the law committed in their presence, and for felonies committed the same as are or may be authorized by law for other peace officers; to give first aid to the injured, to succor the helpless, and to have in general the same powers as those conferred by law upon police officers and constables. They shall be subject to the call of the Governor, and are empowered to co-operate with any other department or authority of the State or locality in detecting crime, apprehending criminals and preserving the law and order throughout the State and to act as wardens in the protection of the forests, the fish and game of the State, and as inspectors of motor vehicles; provided, that the State Police shall be employed primarily in the furnishing of adequate police protection to the inhabitants of the rural

sections of the State; and provided, further, that the State Police shall not be used as a posse in any municipality, except when ordered by the Governor to do so, upon the request of the governing body thereof. (p. 170)

On July 1, 1921, Herbert Norman Schwarkopf, a graduate of the United States Military Academy at West Point, was appointed as the first Superintendent of the New Jersey State Police (Coakley, 1971). Colonel Schwarkopf was commissioned to organize the initial competitive examinations for the first training class. Colonel Schwarkopf's military background greatly influenced all areas of this newly formed organization. He believed that the training and duty of the members of the State Police should be such to develop both character and reliability to ensure public service is properly rendered. The first State Police Class graduated from the Sea Girt Training Academy on December 5, 1921. This has led to the newly organized police force adopting a mantra of "paramilitary" into its proud heritage, which has stood the test of time. This was a result of the strict military style training regimen instituted by Colonel Schwarkopf. The New Jersey State Police is still recognized nationally for its attention to detail and military bearing (Coakley 1971). The success of the New Jersey State Police can be attributed to Colonel Swarkopf adoption of those theories of not only enforcement and apprehension but that prevention, education, and service are core components of its organizational mission.

The New Jersey State Police has recognized the necessity for training specific to leadership to better ensure the capabilities of its personnel. This educational value has a great return on investment for both its members and the organization (Senge,1995).

The ability to provide rank specific leadership has been presently realized within the New Jersey State Police. There has been a program initiated by the organization to institute educational qualifications for advancement of any enlisted members through the established rank structure of the New Jersey State Police. An adoption by the leadership to enter into the utilization of data driven and research supported process, prior to the modification or implementation of any policy changes, would also further contribute to the organization's ability to provide a clear directed vision for the New Jersey State Police.

Statement of the Problem

In what capacity does the current established physical fitness test have a direct impact on the recruitment and retention of qualified female candidates? The New Jersey State Police has devoted a host of resources in this same recruitment effort, and not to the validation of an unbiased physical agility entrance test. The adoption of a formal process regarding both organizational decision-making and policy implementation would serve to proffer the goals and objectives of the New Jersey State Police. The current physical fitness test is lacking this component and may thwart all the good intentions of this organization's same recruitment efforts.

Purpose of the Study

The purpose of this study is to analyze the data created by the implementation of the New Jersey State Police physical entrance examination during the years of 2003 and 2004. This research study will perform an analysis on the changes implemented to the long standing physical fitness entrance examination of the New Jersey State Police. The study will reflect on the importance of a historical perspective creating a

vision for the future. The study will attempt to solidify the importance of instituting a proper validation study prior to the adoption of any type of physical agility entrance examination.

Primary Research Question

To what extent, does the New Jersey State Police entrance physical agility test exhibit a disparate impact on qualified female candidates?

Subsidiary Questions

1. How would this same pass/fail physical qualification test have impacted the 118th New Jersey State Police classes?
2. How would the results of this same two year longitudinal study differ by applying the physical testing standards of the United States Army?
3. What has been the involvement of the leadership, policy, and the organizational decision making processes of the New Jersey State Police in modifying their physical entrance test?

Definition of Terms

Absolute Standard - A standard established from a study of law enforcement tasks as applied to physical exercise levels of fitness used to predict performance ability.

BFOQ - A “bona fide occupational qualification” is defined as any requirement which when viewed on the surface seems biased, but actually is reasonably necessary for the performance of the job.

Business Necessity- This provision requires that an employer must show that any established standard is a minimum standard necessary for the successful performance of the job in question.

Candidate – An indication of any individual involved in the recruitment and selection process of the New Jersey State Police.

Construct Validity – A fitness component must be an essential job function.

Criterion Validity – A fitness component must predict who can or cannot perform those essential job functions.

Disparate Impact -A selection rate for any race, sex or ethnic group which is less than four-fifths (4/5) (or eighty percent) of the rate for the group with the highest rate will generally be regarded as evidence of adverse impact.

Physical Fitness – The definition of physical fitness might vary by individual but most experts agree that there are five basic components of physical fitness:

Aerobic Endurance – Is the ability of an individual to moderately perform a strenuous activity over a designated period of time. It reflects how well the heart and lungs work together to supply oxygen to a body during exertion and exercise.

Muscular Endurance – Is the ability to hold a particular position for a sustained period of time or repeat an exercise movement many times.

Muscular Strength - The ability to exert maximum force, such as lifting the heaviest weight you can lift, one time.

Flexibility - The ability to move a joint through its full range of motion; the elasticity of the muscle.

Body Composition - The proportion of fat in your body compared to your bone and muscle.

PQT - Physical Qualification Test – Is the initial physical fitness test given to any potential candidates seeking employment with the New Jersey State Police.

Scientific Validity - A fitness tests must be acceptable and valid within the field of exercise science.

Significance of the Study

The significance of this study is immersed in the importance of the New Jersey State Police to enhance its overall strength through the recruitment and retention of qualified candidates. This study will perform an analysis on the changes implemented to the long standing physical fitness entrance examination of the New Jersey State Police. The study will reflect on the importance of a historical perspective creating a vision for the future. The study will attempt to solidify the importance of instituting a proper validation study prior to the adoption of any type of physical agility entrance examination.

Hoffman & Smith (2003) argues, few if any law enforcement personnel disagree with the notion that physical fitness is necessary for the safe and effective performance of certain critical and essential job functions. The more difficult question is, how fit do officers need to be? There is even more confusion as to how traditional measures of physical fitness, such as push-ups and sit-ups, can be underlying and predictive factors for the performance of those essential law enforcement job tasks. The entry level selection process poses a great potential for liability on the issues of discrimination. The selection and recruitment process must be thoroughly reviewed to ensure it is fair and equitable for all candidates. The obstacles faced by women in this process have been deemed as biased against female candidates (NWCP, 2000). The present law enforcement environment of community oriented policing; citizens have been identified as customers. This has resulted in policing requiring more

communication skills, and higher education standards to effectively police the modern society. Given these changes in society it is necessary to find new ways to assess a candidate's suitability for a position in policing Alpert & Dunnan, 1988).

The leadership of an organization must employ strategic planning far in advance of any foreseeable complications with a selection process. The ability of an organization to sustain itself has its roots in the recruitment and selection process. The value based approach to the selection of qualified candidates must be supported by the utilization of validated testing procedures. A flawed testing procedure can leave an organization vulnerable to a myriad of litigation inquiries. This has major implications for the focus of the organizational leadership components practiced within any organization. The responsibility lies within an organization to ensure a proper validated testing procedure is adopted prior to any recruitment and selection processes being initiated (Collingswood & Kohl, 1994).

A survey was conducted involving sixty-two police agencies to provide information regarding the physical agility testing protocol and representation of women within sworn personnel. The results of this study reflect eighty-nine percent utilize some form of physical agility testing for entry level selection. This study has also documented that agencies without a test have forty-five percent more sworn women than those with a test (15.8% vs. 10.9%). The study has illuminated a lack of agreement or standardization regarding the physical capabilities about both the physical tests and criteria used to evaluate successful performance (Lonsway, 2003a).

The New Jersey State Police had been the focus of a Consent Decree in 1975 for their inability to properly recruit and retain female candidates. They took a pro-active

approach to this recruitment problem and conducted an all female recruit training class in 1980 (Byrne, 1979). This 96th State Police Class had graduated a total of thirty females, who have continued to serve within the organization, and have now reached qualified retirement benefits with twenty-five years of service. The New Jersey State Police have known for an extended period of time that the 96th State Police Class all female class retirement was eminent. The leadership of this organization is now hard pressed in even maintaining the current 3% of sworn female troopers.

Limitations of the Study

1. Data collected for this study refers to years 2003/2004
2. Physical ability to perform the push up exercise
3. Physical entrance test - Pass/Fail
4. Sample Size
5. Time Constraints
6. One organizational study
7. Subjective interpretation of exercise performance
8. Oversight provided at the test site.

Organization of the Study

This study is organized in such a manner to provide a comprehensive and timely study on the importance of the establishment of a validated physical agility entrance examination. This study is constructed into a total of five chapters.

In Chapter I, the Introduction is followed by the Background information, the Statement of the Problem, the Purpose of the Study, Definition of Terms, and

Research Question, followed by the Sub-Questions, Significance of the Study, Limitations of the Study, and completed by the Organization of the Study.

In Chapter II, a Literature review will be completed related to the, organizational policy and decision making with regards to leadership, physiological differences in males and females as associated to physical exercise, the absolute standard and its impact on Title VII will be thoroughly examined, recruitment and retention problems occurring as a direct result of the physical entrance test of the New Jersey State Police.

Chapter III will illuminate the exact methodology utilized to complete a quantitative study; it will involve data collection, analysis, and instrumentation.

Chapter IV will illustrate the statistical findings of this study through the quantitative analysis of information on data presented in support of this study.

Chapter V presents the summary of the study and makes conclusions from the results of the quantitative data presented. This chapter will also make recommendations for future research and studies regarding this topic.

A reference list and appendices will follow Chapter Five.

Summary

The Title VII Civil Rights Acts of 1964 and the Civil Rights Act of 1991 have exhibited a dynamic influence on the law enforcement profession and subsequently the ability to recruit and retain qualified females. This has been a problem manifested by the inherent existing physiological differences between males and females. These same differences have fostered a problematic scenario for modern day law enforcement agencies. The “absolute standard” has been widely documented as

exhibiting a disparate impact on females. This has been expounded by the many litigation cases prompted by both the Title VII of the Civil Rights Act of 1964 and by the Civil Rights Act of 1991. The associated responsibility lies within an organization to ensure a properly validated testing procedure is adopted prior to being utilized in any recruitment and selection processes (Brooks, 2001).

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

In this chapter a literature review will be completed related to all the relevant information regarding the research questions delineated in Chapter I. This review will serve to provide the necessary background information to formulate a valid opinion of the contents of this study. The importance of such a review has been well documented in a myriad of prior research. This background information will allow both the reader and researcher the opportunity to explore the relevant material presented in this study in both a concise and cohesive format. This chapter will also allow the researcher to relate the finite research question of disparate impact, while exploring leadership, organizational decision-making, and policy implementation, as vital processes for the New Jersey State Police. The importance of physiological gender differences will be thoroughly examined as associated to physical fitness testing, along with the established “absolute standard” for law enforcement performance capabilities (Cooper, 2002). The chapter will also provide information regarding the Title VII Civil Rights Acts of 1964 and the Civil Rights Act of 1991, and their overall impact on the resulting recruitment and retention problems, occurring as a direct result of the physical entrance test of the New Jersey State Police.

The preamble to the United States Constitution says that one of the purposes of government is to “insure domestic tranquility.” This means that it is the responsibility of government to enforce law and to preserve order so that citizens may go about their daily business peaceably and secure in their lives, possessions, and rights (Costello et.al, 2000). The increasing complexity of modern social life has placed greater demands on the various law enforcement agencies regarding social control and order maintenance. This is especially true for those law enforcement agencies intending to deal with problems of crime control.

Alpert and Dunham, (1988) have noted, "as problems of social control have grown and become more complex, so have the actions and reactions of the police" (p.45). In order to achieve these same goals most societies have organizations called police forces to maintain order, investigate lawbreaking, and apprehend criminals. The words police and politics are related. They are both derived from the Greek term for city-state and have to do with the administration and oversight of communities of people. The actual police operations are a compilation of varying duties and responsibilities that vary from state to state. In some states police forces are highly militarized and nearly indistinguishable from the armed forces.

A movement to establish state-controlled police forces in the United States is primarily a product of the first two decades of the twentieth century. Although a few states (Texas, Massachusetts, Delaware, and South Carolina) created state-controlled enforcement agencies during the nineteenth century, they were small, specialized forces intended for specific purposes such as protecting frontier borders or enforcing

liquor laws (Betchel, 1995). These forces were exceptions, rather than the rule, and had little impact on police development during the 1800s (Encyclopedia Britannica, 2005). The state police, known as the highway patrol, state troopers, department of public safety, or state police, are the law enforcement agencies of the state governments and have become an integral part of the United States police system (Betchel, 1995).

During much of the nineteenth century, the United States was dominated by the ideology of republicanism, which emphasized decentralization of power and accountability to local constituents. Changing the police so that control would be in the hands of a single individual, or a small group of officials, who were removed from local authority, would have provoked cries of despotism (Betchel, 1995). Moreover, Americans, like their British ancestors, had a long-standing animosity to any agency resembling a permanent military presence. The idea of a state-controlled police force was an unprecedented and controversial development in nineteenth-century America (Walker, 1977). It was toward the end of the century, some important changes took place that would weaken these basic principles and create an environment more receptive to the concept of centralized police forces.

The specific duties of police forces have not changed significantly since the founding of the London Metropolitan Police in 1829. The way their duties are carried out, however, has undergone major changes caused mostly by advances in technology. There have been multiple innovations in transportation, weapons,

investigation and identification techniques, communications, surveillance techniques, record keeping, and laboratory facilities (Betchel, 1995).

The New Jersey State Police has a long history of touting itself as one of the preeminent law enforcement agencies in the country. In 1914 legislation was proposed for the formation of a uniformly well-trained rural police force (Law of New Jersey, 1921). This was a direct result to both an increasing population and crime rate within the state. There was some hard fought opposition to this legislation from those fearing a police state or strikebreakers and public sentiment opposed to support this legislation proposal. The creation of the state police was a legislative act that required the introduction and passage of specific pieces of legislation. This public legislative process makes it possible to identify the various individuals, groups, political factions, and other vested interests working for and against the passage of state police laws. An added feature of the legislative nature of the state police is the ability to locate development of the state police within a broader political climate as evidenced through legislative policymaking and debate (Betchel, 1995).

On March 29, 1921, the State Police Bill, Senate Bill 74, passed into law and established the New Jersey State Police (Laws of New Jersey, 1921). This bill established that all appointed members of the New Jersey State Police will be of good health, good moral character, and has established his qualifications by passing a physical and mental examination based upon the standard provided by the rules and regulations of the United States Army (Laws of New Jersey, 1921). This law also designated the qualifications for the superintendent of the State Police and his

officers. The eligibility requirements stipulated that any of the officers appointed were to have served at least two years as an officer in the United States Army. The officer was required to have been honorably discharged from service with a rank not lower than that of a lieutenant.

The legislators in the State of New Jersey realized the necessity to create a new state police organization fashioned after the United States Army. This type of reasoning would bring an established rank structure, chain of command, and recognizable rules and regulations. It would also serve to attract potential members who had previously served in the military. The duties of the superintendent of the State Police would arrange for the creation of a written examination for all potential applicants (Laws of New Jersey, 1921). The superintendent was also responsible for the instituting of the preliminary and subsequent instruction for these same applicants to successfully become members of the State Police. It was also in the superintendent's purview to establish the professional standards that would serve to make the rules and regulations for the discipline and control of the State Police.

On July 1, 1921, Herbert Norman Schwarkopf, a graduate of the United States Military Academy at West Point, was appointed as the first Superintendent of the New Jersey State Police (Coakley, 1971). Colonel Schwarkopf was commissioned to organize the initial competitive examinations for the first training class. Colonel Schwarkopf's military background greatly influenced all areas of this newly formed organization. He believed that the training and duty of the members of the State Police should be such to develop both character and reliability to ensure public service is properly rendered. The first State Police Class graduated from the Sea Girt

Training Academy on December 5, 1921. This has led to the newly organized police force adopting a mantra of “paramilitary” into its proud heritage, which has stood the test of time. This was a result of the strict military style-training regimen instituted by Colonel Schwarkopf. The New Jersey State Police is still recognized nationally for its attention to detail and military bearing (Coakley 1971). The success of the New Jersey State Police can be attributed to Colonel Swarkopf adoption of those theories of not only enforcement and apprehension but that prevention, education, and service are core components of its organizational mission.

Leadership, Decision Making, and Policy Implementation

Many of the traditions, rank structures, uniforms, and command structures are modeled after the United States Army (Coakley, 1971). The adoption of these same military standards has guided the recruitment process for many years. The New Jersey State Police had solicited males with prior military service that would generally be a good fit for this organization. The social climate of society has changed drastically over the years and this may require a change in some organizational structures within law enforcement. It is important to take a comprehensive look into the historical importance of the influence of the United States Army in relationship to the adoption of standards by the New Jersey State Police in 1921.

The United States Army had provided the structure for the creation of the New Jersey State Police in 1921 (Laws of New Jersey, 1921). They have since recognized the need in their own organization to adapt and modify the United States Army, as technology and society have advanced through time. There has been much debate

over time regarding the presence of women in the Army. During the times of the United States facing a national emergency the traditional restrictions of women in the military and assigned gender roles were relaxed. There had been some 33,000 women who served in the US armed forces during World War I, and more than ten times that number served in World War II. The Women's Armed Services Act of 1948 permitted no more than two percent of the enlisted ranks in the Army to be filled by women, a limit that was not lifted until another national emergency in 1967 (Harrell & Miller, 1997).

The role of women in the Army expanded in 1973 after the creation of the all-volunteer armed forces. They have demonstrated their overall importance in the military by the successful engagement during the 1990 Persian Gulf War. Women accounted for seven percent of the deployed force with a total of 40,000 members serving in this conflict (Titunik, 2000). The expansion of the women's roles in the Army was realized after the existing exclusion rule became dubious during this conflict. The women serving at a logistical base were stationed forward of all-male infantry and armor units. As a direct result of these types of scenarios existing in combat situations the "risk rule" was lifted in 1994 by the Secretary of Defense. The "risk rule" had prevented women from serving in units that had a high probability of engaging an enemy in a combat situation. The changing nature of warfare determined there were no longer any safe places on the battlefield. The changes opened many positions for women in the Army, and only five occupational career fields remained closed to women (Harrell & Miller, 1997).

