THE EFFECTS OF PHYSICAL FITNES POLICIES ON LAW ENFORCEMENT OFFICERS' PHYICAL FITNESS LEVELS

by

Tina Hall

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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ABSTRACT

Most law enforcement agencies have minimum physical standards for new hires; however, few agencies have physical fitness standards for members once they are hired. Many law enforcement officers experience a decrease in physical fitness levels as their years of law enforcement service increase. The decrease in physical fitness levels causes a reduction in the ability to perform job duties and increases health consequences. This study explored the relationship of physical fitness levels of sworn law enforcement members from agencies with and without enforced physical fitness standards. Anonymous surveys were completed by 1240 sworn law enforcement officers from eight state law enforcement agencies. The researcher conducted confidential telephone interviews with the agency heads or representatives from eight state law enforcement agencies. The data was analyzed to determine if physical fitness standards policies affected the physical fitness levels of sworn members. The participants' opinions on their physical fitness level, their peers' fitness, and department-mandated physical fitness standards contributed to this study. Analysis of variance (ANOVA) testing showed agency physical fitness standards affect the physical fitness level of sworn members and the number of time members spent maintaining or improving their physical conditioning.

Keywords: physical fitness level, physical fitness standards, ANOVA

Dedication

This dissertation is dedicated to my husband, Russ, and my sons Caleb and Alex. Russ, thank you for always supporting my need to study and for your patience and understanding as I became involved in research while you picked up the slack of running our home. Caleb and Alex, thank you for sacrificing family time as I worked to achieve my goal. I hope you both follow the path to your dreams in all aspects of your academic journey and life. I appreciate and love each of you so much.

I also dedicate this dissertation to my father, Charles Case Sr., who provided the means to obtain this degree without placing a financial burden on my family. Dad, you have always been my biggest cheerleader and fan, and I love you more than I can ever express.

To the men and women in blue, may you always know you are appreciated and prayed for by many in the community. Thank you for your service and sacrifices. Even though I am now retired from law enforcement, I will always have your back.

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This study could not have been possible without the support and participation of the state agencies involved in this project. Though I cannot list the agencies by name, I appreciate your time to help with this project. Your participation will hopefully bring awareness of physical fitness issues and make a difference with policy decisions throughout the country.

I would like to acknowledge and thank my dissertation committee for their help and guidance throughout my Ph.D. journey. Dr. Jared Perry and Dr. Jeffery Fox, thank you for dedication to helping me and all of the other candidates you mentor through Liberty University.

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Lastly, but most importantly, I give credit to the Lord Jesus Christ for saving my soul and granting me the ability to complete this journey. Philippians 3:5 (NIV) “I can do all things through Christ who strengthens me.”

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CHAPTER ONE: INTRODUCTION

Overview

Law enforcement is a unique profession requiring mental and physical skills. The situations encountered by law enforcement officers throughout their shifts require ability, mental acuity, and physical strength. Most law enforcement agencies have minimum fitness standards that prospective new hires must meet before being hired. However, few agencies have or enforce physical fitness standards for incumbent officers. Law enforcement officers typically begin their careers in peak physical condition. Unfortunately, due to rotating shifts, poor nutrition, inadequate sleep, and declining levels of motivation to exercise, many officers fail to maintain good physical conditioning throughout their careers. Angiuli (n.d.) stated, "The single most important piece of equipment that a law enforcement officer takes into the field daily is the human body" (p. 3). Law enforcement officers need to ensure their most vital piece of equipment (the body) is properly taken care of through exercise and well-fueled through proper nutrition. This study sought to compare law enforcement officers' physical fitness levels in departments with physical fitness standards to those in departments that do not have the physical fitness standards.

Background

It was common for law enforcement officers in the past to walk throughout their assigned district; today, most officers spend their shift riding in a vehicle (Bonneau & Brown, 1995; Cooper Institute, n.d.). While many law enforcement agencies require new hires to meet or exceed physical fitness standards, few agencies enforce physical fitness policies on incumbent officers (Bissett et al., 2012; Cocke et al., 2016; Dawes et al., 2017). Most law enforcement officers do not complete annual physical fitness testing and are not required to maintain physical

fitness standards (Bissett et al., 2012). By not requiring officers to maintain set physical fitness standards, many officers slowly drift away from their established fitness routines and slide into poor nutritional habits (Andersen et al., 2016; Beck et al., 2015; Dawes et al., 2017; Lagestad & van den Tillaar, 2014; Taylor et al., 2016). The stress associated with law enforcement work, coupled with shift work, can hinder law enforcement officers from maintaining their fitness routines and healthy eating habits leading to obesity, cardiovascular diseases, and drug or alcohol usage (DeNysschen et al., 2018; Magnavita et al., 2018; Smith & Tooker, n.d.; Williams & Ramsey, 2017).

Additionally, as officers progress in their years of service, their body fat increases, impacting their job performance and capabilities (Davis et al., 2016; Milligan et al., 2016; Vukovic et al., 2019). While an officer's fitness level may decline with their age and the amount of time in their career, the job's physical requirements do not decrease or change with age or time of service (Petersen et al., 2016). Furthermore, when officers' fitness levels decrease and they know they cannot physically perform the duties, they become less productive to avoid the risk of physical activities or confrontations. Officers who cannot perform their required duties cost their agencies in terms of productivity and liability, resulting in potential injury or death to themselves, fellow officers, or other citizens (Petersen et al., 2016). Furthermore, the inability to adequately perform job duties can result in adverse outcomes, including injury or death of the officer, other officers, or civilians the officer is called upon to protect (Davis et al., 2017).

Historical Overview

Prior to 1964, most law enforcement agencies required police officers to be a certain height (usually over six feet tall) and weight to be hired (Bonneau & Brown, 1995; Maher, 1984). Physical employment standard assessments were first completed in the 1900s and were

developed by Frank and Lillian Gilbreth (Gebhardt, 2019). These standards were designed to facilitate manual labor occupations and determine one's ability to improve work performance. Dudley Sargent continued developing physical performance standards by developing tests to compare people's work performance with testing criteria designed to measure strength, speed, and endurance (Gebhardt, 2019).

With the abolition of minimum height requirements, law enforcement agencies began looking at physical ability tests to determine the job requirement abilities of law enforcement officers (Maher, 1984). By the 1970s, law enforcement agencies were using physical fitness tests to screen applicants. Due to the required physical expectations and activities, law enforcement agencies often used physical abilities testing (PAT) designed to mimic police duties to screen applicants before entering law enforcement academies (Dawes et al., 2017; Maher, 1984; Taylor et al., 2016). Some agencies also required officers to complete PAT every year to maintain physical fitness standards. PAT testing is designed to simulate the rigorous activities an officer may encounter during their shifts (Beck et al., 2015; Davis et al., 2016; Dawes et al., 2017; Taylor et al., 2016). There are other tests such as the PARE (Physical Ability Requirement Evaluation), POPS (Peace Officers Physical Standards), and POPAT (Police Officer's Physical Ability Test) for current law enforcement officers to evaluate their ongoing fitness levels (Anderson et al., 2001; Beck et al., 2015). Testing officers during their career with their required gear creates a better understanding of officers' physical condition and the need for training to increase stamina and endurance (Beck et al., 2015; Dawes et al., 2016; Lockie et al., 2017; Taylor et al., 2016).

As more females entered the law enforcement field, it became known that the physical performance tests hurt female applicants, with many females unable to meet established

standards and cut-off score requirements (Gebhardt, 2019). Several landmark cases challenged physical fitness testing or physical fitness standards as a job requirement (both for hiring new officers and incumbent officers). One of the first cases was *Kelley v. Johnson* (1976). An officer challenged grooming regulations (no beard allowed); the court ruled in favor of the agency, allowing for grooming and physical appearance standards to be enforced. The courts also ruled in favor of weight standards enforceable with the *Dothard v. Rawlinson* (1977) and *Johnson v. City of Tarpon Springs* (1992) cases (Anderson et al., 2001; Bissett et al., 2012; Maher, 1984; McCormack, 1994). *Berkman v. City of New York* required all physical employment tests to reflect job standards (Gebhardt, 2019). *Bauer v. Holder* addressed the adverse impact of performance tests and gender-normed physical standards (Gebhardt, 2019). According to the Equal Employment Opportunity Commission (EEOC) and guidelines established in 1978, physical employment standards or tests cannot have an adverse impact that is considered discriminatory in nature (Payne & Harvey, 2010). However, the courts ruled performance tests can be discriminatory if there is a bona fide occupational requirement. Moreover, the tests had to be safe, efficient, and based on a current ability to perform a job, not future performance (Anderson et al., 2001; Jamnik et al., 2013). For a job performance test to be allowed, it must encompass a bona fide occupational requirement (Anderson et al., 2001). Considering litigation issues, many agencies have done away with physical fitness testing for incumbent officers; some agencies have completely done away with physical fitness standards (Angiuli, n.d.). However, that has not stopped litigation issues. A police department was held liable for an officer's lack of physical conditioning in *Parker v. District of Columbia* (1988) when an unfit officer shot an unarmed suspect he could not control due to his lack of physical conditioning. As agencies have lessened the enforcement of physical fitness standards, law enforcement officers have lessened

their physical fitness levels. In several studies cited by Smith and Tooker (2005), the lack of personal fitness, agency fitness, and wellness programs was a predictable contributor for the lack of individual officer fitness levels.

Society-At-Large

Law enforcement officers take an oath of office to serve and protect citizens while impartially upholding laws. Citizens expect law enforcement officers to be in good physical condition and be able to physically perform their job duties (Maher, 1984). Officers must be able to perform their job duties regardless of how often the task may occur during their career (Smith & Spottswood, 2015). While law enforcement officers should be in top physical condition to perform their job duties, many law enforcement officers have poorer health than the general public (Dawes et al., 2017; IACP, 2016). Officers in good physical condition are healthier, safer, and better able to perform their duties than officers in poor physical condition (DeNysschen et al., 2018; IACP, 2018). Officers should be in good physical condition so they can protect citizens and do their required duties. They should also be in better physical condition than the general public they are sworn to protect and the violators they may need to apprehend (Dawes et al., 2016; Dawes et al., 2017). Violators have been shown to size up victims, including law enforcement officers, before committing crimes or challenging officers (Bonneau & Brown, 1995; McCullough, 2019; Pinizzotto & Davis, 1999; Quinones, n.d.). Law enforcement officers who exercise are in better physical condition and can perform their required tasks than officers who are overweight and out of shape (Vukovic et al., 2019). However, studies have shown law enforcement officers have a higher percentage of obesity than the general public (Anderson et al., 2016; Dawes et al., 2017; IACP, 2018; Magnavita et al., 2018; Pronk, 2015). Officers in poor physical condition cannot perform their duties and create a burden on their departments in terms

of lost productivity and increased health insurance costs. Officers in poor physical condition use more sick days and have a higher risk of cardiovascular disease. These risks include high blood pressure, high cholesterol, higher risks of heart attacks and strokes, and metabolic diseases such as diabetes. They are also more likely to be injured on the job and are more prone to being obese (Anderson et al., 2016; Rossomanno et al., 2012; Vukovic et al., 2020). Additionally, the failure of officers to maintain adequate fitness levels leads to an inability to perform job duties such as pushing a vehicle and chasing a suspect, leading to increased stress levels and sleep disturbances (Dawes et al., 2017). Officers who cannot perform their duties endanger the public and its safety (Bonneau & Brown, 1995).

An essential aspect of an officer's physical fitness for duty includes the officer's ability to perform required tasks while under stressful conditions (Bertomen, 2016). These tasks include making the appropriate decision in a shoot-or-don't shoot situation, and shooting the target (or person) while stressed without endangering innocent bystanders. Officers who lack proper physical conditioning may make the wrong choice or escalate the use of force matrix due to their inability to control the situation because of their lack of physical condition. An officer's poor physical condition can have a negative effect on the officer's health, and it can also have negative consequences on the public the officer is supposed to be protecting (Cocke et al., 2016). Officers who cannot perform their duties may be unable to protect the public from suspects or fail to take action against suspects due to the knowledge that they may not be able to manage the situation. Law enforcement agencies are responsible to the public for protection and enforcement of laws and to their officers by adequately training them. Part of law enforcement agencies' responsibility to both the public and officers is to ensure they are fit for duty by requiring the officers to maintain a set physical fitness standard (Lagestad & van den Tillaar, 2014). The poor

physical conditioning of law enforcement officers affects society by an inability of officers to perform their job duties. Their conditioning can affect productivity, injuries, recovery time, risks, and increased medical costs by agencies and insurance companies (Greco & Fischetti, 2018; Kukic et al., 2018; MacDonald et al., 2016).

Theory

This research was based on a primary theory (organizational theory) and a secondary theory (self-determination theory). As depicted by Matteson and Ivancevich (1999) and Wheatley (1994), organizational theory states organizations create structure or policy for their members to follow. Self-determination theory suggests a person's behaviors are a product of the individual's motivation (Long et al., 2014; Sicilia et al., 2016; Teixeira et al., 2012). As related to an officer's physical fitness level, the officer may be motivated to exercise and maintain good physical conditioning due to an agency policy (organizational theory or self-determination theory via extrinsic motivation). When agencies do not have physical fitness policies, officers may not be motivated to exercise. The lack of policies around fitness provides officers with no external motivation consistent with organizational theory and self-determination theory (Long et al., 2014; Sicilia et al., 2016).

Problem Statement

All law enforcement agencies require their officers to pass pre-employment screening and be in top physical condition (Hauschild et al., 2017). However, many agencies do not have or enforce policies requiring or mandating officers maintain that top physical condition. Agencies that do not enforce physical fitness standards for their incumbent officers beyond the academy or hiring risk having officers in poor physical condition. Additionally, officers in poor physical condition use more sick days and have a higher risk of heart disease, injury risk, and

obesity (Anderson et al., 2016). Officers in poor physical condition are less likely to perform essential job duties such as pushing vehicles or chasing suspects and are more likely to be challenged by offenders. Furthermore, when officers know they are not physically able to perform duties, they become less productive to avoid the risk of a physical confrontation. Officers who are unable to perform required duties can be costly to their agencies in terms of lost productivity and can be a liability. When officers fail to perform their duties, it can result in injury or death to themselves or the citizens they are supposed to protect and serve (Petersen et al., 2016).

Very few law enforcement agencies have minimum standards, testing, or requirements for incumbent officers (Petersen & Anderson, 2016; Strandberg, 2014). While the physical fitness condition of officers frequently decreases with the officer's age and length of service, the job requirements do not change with the length of the officer's service. Officers in better physical condition are healthier, safer, and better able to perform their job duties (DeNysschen et al., 2018). Officers should be in better physical shape than the general public; however, studies have shown law enforcement officers have a higher rate of obesity than the general public and are at a greater risk of developing cardiovascular disease, diabetes, and metabolic syndrome (Anderson et al., 2016; Dawes et al., 2017). When officers do not devote time to proper nutrition and exercise, their agencies need to step in and ensure their officers are healthy and in top physical condition to perform their job duties. Law enforcement agencies need to set physical fitness standards that reflect the levels of fitness necessary to perform the required job duties (Meyers et al., 2019; Zumbo, 2016). These standards need to go beyond height and weight charts to ensure cardiovascular conditioning, occupational fitness, mental health, and wellbeing. Law enforcement agencies must emphasize and prioritize officers being physically capable of

performing their essential and sometimes strenuous physical job tasks (Collingwood et al., 2003). Agencies need to make exercise facilities available to employees and ensure lifestyle modification (weight loss, nutrition, smoking cessation, alcohol abuse) counseling is available to those who need it (Anderson et al., 2016). Despite there being research on the need for law enforcement officers to maintain fitness levels, there is a lack of information regarding the relationship between law enforcement fitness levels and fitness standard policies. The lack of health information can create problems for the agency. The problem was there is no definitive link between law enforcement agency physical fitness policies and law enforcement officer physical fitness levels, nor is there a universally established minimum physical fitness standard for law enforcement.

Purpose Statement

The purpose of this research was to demonstrate if officers were held accountable for their level of physical condition through physical fitness standards, they would be more likely to maintain a higher level of physical conditioning. Due to the nature of law enforcement, officers need to be in top physical condition so they can perform rigorous activities at any time and under any circumstance (Orr et al., 2016; Rhea, 2015). This research obtained the levels of physical condition in officers working at agencies that do not have established physical fitness standards and compared them to the physical fitness levels of officers working at agencies that do have them. By showing how the levels of physical fitness are compared between the two groups, agencies would determine the benefit of establishing and enforcing physical fitness standards. The purpose of this study was to investigate the relationship between law enforcement agency physical fitness policies and law enforcement officer physical fitness levels.

Significance of the Study

Studies of and concerns with physical fitness levels of law enforcement officers are not new. However, there is little research comparing fitness levels among officers employed in agencies with physical fitness standards with those who do not have physical fitness standards. This research attempted to fill in the gaps in the literature by comparing the fitness levels of officers in various departments that have and do not have physical fitness standards enforced. The significance of this research was showing the importance of establishing and enforcing physical fitness standards for all law enforcement agencies. The research would show law enforcement agencies if it was acceptable to establish and enforce physical fitness standards to promote healthier law enforcement officers by having and enforcing physical fitness standards. This study is similar to the study conducted by Fortenberry (2016), in which he compared physical fitness levels and injury rates of law enforcement officers in North Carolina. Hancock (2017) also studied the relationship between officers' physical fitness and job injuries in North Carolina police officers. Hamel (2015) studied the relationship between law enforcement officers' physical fitness levels and their stress management and coping skills to aid law enforcement agencies with an incentive to develop physical fitness and wellness plans. Both Hamel (2015) and Hancock (2017) stated their research was an extension of Smith and Tooker's (n.d.) study of law enforcement physical fitness. Poncio (2020) surveyed law enforcement officers in Texas and found over half of the officers surveyed (56%) supported annual fitness assessments, while 72% favored health intervention or wellness programs. Quinones (n.d.) studied the need for physical fitness standards and testing with the Hallandale Beach Police Department. Each of the listed studies was small and limited to only a few agencies in one state or region. The significance of this study was that it reached out to state law enforcement agencies

in all 50 states to participate in the research. By obtaining information from agencies across the United States, the data received and analyzed could be generalizable to law enforcement agencies across the United States.

Research Questions

This research study examined law enforcement officer fitness levels and compared officers' fitness levels in agencies with physical fitness standards and agencies that do not have them for incumbent officers. After obtaining agency permission for participation, surveys utilizing a Likert scale was distributed. State agencies for all 50 states were contacted to ascertain their post-academy graduation physical fitness policies; 10 agencies with and 10 agencies without post-academy graduation physical fitness policies were invited to participate in the research study. This research sought to answer the following research questions:

RQ1: Is there a statistically significant difference in the relationship between the physical fitness levels of law enforcement officers and law enforcement agencies that enforce (or do not enforce) physical fitness standards?

RQ2: Do law enforcement officers employed by agencies that have (and enforce) physical fitness standards spend statistically more time working on their physical conditioning (measured by the amount of time spent exercising or involved in organized sports) than officers working for agencies that do not enforce mandatory physical fitness standards?

RQ3: Are fit law enforcement officers (as self-reported based on a 5-point Likert scale) statistically more interested in their agencies adopting (or maintaining) required (or voluntary) physical fitness standards (measured on a Likert scale)?

RQ4: What are the opinions of state law enforcement agency heads regarding the enactment or enforcement of post academy graduation physical fitness standards?

RQ5: Why do state agencies have (or not have) post academy graduation physical fitness standards for their law enforcement officers?