The United States Army has adopted the pose of inclusion with respect to its seeking the support of society. They have realized the importance of both attaining and retaining the public support especially since the enactment of an all volunteer military force. The democracy we live in supports the advancement of career opportunities for women in the military. According to a 1997 telephone poll conducted by the Times magazine, 67 percent of Americans polled supported the statement that women should be allowed to serve in all combat roles (Harrell & Miller, 1997). This type of support speaks volumes for the changing roles of women in society as a whole.

The National Military Strategy has dramatically changed from the Cold War era with the focus changing from a high intensity conflict to increasingly focus on responding to humanitarian emergencies, and encouraging the collaboration of other democracies in preventing future conflicts. The likelihood of fighting a conventional war seems unlikely with the advances in technology and military strategies. As a result the men appear to be less willing to serve in these new military roles, and women are more willing to accept the changing military roles (Ricks, 2000).

The term utilized by the Army to identify the changing military philosophy of engaging in conflicts have term them “Stability and Support Operation”. There no longer exists a forward edge of a battlefield, in these operations anyone can be a combatant at any time. Snider (2000) commented the women might be at least as well suited as men to serve in all these positions, which are currently very similar in nature to the established combat roles. The women are occupying major roles with in the Military Police units, and they are fully integrated into three person military police

teams that constitute a Military Police company. Their role during military police function in Kosovo had been regarded as one of the most critical operations that the Army had conducted, where every incident required a Military Police support or action (Swengros, 2000).

This type of Military Police involvement has also been a major part of both the Afghanistan and Iraq conflicts. The blurring of traditional battlefield lines has exposed the Military Police to direct combat situations. On June 16, 2005, Sgt, Leigh Ann Hester, a military police officer, became the first female soldier to be awarded the Silver Star since World War II, for her role in thwarting an Iraqi insurgent ambush in March 20, 2005 (Schmitt, 2005). Sergeant Hester and a handful of soldiers fought off more than thirty insurgents after they attacked a supply convoy southeast of Baghdad. The Americans killed twenty-seven and wounded or captured seven others. There are currently 15,000 female troops serving in Iraq. A total of thirty-five women have been killed during this conflict.

These types of role changes within the military have caused the officer leadership to encourage a paradigm shift within the Army to proffer the increased function of female members. There has been debate as to whether the Army can facilitate these cultural changes by themselves or whether they will require additional external leadership. The Army agrees that the officer leadership is essential for a successful cultural change.

Dorn and Graves (2000) stated:

The most powerful and direct influence on organizational culture comes from within the officer corps of the armed forces. Officers turn value into action, bring coherence out of confusion, set the example, and articulate the viewpoint of the military institution (p.37).

The New Jersey State Police has been cognizant of the changing demographics within the State of New Jersey. A recognized motivating factor involved in this modification process of the physical entrance test was a failure to retain qualified female candidates previously recruited during a selection process (Lempicki, 1976). The New Jersey State Police had confronted this same recruitment and retention problem in 1975. The Department of Justice had become concerned with the low representation of both minority and female candidates. This caused the Department of Justice to file a complaint indicating that the New Jersey State Police had engaged in a pattern of discrimination. The end result being the New Jersey State Police entered into a Consent Decree in 1975. This actually coincided with the graduation of the first female trooper from the New Jersey State Police Academy (Coakley, 1971). The Consent Decree required the New Jersey State Police to make every effort to recruit and hire women as enlisted members, and to adopt interim and long term strategic plans for recruitment. The efforts of the New Jersey State Police in recruitment and retention were not effective in increasing the role of the enlisted with females. The cumulative statistics for the 92nd, 93rd A, 93rd B, and 94th State Police classes reflected a total of 1207 women participating and only one female Trooper graduating from the

academy. In response to this “Consent Decree” the New Jersey State Police recruited, trained, and graduated an all female academy class in 1980 (Coakley, 1971).

There are approximately twenty-one members of this class, who remain active in the New Jersey State Police organization. The 1975 Consent Decree was dissolved on October 19, 1992, except for a Supplemental Order issued the same day (Department of Justice, 1992). This Supplemental Order provided for the provision of compliance reports to the Department of Justice with respect to the training of the 113th, 114th, and 15th State Police Classes. The Supplemental Order was to dissolve ninety days after the graduation of the 115th State Police Class. Unless the Department of Justice demonstrated that the New Jersey State Police had violated Title VII with regard to the training of female recruits. This Supplemental Order was dissolved pursuant to the arranged terms.

The bulk of law enforcement agencies during this same period hired men for enlisted positions and many of those hired had previously served in the military. This coupled with society’s acceptance of established occupational roles, denoted policing as exclusively a male occupation. The standards created had allowed extra points for military service, and placed an inordinate amount of emphasis on physical strength to effectively enforce the law. The screening process in place relied heavily on physical strength and in no way emphasized the verbal communication skills or problem solving capabilities of a potential candidate. The New Jersey State Police had been established by law with the prescribed notion of adopting all the standards of the United States Army. The superintendent and his command staff were all legislated to be officers with honorable Army service. The New Jersey State Police had remained

an all white male organization until 1970, and an all male organization until 1975 (Betchel, 1995).

The Bureau of Justice Statistics for 1999 indicates three percent of the 2,700 New Jersey State Police enlisted members are female. This statistic pales in comparison other state, county, local, and military organizations. There were other major law enforcement agencies involved in similar recruitment consent decree issues and the female percentages have flourished in those same departments. The Bureau of Statistics places the average percentage for sworn female law enforcement officers at approximately 13 percent in the United States.

The role of the police agency is changing dramatically in society. The public's demand for quality police service is at an all-time high. There is a distinct necessity for acquiring current strategies to compete in this fast changing setting. The acquisition of current nuances in recruitment and selection should be a precedent for the New Jersey State Police. The New Jersey State Police will grow to serve the special interests of the citizens of this state. These interests will better be understood by the organization, if its members are representative of this same society. This requires the leadership of the New Jersey State Police to be cognizant of the importance of recruitment and selection of qualified candidates. It is through strategic planning and policy implementation that this organization will address any concerns regarding the recruitment and retention of females.

The ability of the organization to adapt and modify its recruitment and selection policies has not had the complete support of this organization's leadership. The Army has realized the importance of leadership in orchestrating any type of cultural change within a paramilitary organization (Army Field Manual, [FM 21-20], 1998).

At the direction of Colonel Carson Dunbar, Superintendent, New Jersey State Police, an assessment was conducted of the recruitment, selection and training policies and practices of the New Jersey State Police. The assessment was performed by The National Center for Women & Policing, the National Organization of Black Law Enforcement Executives, and the Hispanic American Police Command Officers Association. This assessment was conducted September 25 to September 28, 2000 by the aforementioned assessment team. The focus of this assessment by Colonel Dunbar was to transition the New Jersey State Police to a more community oriented style of providing police services while maintaining the established the following Core Values: The New Jersey State Police is committed to protecting the public and preserving peace. To that end, we pledge to enforce the laws and protect all impartially and without prejudice. We will use compassion and abide by the constitution to uphold the rights of all citizens and do so in a manner, which exemplifies our code of Honor, Duty, and Fidelity.

The assessment was completed in three days and consisted of interviews of limited personnel and review of existing New Jersey State Police records. This would generally be considered a brief period of time to conduct a performance analysis for the New Jersey State Police organization. The New Jersey State Police is a statewide law enforcement agency with a myriad of responsibilities. The relevance of this three

day study has to be kept to a minimum. This study should be viewed as a very brief introspective look at this organization. The results are generally unsupported opinions of the assigned assessment team members. There has been no documented statistical relevance presented or assigned to this study.

The assessment team found the initial application process, written examination, and the physical ability examination all to have a disparate impact of female candidates. This assessment report was completed in December, 2000. They had made certain recommendations regarding the recruitment and selection process. The pass/fail physical ability examination continued until the year 2005 with primarily the same poor results by the female candidates. The same Colonel Dunbar, who had requested this outside organizational assessment, was the same individual responsible for replacing the long standing physical fitness entrance examination with a pass/fail test. This change was facilitated without any supported research or validation study being completed by the New Jersey State Police. This was another physical entrance test being utilized in a selection process without a proper validation study.

The assessment team had discovered that apparently otherwise qualified female candidates were being screened out of the physical ability portion of the selection process at an extremely high rate. The female candidates experienced a 26 percent passing rate while compared to the male candidates at 76 percent. These physical test results were representative of only the 119th New Jersey State Police Class. This study will examine this same pass/fail physical test at greater lengths by performing a longitudinal study of the Physical Qualification Tests conducted for the years 2003 and 2004. The point of a large law enforcement organization utilizing only a battery

of tests that have not been previously validated was expressed succinctly in the following excerpt from the 1999 Lonsway study in “Recruiting and Retaining Women: Self-Assessment Guide for Law Enforcement”:

When an employment test has such an adverse impact, the law requires the employer who uses the test to demonstrate that the test is both job-related to the position in question and consistent with business necessity. This requires the employer to retain experts, such as industrial psychologists, statisticians, and exercise physiologists, to perform scientific studies. These studies must demonstrate both that the characteristic being tested is important to the job, and that the cut off score being used on the test is appropriate. With respect to the latter, these studies must establish that the cut-off score measures the minimum amount of characteristic that is necessary for successful performance for the job. (p.67)

The New Jersey State Police must answer the pondering question; do the higher scores on the Physical Qualification Test predict a better performance on the job? There has presently not been any study recorded that would reflect such a relationship between physical agility and performance.

The leadership of the New Jersey State Police has the responsibility for providing the overall protection and services for the citizens of the State of New Jersey. This responsibility also involves the recruitment and selection of the most qualified candidates in providing these services. The United States Army has over time adapted its organizational culture and continues to address relevant problem within its ranks by ensuring the leadership component has embraced the adopted position. The

relevance of the leadership facilitating a cultural change has been previously discussed with regard to the Army. The Army comprehends that the organizational culture will not change without complete support from the leadership (Dorn & Graves, 2000). It is incumbent upon the leadership of the New Jersey State Police to adopt this same posture with executing any strategic planning or vision for the organization. The recruitment and selection of qualified candidates provides the backdrop for such future endeavors.

The utilization of sound leadership requires the timely use of organizational decision making and policy implementation. Senge (1995) is cognizant of a core learning dilemma in organizations: “We learn best from our experiences, but we never directly experience the consequences of many of our decisions” (p.37).

Organizations tend to violate one of our basic expectations: that cause and effect will be reasonably close to one another. When a problem is recognized it is expected that the solution is close by. In a complex system, cause may be nowhere near effect. Senge offers a system map or visual diagram that clarifies how a system will function. This type of structure will aid in the organization establishing goals and objectives. The members of the organization will be committed to the vision and perform at a higher level. This process can aid in improving the overall effectiveness of an organization without creating a more serious long-term problems. This type of organizational structure will serve to enhance the rationality of its decision-making process.

Dewey (1916) extols that an educational experience is one in which instruction is conveyed and an ability is increased. Dewey also exudes the fact of education as a

vehicle to provide mores and core values and eventually influence the decision-making process. There are many learning styles, which can be attributed in history to the educational experience. They all agree on the important role education plays in a democratic society. Education is perceived as the preserver and transmitter of a respective organizational culture. The established educational systems must exhibit the ability to pass on inherited views, and serve to apply core values and customs to a organization. Friere (1997) believed that education in a democratic society should help citizens develop the tools to participate actively in both the policy planning and decision- making within an organization.

Public Policy is the dynamic and value laden process which a political system handles a public problem. Power and education policy cannot be separated because the “play for power” shapes the outcome of the policy process (Lindbolm, 1968). A policy issue is a controversial proposal in which the political scientist Theodore Lowi (1964) introduced a way to classify public policy, by dividing it into four different policy arenas. In Lowi’s Typology of Public Policy, he tries to show that the type of policy you have will determine the type of politics that will be played out. Social groups disagree about the government’s interpretation of a problem.

It is imperative that the New Jersey State Police recruit and retain a police force that currently reflects the demographics of New Jersey. This agency has an obligation to serve the special interests of the citizens of this state. These interests will better be understood by the organization, if its members are representative of this same society. This requires the leadership of the New Jersey State Police to be cognizant of the importance of recruitment and selection of qualified candidates. The New Jersey

State Police will have to advance itself professionally if they are to compete for the large pool of qualified candidates. It is through strategic planning and policy implementation that this organization will address any concerns regarding the recruitment and retention of females.

The social climate of society has changed drastically over the years and this may require a change in some organizational structures within law enforcement. In 1968, Indianapolis Police Officers, Elizabeth Robinson and Betty Blankenship, were the first two females ever to be assigned to patrol in the same car. This had not occurred in any other law enforcement agency within the United States (NWCP, 2000). In 1972, Congress had expanded the Civil Rights Act to ban gender discrimination in public agencies, including police departments. The changes in law and the growing women's rights movement had prompted the first waves of interest in policing across the nation.

The New Jersey State Police had confronted this same recruitment and retention problem in 1975. The Department of Justice had become concerned with the low representation of both minority and female candidates. This caused the Department of Justice to file a complaint indicating that the New Jersey State Police had engaged in a pattern of discrimination. The end result being the New Jersey State Police entered into a Consent Decree in 1975. This actually coincided with the graduation of the first female trooper from the New Jersey State Police Academy (Coakley, 1971). The Consent Decree required the New Jersey State Police to make every effort to recruit and hire women as enlisted members, and to adopt interim and long term strategic plans for recruitment. In response the New Jersey State Police recruited, trained, and

graduated an all female academy class in 1980 (Coakley, 1971). There are approximately twenty-one members of this class, who remain active in the New Jersey State Police organization. The 1975 Consent Decree was dissolved on October 19, 1992, except for a Supplemental Order issued the same day (Department of Justice, 1992).

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Civil Rights Litigation

Under Title VII of the Civil Rights Acts of 1964 and the Civil Rights Act of 1991, an employer is required to demonstrate the business necessity of employment standards that have a legally significant disparate impact based on race, color, national origins, sex and/or religion. Consequently, each employment standard must be scrutinized to determine whether it has a potential disparate impact, and if so, whether the standard is a product of business necessity. It has been noted; business necessity is not a single, fixed standard. Instead, it is a judicial determination based on numerous factors. The severity of judicial scrutiny may vary from mild, for a procedure or standard that has a minor disparate impact and the satisfaction of which

is under control of an entity external to the employer, to severe, where the procedure or standard has an extreme disparate impact and relates to innate characteristics of candidates (Gaines & Kappler, 1992).

In 1971, *Griggs v. Duke Power Company*, African-American employees at a generating plant brought action against the requirement of holding a high school diploma or passing an intelligence test for conditions of employment, where it was not shown to measure job performance. The ruling by the U.S. Supreme Court stated that any such testing done for employment that may discriminate must be reasonably job-related and predict one's performance.

In 1976, in the litigation case involving *Washington v. Davis*, tests can only be validated when they are a predictive factor to one's job performance and are directly related to the job functions. A law enforcement agency must establish the job-relatedness validity of any testing that may exclude women or minorities.

In 1977, it was ruled that the current standards of using minimal height and weight requirements were found discriminatory under the 1964 Civil Rights Act in *Dothard v. Rawlinson*. Since this finding, the law enforcement agencies have relied on physical agility tests to replace these standards in the selection process.

In the 1997 *Powell v. Rena* decision, the District Court was dealing with a challenge by a man to the use of gender based fitness standards at the Federal Law Enforcement Training Center.

The following is the finding of the District Court:

Title VII allows employers to make distinctions based on undeniable physical differences between men and women. Physiologically-based policies 'where no greater burden of compliance was imposed on either sex' are permissible and non-discriminatory. More specifically, physical tests in which women are compared against women and men are compared against men do not discriminate against either sex.. Physically, the sexes are not similarly situated, inherent physiological differences, such as discrepancies in upper body strength and size, result in males and females of similar fitness levels performing differently on physical tests (p 57).

There have been numerous litigations designed to proffer the establishment of an absolute physical standard applicable for the law enforcement profession. The Civil Rights Act of 1991 prohibited the use of gender for adjusting or altering the scores on physical agility tests for employment. It is indisputable that men and women are different, and that the aging also brings physiological changes. The use of age and gender based physical performance standards are not supported by law or logic (Collingwood & Hoffman, 1998). In their study Collingwood and Hoffman (1998) further state, the relative importance of establishing the absolute standards for the law enforcement profession. The use of a single standard is only acceptable after a proper scientific validation study has been conducted for an individual law enforcement agency. If a determination is made that a job requires the performance of a particular function in fact, that job will not adjust to fit the particular person on the job. This will sharply reduce legal risks in this vitally important arena, it also goes far toward

assuring both fairness in employment practices and effectiveness in the performance of those important law enforcement and protective functions that are the reason for the very existence of the law enforcement profession. The conflicting factor with the establishment of a criterion for an absolute standard there has to be acceptance across the board from all law enforcement agencies on physical testing. This study will only serve to illuminate the enormity of the variances in physical entrance test being utilized by different law enforcement agencies in the United States.

When a law enforcement organization establishes a physical fitness entrance test for potential candidates, the leadership must be cognizant of the requirements imposed by Title VII of the Civil Rights Act of 1964 and by the Civil Rights Act of 1991. This federal legislation requires that all employers of more than 15 employees must refrain from policies and procedures that either expressly or effectively discriminates against specified categories of individuals except under limited circumstances. This law applies when a physical fitness entrance test limits the employment rights of a group protected under Title VII of the Civil Rights Act. They most notably apply when a particular physical fitness exercise has a disparate impact on female candidates when compared to how the same exercise affects male candidates (Brooks, 2001).

A law enforcement organization may decide to avoid these problems by avoiding a disparate impact on women. This can be accomplished by simply lowering the physical entrance tests scores until a point where few fail. This will not serve to enhance the candidates selected as a result of this physical entrance test. A second course of action would be to establish two sets of physical entrance requirements, one

for female candidates and one for their male counterparts. The establishment of such differences can be supported through the physiological differences of both men and women. This concept will raise a question of compliance with a federal statutory issue.