Definitions

1. *Body Mass Index (BMI)*- A measurement that calculates a person's body fat based on their height and weight. The BMI does not consider a person's body composition or the ratio of body fat to muscle mass (Pronk, 2015).
2. *Bona Fide Occupational Requirement (BFOR) or Qualification (BFOQ)*- This is a requirement of any performance or skill necessary to perform a job at an acceptable level. The skill level required must be conducted safely to complete a job, it is exempt from some discriminatory level policies listed by the EEOC of 1978 (Brown, 1995; Fortenbery, 2016; Jamnik et al., 2013).
3. *Equal Employment Opportunity Commission of 1978*- This commission stated a job could not discriminate or cause an adverse impact on anyone based on race, religion, gender (Gebhardt et al., 2019; Payne & Harvey, 2010).
4. *Fitness standards*- These standards require minimum scores that must be obtained on individual physical fitness exercises or a specific time in which a series of physical fitness tests must be completed (Cooper Institute, n.d.).
5. *Law enforcement agency (LEA)*- Refers to any agency that employs sworn law enforcement officers to carry out the laws of its jurisdiction, including city police, county sheriff's departments, state police or state highway patrols, university police departments, tribunals, and federal police agencies (Lockie et al., 2020).
6. *Obesity*- A status that occurs when a person has a body mass index (BMI) of 30 or greater (Pronk, 2015).

7. *Occupational fitness*- The ability to perform duty-related tasks. According to Beck et al. (2015), occupational fitness tasks include running, dragging a dummy, climbing stairs or a fence, jumping over obstacles, firing a weapon, and making sudden turns.
8. *Physical fitness or physical conditioning*- Refers to an officer's overall physical condition including the officer's height, weight, flexibility, muscle strength, cardiovascular condition, and ability to perform physical tests. According to Lentz et al. (2019), Smith and Tooker (n.d.), and Quinones (n.d.), physical fitness is the ability to meet life's demands, overcome emergencies, and pursue work and leisure activities without undue fatigue. Components of physical fitness include cardiovascular endurance, anaerobic power, muscular strength, muscular endurance, flexibility, and body composition (Quinones, n.d.).
9. *Physical fitness standards*- Refers to a set level or requirement of performance on testing established by an agency. The standard may be for an individual test, such as a set number of sit-ups or push-ups, or it may be a requirement to complete a series of tests or obstacles in a set time period. According to Petersen et al. (2016), physical fitness standards should be classified or referred to as performance standards and defined as qualitative descriptions of attributes demonstrated at acceptable levels to show the capability to perform essential job demands safely.
10. *Physical fitness testing* – A set of tests or exercises designed to simulate job tasks or determine the strength and endurance of police officers. Examples of these exams include the Physical Abilities Test [PAT], the Physical Fitness Ability Test [PFIT], the Physical Abilities Requirement Evaluation [PARE], and the Police Officer Physical Ability Test [POPAT] (Beck et al., 2015).

CHAPTER TWO: LITERATURE REVIEW

Overview

A literature review was conducted to determine existing studies on law enforcement physical fitness levels and agency policies and to locate gaps in the literature. For this literature review, the researcher conducted Liberty University and Google Scholar database searches were conducted for published articles written between 2016 and 2021. This review also included some older articles with specific relevance to this research study. A topical approach to the research was used. Research parameters were set to locate peer-reviewed journal articles and law enforcement trade magazine articles. These articles were written about law enforcement physical fitness levels and police agency physical fitness standards. The researcher used the following keywords to locate literature: law enforcement officers, officers, police officers, physical fitness, physical conditioning, physical fitness standards, and physical fitness levels. The bibliographies of research articles and dissertations were used to obtain additional research articles. The Cooper Institute website, a physical ability test and information website was also reviewed (Cooper Institute, n.d.). An additional search of theories, specifically how an agency's approach to physical fitness would affect an individual's approach to physical fitness, was conducted.

Law enforcement officers should be in top physical condition; however, many law enforcement officers are obese and have an elevated risk of cardiovascular disease, diabetes, metabolic syndrome, and on-the-job injuries (Vukovic et al., 2019). Law enforcement officers start their careers in peak physical condition; however, many officers fail to maintain their physical conditioning levels throughout their careers. Law enforcement officers who exercise are in better physical condition and can perform their required job tasks than officers who are overweight and out of shape (Lockie et al., 2018; Vukovic et al., 2019). Law enforcement

officers who work out as a unit or team, such as specialty units, have higher physical fitness levels than routine or patrol officers (Maupin et al., 2018). Proper physical conditioning is vital for law enforcement officers to perform required tasks, especially considering the equipment law enforcement officers must wear during their shifts (Collingwood et al., 2003; Teixeira et al., 2019).

Theoretical Framework

This study's theoretical foundation was based on organization theory described by Matteson and Ivancevich (1999) and Wheatley (1994). A secondary theory for this study was self-determination theory. This theory stressed an individual's motivation or lack thereof determines their adherence to objectives (Long & Readdy, 2014; Sicilia et al., 2016; Teixeira et al., 2012). Organization theory for this study described how organizations or agencies control the organization's members concerning their fitness levels and adherence to organizational directives. In contrast, self-determination theory described individuals' motivation to adhere to policies and directives to maintain fitness levels when there were no directives enforced. Law enforcement agencies that implement physical fitness standard policies rely on the organization theory to ensure members adhere to the policy guidelines and standards. Law enforcement agencies that do not have or enforce physical fitness standards policies depend on the self-determination theory to motivate their members to maintain appropriate physical fitness levels.

According to Matteson and Ivancevich (1999), organizations impose structure and organization upon their members, creating policies and work divisions. Wheatly (1994) further described organization theory's divisions as fields or guiding principles that form key patterns to express the organization's identity and create group norms and requirements. Organization theory is premised on the idea that an organization coordinates an idea (policy) that is related to time

and habits (physical fitness) deemed to be important to the organization and presents it to its members for acceptance and adherence (Matteson & Ivancevich, 1999). As members apply and internalize organizational principles, goals, and objectives (agency policies), the member's behavior changes from a mechanical acceptance to internal acceptance (Matteson & Ivancevich, 1999; Wheatley, 1994).

Organizations use a system of authority to express and enforce a central purpose or structure, including policies, to provide direction and directives for their members (Matteson & Ivancevich, 1999). As leaders use positive energy and reinforcement in their delegation of power and authority, relationships form within the organization, strengthening bonds and individuals' desires to adhere to its goals and policies (Wheatley, 1994). This formation of bonds further influences behaviors, cohesion, and encourages members to embrace the organization's values or visions set forth by the guiding principles or policies. These formed bonds aid in forming social control or social influence to ensure members adhere to the organization's cultural norms (Matteson & Ivancevich, 1999). Social control leads to peer pressure ensuring all members adhere to the required policies or goals. Through social control and peer pressure, members maintain motivation for the individuals and the group to succeed in keeping standards (Matteson & Ivancevich, 1999). Further adherence to an organization's objectives (or policies) leads to self-reference or a sense of identity. The member internalizes the organization's values, traditions, culture, competencies, aspirations, and leaders (Wheatley, 1994). This self-reference can convince law enforcement officers to adhere to agency policies concerning physical fitness standards.

Matteson and Ivancevich (1999) and Wheatley (1994) combined motivation theory (described in self-determination theory) into the organization theory to explain the enticement of

individuals to adhere to principles by using intrinsic motivation or external rewards. The self-determination theory has been used to describe exercise motivation in different populations (Long et al., 2014; Sicilia et al., 2016; Teixeira et al., 2012). The self-determination theory purposes a continuum of motivation, including intrinsic motivation, external motivation, and amotivation (Long et al., 2014; Sicilia et al., 2016; Teixeira et al., 2012). Sicilia et al. (2016) described the continuum of motivation as going from completely autonomous or self-determined to completely non-self-determined or controlled by force or pressure. Intrinsic motivation, integrated regulation, and identified regulation are forms or levels of autonomous motivation. The person exercises due to pleasure, harmony with other values, or feels exercise is valuable (Long et al., 2014; Sicilia et al., 2016). According to Long et al. (2014) and Teixeira et al. (2012), the focus of autonomous motivation to exercise is based on an internal locus of causality or intrinsic desire. Intrinsic forms of motivation are the most stable forms of motivation to exercise, provide the most satisfaction from exercise, and are the most likely form of motivation for individuals to continue long-term exercise programs (Long et al., 2014; Sicilia et al., 2016; Teixeira et al., 2012).

Extrinsic motivation, according to Long et al. (2014), consists of non-self-determined (either external or introjected) and self-determined (either identified or integrated). Long et al. (2014) further explained extrinsic motivation to do something or complete something is much different than being forced to do it. The force may be in the form of a job mandate or from introjected regulation where a person does something (exercise) to avoid a punishment or avoid a feeling of guilt (Long et al., 2014). Sicilia et al. (2016) described external motivations as controlling motivations. Teixeira et al. (2012) further explained external or extrinsic motivations for exercise were based on instrumental reasons in that the person performs an activity or

exercise for reasons beyond the activity (such as to avoid disapproval). The third aspect of the self-determination theory relates to exercise and the desire to maintain peak physical conditioning is amotivation. Amotivation refers to the lack of motivation or desire to exercise or maintain physical fitness (Long et al., 2014; Sicilia et al., 2016; Teixeira et al., 2012). A person experiencing amotivation fails to regulate their activities (exercise or fitness routine), lacks the desire to exercise, and only does it when necessary (Long et al., 2014; Sicilia et al., 2016). A person experiencing amotivation may also feel less competent or not skilled enough to exercise, may not be physically fit, or may have health issues that limit their ability to be physically active (Teixeira et al., 2012). Agencies that do not have established and enforced physical fitness standards rely on individuals' autonomous or intrinsic motivation to maintain their physical fitness levels. Agencies wishing to aid in improving an individual's motivation to exercise may need to begin with external regulations (policies) to convince members of the need to become physically fit and maintain physical fitness levels.

Related Literature

Several databases were searched using Liberty University's Jerry Falwell Library and Google Scholar search engines to search for research articles relating to law enforcement fitness levels and law enforcement agency fitness or wellness policies. Keywords such as "officer," "police," "law enforcement officer," "physical fitness," "physical fitness levels," "wellness policies," and "physical fitness standards" were searched. The researcher rejected most articles outside of the 2016 to 2021 time period; however, some older articles of specific interest were included in the review. Peer-reviewed articles relating to law enforcement officers' need to maintain optimal physical fitness were located and reviewed. Additional peer-reviewed articles were located and included based on source documents. While articles were found related to law

enforcement officers' physical fitness, no articles were located specifically detailing the relationship between law enforcement officers' physical fitness levels and physical fitness policies. Articles regarding law enforcement physical fitness levels were grouped into three areas: the nature of law enforcement work, health factors, and agency fitness standards or wellness policies.

Nature of Law Enforcement Work

Law enforcement, as a profession, is physically and psychologically stressful and demanding (Lentz et al., 2019; Magnavita et al., 2018; Maran et al., 2018; Marins et al., 2019; Poncio, 2020; Schilling et al. 2020). Law enforcement is a unique profession that requires physical and mental skills and fitness (Strader et al., 2020). The uniqueness and unpredictability of law enforcement are complicated by various situations during any given shift (Lockie et al., 2018; Marins et al., 2019; Silk et al., 2018). Law enforcement officers can go from being sedentary (sitting in a vehicle working on reports) to becoming involved in a volatile situation requiring mental acuity and physical strength (shoot-don't-shoot scenario) with little to no warning (Dawes et al., 2017; Lentz et al., 2019; Lockie et al., 2018; Lockie et al., 2019; Marins et al., 2019; Marins et al., 2020; Muirhead et al., 2019; Orr et al., 2017; Orr et al., 2020; Silk et al., 2018; Violanti et al., 2016; Vukovic et al., 2019; Williams & Ramsey, 2017). During any shift, an officer may have to run after a suspect, pull a person from a burning car, drive a vehicle, jump over obstacles, discharge a firearm, or use force to apprehend a suspect (Lockie et al., 2019; Lockie et al., 2020; Marins et al., 2019; Marins et al., 2020; Muirhead et al., 2019; Orr et al., 2019; Orr et al., 2020; Silk et al., 2018; Strader et al., 2020; Teixeira et al., 2019). The various actions required by law enforcement officers demand that they be in good physical condition and may involve components of strength, endurance, power, and aerobic fitness (Lentz

et al., 2019; Poncio, 2020; Quinones, n.d.). The sudden changes in situations can be stressful as well as mentally and physically challenging (Cohen et al., 2019; Poncio, 2020).

The physiological demand created during intensive situations can be equivalent to the response incurred during extreme or high-intensity exercise sessions (Bloodgood et al., 2019). Officers must be able to perform all required job duties at any time, regardless of how frequently a particular type of situation may occur during the officer's career (Orr et al., 2016). Physical fitness and good physical condition, as they relate to law enforcement, refer to the ability to carry out required job duties, meet physical stressors, and have energy for leisure pursuits (Lentz et al., 2019). Physical fitness includes muscular strength and endurance, flexibility, cardiorespiratory endurance, and balanced body composition (Lentz et al., 2019). Officers in excellent physical condition are healthier, safer, and better able to perform their job duties (DeNysschen et al., 2018). Not only do officers need to be in good physical condition to perform their duties, but they also need to be in better physical condition than the general public they have sworn to protect and the violators they attempt to arrest (Dawes et al., 2016; Lentz et al., 2019). When officers are not in good physical condition, they present a danger to themselves and others and can become a liability to their agency (Quinones, n.d.)

With the physical demands of law enforcement, one would think officers would maintain a high level of physical conditioning throughout their career (Fortenbery, 2016; Muirhead et al., 2019). However, the rotating shift requirements of many law enforcement personnel make it challenging to regulate sleep schedules, maintain proper nutrition, or maintain a fitness regimen (Anderson et al., 2016; Mumford et al., 2021; Rossomanno et al., 2012; Williams & Ramsey, 2017). Additionally, law enforcement work and the isolation many officers feel can lead to increased stress levels and sleep disturbances (Greco & Fischetti, 2018; Quinones, n.d., Vukovic

et al., 2019). Despite the difficulties, law enforcement officers must maintain top physical conditioning to perform their required duties. Officers failing to maintain adequate fitness levels have a decreased ability to perform job duties such as pushing a vehicle or chasing a suspect and are at an increased risk of acquiring on-the-job injuries. They can also suffer from increased stress levels, sleep problems, increased health risks such as cardiovascular disease, diabetes, and other weight-related problems (Dawes et al., 2017; Muirhead et al., 2019; Williams & Ramsey, 2017). Higher physical fitness levels of law enforcement officers have been shown to increase officer productivity while decreasing sick time usage, stress levels, and work-related injuries (Losty et al., 2016; Violanti et al., 2016).

Additionally, research has shown that officers who routinely engage in physical activity have better balance and strength while also reducing their risk of obtaining on-the-job injuries (Muirhead et al., 2019; Orr et al., 2016). Proper physical conditioning is vital for law enforcement officers to maintain their health and to be able to perform required tasks. Especially considering the load law enforcement officers must wear during their shifts (Teixeira et al., 2019). Most law enforcement officers start their careers in peak physical conditioning; however, their physical condition often deteriorates as their careers progress (Muirhead et al., 2019; Williams & Ramsey, 2017). Unfortunately, while an officer's fitness level may decrease with the length of their career, the job requirements do not decline with years of service (Bloodgood et al. 2019; Petersen et al., 2016; Rossomanno et al., 2012).

Recruits and Beginnings of Law Enforcement Careers

Law enforcement recruits begin their careers in the best shape of their lives (Cocke et al., 2016; Hauschild et al., 2017; Ramey et al., 2016). Recruits attending law enforcement academies must meet and maintain a specified set of physical fitness standards (Bloodgood et al., 2019;

Cesario et al., 2018; Hauschild et al., 2017; Lockie et al., 2019; Petersen & Anderson, 2016). While in the academy, recruits participate in daily physical training exercises to prepare them for their law enforcement careers (Bloodgood et al., 2019; Dawes et al., 2017; Lockie et al., 2019; Teixeira et al., 2019). The recruits should continue the fitness levels achieved during police academies and the fitness programs learned throughout their law enforcement career (Orr et al., 2018). However, upon graduation from law enforcement academies, many new officers discontinue their daily fitness rituals and lose their top physical condition (Dawes et al., 2017; Muirhead et al., 2019; Teixeira et al., 2019). Many law enforcement officers fail to maintain previous fitness levels due to lack of time to exercise caused by shift work, poor nutritional habits, and inadequate sleep. An additional factor in poor officer health was agencies not enforcing physical fitness standards (Hancock, 2017). According to Libor (2019), 98% of law enforcement agencies do not have physical fitness standards for incumbent officers. Physical training should occur regularly for law enforcement officers to maintain proper physical conditioning and perform job-related tasks (Lockie et al., 2019).

Career Progression

While many officers start their careers in peak physical condition, few maintain that same condition throughout their careers. When agencies do not mandate physical fitness policies, some officers lose the dedication and motivation to exercise regularly (Lockie et al., 2019). Physical activities such as running or the gym change and nutritional habits tend to decline (greater reliance on fast food during shifts) as officers spend time in law enforcement, decreasing physical fitness levels (Orr et al., 2017). Officers' motivation to exercise declines, and their physical fitness levels decrease as the length of the officer's career increases. Lagestad and van Den Tillaar (2014) noted a decrease in training and physical conditioning in law enforcement

officers after they had worked for three years. As the officer's career progresses, their body fat tends to increase, and their job performance and capabilities decrease (Davis et al., 2016; Milligan et al., 2016; Vukovic et al., 2019). It is easier for an officer to maintain their initial physical fitness levels than for an older, overweight, or obese officer to regain the fitness level they once had (Cvorovic et al., 2018; Petersen et al., 2016). According to Lockie et al. (2017), the longer an officer is involved with law enforcement, the more their body fat mass increases, and their strength and cardiovascular condition (physical condition) deteriorate.

Shift work, extended periods of sedentary activity, and poor nutritional habits lead to a decline in the desire to exercise and maintain prior physical fitness levels (Anderson et al., 2016; Kukic et al., 2018). A study conducted by Taylor et al. (2016) showed that the average police officer's physical fitness level declines after three years in law enforcement. As people age, their body composition (muscle mass to fat mass) changes, making it essential to exercise and maintain proper nutrition. To prevent the decline in physical abilities and conditioning associated with age and the length of an officer's career, officers need to develop and continue with a physical fitness plan that includes strength training and cardiovascular endurance (Cvorovic et al., 2018; Teixeira et al., 2019). Officers can be better prepared for any job duty or situation when they have an exercise routine that incorporates strength conditioning and muscular and cardiovascular endurance (Davis et al., 2017). These routines must be based on skills needed to fulfill the job requirements (such as the ability to run, climb, or lift objects). Continuing or beginning a fitness routine ensures muscle mass maintenance, reduces body fat and excess weight, reduces stress, improves sleep, and wards off health conditions related to excess weight (Teixeira et al., 2019). While an officer's body composition changes as they age, the job requirements of law enforcement officers do not vary or change with an officer's age (Cvorovic et al., 2018; Davis et

al., 2016; Dawes et al., 2016; Dawes et al., 2017; Lockie et al., 2017; Lockie et al., 2019; Petersen et al., 2016; Teixeira et al., 2019).

Career Situations

Law enforcement officers should be in better physical condition than the general public to perform their job duties and instill confidence in the public (Marins et al., 2019; Maupin et al., 2018). Law enforcement can be a physically demanding career, and officers need to be in optimal physical condition to perform the mirage of duties they may encounter throughout their shift (Dawes et al., 2017; Kukic et al., 2018; Maupin et al., 2018; Maupin et al., 2018; Orr et al., 2017; Robinson et al., 2018; Silk et al., 2018; Taylor et al., 2016; Vukovic et al., 2019). During an officer's shift, the officer may go from sitting in a vehicle working on reports to running after a suspect, being involved in a physical altercation, having to rescue a person, or changing a tire (Davis et al., 2016; Dawes et al., 2016; Dawes et al., 2017; Kukic et al., 2018; Lockie et al., 2017; Orr et al., 2017; Strader et al. 2020; Teixeira et al., 2019; Vukovic et al., 2019). These duties are performed at different times of the day and under a variety of weather conditions while wearing a full uniform that includes carrying a bullet-proof vest, duty belt, and steel-toed boots, all weighing over 20 pounds (Kukic et al., 2018; Maupin et al., 2018; Robinson et al., 2018; Taylor et al., 2016). Officers rarely notice changes in their physical activities or stress levels during their shifts (Lockie et al., 2017). This change comes suddenly, leading to increased stress, increased injury risk, and increased risk of cardiovascular events like heart attacks (Zimmer, 2017). As law enforcement work, in general, has a higher rate of injury and death than other occupations, law enforcement officers should strive to maintain a high level of physical conditioning (Lentz et al., 2019).