The Civil Rights Act of 1991, included a provision stating:

It shall be an unlawful employment practice...in connection with the selection or referral of applicants or candidates for employment or promotion, to adjust the scores of, [or] use different cutoff scores,...on the basis of race, color, religion, sex, or national origin." A male could challenge separate standards from the standpoint of being capable of meeting the female standards which is a direct reflection of the ability to perform the duties and responsibilities required in a law enforcement agency. This type of action reflects disparate treatment of a male candidate. Disparate treatment, like disparate impact, would only be permissible under the business necessity justification. The law enforcement organization choosing to prescribe two separate entrance test requirements for female and male candidates would be required to justify a specific business necessity. The law enforcement organization who chooses to use physical fitness standards for entrance requirements must be prepared to negotiate a veritable minefield of legal issues. These same physical entrance requirements will have to meet the federal statutory guidelines set forth in Title VII. The lack of proper organizational decision making and policy implementation may serve to lead the organization into a whirlwind of litigation (p.23).

The New Jersey State Police in selecting a physical standard should seek effective ones with the least disparate impact and that are defended most easily based on the factors discussed. Physical fitness tests frequently have a disparate impact on women. This would force the organization to demonstrate the business necessity of a prescribed physical test if it results only in a mild disparity and the events included closely replicate important physical tasks performed by police officers.

The utilization of any selection instrument or standard may result in a disparate impact based upon race, color, national origin, sex, and/or religion. It is essential that law enforcement, with professional assistance when necessary, scrutinize their departmental standards for any potential disparate impact. There are courts having recognized that employers who make personnel decisions that have an impact on public safety need greater latitude in establishing business necessity. Consequently, courts require less of a showing of business necessity where public safety hangs in the balance.

In this regard, the Third Circuit court stated:

When a job requires a small amount of skill and training and the consequences of hiring an unqualified applicant are insignificant, the courts should examine closely any pre-employment standard or criteria which discriminated against minorities. In such a case, the employer should have a heavy burden to demonstrate to the court's satisfaction that his employment criteria are job-related. On the other hand, when the job clearly requires a high degree of skill and the economic and human risks involved in hiring an

unqualified applicant are great, the employer bears a correspondingly lighter burden to show that his employment criteria are job-related (Lanning v Southeastern, 1999, p490-91).

Law enforcement agencies attempting to enforce physical fitness requirements similarly have been able to prove business necessity when using a test to evaluate physical performance that closely replicates physical tasks actually performed on the job. The utilization of abstract measures of fitness, such as push-ups, which do not obviously replicate on-the-job tasks, has been found by courts not to be a product of business necessity (Lanning v Southeastern, 1999).

Unfortunately for law enforcement managers, the physical tasks of a police officer are not as obvious as those of a firefighter and neither are they as broadly related to successful job performance. There have been creative approaches to replicating the physical demands of policing. Scientific proof of the relationship for law enforcement agencies using a selection standard that measures candidate ability in the abstract, such as a physical fitness test, will be required, if the standard produces a legally significant disparate impact. The agency will be required to present specialized physiological proof of business necessity due to the standards less direct or obvious relationship to successful job performance (Lanning v Southeastern, 1999).

The process by which this is done is known as formal validation. The formal validation process is complicated and usually expensive. In most instances, it comes with no guarantee of success. It is to the advantage of any law enforcement agencies

to consider carefully all available alternatives to physical fitness standards, because such standards likely will require a formal validation process.

The U.S. Supreme Court has described the requirement by stating: ...discriminatory tests are impermissible unless shown, by professionally accepted methods, to be 'predictive of or significantly correlated with important elements of work behavior which comprise or are relevant to the job or jobs for which candidates are being evaluated' (Title VII Civil Rights Act, 1991).

This has been expounded by the many litigation cases prompted by both the Title VII Civil Rights Act of 1964 and the Civil Rights Act of 1991. The responsibility lies within an organization to ensure a proper validated testing procedure is adopted prior to any recruitment and selection processes being initiated. All validation studies should be performed in accord with the Equal Employment Opportunity Commission Uniform Guidelines on Employee Selection Procedures. Such studies generally require the performance of a job-task analysis to identify and quantify important job behaviors, a professional assessment to determine what knowledge, skills, and abilities are required to perform successfully the important job behaviors, a selection of appropriate measurement devices to determine the degree to which candidates possess the requisite, and a statistical study to establish the relationship between scores on the proposed selection instruments and successful job performance.

Wilmore and Davis (1979) suggested a validation process for the adoption of any physical agility testing within a law enforcement organization should encompass the following procedures.

1. A complete review of any records to identify the critical essential job functions, injury reports, use of force reports, and the documentation of physical fitness programs.
2. This would be followed by a survey of a stratified random sample of officers to further refine the critical essential job functions. The selected participants would rate the frequency, conditions, and critical impact of their job performance. They would denote the physical demands required to fulfill these same job functions.
3. A review by subject matter experts consisting of first-line supervisors reviews the findings of the job task analysis. This panel will develop additional job-task scenarios to be utilized as a criterion measurement for the validation study.
4. The exercise physiologist team studies the list of critical job functions to determine which components of fitness are required to perform the tasks.
5. The team also constructs the valid measures of those core components of fitness.
6. A second stratified random sample of officers completes the job-task simulations developed, and the fitness test identified by the exercise physiologists.
7. The team records all the demographic information, test data, and survey responses to determine how realistic the scenarios are, and discuss the importance on non-compliance with any particular job function.
8. The team of experts performs a statistical analysis of correlations, multiple regressions, and sensitivity and specificity analyses. The impact on potential cut points on various sub-groups is determined for informational purposes.

9. The team will evaluate its findings based on previous experiences and applies an expert judgment to the statistical analyses prior to preparing a final report.

10. A final report is prepared and presented to the leadership of the organization.

In *Lanning v. Southeastern Pennsylvania Transportation Authority* the law enforcement agency was tasked in providing sufficient data to support a purported business necessity. The Third Circuit rejected an argument that the law enforcement agency's burden to justify a standard that causes a disparate impact on a protected group is lessened when the job involves public safety. The court reasoned that Congress had not intended a special distinction for all public safety jobs. There have been other courts recognizing that public safety is a consideration in determining what a business necessity is and what justifies a disparate impact. The problem with most of these cases is that they predate the 1991 Civil rights Act, which contained the language relied upon by the majority of the Third Circuit in ruling that there can be no special consideration of the public safety nature of the job.

Law enforcement agencies should be aware that Title VII is statutory, and not constitutional, law. The Supreme Court has ruled that for a governmental entity (the only type of entity restricted by the constitution) to discriminate under the equal protection clause of the Fourteenth Amendment, a plaintiff must prove intent to discriminate. The Title VII doctrine contains no requirement for proof of intent. This is a federal statute, and is subject to judicial interpretation and to revision by Congress. These same revisions also are subject to judicial interpretation. Most of these same Title VII standards have not been interpreted by the Supreme Court. The

federal circuit courts have continued to differ on what the definition of business necessity actually means. This presents law enforcement agencies with the burden of insuring that judicial interpretations and legislative revisions are monitored continuously. This places the utilization of a sound validation process at the forefront of the recruitment and selection process within a law enforcement agency. The intent of the law enforcement agency is to recruit and retain the most qualified candidates without attracting disparate impact litigations.

Any physical fitness standards are only subject to scrutiny under Title VII when they expressly discriminate against a protected group. If there is no obvious discrimination, a plaintiff has the burden of proving to a court that the physical fitness standard has the effect of discriminating against a protected group. Once a plaintiff has provided necessary proofs, the law enforcement agency has the burden to demonstrate that the physical standards are job related and consistent with an established business necessity. This provision was added in the Civil Rights Act of 1991 after the Supreme Court had ruled that the plaintiff, not the employer, has the burden of showing that a challenged standard both has a disparate impact and that the standard does not serve the legitimate recruitment goals of the agency. Congress, shifted the burden of proving the necessity of such a standard to the agency, and they have increased the standard by requiring a business necessity.

The Equal Employment Opportunity Commission has provided that a selection procedure that results in a protected group's selection rate of less than 80 percent of the group with the greatest success will be considered to have resulted in a disparate impact. While this is a significant issue in most disparate impact litigations, it usually

does not become an issue in challenges to physical fitness standards. In the Lanning case, for example, S.E.P.T.A. conceded that the 1.5 miles run in 12 minutes standard had a disparate impact on women. Physiology experts have concluded that most physical fitness tests legally will have a disparate impact on women due to the inherent physical differences between the sexes (Heyward, 2001).

Where a physical fitness standard has a disparate impact on women, the concern of the law enforcement agency becomes how to successfully justify the physical fitness standard under the statutory requirement. There has not been a true definition of what business necessity entails. The Third Circuit ruled in the Lanning case that this provision requires that an employer must show that the standard is a minimum standard necessary for the successful performance of the job in question (Brooks, 2001).

The Third Circuit in *Lanning V. S.E.P.T.A.* ruled that the public safety nature of a job will not change the Title VII requirement of establishing a legitimate business necessity. They believe that public safety in itself should not play a role in justifying a physical fitness standard as a business necessity. In the most recent Lanning District Court ruling, the court noted that SEPTA's studies had shown that SEPTA officers, who did not possess the aerobic capacity established for the applicants, had failed to make 470 arrests during the study period due to their inability to physically perform their job after running. The court noted the significant threat to public safety that resulted from these lost arrests in the transit system. The court also noted numerous SEPTA studies that showed that individuals who could meet the aerobic standard could perform the specific job tasks of a transit police officer. These jobs included

chasing criminal violators on foot, running to a request for officer backups and assists, and subduing subjects after running distances up to 3 blocks. In its conclusions of law, the court held that these tasks are the job of a SEPTA transit officer and failure to be able to perform them compromises the safety of the officer, other officers, and the public at large. The court ruled that this establishes that the aerobic capacity is a minimum trait necessary to perform this job (*Lanning v Southeastern*, 1999).

Regardless of what standard of business necessity is applied, a law enforcement agency is going to be required to show at least a significant relationship between the physical fitness requirement and the responsibilities of members of their department (*Collingwood et.al*, 1992). It is insufficient to simply claim that law enforcement is a physically demanding job and expect a court to uphold a physical standard that has a disparate impact on women. In *Lanning*, the S.E.P.T.A. Police Department had been forced to conduct at least seven studies justifying the 1.5 miles in 12 minutes standard. These studies were all conducted by outside experts, including physicians, physiologists, and statisticians and used both SEPTA personnel and others as subjects. The studies did not justify law enforcement physical requirements in general but, instead, only justified the S.E.P.T.A. standard as it related to that one department. The latest District Court ruling noted repeatedly that the job requirements of a S.E.P.T.A. officer were unique to that one department, even to the exclusion of other transit agencies. The strongest justification of the S.E.P.T.A. standard is the requirement that S.E.P.T.A. officers be able to run from one station to another to back up another officer. The S.E.P.T.A. studies noted that their officers are required to do

this on a monthly basis. Unless another agency can produce similar statistical evidence, the likelihood of justifying a similar physical standard under any business necessity requirement remains highly unlikely.

If an agency successfully justifies a pre-employment physical standard under the business necessity requirement, what is the effect of not requiring all incumbent personnel to meet the same standard? The Third Circuit in the Lanning case noted that S.E.P.T.A. mistakenly had hired a female officer in 1991 who failed to meet the 1.5 miles in 12 minutes standard. This officer later received several awards, was nominated for "Officer of the Year," and was selected as a defensive tactics instructor. The court insinuated that it found it difficult to understand how the 1.5 miles in 12 minutes standard is justified as a business necessity, if this officer is not only on the force, but performing at an exceptionally high level. The District Court, in its most recent ruling, rejected the plaintiff's argument in this area by simply noting that S.E.P.T.A. is unable to discipline onboard personnel, who fail to meet the standard due to its collective bargaining agreement. It remains to be seen if the Third Circuit will continue to accept this rationale under its strict business necessity standard (*Lanning v Southeastern*, 1999).

The New Jersey State Police have utilized a number of physical fitness standards for both the candidates on entrance and the incumbent members of the organization. These tests have been initiated after some preliminary testing and research but without a specific validation study. This was the main focus of the *Lanning v S.E.P.T.A.* case to have physical standards in place that reflect the minimum physical requirements for performance of the established job functions. The law enforcement

agency has the responsibility of providing the necessary proofs for defending the business necessity of the organization. This is not a one size fits all type of proposal. An individual template has to be established for each individual law enforcement agency (Wollack & Associates, 1992). The New Jersey State Police leadership would proffer from establishing a research study to ensure that the physical standards in place have been established in accordance with the organization's true "business necessity".

Physiological Gender Differences

The Civil Rights Act of 1964 and the Civil Rights Act 1991 have exhibited a dynamic influence on the law enforcement profession and subsequently the ability to recruit and retain qualified females. This has been a problem manifested by the inherent existing physiological differences between males and females. These same differences have fostered a problematic scenario for modern day law enforcement agencies. The "absolute standard" has been documented as exhibiting a disparate impact on females (NWCP, 2000).

Police officers vary greatly in their overall physical characteristics. Each individual body reacts differently to varying degrees of physical stress, and no two bodies will react exactly the same way to the same physical stress (Dywer & Davis, 2005). The leadership of a police agency must be cognizant of these same physiological differences if all candidates and incumbents of a law enforcement agency are to maximally benefit from an institutionalized physical training program. The leadership of a law enforcement agency must also be aware of the existing physiological differences between men and women. The leadership must require

equal efforts of both men and women during any training period. They must also realize that women have physiological limitations, which generally preclude equal performance. The following paragraph provides a descriptive narrative of the most important physical and physiological differences between men and women.

According to Shepard (1991), the typical woman is approximately 6 percent shorter than her male counterpart. The average 18- year-old man is 70.2 inches tall and weighs 144.8 pounds, whereas the average woman of the same age is 64.4 inches tall and weighs 126.6 pounds. This size difference will affect the absolute amount of physical work that can be performed by men and women. The male can have 50 percent greater total muscle mass, based on weight, than does a female. A female approximately the same physical stature as a male is generally only 80 percent as strong. The advantage generally captured by the males in strength, speed, and power over females.

A female will have less bone mass than men, but their pelvic structure is wider. The smaller stature of a female limits their efficiency of movement and ultimately effects their peak work rate for a given strength requirement (Knapick, 1994). This means that a small stature will affect both the ability to perform heavy tasks and the maximum aerobic power. The broader hip of the female results in loss off mechanical efficiency of movement, energy costs, and maximum aerobic output (Shepard, 2000). According to Mirkin & Shangold (1988), this will give the advantage of running more efficiently to a male.

The heart size is approximately 25 percent smaller than the average male's. This allows for the male's heart to pump a greater volume of blood with each pulse. The

larger heart size contributes to a slower resting heart rate (five to eight beats a minute slower) in a male (Shepard, 2000). This lower rate is evident both at rest and at any given level of sub maximal exercise. The smaller heart size of a female causes a faster heart rate and will constitute a female becoming fatigued sooner than a male. The lung capacity of men is 25 to 30 percent greater than that of women. This gives men still another advantage in the processing of oxygen and in doing aerobic work such as running. This taken into consideration with the 12 percent lower amount of hemoglobin in a female's blood, which correlates to approximately 10 percent less oxygen in each liter of blood. This could greatly impact the female's ability to perform work.

The comprehending of the physiological differences between females and males is the first step in planning both a physical entrance examination for a selection process involving perspective candidates and a physical maintenance regimen required for all incumbents of a police organization. The leadership of a law enforcement agency needs to understand and react to these same physiological differences. There may be some considerations given to a female candidate after a complete review of an existing physical fitness program or subsequent research is completed to initiate a new program. The leadership must establish a common sense type philosophy to properly recruit and retain qualified candidates for their respective organizations (International Association of the Chiefs of Police, 1998).

Physical Agility Testing

According to the New Jersey State Police First Annual Report 1921 – 1922, the original physical agility test had been initiated in 1921 and utilized in the first selection process. The only description of the physical agility test was the following: The physical examination followed the written examination with tests involving strength, agility, muscular coordination, shiftiness, endurance, and body structure, both bone and muscular. This examination was conducted under the supervision of one of the foremost physical directors of the East.

The physical agility was not described further in any other documentation of this time period. The foremost physical director of the East remained unnamed in this document, and there was no indication of a validation process being performed prior to the implementation of this physical agility test. The actual exercises performed during this physical agility test were also not delineated in this document.

The New Jersey State Police has modified its physical agility test over time without much documentation. This would appear to have multiple implications for this organization. The test was modified without establishing the necessary research to support the modifications, adopted prior to a validation study being conducted, and utilized with disregard of its true impact on any of the candidates. The lack of documentation available on this topic leads this researcher see a lack of formality with the leadership, decision making, and policy implementation processes of this organization. The politics of the time appears to have greatly influenced any subsequent modifications without a validity study by the New Jersey State Police.

The physical agility test utilized during the past three decades has only been modified by excising the shuttle run and adopting the 1.5 mile run for the 98th New Jersey State Police class in 1981. This physical test consisted of the following exercises, a shuttle run, push up, sit up, standing broad jump, vertical jump, pull up exercises, and a boxing match. The boxing match consisted of two minutes with someone having approximately the same body size. This component of the physical entrance test has since been removed since the 112th New Jersey State Police class. This physical test has been modified over time and there has been no validation study performed prior to implementation of these changes.

The scoring for this physical test reflected the current military standards utilized by the United States Army that delineates the physical test scores prorated according to gender and age (U S Army Regulation 350-41, 1993). The United States Army has conducted a plethora of studies illuminating the physiological differences between both age groups and gender. They have modified the subsequent scoring on physical fitness testing in light of the overall determinations reflected in these same studies. The New Jersey State Police utilized a different repetition score for males and females reflected in a percentage and assigned by gender. This type of scoring incorporated the known physiological differences between male and female candidates. The push up exercise and pull up exercises were performed in a modified position, and scoring percentages had different numbers assigned for males and females. The overall test score was derived from the average score achieved on each individual component of the test. This physical entrance test served to provide the

New Jersey State Police with sound physically fit candidates to compete in the selection process.