An officer that is out of shape and unable to perform their duties presents an unprofessional appearance and sends a message to violators that they can be easily overtaken (Losty et al., 2016). Additionally, officers who cannot perform their duties present a risk of injury or death to themselves and those they are sworn to protect (Davis et al., 2016; DeNysschen et al., 2018; Marins et al., 2019; Petersen et al., 2016). Officers in poor physical condition may need to use more force to gain control of suspects and may be more readily challenged by violators than fit officers (Bertomen, 2016; Cocke et al., 2016; MacDonald et al., 2016). The officer should be able to always perform their duties in all weather conditions. Still, the officer must also be able to perform their duties while wearing a bullet-proof vest, steel-toed boots, and additional required equipment (such as duty belt) that can weigh twenty pounds or more (Maupin et al., 2018; Maupin et al., 2018; Robinson et al., 2018). Specialized units such as SWAT and K-9 handlers, as well as units working during times of civil unrest (riots), may be required to carry gear weighing over fifty pounds (MacDonald et al., 2016; Maupin et al., 2018; Maupin et al., 2018; Strader et al. 2020). The extra weight of the law enforcement officer's gear can affect their way of walking, posture, mobility ability, resulting in fatigue and working difficulties (Orr et al., 2017; Taylor et al., 2016).

Several studies were conducted studying the effects of load-bearing carriage on officers performing routine duties (Marins et al., 2020; Marins et al., 2020; Maupin et al., 2018; Maupin et al., 2018; Robinson et al., 2018; Strader et al., 2020; Taylor et al., 2016). The studies showed that the load officers carry affects their metabolic rate, aerobic capacity, and stamina. Furthermore, the studies demonstrated the significance of physical conditioning on the officer's ability to perform routine law enforcement tasks while wearing their required gear. Robinson et al. (2018), Marins et al. (2020), Marins et al. (2020), and Strader et al. (2020) detailed the

significance of strength and endurance training to increase duty or task-related performance while wearing the required law enforcement gear. Strength training is especially important for those with smaller frames, as their gear may be a higher percentage of weight compared to their body weight (Armstrong et al., 2017; Robinson et al., 2018). The significance of strength or weight training was also shown by Kukic et al. (2018) and Davies et al. (2016) due to the loss of body muscle mass and increased body fat that occurs with sedentary activities. The loss of body muscle mass and an increase in body fat can decrease stamina and aerobic capabilities that may be needed to perform required physical activities occurring during a shift. There is a tendency toward a decrease in physical activity and deterioration of physical conditioning as people age; however, there is no decline in work requirements or responsibilities with age or years of service in law enforcement (Bloodgood et al., 2019; Dawes et al., 2017; Orr et al., 2017). Therefore, officers must continue with physical fitness routines to maintain their peak physical conditioning to perform their job duties throughout their careers. This is especially important for female law enforcement officers. Females tend to have lower muscle mass and higher body fat percentages, with body fat percentages increasing more as they age (Dawes et al., 2017; Kukic et al., 2019). The officer must be able to perform all duties that occur during their shift, but they must also be able to perform those duties in all weather conditions. A higher physiological burden is placed on out of shape officers that can be exasperated in extreme weather conditions (Cvorovic et al., 2018; Kukic et al., 2018; Maupin et al., 2018; Orr et al., 2017). Peak physical conditioning and aerobic endurance enable officers to perform continued or extended periods of physical activities. The public expects officers to be able to perform their duties at all times (Maher, 1984). Additionally, law enforcement officers expect their co-workers to be able to do their share of the work and provide backup assistance when needed. Officers who are not in peak physical

shape may not be able to run after and chase down suspects, lack the proper physical endurance necessary to complete tasks, thus requiring more frequent breaks, and may require more assistance to perform routine tasks. This inability to perform routine tasks is especially evident under stressful conditions (Bertomen, 2016). Under stressful conditions, such as shoot-don't-shoot situations, the increased adrenaline and a lack of physical conditioning can cause an officer to make the wrong choice or miss a target. That decision could result in an innocent person being struck by a bullet or result in the injury or death of the officer (Bertomen, 2016). Additionally, unfit officers could be forced to increase the use of force matrix due to not being able to control the situation due to their lack of physical conditioning (Bertomen, 2016). The inability to maintain control of a situation could negatively affect the officer, the suspect, and the public the officer is supposed to be protecting (Cocke et al., 2016; Davis et al., 2017). In addition to being better able to perform their job duties, fit officers are more confident in themselves and their ability. This confidence enables them to make better decisions, reduce the force needed to control situations, improve their health, and reduce their stress levels (Bertomen, 2016; Quinones, n.d.). Furthermore, as a form of positive peer pressure, fit officers inspire other officers to increase their physical fitness levels. Officers who work out together have greater camaraderie, higher fitness levels, and less stress than officers who work out alone or do not engage in physical activities (Davis et al., 2016; Maupin et al., 2018).

Age and Gender in Law Enforcement

Fitness standards and qualifications must be the same for males and females; however, females tend to have lower upper body strength (Bloodgood et al., 2019). In a study conducted by Cesario et al. (2018), males performed better on a physical ability test (PAT) than females, and younger officers performed better than older officers. Younger officers also scored higher on

physical agility tests than older officers in a study conducted by Arvey et al. (1992). Arvey et al. (1992) noted men scored significantly higher on physical ability and strength tests; however, there were a few differences on endurance tests. Bloodgood et al. (2019) also noted that males performed better than females on speed, strength, and power tests. Lockie et al. (2020) noted when female recruits were hired with lower or no physical fitness standards, they had lower aerobic capabilities, thus showing the need for fitness standards and training.

Lockie et al. (2019), Bloodgood et al. (2019), Teixeira et al. (2019) all noted lower performance measures on physical abilities tests (PATs) and declines in strength for older officers. Muirhead et al. (2019) also noted declining performance in officers as they age; however, some of the declines could be attributed to older officers being more likely to work in sedentary positions (desk work) instead of field or road positions. As officers age, many become less physically active and adopt poor lifestyle choices. This decline can put them at higher risk for illnesses such as diabetes, heart disease, metabolic syndrome, and increase their risk for injuries, especially to their knees, back, and hips (Anderson et al., 2016; Dawes et al., 2017; Myers et al., 2019). Kukic et al. (2019) noted as women aged, their body fat percentage and body mass index (BMI) increased. Additionally, as people age, they tend to lose lean muscle tissue resulting in a loss of strength, power, speed, and flexibility, decreasing cardiorespiratory functions (Bloodgood et al., 2019; Dawes et al., 2017; Flowers et al. 2019; Lockie et al., 2019). As the length of service increases and officers age, they tend to be more sedentary and less active, leading to weight gain and increases in obesity (Anderson et al., 2016; Dawes et al., 2017).

Appropriate conditioning programs can enhance officers' fitness, diminish the loss of lean muscle tissue, and reduce the risk of injuries, especially in older officers (Bloodgood et al., 2019). Lockie et al. (2017) noted that physiological changes occur with age, especially after 40

to 50 years old, with muscle atrophy and changes to the central nervous system. While the age of officers has been shown to be a factor in law enforcement officer physical fitness levels, the length of service was shown to be more of a factor related to the decline in physical fitness (Lockie et al., 2017; Orr et al., 2016). Continuous and appropriate training is especially important for older officers. They experience age-related declines in muscular and cardiovascular functioning that could affect their ability to perform job tasks (Lockie et al., 2019; Teixeira et al., 2019). Proper training is essential for all officers. By having set exercise plans based on skills needed for job performance, law enforcement officers can be better prepared for their jobs and any situations that may occur regardless of their age or length of service (Davis et al., 2017). Maupin et al. (2018) showed that the continual conditioning required by tactical teams ensured their members maintained high levels of fitness despite the age of the police officer or the length of service. When considering the implications of aging and working in law enforcement, Flower et al. (2019) listed three primary considerations affecting the physical capacity to work. An individual's cardiorespiratory function, muscular strength, and muscular endurance are affected as one age. While age brings many downsides in relation to physical abilities and declining strength, it also brings experience and maturity, which can help officers negotiate circumstances and aid officers in resolving conflicts without resulting in physical confrontations. Maintaining a healthy lifestyle, physical activity, training, and maintaining a low BMI can minimize some of the effects of aging and aid officers in being physically capable of performing job duties at older ages (Flowers et al., 2019).

As women carry a higher percentage of their body weight in load carriage due to their smaller stature, women are more likely to experience injury or discomfort due to the load carriage associated with uniforms and equipment (Armstrong et al., 2017; Marins et al., 2020;

Muirhead et al., 2019; Orr et al., 2019). Ensuring women train with weight-bearing activities will ease discomfort and improve stamina when working (Armstrong et al., 2017). According to Taylor et al. (2016), smaller people, including women, require more cardiovascular endurance to perform tasks regardless of whether they are bearing a load. Depending on where the load was carried (feet for boots, waist for gun belts, hands, or thoracic region), that area can impact mobility, gait, ventilation, and cardiovascular endurance requirements (Taylor et al., 2016). Training and testing officers in the same way they perform their job duties increase the reliability and validity of the testing and increase the likelihood of a positive outcome should someone challenge the testing in court (Milligan et al., 2016).