A survey conducted involving sixty-two police agencies to provide information regarding the physical agility testing protocol and representation of women within sworn personnel (NWCP, 1999). The results of this study reflect 89 percent utilize some form of physical agility testing for entry level selection. The study has illuminated a lack of agreement or standardization regarding the physical capabilities about both the physical tests and criteria used to evaluate successful performance.

There are certain essential law enforcement job functions that require a certain level of physical fitness. The components of physical fitness, cardiovascular endurance, muscular strength, muscular endurance, flexibility, anaerobic power, and body composition, underlie and predict the ability to perform the myriad of essential law enforcement tasks (Collingwood et. al, 1998). These measures of those same components of fitness are considered job related. In 1977 the Cooper Aerobic Institute conducted a general population survey on physical fitness. This study had involved approximately 30,000 respondents measuring physical performance and is generally accepted as representative of the United States population. These same physical fitness standards are utilized as a reference point when evaluating overall physical performance (Collingwood & Hoffman, 1995).

This same study was utilized by the Cooper Aerobic Institute in assessing the existing fitness level of police officers in the United States. The research study was initiated by a request from the International Association of Chiefs of Police. The sample population of this study was 203 random samples of incumbent police

officers. The results of the physical fitness test were compared to the national general population study previously completed by the Cooper Aerobic Institute (IACP, 1977).

The results were not flattering for the participating law enforcement agencies. The cardio respiratory endurance component and the percentage of body fat approached only the 25th percentile with 75 percent of the general population having scored higher. The 1.5 run time established by the Cooper Aerobic Institute at the twenty fifth percentile is 15:47. The body fat percentage at the same twenty fifth percentile is 24.6 percent. The upper body strength was in the 20th percentile, which has a total of 18 push ups being completed within one minute. The abdominal strength approached the 35th percentile that has 27 repetitions of sit ups being completed during a one minute time period. The final portion of this physical test was flexibility portion where the police officers were consistent at the 45th percentile. These figures in this study suggest that police officers tested during this period were fatter, weaker, and less stamina and flexibility then the general population they were charged with safeguarding (IACP, 1977).

This was a concerted effort to be in total compliance with Civil Rights Act of 1964. The loss of height and weight requirements as part of the selection process had led most law enforcement agencies to the adoption of physical fitness standards. This law established that single physical standards that require people who hold the same job to possess the same job requirements. The physical fitness requirements are job related and the single standards identified by the Cooper Aerobic Institute have been scientifically validated as job related and a business necessity, according to law.

The Uniform Guidelines for Employee Selection Tests (Title 29, 1978) clearly require that, to be valid, physical fitness tests, standards, and programs must be job related and consistent with business necessity. Without data to document that job-relatedness, case law indicates that physical fitness tests, standards, and programs are at risk. These tests and standards must be significantly correlated with, and predictive of, performing essential functions of the job. There is even more confusion as to how traditional measures of physical fitness, such as push-ups and sit-ups, can be underlying and predictive factors for the performance of those essential law enforcement job tasks.

Physical ability testing for law enforcement seeks to determine if an individual has the physical capacity to meet the basic physical demands of police work and therefore is physically suitable for employment as a police officer. If one lacks the physical ability to perform the physical work associated with the position it is unlikely they will be successful in the job. Physical fitness refers to the general ability of the body to perform physical work and still have a reserve. The proper use of the concept of physical fitness in law enforcement should mean reference to one's physical conditioning level to meet or exceed the physical demands of policing.

The bottom line, physical ability and physical fitness and health do not necessarily equate. But understanding their meanings and differences, however subtle, is important for developing sound physical fitness policy and programs that will improve job performance. The end result of failure to face the fitness problem becomes watered down, ineffective physical performance standards set at the level of the minimally capable. The police departments that have fitness policies and/or

standards that institutionalize mediocrity do a disservice to both the public and their members. The maintenance of physical fitness is ultimately a personal responsibility, embarrassing physical performance standards and laughable fitness policy is a clearly a leadership failure.

Hoover (1992) stated, currently police agencies are employing variants of three basic forms of physical ability testing: job simulation exercises, physical agility and/or stamina tests, and norm referenced physical fitness or "wellness" tests. Although job simulation exercises superficially appear most defensible, they lack benchmark standards of minimal performance levels. Physical agility tests can be administered more economically, safely, and conveniently, but generally have substantial adverse impact. Norm referenced wellness tests are gaining in popularity because they solve some of the problems of both simulation exercises and physical agility tests, but are probably least defensible as directly job related. A dominant methodology has yet to emerge from either usage or court decisions.

The following test standards have been scientifically validated as job related by Thomas & Means and Associates through a study conducted for Utah Risk Management Assessment (URMMA) (Collingwood & Hoffman, 1998). Collingwood and Hoffman (1998), who had previously been practicing members of the Cooper Aerobic Research Institute, conducted this study. The exercise components mimic the established Cooper fitness test, but the resulting standards have been drastically modified. The Cooper Institute had recommended the single absolute standard of 12 minutes to complete a 1.5 mile run. This study had established a time of 15:54

minutes for the same 1.5 mile run. The “Single Standard Fitness Norms for Law Enforcement”, published by Cooper Institute places this same run time in the 25th percentile of fitness. The ability of the candidate to complete single bench press at the ratio of .75 is listed at the 15th percentile. The recommended 25 push ups are listed at the 35th percentile. The 35 required sit ups illustrate the 65th percentile ranking. This is only one validation study conducted by disciples of the Cooper Aerobic Research Institute for the State of Utah law enforcement agencies. There are drastic discrepancies depicted in this study’s findings, in comparison against the absolute standards of the Cooper law enforcement fitness “single standard” norms. This type of large variance in study results typifies the physical agility test standardization problems illuminated by law enforcement agencies throughout the United States.

The following State Police agencies incorporate the exact physical entrance examination exercise components as those utilized by the New Jersey State Police. These same departments vary greatly in the established standards associated with these same exercises. This data was retrieved from the USA – State Police Physical Fitness Standards for New Recruits that has links to every State Police agency in the nation. The following list is a compilation of these law enforcement agencies and their associated physical standards:

Table I

State Police Agency	Push Ups		Sit Ups		1.5 mile Run	
	Female	Male	Female	Male	Female	Male
Connecticut	23	29	32	38	14:49	12:25
Delaware	17	22	24	33	16:11	13:53
Maryland	18	18	27	27	15:20	15:20
Michigan	7	30	28	32	15:45	13:30
Montana	18	33	34	40	14:55	12:12
New York	23	41	41	45	13:53	12:47
South Dakota	20	27	35	39	14:30	12:01
South Carolina	7	22	26	30	16:00	14:00
Utah	9	30	32	38	14:25	12:15
Vermont	25	33	35	40	14:25	12:15
West Virginia	27	27	29	29	14:52	14:52

The previous table would lead this researcher not to believe in the existence of an “absolute standard” for all law enforcement agencies. There are far too many variances in the physical standards noted in this compilation of measurements utilized by other state police agencies. The original physical fitness research had been conducted for law enforcement, as previously noted, in 1977 by the Cooper Aerobic Research Institute. There have been great advances in medical science, exercise physiology, and an increased importance placed on the value of maintaining a physical fitness program. This illumination of physical fitness has not brought with it

a standard measurement to test for physical capability to perform the law enforcement function. The variance seen in above listed table denotes this fact quite well. The duties and responsibilities of all state police agencies should require the same physical fitness standards and capabilities. Their functions of mainly highway and interstate law enforcement duties and responsibilities are similar throughout the United States. The United State law enforcement agencies should not have been allowed to procrastinate for some 37 years toward establishing a standardized physical fitness standard.

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

This study was designed in such a manner as to first explore the historical components of the physical fitness standards within the law enforcement profession. This historical component will be the core component of the Chapter II, Literature Review. An in depth analysis of pertinent physical fitness studies will comprise the body of this chapter. This will allow for a complete understanding of the myriad of fitness standards that currently exist in law enforcement. These studies cover an extended period of time and the changes associated with police physical testing are numerous. The historical perspective will aid in synthesizing the information received from reviewing the current data.

The State Police Bill (Laws of New Jersey, 1921) legislated that the United States Army rank structure, and their written and physical testing measures, would be adopted and to be established as the base line requirements for the New Jersey State Police. The State Police Bill further dictated that the first Superintendent and his staff would have to be United States Army officers. The paramilitary posture of the New Jersey State Police was not an accidental occurrence. The military has experienced the same societal changes as law enforcement over this period of time. They have adapted and modified their Army Physical Fitness Training (APFT), which has allowed them to advance the recruitment and selection of women into the Army. The

Army has compiled extensive scientific research regarding physiology and has subsequently implemented changes to the physical fitness testing as a direct result of these same studies. The posture of the United States Army is codified in U S Army Field Manual 21-20 (1998) by indicating any change to the Army will only occur if the leadership supports the initiative. This is an important perspective for any organization to adopt as their mantra. The New Jersey State Police will be examined for any initiatives or supportive measure towards the recruitment and selection of qualified females into their organization.

There has been extensive litigation as a direct result of Title VII Civil Rights Act of 1964 and the Civil Rights Act of 1991 with respect to disparate impact claims against law enforcement organizations. A focused look at these high profile litigation cases will allow for a sense of commitment by law enforcement agencies to comply with these same legal standards. The Civil Rights Act of 1964 had illuminated a disparate impact through the established height and weight standards of law enforcement agencies. The abolishment of these same height and weight standards had led to the adoption of physical fitness standards as the exclusionary part of the selection process.

This chapter will serve to identify the subjects, materials, and processes utilized to facilitate this research study. The data research instruments, sources of data, conduct of the study, and all other techniques for discovering any findings have been included in this chapter. These subjects, materials, and processes will be aligned for each respective research or subsidiary questions delineated in Chapter I.

The following is a list of the research questions created to answer the substantive questions of this research study. They will be denoted throughout this Chapter and associated with the methodology utilized to properly answer each respective question.

Primary Research Question

To what extent, does the New Jersey State Police entrance physical agility test exhibit a disparate impact on qualified female candidates?

Data Sources

The data source involved in this portion of the study will be a historical review of all the candidates recorded that have participated in the New Jersey State Police physical qualification test during the 2003 and 2004 calendar years.

Materials

This will be a quantitative longitudinal research study of the physical entrance tests previously administered by the New Jersey State Police. A set of observations where any single observation is a number that represents an amount or a count is defined as quantitative data (Witte, 2001). The data analyzed will be specific for the entrance tests administered to all New Jersey State Police candidates during the calendar years 2003 and 2004. This information will be obtained from the files maintained by the Recruiting Unit, New Jersey State Police. The Recruiting Unit is the main control over the recruitment and selection process. They are charged with the responsibility for scheduling, recruiting, cataloging, and maintaining a central repository for all documents regarding perspective candidates. This central repository is located at the New Jersey State Police Division Headquarters, West Trenton, New

Jersey. A letter of introduction provided to Colonel Joseph R. Fuentes, New Jersey State Police, describing the essential portion of this doctoral study, which will facilitate the retrieval of these same documents.

The specific information garnered from each of the aforementioned physical fitness entrance tests will be the candidate's name, gender, and their accompanying test scores. The physical entrance test established during this time frame was comprised of three major components. This test consisted of the push up exercise, followed by the sit up exercise, and completed by the candidate participating in a one and half mile run. The components of this test are completed in the order previously stipulated in this paragraph. This is a pass/fail entrance fitness test and a candidate failing to complete the established standard during any part of this test will immediately be disqualified from the selection process. Any conclusions drawn from this research study will be the direct result of raw data provided by the Recruiting Unit, New Jersey State Police.

The results of all candidates participating in the physical entrance test will provide the data for this study. The hypothesis of this research study infers that the physical entrance test utilized by the New Jersey State Police during this time period could have exhibited a disparate impact on the otherwise qualified female candidates. The results of the number of repetitions completed by all candidates will be compared across gender lines. The male and female candidates will be compared for number of repetitions in the two exercises and time in the endurance run. The differences gleaned from all three exercises will be compared for any significant variances between the male and female candidates. The gender variances depicted as a result of

this analysis will be the central focus of this study. The purpose of this study is to investigate the validity of the physical entrance test utilized during this time period by the New Jersey State Police.

Procedures

The t test for two independent samples will be utilized to determine any significant differences between the male and female candidates. The t test for two independent samples is defined as, a test to determine whether the difference between sample means qualifies as a common or rare outcome, given the two samples are independent (Witte & Witte, 2001). The occurrence in one sample is not paired, on a one to one basis, with observations in the other sample. This statistical test was chosen to examine the comparison between the male and female candidates. The quantitative data representing the number of repetitions completed by both the male and female candidates will be analyzed for any statistical variance. This process will be completed for each of the three physical entrance test components utilized by the New Jersey State Police. The pushup and sit up exercises, and the endurance run time will be independently compared for both the female and male candidates. A SPSS computer program will be the core component for establishing any variance between the male and female data (Witte & Witte, 2001). The raw data for all male candidates will be assigned a 1 code, and the female candidates will be assigned a 2 code. The results of this t test for two independent samples will be illustrated in an associated print out providing the number in each gender sample, a comparison of the means, and a p value for each exercise in each of the three years involved in this research study.

The utilization of descriptive statistics in this research study will serve to illustrate and organize the physical testing data retrieved from the Recruiting Unit, New Jersey State Police. A histogram will be utilized to provide a visual side by side comparison of the raw data documented from the New Jersey State Police physical entrance examinations. This will aid in the ability to graphically demonstrate any apparent differences between the gender representations.

Subsidiary Question #1

This subsidiary question was formulated to further study the impact this physical qualification test could have on otherwise qualified female candidates. How would this same pass/fail physical qualification test have the 118th New Jersey State Police classes? The following methodology will be associated with discovering the relevance of posing this particular question.

Data Sources

The data source for this portion of the analysis will be the members of the 118th State Police Class. This data will be utilized for a comparative perspective in relation to the established pass/fail physical qualification entrance test standards.

Materials

The results of the t test for two independent samples and all the raw data gleaned from the physical entrance tests for the New Jersey State Police will be compared to the 118th New Jersey State Police Class.

Procedures

The 118th State Police Class was required to complete the following events in sequential order, push up, sit ups, standing broad jump, vertical jump, pull ups (females modified back position), and a 1.5 mile run. These events were scored differently according to gender differences, and the scores in each of the individual events were totaled and an average score determined the candidate's pass/fail physical test score. The New Jersey State Police utilized this same physical entrance test since the 98th State Police Class when the 1.5-mile endurance run replaced a twenty-five yard shuttle run.

The data gleaned from the New Jersey State Police candidates participating in the physical qualification test will be compared specifically against the number of repetitions in the push up and sit up exercises and the times in the endurance run. The comparison will be conducted against the physical agility scores of those members of the 118th New Jersey State Police class. A direct comparison to this class will allow for the determination first whether these individuals would have qualified in the current test. The second being, if they would not have qualified in today's physical test, and have experienced a stellar career in the New Jersey State Police, a hard look at the pass/fail physical test requirement is mandated.

Subsidiary Question #2

There is a strong similarity established in both Chapter I and II with respect the New Jersey State Police and the United States Army. How would the results of this same two-year longitudinal study differ by applying the physical testing standards of the United States Army?

The New Jersey State Police was derived from the standards and structure of the United States Army. The question arises regarding the ability of the United States Army to maintain approximately a 15 percent female enlistment status. The United States Army has fully integrated their military police units, and as noted in Chapter II performed well in combat scenarios. The New Jersey State Police of female enlisted members is currently at approximately 2 percent.

Data Sources

The data source required to facilitate this portion of the study will be all the candidates documented that have participated in the New Jersey State Police physical qualification test during the time period of 2003 and 2004 calendar years.

Materials

The results of the t test for two independent samples and all the raw data gleaned from the physical entrance tests for the New Jersey State Police will be compared to the physical standards established by the United States Army Physical Fitness Test (APFT).

Procedures

The United States Army Physical Fitness Test (APFT) standards will be compared against the data garnered from the New Jersey State Police physical entrance pass/fail test. This will give a sharper perspective of those differences occurring when the physical standards utilized address the inherent physiological gender differences. A comparison against the established standards for the United States Army to determine if those individuals participating in the New Jersey State Police physical fitness entrance test would have been qualified for enlistment in the military. This will allow

for some dialogue of any differences in the ability to recruit and retain candidates within the New Jersey State Police.

The data gleaned from the New Jersey State Police candidates will be compared specifically against the number of repetitions in the push up and sit up exercises and the times in the endurance run. A direct comparison to the APFT standards class will allow for the determination first whether these individuals would have qualified in the current test. The second being, if they would not have qualified in today's physical test, and have experienced a career in the New Jersey State Police, a hard look at the pass/fail physical test requirement is mandated. The 118th State Police Class was required to complete the following events in sequential order, push up, sit ups, standing broad jump, vertical jump, pull ups (females modified back position), and a 1.5 mile run. These events were scored differently according to gender differences, and the scores in each of the individual events were totaled and an average score determined the candidate's pass/fail physical test score. This physical entrance test has been utilized by the New Jersey State Police until the 98th State Police Class when the mile and half endurance run replaced the twenty-fiver yard shuttle run.

Any State Police class prior to the 119th State Police Class and up until the 98th State Police Class had experienced an overall physical fitness entrance test that consisted of six exercises completed in sequential order. The components of this test were push ups, sit ups, pull ups, standing broad jump, vertical jump, and a mile and half endurance run.

Subsidiary Question #3

The final subsidiary question, what have been the involvement of the leadership, policy, and the organizational decision making processes of the New Jersey State Police in modifying their physical entrance test? This question will require a complete historical review of all the formal processes and studies delineated in the Chapter II literature review.

The answer to this question will be denoted either by the adoption of a formal policy implementation process or the lack of one by the New Jersey State Police. The historical documentation gleaned through the research process will allow this researcher to examine all pertinent documents regarding the adoption of a physical standard for this organization. The actual selection process associated with the adoption of a physical standard will serve as the snap shot to illuminate the respective processes utilized by the New Jersey State Police. The supporting documentation depicting the leadership roles associated with both the organizational decision making and policy implementation process will present the necessary information to properly evaluate and synthesize this same information.

Summary

The findings gleaned from this study will be discussed in conjunction with the Literature Review delineated in Chapter II. The utilization of Bloom's Taxonomy (1954) in synthesizing and analyzing all pertinent data garnered through this research process will ultimately proffer the New Jersey State Police. The ability of an organization to address critical issues in a timely manner serves to increase its

capability to perform. All critical issues of law enforcement are associated to public safety concerns and require proper consideration.

The importance of supported research and data driven organizational decisions will be illuminated in this study. An adoption of a formal process for policy implementation within the New Jersey State Police would serve to provide the necessary organizational oversight. The specific selection of a research question addressing the disparate impact on female candidates was chosen to provide a snapshot view of the organizational processes currently relied upon within the New Jersey State Police. The findings of this study are important to New Jersey State Police in providing the most qualified candidates to serve the citizens of the State of New Jersey. Any fundamental recruitment problems for the New Jersey State Police will affect the future of this organization.

The findings of this study will be presented in a clear concise manner to provide the reader with the ability to retrospectively analyze both the current study data and all relevant prior research on the same aforementioned topics. The succinct delivery of this information will allow for initiating pertinent dialogue on the adoption of a formal decision-making and policy implementation process to serve needs of the New Jersey State Police. The formal process will be the theme in the conclusions and recommendations section of Chapter V.

CHAPTER IV

DATA ANALYSIS

Introduction

The purpose of this chapter is to illustrate the findings of this research study through the quantitative analysis of the statistical information on the data presented in connection with this same study. The systematic examination of the research question and the subsidiary questions will dictate the structure utilized to present the data analysis in this chapter. The methodology employed to analyze the presented data of this chapter has been succinctly delineated in Chapter III.

The data utilized in this research study was captured from the physical qualification test in an archive file maintained by the New Jersey State Police, Recruiting Unit. All the candidates participating in the physical qualification tests for the 2003 and 2004 calendar years were examined for any variances in pass/fail for both the males and females. This will be a longitudinal study that will examine each year separately to determine any major differences in the passing rates of both the male and female candidates. This longitudinal study will examine the two individual parts of this pass/fail physical qualification examination with each respective component compared for variances between the male and female candidates. The ultimate result of this type of comparison will serve to illuminate any statistical differences between the male and female candidates.

The hypothesis in this research study infers that the established physical qualification test utilized by the New Jersey State Police has a disparate impact on the potential female candidates. Any conclusions will be reserved for the completed analysis associated with the examination of the captured data. The results of the total number of repetitions completed by the male and female candidates in both the push up and sit up exercises will be subject to comparison. The data analysis results are anticipated to illuminate that the female candidates complete significantly less push up repetitions compared to the male candidates. The sit up exercise repetitions should show no statistical significance in the comparison of the both the male and female candidates.

The null hypothesis of this research study is that the physical qualification test exhibits no disparate impact on the potential female candidates. This hypothesis will also be demonstrated through the aforementioned comparison of the repetitions completed on the push up and sit up exercises. The results of these two comparisons should show no statistical significance for both the male and female candidates.

The t test for two independent samples will be utilized to determine any significant differences between both the male and female candidates. This test was chosen due to the comparison of both male and female candidates in the same exercise. The t test will provide any significant variance in the results of the male candidates as compared to the female candidates. The data retrieved will illustrate the average number of completed repetitions by both the male and female candidates in both the push up and sit up exercises will undergo analysis. The t test results should aid in the determining if the push up exercise exhibits a disparate impact on the otherwise

qualified female candidates. The inference in this research study has been that females possess approximately 50 percent less upper body strength, and this strength difference directly impacts their performance in the push up exercise. The fact of this same push up exercise being utilized as part of a pass/fail physical entrance test is detrimental to the efforts of female recruitment for the New Jersey State Police.

The following is a list of the research questions created to answer the substantive questions of this research study. They will be denoted throughout this chapter and specifically associated with the existing data utilized to properly examine each respective question.

Primary Research Question

To what extent, does the New Jersey State Police entrance physical agility test exhibit a disparate impact on qualified female candidates?

The t test for independent samples was utilized to test for variance between both the male and female candidates participating in the physical qualification test during the 2003 and 2004 calendar years. The t test is a set of techniques that allow us to determine if two means differ statistically and substantively from each other. The key concepts that will be examined in each of the following tables are the means, standard deviations, T value, and the significance level.

This research study relied on data captured from the archives maintained by the Recruiting Unit, New Jersey State Police. This physical qualification test was chosen to demonstrate the impact of the pass/fail push up exercise on the recruitment of female candidates. The result of comparing this data will illuminate any statistical significance between the male and female candidates.

The null hypothesis of this case study for the physical qualification test is that this pass/fail entrance test has no disparate impact on potential female candidates. The push up and sit up exercise in the pass/fail physical qualification test will be examined for the 2003 and 2004 calendar years. This t test will be specifically testing the means of differences in both the males and female exercise repetition scores.

TABLE 2

T-Test (Female vs. Male)

Group Statistics					
	gender	N	Mean	Std. Deviation	Std. Error Mean
pushreps	Female	168	19.28	12.432	.959
	Male	2245	30.54	4.472	.094
sureps	Female	168	30.17	9.466	.730
	Male	2245	32.88	4.996	.105

The results of the SPSS output in Table 2, reflects the comparison of the means for two mutually exclusive groups males/females in both the push up and sit up exercises.

TABLE 3

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
pushreps	Equal variances assumed	759.067	.000	-26.001	2411	.000	-11.261	.433
	Equal variances not assumed			-11.684	170.248	.000	-11.261	.964
sureps	Equal variances assumed	109.646	.000	-6.248	2411	.000	-2.712	.434
	Equal variances not assumed			-3.675	174.028	.000	-2.712	.738

The t test revealed the following information for the push up exercise. The female sample group encompassed a total of 168 with a mean score of 19.28 and a Standard of Deviation of 12.432. The male sample group presented had a total number of 2245 with a Mean score of 30.54, and a Standard Deviation of 4.472. The t score was -11.684 and the test is statistically significant at .000.

The f value of 759.067 is significant in the Levene's Test for Equality of Variances at a significant level of .000. The rule would dictate to utilize the equal variances not assumed for interpreting this SPSS output. The Null Hypothesis that the push up exercise has illustrated no disparate impact on female candidates is rejected.

The mean difference between the female and male candidates in push up repetitions is a total of 11.26. The physiological gender differences have been previously discussed in Chapter II of this research study. This independent t test has graphically displayed the established gender differences between males and females. The utilization of the push up exercise as a component in a pass/fail physical qualification test is statistically significant at a value of .000. This t test has illuminated the push up exercise as having a profound disparate impact on potential female candidates.

The illustration of statistical significance is not to be assumed as being the same as effect. The statistical significance merely indicates that the null hypothesis is probably false. It is not an indicator of whether the hypothesis is false because of a huge difference between population means or due to a slight difference between population means (Witte & Witte, 2001). The statistical significance that lacks importance is often caused by utilization of large sample sizes. The 2003 and 2004 physical qualification test consisted of 7 percent female and 93 percent male candidates. A check for effect will be necessitated utilizing the squared point biserial correlation coefficient. The proportion of explained variance formula was utilized to determine the squared point biserial coefficient of .44. The Cohen's guidelines for effect size suggest the following parameters in judging effect size. The .44 level for the push up exercise is far above the listed .14 value for a large effect size in Cohen's guidelines. The significance of the mean difference between male and female candidates can be interpreted as being not only statistically significant but also important.

The t test revealed the following information for the sit up exercise. The female sample group encompassed a total of 168 with a mean score of 30.17 and a Standard of Deviation of 9.466. The male sample group presented had a total number of 2245 with a Mean score of 32.88, and a Standard Deviation of 4.996. The t score was – 3.675 and the test is statistically significant at .000. The degrees of freedom were reported as 174.028.

The f value of 109.646 is significant in the Levene's Test for Equality of Variances at a significant level of 000. The rule would dictate to utilize the equal variances not assumed for interpreting this SPSS output. The sit up exercise in the physical qualification test is statistically significant at a value of .000. This specific exercise has indicated a significance in the means increase by females in the sit up exercise from the 2003 year to the 2004.

The proportion of explained variance formula was utilized to determine the squared point biserial coefficient of .07. The Cohen's guidelines for effect size suggest the following parameters in judging effect size. The .07 level for the sit up exercise is slightly above the listed .06 value for a medium effect size in Cohen's guidelines.

TABLE 4

T-Test (Year comparison – All)

Group Statistics					
	year	N	Mean	Std. Deviation	Std. Error Mean
pushreps	2003	1379	29.11	7.124	.192
	2004	1034	30.62	4.316	.134
sureps	2003	1379	32.57	5.891	.159
	2004	1034	32.87	4.845	.151

The results of the SPSS output in Table 4, reflect the comparison of the means for two mutually exclusive years 2003 and 2004 in both the push up and sit up exercises.

TABLE 5

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
pushreps	Equal variances assumed	119.717	.000	-6.010	2411	.000	-1.504	.250
	Equal variances not assumed			-6.422	2316.816	.000	-1.504	.234
sureps	Equal variances assumed	6.930	.009	-1.324	2411	.186	-.298	.225
	Equal variances not assumed			-1.361	2390.490	.174	-.298	.219

The t test revealed the following information for the push up exercise. The 2003 sample group encompassed a total of 1379 with a mean score of 29.11 and a Standard of Deviation of 7.12. The 2004 sample group presented had a total number of 2245 with a Mean score of 30.62, and a Standard Deviation of 4.316. The t score was – 6.422 and the test is statistically significant at .000. The degrees of freedom were reported as 2316.816.

The f value of 119.717 is significant in the Levene's Test for Equality of Variances at a significant level of .000. The rule would dictate to utilize the equal variances not assumed for interpreting this SPSS output. The statistical significance of the mean differences for the push up exercise between 2003 and 2004 that has been documented in the SPSS output at a significance level of .000. This significance could be attributed to the Pre-Employment Preparation Program (PEPP) utilized by the New Jersey State Police, Training Bureau. This is a voluntary program that attracts a majority of the candidates in the selection process. The program is multi-faceted with a strong physical fitness component.

The proportion of explained variance formula was utilized to determine the squared point biserial coefficient of .01. The Cohen's guidelines for effect size suggest the following parameters in judging effect size. The .01 level for the push up exercise is equal to the listed .01 value for a small effect size in Cohen's guidelines. This would be judged to be small and could lack effect.

The t test revealed the following information for the sit up exercise. The 2003 sample group encompassed a total of 1379 with a mean score of 32.57 and a Standard of Deviation of 5.891. The 2004 sample group presented had a total number of 1034 with a Mean score of 32.87, and a Standard Deviation of 4.845. The t score was -1.361 and the test is statistically significant at .009. The degrees of freedom were reported as 2390.490.

The f value of 6.930 is significant in the Levene's Test for Equality of Variances at a significant level of .009. The rule would dictate to utilize the equal variances not assumed for interpreting this SPSS output. The sit up exercise in the physical qualification test is statistically significant at a value of .000. This specific exercise has indicated a significance in the means increase by all candidates in the sit up exercise from the 2003 to the 2004 calendar year.

The proportion of explained variance formula was utilized to determine the squared point biserial coefficient of .00. The Cohen's guidelines for effect size suggest the following parameters in judging an effect size. The .00 level for the sit up exercise is below the listed .01 value for a small effect size in Cohen's guidelines. This value may have some statistical significance but it could lack effect in this study. The gain by the female candidates in the sit up exercise is statistically significant at .009 but the effect size does not match the minimum for Cohen's guidelines.

TABLE 6

T-Test (Year comparison – Female)

Group Statistics					
	year	N	Mean	Std. Deviation	Std. Error Mean
pushreps	2003	93	14.35	12.599	1.306
	2004	75	25.39	9.121	1.053
sureps	2003	93	28.91	10.928	1.133
	2004	75	31.73	7.020	.811

The result of the SPSS output in Table 6, reflects the comparison of the means for two mutually exclusive groups females/2003 and females/2004 in both the push up and sit up exercises.

TABLE 7

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
pushreps	Equal variances assumed	22.599	.000	-6.356	166	.000	-11.032	1.736
	Equal variances not assumed			-6.574	164.210	.000	-11.032	1.678
sureps	Equal variances assumed	11.262	.001	-1.935	166	.055	-2.819	1.457
	Equal variances not assumed			-2.024	158.608	.045	-2.819	1.393

The t test revealed the following information for the push up exercise. The 2003/females sample group encompassed a total of 93 with a mean score of 14.35 and a Standard of Deviation of 12.599. The 2004/female sample group presented had a total number of 75 with a Mean score of 25.39, and a Standard Deviation of 9.121. The t score was – 6.574 and the test is statistically significant at .000. The degrees of freedom were reported as 164.210.

The f value of 22.599 is significant in the Levene's Test for Equality of Variances at a significant level of 000. The rule would dictate to utilize the equal variances not assumed for interpreting this SPSS output. The increase in the mean difference for the push up exercise between 2003 and 2004 is statistically significant at a significance level of .000. The female candidates have improved notably in one year and as previously noted in Table 4, the PEPP program could be the contributing factor for this notable repetition increase by the female candidates.

The proportion of explained variance formula was utilized to determine the squared point biserial coefficient of .20. The Cohen's guidelines for effect size suggest the following parameters in judging effect size. The .20 level for the push up exercise exceeds the large effect threshold of .14 listed value for a large effect size in Cohen's guidelines. This would be judged to be large and would be considered relevant to this research study.

The t test revealed the following information for the sit up exercise. The 2003/females sample group encompassed a total of 93 with a Mean score of 28.91 and a Standard of Deviation of 10.928. The 2004/female sample group presented had a total number of 75 with a Mean score of 31.73, and a Standard Deviation of 7.020. The t score was -2.024 and the test is statistically significant at .045. The degrees of freedom were reported as 158.608.

The f value of 11.262 is significant in the Levene's Test for Equality of Variances at a significant level of 000. The rule would dictate to utilize the equal variances not assumed for interpreting this SPSS output. The sit up exercise in the physical

qualification test is statistically significant at a value of .045. This specific exercise has indicated a significance in the means increase by females in the sit up exercise from the 2003 year to the 2004.

The proportion of explained variance formula was utilized to determine the squared point biserial coefficient of .20. The Cohen's guidelines for effect size suggest the following parameters in judging effect size. The .02 level for the sit up exercise is slightly larger than the small effect threshold of .01 listed value for a small effect size in Cohen's guidelines. This would be judged to be small and could be considered non-relevant to this research study. The point to be expressed is that in a pass/fail physical test an increase in the mean score of approximately two additional repetitions in a particular exercise shows good improvement.

TABLE 8

T-Test (Year comparison – Male)

Group Statistics					
	year	N	Mean	Std. Deviation	Std. Error Mean
pushreps	2003	1286	30.18	5.114	.143
	2004	959	31.03	3.370	.109
sureps	2003	1286	32.83	5.256	.147
	2004	959	32.95	4.626	.149

The result of the SPSS output in Table 8, reflects the comparison of the means for two mutually exclusive groups males/2003 and males/2004 in both the push up and sit up exercises.

TABLE 9

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				Std. Error Difference
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	
pushreps	Equal variances assumed	64.738	.000	-4.449	2243	.000	-.845	.190
	Equal variances not assumed			-4.713	2211.379	.000	-.845	.179
sureps	Equal variances assumed	1.517	.218	-.573	2243	.567	-.122	.213
	Equal variances not assumed			-.583	2182.478	.560	-.122	.209

The t test revealed the following information for the push up exercise. . The 2003/Male sample group encompassed a total of 1286 with a Mean score of 30.18, and a Standard of Deviation of 5.144. The 2004/Male sample group presented had a total number of 959 with a Mean score of 31.03, and a Standard Deviation of 3.370. The t score was – 4.713 and the test is statistically significant at .000. The degrees of freedom were reported as 2211.379.

The f value of 64.738 is significant in the Levene's Test for Equality of Variances at a significance level of .000. The rule established would dictate to utilize the equal variances not assumed for interpreting this SPSS output. The increase in the mean

difference for the push up exercise between 2003 and 2004 is statistically significant at a significance level of .000. The male candidates have improved slightly in one year and as previously noted in Table 5, the PEPP program could be the contributing factor for this repetition increase by the male candidates.

The proportion of explained variance formula was utilized to determine the squared point biserial coefficient of .00. The Cohen's guidelines for effect size suggest the following parameters in judging effect size. The .00 level for the push up exercise is smaller than the small effect threshold of .01 listed value for a small effect size in Cohen's guidelines. This would be judged to be small and could be considered non-relevant to this research study. The large population of this t test has reflected a small change as statistically significant, but Cohen's guideline has placed little effect for this research study.

The t test revealed the following information for the sit up exercise. The 2003/Male sample group encompassed a total of 1286 with a Mean score of 32.83, and a Standard of Deviation of 5.256. The 2004/Male sample group presented had a total number of 959 with a Mean score of 32.95, and a Standard Deviation of 4.626. The t score was $-.573$ and the test was not statistically significant at .567. The degrees of freedom were reported as 2243.

The f value of 1.517 is not statistically significant in the Levene's Test for Equality of Variances at a significant level of .218. The rule would dictate to utilize the equal variances assumed for interpreting this SPSS output. The sit up exercise in the physical qualification test is not statistically significant at a value of .567. This would serve to document no significant improvement by the male candidates in the sit

up exercise from 2003 to 2004 calendar years. This physical qualification test is a pass/fail test and the candidate is stopped at the 34 repetition cut off point for this particular exercise. This would limit the data on gauging the actual increases for the candidates taking this test.