Health Factors

While law enforcement officers should be in top physical condition to perform their job duties, many law enforcement officers have poorer health than the general public (IACP, 2018; Williams & Ramsey, 2017). Law enforcement officers are more likely to be obese, have diabetes, cardiovascular disease, and sleep disorders such as insomnia and sleep apnea (IACP, 2018; Losty et al., 2016; Schilling et al., 2020; Williams & Ramsey, 2017). According to Dawes et al. (2017) and Anderson et al. (2018), law enforcement officers have nearly twice the risk of cardiovascular disease than the general public. Han et al. (2018) reported law enforcement officers to have a higher rate of cardiovascular disease than the general public due to repeated and long-term exposures to stress, eating habits, chemical hazards, and biological hazards. This poor health is due, in part, to the lack of physical fitness, inadequate sleep, poor nutrition, and going from sedentary activities to maximum exertion (Anderson et al., 2016; Dawes et al., 2017). Officers who are not in top physical condition are more likely to sustain an injury, become ill, or take extended time off work (Losty et al., 2016; Muirhead et al., 2019). Sudden changes in

physical activity can increase the risk of injury or mortality for officers not in top physical condition. Improving one's diet and beginning an exercise regime (obtaining and maintaining top physical condition) can reduce many of the adverse effects caused by being overweight or obese (Anderson et al., 2016; Dawes et al., 2016; Dawes et al., 2017; Haddock et al., 2016; IACP, 2018; Vukovic et al., 2019). The failure to maintain dietary and exercise habits may decrease strength and endurance while increasing body fat levels (Kukic et al., 2019). The longer an officer has been on the job, the more critical it is to exercise and eat healthily. This is especially true for female officers who have higher percentages of body fat and lower strength levels (Kukic et al., 2019).

Law enforcement officers that maintain high levels of physical conditioning tend to use fewer sick days and have lower risks of diabetes, cardiovascular disease, stress, and other weight-related health issues. These lifestyle changes lower the chances of incurring an on-the-job injury (Anderson et al., 2016; Cvorovic et al., 2018; Greco & Fishetti, 2018; Haddock et al., 2016; IACP, 2018; Losty et al., 2016; MacDonald et al., 2016; Quinones, n.d.). Conversely, decreases in officers' physical fitness levels have been shown to increase the use of sick time, increase the risk of health issues, increase injury risks, and increase the time needed to heal from injuries (MacDonald et al., 2016). Optimal physical conditioning goes beyond an officer's weight and includes cardiovascular fitness and the ability to perform job duties; this includes muscle tone and flexibility (Kukic et al., 2018). Other health benefits of regular exercise and a healthy body weight include mood stabilization and decreased levels of depression, improvements in metabolic disorders, and self-image improvements (Greco & Fishetti, 2018; Haddock et al., 2016; Vukovic et al., 2019; Williams & Ramsey, 2017). Stress is an integral part of law enforcement; when combined with shift work, it can affect an officer's ability to obtain adequate

sleep. In terms of improving physical fitness, exercise helps reduce stress and improves the quality of sleep (Greco & Fischetti, 2018; Haddock et al., 2016). Additionally, regular physical fitness training can slow the progression of age-related muscle and bone loss, thus increasing law enforcement officers' ability to perform their required duties as they age (Teixeira et al., 2019). Furthermore, the increased muscle tone obtained by regular strength training eases the burden of wearing a bullet-proof vest and carrying the required gear during routine law enforcement tasks (Robinson et al., 2018). Officers in top physical condition are healthier, safer, and better able to perform their job duties (DeNysschen et al., 2018).

Weight

An officer's physical condition is often measured by determining their body mass index (BMI) and their performance on a series of exercises such as sit-ups, push-ups, timed runs, and flexibility tests (Myers et al., 2019). As people (including law enforcement officers) age, their lean muscle mass decreases while their fat mass percentage increases (Kukic et al., 2019). While obesity is a problem, a person can be at a healthy weight but still be in sub-par physical condition due to a lack of lean muscle tissue (Ortega et al., 2018). Law enforcement officers should maintain higher levels of lean muscle and lower body fat levels. Dawes et al. (2017) noted that officers' body composition and fitness are important in officers' ability to complete occupational tasks.

Studies have shown law enforcement officers have a higher rate of obesity than the general public (Anderson et al., 2016; Dawes et al., 2017). Higher levels of body fat mass can create a burden on the body as the officer attempts to complete occupational tasks, which can lead to decreased aerobic performance, reduced stamina, and increased fatigue (MacDonald et al., 2016; Maupin et al., 2018; Vukovic et al., 2020). Kukic et al. (2018) showed higher body fat

masses were related to decreased stamina and created a 10-32% drop in physical performance. According to Orr et al. (2020) and Williams and Ramsey (2017), officers working the night shift have higher rates of obesity than officers working day or evening shifts. Orr et al. (2020) noted shift work can disrupt an officer's circadian rhythm, impacting work tasks and increasing stress levels, and increasing the likelihood of weight gain leading to obesity. Mumford et al. (2021) noted that disrupted circadian levels caused by shift work could disrupt sleep, increase fatigue, and lead to psychological symptoms and psychosocial stress. Cvorovic et al. (2016), Dawes et al. (2017), Lockie et al. (2018), and Vukovic et al. (2020) noted officers with a high body mass index (BMI) were often classified as overweight or obese and tended to be less efficient in performing required job duties.

Anderson et al. (2016) noted a study showing 48.7% of officers in the study were overweight, and 31.7% of the officers were classified as being obese. Orr et al. (2020) cited several studies on the obesity rate of law enforcement officers, with studies ranging from 42% to 65% of officers being obese. Ramey (2016) also noted how many officers were obese, which led to other health-related illnesses and injuries. Higher levels of body fat impact officers' ability to perform their required duties and how they perform on fitness tests. Additionally, higher body fat levels can predict cardiovascular disease risks (Lockie et al., 2018). Furthermore, officers who are overweight or obese have a higher risk of developing metabolic syndrome or diabetes and are at an increased risk of sustaining a cardiovascular event (Anderson et al., 2016; Schilling et al., 2020). Law enforcement officers are more likely than the general public to suffer from cardiovascular diseases (Orr et al., 2020). This may be due to the increased stress levels and high rate of obesity among law enforcement officers (Orr et al., 2020). Shift work and lack of exercise

also increase stress. High levels of stress can increase the risk of developing cardiovascular diseases (Magnavita et al., 2018).

Cardiovascular and Other Diseases

Optimal physical condition is related to an individual's cardiovascular fitness and their ability to perform job-related duties. Being in an optimal physical condition includes top cardiovascular condition, muscle tone, flexibility, and maintaining a healthy weight (Kukic et al., 2018). Officers with good cardiorespiratory fitness have a lower risk of injury and mortality (Marins et al., 2019). In a study conducted by Marins et al. (2019), cardiorespiratory fitness was shown to be a key factor in police officers' health and their ability to perform their duties. Improving cardiovascular health improves other areas of the officer's health, including their job performance and quality of life, while possibly extending their life in the process (Williams & Ramsey, 2017).

Officers who fail to maintain cardiovascular fitness are more likely to die during training due to it being the only time they exert themselves (Zimmer, 2017). Due to elevated levels of stress and lack of physical conditioning, many officers develop cardiovascular diseases (Han et al., 2018; Ramey et al., 2016; Schilling et al., 2020). Han et al. (2018) reported police officers have a higher rate of cardiovascular disease than the general public. Other illnesses and diseases prominent among law enforcement officers include sleep disturbances (insomnia and sleep apnea), dyslipidemia (cholesterol levels), fatty liver, obesity, cerebrovascular diseases, herniations, hypertension, metabolic syndrome, and cardiovascular diseases, including acute myocardial infarctions (Han et al., 2018). Metabolic syndrome incorporates various conditions, including abdominal fat, hypertension, reduced glucose tolerance, leading to type II diabetes and dyslipidemia (Schilling et al., 2020). Many law enforcement officers also experience post-

traumatic stress disorder (PTSD) and can have suicidal thoughts (Kuehl et al., 2016). Excessive smoking and alcohol consumption and high stress levels have also been reported with law enforcement officers (Han et al., 2018; Kuehl et al., 2016). Physical exercise buffers against many of these illnesses and diseases prominent with law enforcement officers and can help relieve stress while preventing injuries (Schilling et al., 2020).

Stress and Injuries

Law enforcement work can be physically and mentally taxing, leading to a large amount of job stress (Han et al., 2018; Hancock, 2017; Lockie et al., 2019; Magnavita et al., 2018; Maran et al., 2018). Law enforcement is one of the most stressful careers due to the threats of danger, types of situations encountered during shifts, pressures from the organization and the public, and shift work (Ramey et al., 2016). Law enforcement work is stressful, with stress coming from dealing with the public, crime, and frequently changing situations from the law enforcement organization (Maran et al., 2018). Instead of seeking help, many officers may feel pressured to hide signs or symptoms of psychological distress, including fear of ostracization or job security (Han et al., 2018). Stress can manifest itself in mental exhaustion, sleep disturbances, depression, anxiety, irritability, cynical attitudes, depersonalization, and poor job performance (Garcia-Rivera et al., 2020). The more stress a person experiences, the poorer the quality of health (physical and mental) the person has (Garcia-Rivera et al., 2020). Officers dealing with stress often fail to make the best choices for their health (including proper nutrition and exercise), leading to more unresolved stress issues (Schilling et al., 2020). Stress and related psychological disorders lead many officers to retire early (Ramey et al., 2019). Increasing physical exercise can prevent injuries while decreasing stress and improving other physical ailments and illnesses (Garcia-Rivera et al., 2020; Jakobsen et al., 2017; Lentz et al., 2019; Schilling et al., 2020).

Employees who work out together showed improved social and working relationships, decreased stress, and improved physical condition (Jakobsen et al., 2017). Wellness programs that incorporate lifestyle modification programs such as nutrition counseling, physical exercise, smoking cessation, and counseling can reduce stress and improve officers' sleep quality and quantity (Garcia-Rivera et al., 2020; Kuehl et al., 2016; Williams & Ramsey, 2017). When officers learn to make better behavioral choices, they can manage or reduce the stress within the law enforcement profession (Kuehl et al., 2016). Exercise has been shown to significantly lower stress and burnout (Garcia-Rivera et al., 2020; Lentz et al., 2019). Additionally, when officers incorporate physical fitness plans into their daily routines, they are less likely to become injured and recover quicker (Lentz et al., 2019; Marins et al., 2020).