TABLE 10

Frequencies (All)

		Statistics	
		pushreps	sureps
N	Valid	2413	2413
	Missing	0	0
Mean		29.76	32.70
Std. Deviation		6.126	5.468
Minimum		0	0
Maximum		32	35

TABLE 11

Frequency Table

		gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	168	7.0	7.0	7.0
	Male	2245	93.0	93.0	100.0
Total		2413	100.0	100.0	

TABLE 12

pushreps					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	31	1.3	1.3	1.3
	1	6	.2	.2	1.5
	2	5	.2	.2	1.7
	3	5	.2	.2	1.9
	4	8	.3	.3	2.3
	5	5	.2	.2	2.5
	6	2	.1	.1	2.6
	7	4	.2	.2	2.7
	8	6	.2	.2	3.0
	9	5	.2	.2	3.2
	10	3	.1	.1	3.3
	11	3	.1	.1	3.4
	12	7	.3	.3	3.7
	13	9	.4	.4	4.1
	14	6	.2	.2	4.4
	15	15	.6	.6	5.0
	16	7	.3	.3	5.3
	17	11	.5	.5	5.7
	18	8	.3	.3	6.1
	19	10	.4	.4	6.5
	20	21	.9	.9	7.3
	21	15	.6	.6	8.0
	22	19	.8	.8	8.7
	23	22	.9	.9	9.7
	24	17	.7	.7	10.4
	25	28	1.2	1.2	11.5
	26	33	1.4	1.4	12.9
	27	30	1.2	1.2	14.1
	28	29	1.2	1.2	15.3
	29	36	1.5	1.5	16.8
	30	47	1.9	1.9	18.8
	31	45	1.9	1.9	20.6
	32	1915	79.4	79.4	100.0
	Total	2413	100.0	100.0	

TABLE 13

sureps					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	50	2.1	2.1	2.1
	4	1	.0	.0	2.1
	6	1	.0	.0	2.2
	8	2	.1	.1	2.2
	9	2	.1	.1	2.3
	11	2	.1	.1	2.4
	12	3	.1	.1	2.5
	13	3	.1	.1	2.7
	14	1	.0	.0	2.7
	15	1	.0	.0	2.7
	16	1	.0	.0	2.8
	17	3	.1	.1	2.9
	18	2	.1	.1	3.0
	19	3	.1	.1	3.1
	20	1	.0	.0	3.1
	21	3	.1	.1	3.3
	22	9	.4	.4	3.6
	23	4	.2	.2	3.8
	24	11	.5	.5	4.3
	25	8	.3	.3	4.6
	26	15	.6	.6	5.2
	27	11	.5	.5	5.7
	28	16	.7	.7	6.3
	29	7	.3	.3	6.6
	30	25	1.0	1.0	7.7
	31	21	.9	.9	8.5
	32	19	.8	.8	9.3
	33	16	.7	.7	10.0
	34	2168	89.8	89.8	99.8
	35	4	.2	.2	100.0
Total		2413	100.0	100.0	

TABLE 14

		year			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2003	1379	57.1	57.1	57.1
	2004	1034	42.9	42.9	100.0
Total		2413	100.0	100.0	

Table 14 denotes the number of candidates participating in the physical qualification test at 2,413. The mean score for both males and females in the push up exercise is listed at 29.17, and for the sit up exercise is was recorded at 32.70. The candidates participating in the physical qualification test for both the 2003 and 2004 calendar years was composed of 168 females accounting for 7.0 percent, and 2,245 males accounting for 93.0 percent of the total.

There is a wide range of frequency noted in Table 12 for the push up exercise with the largest occurring number 32 recorded 1915 times for 79.4 percent of the total. The next highest occurring number is 31 recorded 45 times for 1.9 percent of the total.

The sit up exercise frequency for both the males and females denoted the largest number 34 recorded 2,168 times and representing 89.8 percent of the total. This frequency table between the numbers 30 to 34 accounts for 93.2 percent of the candidates taking this physical qualification test.

TABLE 15

FREQUENCIES (FEMALE)**FREQUENCY TABLE**

		Statistics	
		pushreps	sureps
N	Valid	168	168
	Missing	0	0
Mean		19.28	30.17
Std. Deviation		12.432	9.466
Minimum		0	0
Maximum		32	34

TABLE 16

pushreps

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	18	10.7	10.7	10.7
	1	6	3.6	3.6	14.3
	2	5	3.0	3.0	17.3
	3	4	2.4	2.4	19.6
	4	6	3.6	3.6	23.2
	5	3	1.8	1.8	25.0
	6	2	1.2	1.2	26.2
	7	2	1.2	1.2	27.4
	8	2	1.2	1.2	28.6
	9	1	.6	.6	29.2
	10	2	1.2	1.2	30.4
	12	3	1.8	1.8	32.1
	13	1	.6	.6	32.7
	14	5	3.0	3.0	35.7
	15	4	2.4	2.4	38.1
	16	2	1.2	1.2	39.3
	18	3	1.8	1.8	41.1
	19	4	2.4	2.4	43.5
	20	8	4.8	4.8	48.2
	21	4	2.4	2.4	50.6
	22	3	1.8	1.8	52.4
	23	4	2.4	2.4	54.8
	24	1	.6	.6	55.4
	25	3	1.8	1.8	57.1
	26	2	1.2	1.2	58.3
	27	4	2.4	2.4	60.7
	28	1	.6	.6	61.3
	29	1	.6	.6	61.9
	30	2	1.2	1.2	63.1
	31	2	1.2	1.2	64.3
	32	60	35.7	35.7	100.0
	Total	168	100.0	100.0	

TABLE 17

sureps					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11	6.5	6.5	6.5
	4	1	.6	.6	7.1
	6	1	.6	.6	7.7
	8	1	.6	.6	8.3
	9	1	.6	.6	8.9
	11	1	.6	.6	9.5
	19	1	.6	.6	10.1
	20	1	.6	.6	10.7
	22	1	.6	.6	11.3
	24	1	.6	.6	11.9
	25	3	1.8	1.8	13.7
	26	1	.6	.6	14.3
	28	2	1.2	1.2	15.5
	29	3	1.8	1.8	17.3
	30	3	1.8	1.8	19.0
	31	2	1.2	1.2	20.2
	32	2	1.2	1.2	21.4
	33	2	1.2	1.2	22.6
	34	130	77.4	77.4	100.0
	Total	168	100.0	100.0	

Table 15 denotes the number of female candidates participating in the physical qualification test at a total of 168. The mean score for the females in the push up exercise is listed at 19.28, which is a full 11.26 repetitions less than the mean for the males in the same exercise. The sit up exercise was recorded with a mean of 30.17 that was similar to the male mean score of 32.88. The standard Deviation was denoted at 12.432 for the push up exercise and 9.466 for the sit up exercise. The female candidates participating in the physical qualification test for both the 2003 and

2004 calendar years were composed of 168 females accounting for 7.0 percent of the total.

There is a wide range of frequency numbers noted in Table 15 for the push up exercise with the largest occurring number 32 recorded 60 times for 35.7 percent of the total. The next highest occurring number is 0 recorded 18 times for 10.7 percent and followed by 8 representing 4.8 percent of the total.

The sit up exercise frequency for the females denoted the largest number 34 recorded 130 times and representing 77.4 percent of the total. The next highest occurring number is 0 recorded 11 times for 6.8 percent and followed by 25, 29, and 30 for 1.8 percent .

TABLE 18

Frequencies (Male)

Statistics			
		pushreps	sureps
N	Valid	2245	2245
	Missing	0	0
Mean		30.54	32.88
Std. Deviation		4.472	4.996
Minimum		0	0
Maximum		32	35

TABLE 19

pushreps					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	13	.6	.6	.6
	3	1	.0	.0	.6
	4	2	.1	.1	.7
	5	2	.1	.1	.8
	7	2	.1	.1	.9
	8	4	.2	.2	1.1
	9	4	.2	.2	1.2
	10	1	.0	.0	1.3
	11	3	.1	.1	1.4
	12	4	.2	.2	1.6
	13	8	.4	.4	2.0
	14	1	.0	.0	2.0
	15	11	.5	.5	2.5
	16	5	.2	.2	2.7
	17	11	.5	.5	3.2
	18	5	.2	.2	3.4
	19	6	.3	.3	3.7
	20	13	.6	.6	4.3
	21	11	.5	.5	4.8
	22	16	.7	.7	5.5
	23	18	.8	.8	6.3
	24	16	.7	.7	7.0
	25	25	1.1	1.1	8.1
	26	31	1.4	1.4	9.5
	27	26	1.2	1.2	10.6
	28	28	1.2	1.2	11.9
	29	35	1.6	1.6	13.5
	30	45	2.0	2.0	15.5
	31	43	1.9	1.9	17.4
	32	1855	82.6	82.6	100.0
	Total	2245	100.0	100.0	

TABLE 20

sureps					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	39	1.7	1.7	1.7
	8	1	.0	.0	1.8
	9	1	.0	.0	1.8
	11	1	.0	.0	1.9
	12	3	.1	.1	2.0
	13	3	.1	.1	2.1
	14	1	.0	.0	2.2
	15	1	.0	.0	2.2
	16	1	.0	.0	2.3
	17	3	.1	.1	2.4
	18	2	.1	.1	2.5
	19	2	.1	.1	2.6
	21	3	.1	.1	2.7
	22	8	.4	.4	3.1
	23	4	.2	.2	3.3
	24	10	.4	.4	3.7
	25	5	.2	.2	3.9
	26	14	.6	.6	4.5
	27	11	.5	.5	5.0
	28	14	.6	.6	5.7
	29	4	.2	.2	5.8
	30	22	1.0	1.0	6.8
	31	19	.8	.8	7.7
	32	17	.8	.8	8.4
	33	14	.6	.6	9.0
	34	2038	90.8	90.8	99.8
	35	4	.2	.2	100.0
	Total	2245	100.0	100.0	

Table 18 denotes the number of male candidates participating in the physical qualification test at a total of 2245. The mean score for the males in the push up exercise is listed at 30.54 with a standard of deviation of 4.472, which is a full 11.26 repetitions more than the mean score for the females in the same exercise. The sit up exercise was recorded with a mean of 30.88 with a standard of deviation of 4.996. . The male candidates participating in the physical qualification test for both the 2003 and 2004 calendar years was composed of 2245 males accounting for 93.0 percent of the total.

This frequency range is not as wide as previously noted in Table 15 the female frequency table. The push up exercise with the largest occurring number 32 recorded 1855 times for 82.6 percent of the total. The next highest occurring number is 31 recorded 45 times for 2.0 percent and followed by 30 representing 1.9 percent of the total.

The sit up exercise frequency for the males denoted the largest number 34 recorded 2038 times and representing 90.8 percent of the total. The next highest occurring number is 0 recorded 39 times for 1.7 percent and followed by 30 with 22 times for 1.0 percent.

Subsidiary Questions

Subsidiary Question #1

How would this same pass/fail physical qualification test have impacted the 118th New Jersey State Police class?

The raw data gleaned from the 118th class State Police class will be compared regarding the specific score in the push up exercise. The comparison of the push up exercise repetitions will illuminate the negative impact a physical exercise can have when it is part of a pass/fail test. This simplistic approach in examining the consequences of modifying an existing physical entrance test without studying its effect on the candidates could better serve the recruitment efforts of the New Jersey State Police. The information garnered from this comparison will serve to denote the importance of utilizing a valid physical entrance test. The research supported information gained through an applied validation process would assist in alleviating any associated problems with creating a disparate impact situation for any potential candidates.

The 118th New Jersey State Police class participated in a six event physical entrance examination as part of the selection process. The six events were the push up exercise, pull up exercise, sit up exercise, standing vertical jump, standing broad jump, and the 1.5 mile endurance run. The physical test was gender based and there were two separate male/female physical test score sheets. The female candidates also were required to perform a modified pull up exercise in this physical test.

The initial academy physical test scores for the perspective male/female candidates were reviewed and a comparison made against the SOP C20 pass/fail

standards. The repetition scores in the push up exercise were directly compared against the pass/fail limit of 32 repetitions for the push up exercise. The 7 female candidates representing 4.6 percent of this total, who had successfully entered the academy, would have been removed from the selection process. Their initial scores ranged from 20 to 24 repetitions for the push up exercise for the female candidates. This would have excluded all the female candidates from the selection process and the subsequently the academy. These same seven female candidates graduated from the academy and have served the New Jersey state Police for the past 8 years. There would also have been an additional 16 male candidates representing 11 percent of this class removed from this same selection process. These 16 male candidates also successfully completed and graduated from the academy. They are currently serving in various assignments as enlisted members in the New Jersey State Police.

The data retrieved for this class also documents the final physical test given to the recruits at the conclusion of 24 weeks of academy training. The data for this test reflected that all the females had increased their push up exercise repetitions and exceeded the 32 pass/fail limit of SOP C20. This is an important concept to embrace when addressing the physical standards of the duties and responsibilities. The established standards can be the level of attainment by the recruits who enter the academy. This six event fitness test could be utilized to seek those candidates possessing a minimum overall fitness level and train to the higher standard while in the academy. The candidates are not expected to possess self defense tactics, firearms experience, or investigative skills prior to entry into the academy. The New Jersey State Police could through the utilization of scientific methodology establish

the minimum fitness level for the physical qualification test. This type of physical test would eliminate the disparate impact of any particular exercise and still maintain the fitness level necessary to perform the functions of the New Jersey State Police.

Subsidiary Question #2

How would the results of this same two year longitudinal study differ by applying the physical testing standards of the United States Army, Army Physical Fitness Training (APFT)?

The United States Army utilizes both a gender and age based physical fitness testing program. As previously noted in Chapter II, approximately 15 percent of their ranks are currently female. The Army has conducted numerous physiological studies on the gender differences related to fitness. The scientific study of physiology is depicted in the separate standards for both age and gender.

The raw data from the 2003 and 2004 Physical Qualification Test for the female candidates seeking employment with the New Jersey State Police will be evaluated according to the Army Physical Fitness Test (APFT) for the push up exercise.

The United States Army utilizes a point system for each of the events in their Army Physical Fitness Test (APFT). The introductory or recruit level requires a candidate to amass a total of 150 point to successfully complete this physical fitness test. The three events are the push up exercise; sit up exercise, and a 2 mile run. This comparison will focus on the push up exercise due to the disparate nature reflected in the aforementioned independent t tests. The comparison will utilize both the 60 and 70 point marks from the APFT to demonstrate the impact this particular exercise has on a female candidate.

The 2003 physical qualification test results for the push up exercise repetitions of the female candidates were compared to the APFT standards. The 2003 physical qualification test had documented only an 18 percent passing rate for all the female candidates. The number of repetitions required for the 70 point level is listed on the AR705 form is 24. There were an additional 7 female candidates that would have advanced in the selection process as a result of this score. This would increase the passing rate to 26 percent for the female candidates. The second APFT level used in this comparison was the 60 point level. The number of repetitions required to complete the push up exercise at this level is 17. There was an overall increase in 24 candidates attaining a score sufficient to advance in the selection process. This would serve to increase the passing rate for the female candidates participating in the 2003 physical qualification test to 52 percent.

The female candidates participating in the 2004 physical qualification were compared to the same APFT standards at the both the 70 and 60 point levels. The initial passing rate for all female candidates in the 2003 physical qualification test was documented at 56 percent. This was a dramatic increase from the previous year when the passing rate for all female candidates had been documented at 18 percent. The increase in female candidates advancing in the selection process at the 70 point level was a total of 7 females. This would serve to increase the passing rate to a total of 65 percent. At the 60 point level a total of 18 additional female candidates would have advanced in this same selection process. The utilization of this APFT standard would have increased the female candidate-passing rate up to 80 percent.

The results of this comparison have exemplified the impact that the push up exercise has on a female candidate. The retention of otherwise qualified female candidates are being lost through the utilization of the pass/fail push up exercise. It is also noteworthy to recognize the increased passing rates by the female candidates in this particular pass/fail push up exercise. The analysis gleaned from the independent t test has also recognized these same mean gains as statistically significant. The identification of the Pre-Employment Preparation Program as being the force driving this increase is important. The New Jersey State Police recognized the necessity to offer a structured program encompassing all the components of the academy. There is an enormous concentration of this same program dedicated to the physical qualification test. This PEPP program is coordinated and delivered by the In-Service Unit, Training Bureau, New Jersey State Police. The In-Service Unit personnel also provide the oversight for the SOP C20 regarding the physical standards for all enlisted members of the New Jersey State Police.

Subsidiary Question #3

What has been the involvement of the leadership, policy, and the organizational decision making processes of the New Jersey State Police in modifying their physical entrance test?

The answer to this question will be denoted either by the revelation of a formal policy implementation process or the lack of one by the New Jersey State Police organization. The historical documentation gleaned through the research process has allowed this researcher to examine all pertinent documents regarding the adoption of a physical standard for this organization. The actual selection process associated with

the adoption of a physical standard has served as a snap shot to illuminate the respective processes utilized by the New Jersey State Police. The supporting documentation depicting the leadership roles associated with both the organizational decision making and policy implementation process have presented the necessary information to properly evaluate and synthesize this same information.

The “Consent Decree” order issued in 1975 was the product of the New Jersey State Police organization failure to recruit and retain female Troopers. Colonel Pagano, Superintendent, New Jersey State Police, recognized a problem with the female candidates failing the established physical fitness entrance examination. According to an Interoffice Communication composed by Tpr. Lempicki (1976), Colonel Pagano ordered a study on gender physiological differences and their overall impact on females passing the physical entrance examination. A cursory study was performed on the topic of gender physiological differences. The study was utilized to make modifications to the existing New Jersey State Police physical entrance examination. The female candidate’s physical test consisted of the same essential events with the exception of a modified push up and pulls up exercises. There was no consultation with exercise physiologists or medical personnel and the information presented was extremely limited. The New Jersey State Police were facing a major recruitment problem for the retention of female Troopers. There had only been one female Trooper, who had successfully completed the academy and was serving as an enlisted member.

Colonel Pagano had recognized a major deficiency within the recruitment and selection process. The organization was in the midst of a consent decree order issued by the Department of Justice. Colonel Pagano had not only modified the physical test but also directed the organization to initiate the first all female New Jersey State Police class. These leadership decisions allowed the New Jersey State Police to satisfy the consent order and increase the number of female Troopers from 1 to 31.

In 1984, the New Jersey State Police was faced with another organizational challenge to the established mandatory retirement age limit of 55 years. The New Jersey State Police had conducted a critical task analysis through the issuance of a broad spectrum survey attempting to solicit the enlisted members to relate any on duty incidents involving aerobic capacity. They contracted with three cardiologists and two exercise physiologists to interpret the presented data. The aforementioned outside consultants were not all in agreement on the established age limit. The individual reports submitted by each respective Doctor were interpreted and a synopsis placed in a Report on the Establishment of a Mandatory Retirement Age as a Bona fide Occupational Qualification for the New Jersey State Police. The organizational leadership chose the individual purporting a similar belief in the necessity for maintenance of a physical fitness level.