Officers who are not in peak physical condition are at greater risk of sustaining injuries; conversely, officers with good physical and aerobic fitness have a decreased risk of injury (Lentz et al., 2018; Lentz et al., 2019). In a systematic review of injury studies, Lentz et al. (2018) noted a relationship between fitness levels and injury reports, with back and leg injuries being the most prominent. Lentz et al. (2018) also noted a correlation between obesity and the incidence of injury. Lentz et al. (2019) noted that police in the United States and Australia have higher rates of injury than police in other countries. The same study showed that police in the United States and Australia have lower physical fitness levels, and officers with higher self-reported physical fitness levels reported having fewer injuries (Lentz et al., 2019).

Absenteeism, Injury Risks, and Health Costs

Research was conducted studying the effects of law enforcement physical fitness policies and workplace wellness policies on work-related injuries, worker's compensation claims, and the use of sick leave. Fortenbery (2016) noted that police departments in North Carolina with

physical fitness standards had lower medical costs and members lost fewer workdays than agencies that did not have physical fitness standards. Hancock (2017) also studied law enforcement agencies in North Carolina and compared agencies' fitness policies with risks of job-related injuries, absenteeism, and departmental health cost. Hancock (2017) found that those agencies with fitness policies had lower health costs and absenteeism rates and lower risks for on-the-job injuries. Crawford (2020) conducted interviews with sworn law enforcement personnel researching their beliefs on the benefits of department wellness policies. According to Crawford (2020), most officers felt it was beneficial to work out for their well-being and were supportive of routine counseling and nutritional education. Those respondents who felt fitness should be a requirement also felt the requirement should be incentive-based (Crawford, 2020). Granderson (2020) also believed departments should support both the physical and psychological well-being of law enforcement officers. Granderson (2020) studied the benefits of department wellness programs and found that officers were generally in support of wellness programs that focused on stress reduction. By relieving the perceived stress, officers can better maintain their health and perform their job duties more effectively.

Agency Fitness Standards and Wellness Policies

Most agencies have physical fitness standards for new hires; few agencies have mandatory (or enforced) physical fitness standards that officers must maintain throughout their careers (Dawes et al., 2017; Petersen & Anderson, 2016). In addition to training recruit officers and ensuring they meet required fitness standards, agencies should require continued physical fitness training to aid their officers in maintaining top physical conditioning (Cvorovic et al., 2018; Taylor et al., 2016). Having officers with healthy physical fitness levels is beneficial to law enforcement agencies. Healthy officers have increased productivity, decreased sick time

usage, lower stress levels, and decreased work-related injuries (Losty et al., 2016; Violanti et al., 2016). Additionally, when officers do not exercise and maintain adequate fitness levels, they are more likely to sustain injuries or have a heart attack during training exercises or when preparing for annual physical agility testing (Dawes et al., 2017). According to Quinones (n.d.), healthy, physically fit officers are more capable of performing physical tasks and less likely to be injured. When injured, they heal much faster. Lastly, they are better able to be mobile, respond to situations, increase stamina, decrease fatigue levels, reduce stress levels and health risks, and be more psychologically prepared to face problems.

Physical fitness standards and goals should be based on job duties such as making an arrest, controlling situations, and defensive tactics or strategies (Quinones, n.d.). Physical fitness programs and testing should be designed with an emphasis on strength, power improvement training, increasing aerobic and stamina capabilities (Cocke et al., 2016; Davis et al., 2016; Haddock et al., 2016; Locke et al., 2017; MacDonald et al., 2016; Myers et al., 2019; Teixeira et al., 2019; Zumbo, 2016). In addition to setting physical fitness standards, agencies should look at their officers' entire condition to include wellness plans that aid mental health, nutrition, and weight management (Probus, 2016). Programs that look at the whole person are considered to be wellness programs. Wellness programs generally include plans to improve the officers' physical and mental health, stress management, nutrition counseling, and lifestyle improvement programs such as dealing with drug and alcohol dependency (Williams & Ramsey, 2017).

When presenting training to officers, the agency should provide them with their current and healthy weight range information (Cocke et al., 2016). Leaders need to be positive examples and lead their organization with the necessary policy changes to ensure their members are healthy and capable of performing their job duties (Cohen et al., 2019). Additionally, leaders

need to be mindful of their subordinates' psychological and emotional health, affecting their physical well-being (Cohen et al., 2019). High-intensity tactical training (HITT) and high-intensity functional training (HIFT) have been shown to help law enforcement officers develop increased strength and endurance abilities. These trainings can assist officers with responding to rapidly changing environmental and situational scenarios they face while working (Bloodgood et al., 2019; Haddock et al., 2016). Another study showed that randomly selected exercises improved law enforcement officers' fitness levels more than specifically targeted exercises (Cocke et al., 2016). Regardless of which physical fitness program is used, increased physical fitness improves the officer's ability to perform job duties, improves overall health, improves emotional well-being, reduces injury risks and stress levels (MacDonald et al., 2016). Agencies should also present nutritional counseling to officers to help them make healthier food choices and prevent them from developing an over-reliance on fast food when working their shifts. When officers are out of shape, they present a liability to agencies through their inability to perform job duties and inability to protect citizens (Quinones, n.d.). Having physical fitness standards decreases agency liability and improves the public's perception of officers and law enforcement departments (Quinones, n.d.). Additionally, according to Smith and Tooker (n.d.), having agency physical fitness standards may increase members' morale and loyalty while reducing employee turnover. Other reports have shown law enforcement agencies that enforce physical fitness standards on officers have agency benefits. These benefits include more fit officers, increased productivity, decreased sick time, fewer work-related injuries, decreased agency liability, decreased healthcare costs, and lower officer stress levels (Losty et al., 2016; Violanti et al., 2016). An officer's desire to maintain a healthy body weight and peak physical

condition may decline agencies' need to implement mandated physical fitness requirements (Matteson & Ivancevich, 1999).

Law enforcement agencies have a duty to the public to protect and enforce laws while providing healthy, trained law enforcement officers. One of the responsibilities of agencies in training their officers is to ensure they are fit for duty. Agencies that employ officers who are not fit for duty may have increased liability if the officer is injured on the job or a community member is injured or killed due to the officer's inability to perform their duty. By requiring officers to meet certain physical fitness standards, law enforcement agencies can reduce their liability for training officers and meet the requirement for the public's protection by having trained officers capable of performing their duties (Quinones, n.d.). As top physical conditioning helps police officers deal with stressful situations, it can also improve the use of force reasoning and decision making. It would be in the agency's best interest to adopt and enforce mandatory physical fitness standards to improve overall health and psychological well-being while decreasing the agency's liability (Probus, 2016). Law enforcement agencies should set physical fitness standards policies that reflect the fitness levels necessary for officers to perform their job-related duties (Dawes et al., 2017; Myers et al., 2019; Zumbo, 2016). Physical fitness and wellness policies need to teach officers strategies for preventing and dealing with health concerns such as diabetes, hypertension, obesity by providing effective physical fitness strategies to develop and maintain optimal physical conditioning (Libor, 2019). Moreover, agencies need to have wellness policies covering the officer's overall health and well-being, fitness, nutrition, weight management, resilience to trauma, smoking cessation, and alcohol abuse (Maran et al., 2018). In a study conducted by Maran et al. (2018), officers who participated in a voluntary wellness program that incorporated exercise programs and wellness courses increased the

officers' sense of wellness. Participants indicated that their physical conditioning improved, and they developed coping strategies that aided in their ability to handle stressful situations (Maran et al., 2018). Officers should develop a physical fitness routine to maintain optimal physical conditioning and reduce the risk of on-the-job injuries or the development of cardiovascular disease (Orr et al., 2020). Orr et al. (2020) noted incumbent officers have a lower level of physical fitness than their age-matched recruit counterparts. According to Orr et al. (2020), one reason for the lower physical fitness levels was many law enforcement agencies lack physical fitness policies.

One of the most significant obstacles to enacting or enforcing physical fitness standards comes from unions or employee bargaining agents and agencies (Quinones, n.d.). However, when tests and standards are based on job-related duties or legal, moral, and ethical considerations, the tests, standards, and policies are legally defendable in court (Cooper Institute, n.d.; Petersen & Anderson, 2016; Probus, 2016). By presenting new policies and procedures for physical fitness as a benefit to the officer (better health, better job performance, reductions in stress levels, and improvements in quality of sleep), instead of as a negative action (discipline or punishments for poor performance on tests and excessive weight), both officers and bargaining units are more inclined to accept the new policy and procedures (Raines, 2020). Furthermore, developing new policies while allowing incumbent officers time to meet the standards will make them more agreeable to both officers and unions (Collingwood et al., 2003). When possible, incentives to meet or exceed minimum standards may also be offered (Pronk, 2015). According to Quinones (n.d.), a survey of officers showed that 82% of officers favored having an annual department-mandated physical fitness test.

While some officers exercise and maintain top physical conditioning because they choose to do so, others only do it as a requirement of their job (Long et al., 2014; Sicilia et al., 2016; Teixeira et al., 2012). When officers fail to maintain proper physical conditioning, departments must step in and encourage or require officers to improve their physical condition. Supervisors should support officers to achieve and maintain proper physical conditioning (Dekmar, 2018). This support should be positive motivation, not negative punishment, which can cause additional stress (Raines, 2020). Agencies should also make exercise facilities available to employees either at their station or through a partnership with local gyms and ensure lifestyle modification programs, weight loss programs, and nutritional counseling are available to those employees who need it (Anderson et al., 2017). When physical fitness standards are mandated and enforced, agencies have better conditioned officers. Mandated physical fitness training (including defensive tactics and firearms training) ensures that agencies have fit, trained officers (Orr et al., 2017).