The ultimate result was a favorable court decision by Judge Trump-Barry, and the establishment of mandatory physical fitness standard for all incumbents of the New Jersey State Police. The New Jersey State Police had no established physical standard up until this point in time. This physical standard was not the result of a critical task analysis on the recorded duties and responsibilities of the incumbents of the New

Jersey State Police. This was a reaction to a litigation challenge posed by those incumbents seeking to increase the overall retirement age of the New Jersey State Police. The efforts of the New Jersey State Police leadership were focused on the 55 retirement age and not the overall health and wellness of the organization. The organization had performed many of the necessary components to achieve validation without attaining it. A validation study would result in the establishment of prescribed physical fitness standards that would reflect the critical tasks performed by the incumbents of the New Jersey State Police.

Colonel Dunbar in ordered the utilization of this pass/fail physical standard test as the physical qualification test (NWCP,2000). Colonel Dunbar formulated this decision without the support of any data driven research. This type of modification to an important component of the established selection process should have been examined for any possible negative impact prior to any policy implementation. The statistical analysis performed on the physical qualification test has determined the profound impact the pass/fail push up exercise has on the retention of qualified female candidates. The New Jersey State Police have been cognizant of a problem with the recruitment and retention of female candidates since 1975. The adoption of a formal process utilizing a data driven and research supported decision making process prior to any policy modifications is paramount to the health of the organization.

The New Jersey State Police physical qualification test had been modified by an outside consultant, Human Performance Systems, and this same test was subsequently utilized in the 2005 selection process. There is limited information available as to the scientific method utilized for the development of this physical agility test. The data

required to perform either a construct or criterion validation study has not been published. The established minimum standards for each event were not revealed prior to the physical test being implemented. This would lead to the conclusion that the minimum standards had not yet been determined and the consultants were utilizing this physical entrance test for part of an ongoing validation process. Any determination of a correlation study between the exercises selected for the test and the critical tasks performed by the New Jersey State Police has also not been published.

The process of validation is the most important consideration in developing and evaluating selection procedures. The essential principle in the evaluation of any selection procedure is that evidence be accumulated to support the inferences of job relatedness (Shepard & Bonneau, 2000). This is a core component of all the current physiological literature to ensure that a physical test reflects the proper standards necessary to complete the assigned law enforcement duties and responsibilities.

The In-Service and Medical Units of the New Jersey State Police were not consulted during any phase of the development for this particular physical test. These two respective Units are tasked in providing the oversight to the established physical standards program of the New Jersey State Police. Their input and institutional knowledge would have provided the outside consultants with invaluable assistance and insure the health and welfare of the organization.

This modification to the physical qualification test was implemented without the oversight by either the In-service or Medical Units of the New Jersey State Police. The lack of any documented correlation between the exercises and events of this test and the critical tasks of the New Jersey State Police is troubling. This physical

qualification test is an important component of the organization's recruitment and selection process. Any modification of this important process should be able to stand the test of the light of day. The relinquishing of the interpretation of these same physical test results to an outside contractor has not occurred prior in the organization's history. The plethora of physical fitness tests and studies delineated in Chapter II all present an established minimum standard as a component prior to implementation. This would denote that a study had been performed and a cut off point for each respective exercise or event was established. This same physical test was administered utilizing those perspective candidates seeking employment with the New Jersey State Police, as part of their validation process. The problem lies in the fact that these exercises and events may not properly represent the fitness level necessary to complete the duties and responsibilities of a New Jersey State Trooper. This could arbitrarily exclude multiple qualified candidates from the organization's selection process. The proper time line for validation would be prior to the implementation of any physical test becoming a core component in the selection process.

The historical review of the physical standards issues within the New Jersey State Police has provided a clear snap shot of the different decision making processes at work within the organization. There have been very strong leadership components in the New Jersey State Police during this 30 year period of time. The strengths and weaknesses of the organization are seen with the multiple changes in leadership in this same time frame. The leadership has responded mainly to an anticipated and often realized problem facing the New Jersey State Police. The leadership has

orchestrated numerous policy changes with respect to the physical standards program within the organization. These policy changes have been predicated on reactive defense like mechanisms to an array of troublesome situations. The outcome has been generally to the favor of the New Jersey State Police but the same problem involving the establishment of a validated physical standard has been addressed in various issues over three decades of time.

The physical standards program and the physical entrance examination have been at the front of most of these organizational threats. The reaction by the leadership is to address the immediate problem without strategically planning for the future. The true vision of an organization will be a product of strong leadership. A strong leadership component will better serve the health and welfare of the New Jersey State Police.

The leadership within the New Jersey State Police has experienced periods of great flux by facing multiple high profile organizational character assaults. The leadership has also been subject to change following the appointment of a new Colonel/Superintendent with each newly elected Governor. This has led to inconsistencies with respect to decision making and policy implementation associated with a projected organizational vision.

The institutionalization of a formal policy implementation process by the New Jersey State Police would serve the future of this organization. This process would bring consistency to relevant topics and provide research supported data for a more rational decision making process. The topic of physical standards would be addressed solely to establish the relevant standard for the New Jersey State Police. This would be reflected in a validated study creating the minimum standards for the physical

qualification test that would subsequently become part of the selection process. This type of scientific study would serve to establish the “business necessity” of the New Jersey State Police. It would also provide a defensible pose in the face of any future litigation claims of a disparate impact complaint.

CHAPTER V

SUMMARY, CONCLUSION, RECOMMENDATIONS

Summary

The purpose of this chapter is to summarize the totality of data analyzed as a result of this research study in a succinct narrative. The summary will occupy the initial portion of the formatted structure for this chapter. This will consist of a historical review of the substantive data retrieved and analyzed as a direct result of this same study. The historical review has entailed a central focal point on all modifications to any physical fitness standards employed by the New Jersey State Police. The subsequent dialogue will center on the decision making and policy implementation processes utilized by the leadership of this organization.

This research study has attempted to examine a specific research question while incorporating a persistent theme of leadership, decision making, and policy implementation throughout the process. The subsequent dialogue centered on the decision making and policy implementation processes utilized by the New Jersey State Police prior to these same modifications being implemented within the organization.

The historical review supports the initial notion that the New Jersey State Police have been cognizant of the existing physiological gender differences in relationship to certain physical exercises. This was first noted in the Chapter II literature review regarding the existence of a “Consent Decree” being issued by the Department of

Justice. The order was issued in 1975, after the New Jersey State Police had failed to recruit and retain female candidates. Colonel Pagano, Superintendent, New Jersey State Police, recognized a problem with the female candidates failing the established physical fitness entrance examination. According to an Interoffice Communication in 1976, Colonel Pagano ordered a study on gender physiological differences and their overall impact on females passing the physical entrance examination. A cursory study was performed on the topic of gender physiological differences. This study had been conducted by an enlisted member of the New Jersey State Police. There was no solicitation by the New Jersey State Police to contract any outside exercise physiologist experts in this field. The result was a decision to modify the current physical entrance examination by recognizing these same physiological differences. The female candidates performed both modified push up and pull up exercise, the broad jump event, shuttle run, and the sit ups were scored differently from the male candidates. These modifications were enacted without the consultation of any exercise physiologist or seeking a specific medical recommendation.

In 1984, the New Jersey State Police was faced with a challenge to the established mandatory retirement age limit of 55 years. They answered this challenge by seeking the advice of three cardiologists and two exercise physiologists in a concerted effort to defend this established mandatory age. The aforementioned outside consultants were not all in agreement on the established age limit. The organizational leadership chose the individual purporting a similar belief in the necessity for maintenance of a physical fitness level. The ultimate result was a favorable court decision by Judge Trump-Barry, and the establishment of mandatory physical fitness standards for all

incumbents of the New Jersey State Police. The New Jersey State Police had no established physical standards up until this point in time. These physical standards were not a result of a critical task analysis on the recorded duties and responsibilities of the incumbents of the New Jersey State Police. This was a reaction to a litigation challenge posed by those incumbents seeking to increase the overall retirement age of the New Jersey State Police. There was no validity study conducted to correlate the relationship of these physical standards to the actual tasks performed by the incumbents of the New Jersey State Police.

These physical standards were institutionalized with the creation of Standing Operation Procedure - C20. The standards had only been applied to the incumbents of the organization until the year 2000. Colonel Dunbar in 2000 ordered the utilization of this pass/fail physical standard test as the physical qualification test (PQT). Colonel Dunbar formulated this decision without the support of any data driven research. This type of modification to an important component of the established selection process should have been examined for any possible negative impact prior to any policy implementation.

The substantive data and subsequent analysis presented in Chapter IV worked toward the clarification of the negative impact this same physical qualification test had on the recruitment and retention of potential female candidates. The gender physiological differences have been well documented throughout this research study and were not a primary consideration prior to the adoption of the C20 physical standards as the physical entrance examination. The disparate impact has been documented through the statistical analysis utilizing a t test for two independent

samples, male/female. The difference in the variances between the number of repetitions completed by males and females has been noted as being statistically significant. This does not bode well for the recruitment and retention efforts of female candidates by the New Jersey State Police. This type of negative impact on the organization could have been avoided by the utilization of a data driven and research supported decision making process policy.

Conclusion

The focus of this research study has been to address a topic with both considerable history and major policy implications. This has allowed the researcher to examine the leadership, decision making, and policy implementation processes of the New Jersey State Police. The New Jersey State Police organization has reacted to a specific problem, as a result of an outside influence in the establishment and/or modification of the established physical fitness standards.

The 1975 "Consent Decree" caused the New Jersey State Police to modify the physical entrance examination by creating a separate male/female gender based scoring system in relation to their recognized physiological differences. The intent of the existing motivation within the organization to establish a mandatory physical standard was to persevere in the face of a major litigation by defending the mandatory age of 55 years. It was not the result of a validation study to establish both construct and criterion validity for the physical fitness standards. This validation study would result in the establishment of prescribed physical fitness standards that would reflect the critical tasks performed by the incumbents of the New Jersey State Police. The

increased defensibility in court of these same established physical standards would be a direct result of the completion of a scientific validation study.

The current state of the annual mandatory physical fitness test employed by the New Jersey State Police is exhibiting some gaps in its prescribed functions. The principle of a mandatory physical test would imply a physical fitness level necessary to perform the critical tasks of the New Jersey State Police. The New Jersey State Police has not validated this mandatory physical fitness test. There has been over time the acceptance of physical standards established by noted exercise physiologists and modified by the leadership of the New Jersey State Police. The mandatory physical fitness test was instituted to incorporate the VO₂ maximum of 41 mg/l/min and defend the established retirement age of 55 years. The concept was that testing incumbents for this level of fitness would increase the frequency of cardiac events after the age of 55.

The essential principle in the evaluation of any selection process is that evidence be accumulated to support an inference of job relatedness. Validity is the most important consideration in developing and evaluating a selection process (Lonsway, 2003b). The process of validation involves the accumulation of evidence to provide a sound scientific basis for the establishment of the minimum physical standards.

There are different types of validity necessary to establish the minimum physical standards within the New Jersey State Police. They are construct- the physical selection test will measure a characteristic of a job function, and criterion – shows physical selection test is correlated with the essential elements of job performance. The ability to justify physical fitness as being job related is that it pertains to the

physiological readiness to perform critical and essential functions. These fitness components of aerobic capacity, strength, flexibility, and body composition have all been published as predictive factors for officers performing critical job tasks (Cooper Insitute, 2000). The capability of the New Jersey State Police to properly validate the physical standards with job relatedness will be an important step in establishing the physical standards for the physical qualification test in the selection process.

The 2005 annual physical fitness testing conducted in October saw approximately 500 incumbents choosing to not participate in the physical testing. This number does not include those incumbents precluded from participating in the physical due to a lack of a medical clearance. Those individuals choosing not to participate or failing to pass the physical test remain in a full duty status. The New Jersey State Police has no written policy for providing remedial prescriptions for those incumbents having failed the mandatory physical test. The incumbents choosing not to participate and are deemed by the organization to be not in compliance can continue to act in a full duty status.

The New Jersey State Police is a proud law enforcement organization with a stellar history of service to the State of New Jersey. The proliferation of this organization lies in its ability to better serve the interests of those they serve. The recruitment and retention of qualified candidates for their selection process is a prominent factor for attainment of future goals. The modification of any part of this same selection process should be required to navigate a formal policy process. This formal process would outline the necessary steps in achieving a specific modification but also be scripted to protect the health and welfare of this organization.

The United States Army has illuminated the importance of sound leadership to drive any major cultural changes or paradigm shifts. As previously noted in Chapter II, the Army officers are the key component to the implementation of any changes within their organization. They express the concept that without the full support of their leadership there will be no policy change implemented.

According to United States Army, FM 21-20:

Effective leadership is critical to the success of a good physical training program. Leaders, especially senior leaders, must understand and practice the new Army doctrine of physical fitness. They must be visible and active participants in physical training programs. In short, leaders must lead PT! Their example will emphasize the importance of physical fitness training and will highlight it as a key element of the unit's training mission. Leaders must emphasize the value of physical training and clearly explain the objectives and benefits of the program. (p. 1-1)

This is a strong point for establishing the necessary leadership support for any policy changes within the New Jersey State Police. This type of formal policy process and the complete support by its leadership will drive the proper modification to any policy change within this organization.

Recommendations

Policy

The institutionalization of a formal policy implementation process by the New Jersey State Police would serve the future of this organization. This process would bring consistency to relevant topics and provide research supported data for a more rational decision making process.

The New Jersey State Police should create a series of formal guidelines to institutionalize a policy implementation process. The existing rank structure within the New Jersey State Police would dictate that the Colonel would ultimately be responsible for the final decision in any proposed policy modification. The formal policy process would serve to provide the necessary information to make a more rational decision. A focus group consisting of the Colonel and the four Lieutenant Colonels could act as the policy implementation board. They would have previously reviewed all documented research and data on a given topic prior to formulating a decision.

The physical standards program has served as the back drop to take an introspective look at the decision making and policy implementation processes at work within the New Jersey State Police. There have been noted inconsistencies in the reactive approach by the leadership to associated organizational problems. The physical standards program has been at the center of problems spanning some 30 years. It has now according to the data analysis presented in Chapter IV, affected the recruitment and retention of otherwise qualified female candidates. A series of formal guidelines requiring research supported decision making and data driven policy

changes could alleviate some disparate impact claims by female candidates. This type of formal process would transcend the leadership inconsistencies experienced by the untimely transition of leadership command staff. At the core of this formal process is the health and welfare of the New Jersey State Police organization.

Practice

The New Jersey State Police should look to incorporate an assessment and evaluation process to provide oversight to any formal policy implemented in the organization. This will allow for any necessary modifications being instituted both with consistency and in a timely manner. The formal evaluation process has to be in place within the organization to ensure a timely review of all policies.

The leadership of the New Jersey State Police has to actively support those processes that serve the organizational goals and objectives. A unified cohesive front has to be displayed by the leadership to facilitate any type of paradigm shift within the organization.

The New Jersey State Police should institute a remedial prescription program for all incumbents failing to meet the SOP C20 physical standards. This program would provide health and nutrition information in conjunction with a physical fitness program.

The New Jersey State Police should look to better utilize those incumbents participating in a graduate level educational program. A research focus group could be organized to address any potential critical issues arising within the organization. They would be responsible for providing a current literature review on a specific topic to be utilized in both the organizational decision making and policy processes.

Future Research

This study was a retrospective historical review of the physical entrance examination utilized in the selection process. The main impetus of this study was the impact of a pass/fail push up exercise on female candidates. There are numerous topics that could be developed as a result of the findings from this research study and it would proffer the New Jersey State Police to initiate a formal research process to address all critical organizational issues.

1. Conduct an additional study centering on the importance and statistical significance of the 1.5 mile run of this pass/fail physical qualification test.
2. A research study could be formulated to observe the overall fitness level of the New Jersey State Police since the inception of a mandatory physical standard in 1984.
3. The New Jersey State Police should conduct a self evaluation study for the establishment of the critical tasks required to perform the duties and responsibilities of a New Jersey State Trooper.
4. Perform a scientific validation study to determine the physical standards for a New Jersey State Trooper.
5. All components of the selection and recruitment process must be thoroughly studied to ensure it is fair and equitable for all candidates.

The validation of all standards in a selection process will serve to guarantee the quality of a candidate and enhance the overall future of this organization. The proper validation of the physical qualification test and the selection process must become a focal point for the leadership of the New Jersey State Police.

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APPENDECES

Appendix A
Letter of Introduction

January 22, 2006

To: Colonel Joseph R. Fuentes
Superintendent
New Jersey State Police

From: Richard J Cosgrove
404 Philadelphia Boulevard
Sea Girt, New Jersey

Dear Colonel Fuentes,

I am presently enrolled as a doctoral candidate at Seton Hall University in the Department of Education and Human Services, College of Education, Leadership, Management, and Policy. I am currently working on my dissertation, and have chosen a topic related to the New Jersey State Police involving the Physical Qualification Test (PQT). This research study will involve the historical review of data maintained by the New Jersey State Police.

The purpose of his study is to analyze the data created by the implementation of the New Jersey State Police physical entrance examination during the years of 2003, 2004, and 2005. This research study will perform an analysis on the changes implemented to the long standing physical fitness entrance examination of the New Jersey State Police. The study will look to determine if these changes have caused a disparate impact on the female candidates. The study will reflect on the importance of a historical perspective creating a vision for the future. The study will attempt to solidify the importance of instituting a proper validation study prior to the adoption of any type of physical agility entrance examination.

This research study has been presented to the Seton Hall University Institutional Review Board and has been approved to continue the study. The confidentiality of all information retrieved from any New Jersey State Police record archives will be preserved. This study is quantitative in nature and only the raw data of the physical qualification test will be published in this study.

I would take this opportunity to thank you in advance for the time and consideration you give to this request. If you require any additional information, I can be contacted at 732-449-0429.

Sincerely,

Richard J Cosgrove
Doctoral Candidate

Appendix B

2003/2004

Physical Qualification Test Data

PUSH UP		SIT UP		PUSH UP		SIT UP		
2003				2004				
gender	reps	gender	reps	gender	reps	gender	reps	
1	7	1	1	0	1	32	1	34
1	4	1	1	0	1	32	1	34
1	14	1	1	0	1	21	1	34
1	0	1	1	34	1	32	1	34
1	32	1	1	34	1	20	1	34
1	32	1	1	34	1	23	1	34
1	14	1	1	34	1	32	1	34
1	32	1	1	34	1	32	1	34
1	20	1	1	0	1	32	1	34
1	1	1	1	34	1	32	1	34
1	3	1	1	34	1	5	1	0
1	22	1	1	0	1	27	1	34
1	0	1	1	34	1	15	1	34
1	15	1	1	0	1	32	1	34
1	1	1	1	34	1	32	1	34
1	9	1	1	34	1	32	1	34
1	1	1	1	34	1	22	1	34
1	32	1	1	34	1	25	1	9
1	0	1	1	34	1	4	1	29
1	4	1	1	34	1	32	1	34
1	28	1	1	34	1	32	1	34
1	0	1	1	6	1	32	1	34
1	2	1	1	34	1	32	1	34
1	8	1	1	0	1	32	1	34
1	6	1	1	34	1	32	1	34
1	2	1	1	34	1	32	1	34
1	1	1	1	34	1	32	1	34
1	20	1	1	26	1	32	1	34
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1	20	1	1	34	1	15	1	34
1	18	1	1	34	1	24	1	25
1	32	1	1	34	1	32	1	34
1	0	1	1	32	1	32	1	34
1	4	1	1	33	1	32	1	34
1	32	1	1	34	1	32	1	34
1	1	1	1	29	1	10	1	34
1	32	1	1	34	1	32	1	34

1	19	1	34	1	6	1	34
1	0	1	0	1	32	1	34
1	23	1	34	1	3	1	31
1	32	1	34	1	21	1	34
1	21	1	34	1	12	1	34
1	25	1	8	1	32	1	34
1	16	1	34	1	32	1	34
1	32	1	34	1	32	1	34
1	31	1	34	1	32	1	34
1	16	1	34	1	32	1	34
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1	0	1	34	1	20	1	34
1	20	1	34	1	21	1	34
1	32	1	34	1	27	1	34
1	25	1	34	1	13	1	33
1	20	1	34	1	32	1	34
1	3	1	34	1	23	1	34
1	0	1	29	1	32	1	34
1	2	1	34	1	32	1	34
1	0	1	34	1	15	1	34
1	32	1	34	1	4	1	22
1	18	1	24	1	32	1	34
1	30	1	34	1	14	1	34
1	12	1	34	1	20	1	34
1	31	1	34	1	12	1	25
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1	19	1	34	1	32	1	34
1	22	1	34	1	18	1	19
1	7	1	25	1	32	1	34
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2	20	2	34	2	32	2	34
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2	21	2	22	2	32	2	34

Appendix C

118TH New Jersey State Police Class

Physical Qualification Data

PUSH UP EXERCISE – 118TH NEW JERSEY STATE POLICE

45
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#N/A

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#N/A

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Appendix D
Army Physical Fitness Standards

SIT-UP STANDARDS													
AGE GROUP	17-21	22-26	27-31	32-36	37-41	AGE GROUP	42-46	47-51	52-56	57-61	62+	AGE GROUP	62+
Repetitions	MP	MP	MP	MP	MP	Repetitions	MP	MP	MP	MP	MP	Repetitions	MP
82			100			82							82
81			99			81							81
80		100	98			80							80
79		99	97			79							79
78	100	97	96			78							78
77	98	96	95			77							77
76	97	95	94	100	100	76							76
75	95	93	92	99	99	75							75
74	94	92	91	98	98	74							74
73	92	91	90	96	97	73							73
72	90	89	89	93	96	72	100						72
71	89	88	88	94	95	71	89						71
70	87	87	87	93	94	70	88						70
69	86	85	85	92	93	69	87						69
68	84	84	85	91	92	68	86						68
67	82	83	84	89	91	67	85						67
66	81	81	83	88	89	66	84	100	100				66
65	79	80	82	87	88	65	83	99	99				65
64	78	79	81	86	87	64	82	98	98	100			64
63	78	77	79	85	85	63	81	97	97	99	100		63
62	74	78	78	84	85	62	80	96	96	98	99		62
61	73	75	77	82	84	61	80	94	95	97	98		61
60	71	73	76	81	83	60	80	93	94	95	97		60
59	70	72	75	80	82	59	87	82	83	85	88		59
58	69	71	74	79	81	58	86	81	82	84	86		58
57	68	69	73	78	80	57	85	80	81	82	84		57
56	65	68	72	76	79	56	84	80	80	81	82		56
55	63	67	71	75	78	55	83	80	80	80	81		55
54	62	65	70	74	77	54	82	87	87	89	90		54
53	60	64	69	73	76	53	81	86	86	88	89		53
52	58	63	68	72	75	52	80	84	85	87	88		52
51	57	61	66	71	74	51	79	83	84	86	87		51
50	55	60	65	69	73	50	78	82	83	85	86		50
49	54	59	64	68	72	49	77	81	82	84	85		49
48	52	57	63	67	71	48	76	80	81	83	84		48
47	50	56	62	66	69	47	75	79	80	82	83		47
46	49	55	61	65	68	46	74	78	79	81	82		46
45	47	53	60	64	67	45	73	77	78	79	81		45
44	46	52	59	62	66	44	72	76	77	78	79		44
43	44	50	58	61	65	43	71	74	76	77	78		43
42	42	49	57	60	64	42	70	73	75	76	77		42
41	41	48	56	59	63	41	69	72	74	75	76		41
40	39	47	55	58	62	40	68	71	73	74	75		40
39	38	45	54	56	61	39	67	70	72	73	74		39
38	36	44	52	55	60	38	66	69	71	72	73		38
37	34	43	51	54	59	37	65	68	69	71	72		37
36	33	41	50	53	58	36	64	67	68	70	71		36
35	31	40	49	52	57	35	63	66	67	69	70		35
34	30	38	46	50	56	34	62	64	66	68	69		34
33	28	37	47	49	55	33	61	63	65	66	68		33
32	26	36	46	48	54	32	60	62	64	65	67		32
31	25	35	45	47	53	31	59	61	63	64	65		31
30	23	33	44	46	52	30	58	60	62	63	64		30
29	22	32	43	45	50	29	57	59	61	62	63		29
28	20	31	42	44	49	28	56	58	60	61	62		28
27	18	29	41	42	48	27	55	57	59	60	61		27
26	17	28	39	41	47	26	54	56	58	59	60		26
25	15	27	38	40	46	25	53	54	57	58	59		25
24	14	25	37	39	45	24	52	53	56	57	58		24
23	12	24	36	38	44	23	51	52	55	56	57		23
22	10	23	35	38	43	22	50	51	54	55	56		22
21	9	21	34	37	42	21	49	50	53	54	55		21
Repetitions	MP	MP	MP	MP	MP	Repetitions	MP	MP	MP	MP	MP	Repetitions	MP
AGE GROUP	17-21	22-26	27-31	32-36	37-41	AGE GROUP	42-46	47-51	52-56	57-61	62+	AGE GROUP	62+

Scoring standards are used to convert raw scores to point scores after test events are completed. To convert raw scores to point scores, find the number of repetitions performed in the left-hand column. Next, move right along that row and locate the intersection of the soldier's appropriate age column. Record that number in the Sit-Up point block on the front of the scorecard.

2-MILE RUN STANDARDS

AGE GROUP	17-21		22-26		27-31		32-36		37-41		AGE GROUP	42-46		47-51		52-56		57-61		62+	AGE GROUP
	M	F	M	F	M	F	M	F	M	F		M	F	M	F	M	F	M	F		
12:54											12:54										12:54
13:00	100		100								13:00										13:00
13:06	99		99								13:06										13:06
13:12	97		98								13:12										13:12
13:18	96		97		100		100				13:18										13:18
13:24	94		96		99		99				13:24										13:24
13:30	93		94		98		98				13:30										13:30
13:36	92		93		97		97		100		13:36										13:36
13:42	90		92		96		96		99		13:42										13:42
13:48	89		91		95		95		98		13:48										13:48
13:54	88		90		94		94		97		13:54										13:54
14:00	86		89		92		94		97		14:00										14:00
14:06	85		88		91		93		96		14:06	100									14:06
14:12	83		87		90		92		95		14:12	99									14:12
14:18	82		86		89		91		94		14:18	98									14:18
14:24	81		84		88		90		93		14:24	97	100								14:24
14:30	79		83		87		89		92		14:30	97	99								14:30
14:36	78		82		86		88		91		14:36	96	98								14:36
14:42	77		81		85		87		91		14:42	95	98		100						14:42
14:48	75		80		84		86		90		14:48	94	97		99						14:48
14:54	74		79		83		85		88		14:54	93	96		98						14:54
15:00	72		78		82		84		88		15:00	92	95		98						15:00
15:06	71		77		81		84		87		15:06	91	94		97						15:06
15:12	70		76		80		83		86		15:12	90	94		96						15:12
15:18	68		74		78		82		86		15:18	90	93		95		100				15:18
15:24	67		73		77		81		85		15:24	89	92		94		98				15:24
15:30	65		72		76		80		84		15:30	88	91		94		98				15:30
15:36	64	100	71		100		75		79		15:36	87	91		93		97				15:36
15:42	63	99	70		99		74		78		15:42	86	90		92		97		100		15:42
15:48	61	98	69		98		73		77		15:48	85	89		91		96		99		15:48
15:54	60	96	68		97		72		76		15:54	84	88		91		95		98		15:54
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16:06	57	94	66		95		70		74		16:06	82	86		89		93		96		16:06
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16:18	54	92	63		93		68		72		16:18	81	85		88		91		94		16:18
16:24	53	90	62		92		66		71		16:24	80	84		87		90		93		16:24
16:30	52	89	61		91		65		70		16:30	79	83		86		89		92		16:30
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16:42	49	87	59		89		63		68		16:42	77	81		84		87		90		16:42
16:48	48	85	58		88		62		67		16:48	77	81		84		87		90		16:48
16:54	46	84	57		87		61		66		16:54	76	80		83		86		89		16:54
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17:30	38	77	50		81		55		60		17:30	70	75		77		80		83		17:30
17:36	37	76	49		80		54		59		17:36	70	75		77		80		83		17:36
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18:00	31	71	44		76		49		55		18:00	66	71		73		76		79		18:00
18:06	30	70	43		75		48		54		18:06	65	70		72		75		78		18:06
18:12	29	69	42		74		47		53		18:12	64	69		71		74		77		18:12
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18:24	26	66	40		72		45		51		18:24	63	68		70		73		76		18:24
18:30	24	65	39		71		44		50		18:30	62	67		69		72		75		18:30
18:36	23	64	38		70		43		49		18:36	61	66		68		71		74		18:36
18:42	21	62	37		69		42		48		18:42	60	65		67		70		73		18:42
18:48	20	61	36		68		41		47		18:48	59	64		66		69		72		18:48
18:54	19	60	34		67		39		46		18:54	58	63		65		68		71		18:54
19:00	17	59	33		66		38		45		19:00	57	62		64		67		70		19:00
19:06	16	58	32		65		37		44		19:06	57	62		64		67		70		19:06
19:12	14	56	31		64		36		43		19:12	56	61		63		66		69		19:12
19:18	13	55	30		63		35		42		19:18	55	60		62		65		68		19:18
19:24	12	54	29		62		34		41		19:24	54	59		61		64		67		19:24
19:30	10	53	28		61		33		40		19:30	53	58		60		63		66		19:30
19:36	9	52	27		60		32		39		19:36	52	57		59		62		65		19:36
19:42	8	50	26		59		31		38		19:42	51	56		58		61		64		19:42
19:48	6	49	24		58		30		37		19:48	50	55		57		60		63		19:48
19:54	5	48	23		57		29		36		19:54	50	55		57		60		63		19:54
20:00	3	47	22		56		28		35		20:00	49	54		56		59		62		20:00
20:06	2	45	21		55		26		34		20:06	48	53		55		58		61		20:06
20:12	1	44	20		54		25		33		20:12	47	52		54		57		60		20:12
20:18	0	43	19		53		24		32		20:18	46	51		53		56		59		20:18
20:24		42	18		52		23		31		20:24	45	50		52		55		58		20:24
20:30		41	17		51		22		30		20:30	44	49		51		54		57		20:30

PUSH-UP STANDARDS

Age Group	17-21		22-26		27-31		32-36		37-41		42-46		47-51		52-56		57-61		Age Group
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
77					100						77								77
76					99						78								76
75			100		98		100				75								75
74			98		97		99				74								74
73			98		96		98		100		73								73
72			97		95		97		99		72								72
71	100		95		94		96		98		71								71
70	99		94		93		95		97		70								70
69	97		93		92		94		96		69								69
68	96		92		91		93		95		68								68
67	94		91		90		92		94		67								67
66	93		90		89		91		93		66	100							66
65	92		89		87		90		92		65	99							65
64	90		87		86		89		91		64	98							64
63	89		86		85		88		90		63	97							63
62	88		85		84		87		89		62	96							62
61	86		84		83		86		88		61	94							61
60	85		83		82		85		87		60	93							60
59	83		82		81		84		86		59	92	100						59
58	82		81		80		83		85		58	91	99						58
57	81		79		79		82		84		57	90	96						57
56	79		78		78		81		83		56	89	96	100					56
55	78		77		77		79		82		55	88	95	99					55
54	77		76		76		78		81		54	87	94	98					54
53	75		75		75		77		79		53	86	93	97	100				53
52	74		74		74		76		78		52	84	92	96	99				52
51	72		73		73		75		77		51	83	91	94	98				51
50	71		71		72		74		76		50	82	89	93	97	100			50
49	70		70		70		73		75		49	81	88	92	96				49
48	68		69		69		72		74		48	80	87	91	94	96			48
47	67		66		66		71		73		47	79	86	90	93	96			47
46	66		67	100	67		70		72		46	78	85	89	92	95			46
45	64		66	99	66		69	100	71		45	77	84	88	91	94			45
44	63		65	97	65		68	99	70		44	76	82	87	90	93			44
43	61		63	96	64		67	97	69		43	74	81	86	89	92			43
42	60	100	62	94	63		66	96	68		42	73	80	84	87	91			42
41	59	98	61	93	62		65	95	67		41	72	79	83	86	89			41
40	57	97	60	92	61		64	93	66	100	40	71	78	82	85	88			40
39	56	95	59	90	60		63	92	65	99	39	70	77	81	84	87			39
38	54	93	58	89	59		62	91	64	97	38	69	75	80	83	86			38
37	53	91	57	88	58		61	90	63	96	37	68	74	79	82	85			37
36	52	90	56	87	57		60	89	62	94	36	67	73	78	81	84			36
35	50	88	54	85	56		59	87	61	93	35	66	72	77	79	82			35
34	49	86	53	83	55		58	85	60	91	34	64	71	76	78	81			34
33	48	84	52	82	54		57	84	59	90	33	63	70	75	77	80			33
32	46	83	51	81	53		56	83	58	88	32	62	69	73	76	79			32
31	45	81	50	79	52		55	81	57	87	31	61	67	71	74	77	100		31
30	43	79	49	78	50		54	80	56	85	30	60	66	70	73	76	79		30
29	42	77	47	77	49		53	78	55	84	29	59	65	69	72	75	78		29
28	41	76	46	75	48		52	77	54	82	28	58	64	68	71	74	77	100	28
27	39	74	45	74	47		51	76	53	81	27	57	63	67	70	73	76		27
26	38	72	44	72	46		50	75	52	79	26	56	62	66	69	72	75		26
25	37	70	43	71	45		49	73	51	78	25	54	61	65	68	71	74	100	25
24	35	69	42	70	44		48	72	50	76	24	53	59	63	66	69	72		24
23	34	67	41	68	43		47	71	49	75	23	52	58	62	65	68	71		23
22	32	65	39	67	42		46	69	48	73	22	51	56	60	63	66	69		22
21	31	63	38	66	41		45	68	47	72	21	50	55	59	62	65	68		21
20	30	62	37	64	40		44	67	46	70	20	49	54	57	60	63	66		20
19	28	60	36	63	39		43	65	45	69	19	48	53	56	59	62	65		19
18	27	58	35	61	38		42	64	44	67	18	47	52	55	58	61	64		18
17	26	57	34	60	37		41	63	43	66	17	46	51	54	57	60	63		17
16	24	55	33	58	36		39	61	42	64	16	44	49	52	55	58	61		16
15	23	53	31	57	35		38	60	41	63	15	43	48	51	54	57	60		15
14	21	51	30	56	34		37	59	39	61	14	42	47	50	53	56	59		14
13	20	50	29	54	33		36	58	38	60	13	41	46	49	52	55	58		13
12	19	48	28	52	32		35	56	37	59	12	40	45	48	51	54	57		12
11	17	46	27	50	31		34	54	36	57	11	39	44	47	50	53	56		11
10	16	44	26	49	30		33	52	35	56	10	38	43	46	49	52	55		10
9	14	43	25	48	29		32	50	34	54	9	37	42	45	48	51	54		9
8	13	41	23	46	27		31	49	33	53	8	36	41	44	47	50	53		8
7	12	39	22	44	26		30	48	32	51	7	34	39	42	45	48	51		7
6	10	37	21	43	25		29	47	31	50	6	33	38	41	44	47	50		6
5	9	36	20	43	24		28	47	30	49	5	32	37	40	43	46	49		5
4	8	34	19	42	23		27	45	29	47									
3	6	32	18	41	22		26	44	28	46									
2	5	30	17	39	21		25	43	27	44									
1	3	28	15	38	20		24	41	26	42									

Scoring standards are used to convert raw scores to point scores when test events are completed. Male point scores are indicated by the M at the top and bottom of the shaded columns. Female point scores are indicated by the F at the top and bottom of the unshaded columns. To convert raw scores to point scores, find the number of repetitions performed in the left-hand column. Next, move right along that row and locate the intersection of the soldier's appropriate age column. Record that number in the Push-Up points block on the front of the scorecard.