Physical Ability to Perform Job Duties

A person's body composition (lean muscle mass versus body fat mass) can directly impact their ability to perform routine tasks. Law enforcement officers are expected to be in above-average physical condition to perform their job duties and protect the community (Lentz et al., 2019). The officer's body composition can directly impact their ability to perform essential job duties (Vukovic et al., 2019). One argument against using a body mass index (BMI) as a fitness standard is that it does not reflect a fitness level and does not consider a person's body composition (McCullough, 2019). McCullough (2019) and Lockie et al. (2018) argued that measuring an officer's waist-to-hip ratio better measures an officer's body composition and fat distribution. An officer may be within a normal body mass index (BMI) but lack muscle tone or

strength and can be considered out of shape (Ortega et al., 2018). Additionally, an officer may be considered overweight but have high cardiovascular endurance. Equally, an obese officer may possess great strength but no endurance due to excess weight. Therefore, officers who are too thin or have no muscle tone or strength can be just as out of shape as a person considered overweight or obese (Violanti et al., 2017). Officers who are overweight or obese should lower their weight, thereby reducing their risk of heart disease or diabetes. Officers should aim to maintain proper physical conditioning to perform their required job duties (Kukic et al., 2018; Silk et al., 2018). This physical conditioning should include strength and cardiovascular endurance (Lockie et al., 2019; Myers et al., 2019). An officer who is out of shape, overweight, or obese sends a message to a violator that they are unprofessional, unable to perform their job duties, and can be easily overtaken (Losty et al., 2016). Officers in better physical condition are healthier, safer, and better able to perform their job duties (DeNysschen et al., 2018).

Officers must be able to perform their job duties at any time, regardless of how often that situation occurs during one's career (Orr et al., 2016). Poor physical conditioning can lead to an inability to perform job duties, causing higher stress levels, sleep disturbances, and health problems. Moreover, poor health can lead to increased use of sick leave, increased risk of on-the-job injuries, worker's compensation claims, and increased use of force cases (Anderson et al., 2016; Greco & Fishetti, 2018; Haddock et al., 2016; Quinones, n.d.; Vukovic et al., 2019). An overweight or obese officer's excess weight creates extra stress and weight burden on an officer's back, hips, knees, and other joints. When officers maintain a healthy body composition and fitness routine through diet and exercise, they can reduce health risks, decrease their injury risk, and maintain or improve their ability to perform job duties (IACP, 2018). Various studies have had mixed results concerning which aspects of training are more important for officers to

perform their job duties. Davis et al. (2016) stated training programs should emphasize strength and power. Lagestad and van den Tillaar (2014) stated cardiovascular and muscular endurance trainings were more important than maximum strength training. Survey respondence ranked stamina and muscular endurance along with cardiovascular endurance as the most necessary physical fitness traits for law enforcement work (Cvorovic et al., 2018; Davis et al., 2016). Multiple studies have shown increased body fat to have a detrimental effect on job performance (Cvorovic et al., 2018; Davis et al., 2016).

While the Americans with Disabilities Act (ADA) states an employer must make accommodations for an employee to perform their job duties, it also states those accommodations must be reasonable. Furthermore, court rulings have shown that law enforcement officers must be able to perform all job-related duties due to the nature of law enforcement work. Therefore, the ADA accommodations do not apply to law enforcement work.

Physical Agility Tests and Standards

Most law enforcement academies require new hires to successfully complete a physical agility test (PAT) before starting the academy (Dawes et al., 2017; Hauschild et al., 2017; Quinones, n.d.; Taylor et al., 2016). PAT tests are designed to mimic actions and activities law enforcement officers may encounter during their shifts (Cooper Institute, n.d.). PATs may include actions such as running, jumping, climbing, and carrying weights (Cooper Institute, n.d.). The purpose of PATs is to determine the ability of officers to perform essential and critical job-related tasks safely and effectively (Cesario et al., 2018). According to Smith and Tooker (n.d.), physical fitness testing should include elements designed to measure cardiovascular endurance, anaerobic power, muscular strength, muscular endurance, and flexibility. The Cooper Institute (n.d.) recommends testing consisting of sit-ups, push-ups, bench press, vertical jump, and short

(300 meters) and long-distance (1.5 miles or more) runs. In addition to PATs, other tests used to evaluate officers' ongoing physical conditioning include the PARE [Physical Ability Required Evaluation], the POPS [Peace Officers Physical Standards], and the POPAT [Police Officer's Physical Ability Test] (Dawes et al., 2017). All physical ability tests should be based on occupational fitness levels and job requirement skills (Hauschild et al., 2017). Tests can be based on content-based tasks such as lifting, carrying, running, and climbing, or constructs showing endurance through muscular strength, cardiovascular endurance, and flexibility (Hauschild et al., 2017). Agility tests can be used to aid in the development of physical fitness programs to assist officers in improving their strength and conditioning (Dawes et al., 2017).

There are no state or federally mandated physical fitness assessments, policies, or standards (Bloodgood et al., 2019; Cesario et al., 2018). Agencies may design physical agility tests or occupational fitness tests based on the needs and compositions of the position (Bloodgood et al., 2019; Myers et al., 2019). Performance standards should be defined as qualitative descriptions of attributes demonstrated at acceptable levels to show the capability to perform essential job demands safely (Petersen et al., 2016). However, many agencies recycle or use performance measures designed by other agencies to cut the cost of researching and starting up new programs while bypassing some legal issues that have already been vetted (Petersen et al., 2016). Agencies can locate suggestions for physical ability tests through websites developed by the Cooper Institute (Cooper Institute, n.d.).

Agencies may assess an officer's physical condition by measuring their body mass index, body composition, and a series of exercises or tests such as sit-ups, push-ups, flexibility tests, and timed runs (Myers et al., 2019). Annual testing throughout an officer's career enables the agency to better understand an officer's physical conditioning and any need for additional

training to increase stamina or endurance (Dawes et al., 2016; Lockie et al., 2017; Taylor et al., 2016). Any new policy or physical fitness standard established or required by an agency should be designed to reflect the fitness level necessary to perform job duties listed for law enforcement officers (Myers et al., 2019; Zumbo, 2016). Agencies should create or make available workout facilities to address dietary and nutritional counseling to improve officers' physical conditioning (Anderson et al., 2016). Agencies can use PAT's performance to develop department-wide strength and conditioning training or individualized counseling and training programs for officers who do not perform well on the PATs (Dawes et al., 2017). Some studies have shown that body fat percentage was a better indicator of fitness than physical agility or fitness testing (Kukic, 2019; Violanti et al., 2017). Cesario et al. (2018) noted changes in physical fitness testing performance as officers aged regardless of changes in the officer's body mass index. Kukic et al. (2018) studied officers and noted increases in BMI and body composition changes as officers aged. In a similar study, Kukic et al. (2019) noted that women had a noticeable change in their BMI and body fat percentage as they aged. However, they did not study women's physical fitness levels to notice if there was a change in fitness levels or a correlation between changes in BMI, body fat percentage, and fitness levels. While it is important for agencies to incorporate and enforce physical fitness standards and annual testing, officers must maintain physical fitness levels year-round and not just at the test-taking time. Officers who do not maintain fitness levels then attempt to take fitness tests are more likely to experience a heart attack or serious injury while preparing for annual testing (Dawes et al., 2017).

Effects of Load Carriage

The various equipment worn by law enforcement officers can weigh 20 pounds or more and up to 40 pounds for specialty units (Armstrong et al., 2017; Marins et al., 2019; Marins et al.,

2020; Marins et al., 2020; Muirhead et al., 2019; Orr et al., 2019; Robinson et al., 2018; Thomas et al., 2017). Load carriage affects the way officers sit, walk, and bend and increases the cardiac output during strenuous times (Marins et al., 2019; Robinson et al., 2018). Excessive weight of load carriage or poor weight distribution can lead to injuries (Robinson et al., 2018). Women carry a higher percentage of their body weight in load carriage, creating discomfort (Armstrong et al., 2017; Orr et al., 2019). Marins et al. (2020) noted declines in performance for both males and females with load carriage compared to performance without the load on occupational physical ability tests (OPAT). Muirhead et al. (2019) noted increased cardiovascular demands on officers with a load carriage and highlighted the importance of training to improve respiratory and cardiovascular abilities. Orr et al. (2019) reported mixed results on the declining performance of female officers with load carriage in three separate studies. Orr et al. (2019) concluded that one reason for performance changes was that officers were in better physical conditioning at the end of training than when the final test was conducted. Thomas et al. (2018) noted tactical officers required more time to complete tasks when carrying heavy loads. Robinson et al. (2018) studied the effects of load carriage with males on tactical teams and noted that while strength played a significant effect on occupational performance markers, aerobic fitness and cardiorespiratory functions had the strongest impact on performance. Thomas et al. (2018) also noted that aerobic capacity played a significant role in negating the effects of load carriage. Strader et al. (2020) stated physical fitness is a critical aspect of law enforcement work, especially for tactical units. In Strader et al.'s (2020) study of the effects of load carriage on tactical units, they noted strength and endurance played a key role in performing job-related tasks. Agencies should be aware of the effects of load carriage and the distribution of the equipment's weight to adjust physical fitness programs and promote safety for law enforcement

officers (Marins et al., 2019). Tactical and strength training should occur to increase officers' physical fitness levels to overcome any negative effects of load carriage (Marins et al., 2020). For the best results, conditioning programs should also include resistance training and aerobic training while officers bear loads (Robinson et al., 2018).

Legal Issues

Several legal cases have come out of physical fitness testing and standards enacted by law enforcement agencies and other companies. The Equal Employment Opportunity Commission (EEOC) published guidelines relating to employment hiring and performance standards after two landmark cases, *Griggs v. Duke Power* [1970] and *Albemarle Paper Co. v. Moody* [1975] (Maher, 1984). Both cases dealt with discrimination and the adverse impact of hiring practices and standards (Gebhardt et al., 2019; Maher, 1984). *Dothard v. Rawlinson* (1977) challenged the use of height and weight requirements to measure fitness (Anderson et al., 2001; Bissett et al., 2012; Maher 1984). In *Berkman v. City of New York* (1978), allegations were made that the physical employment standards were discriminatory against women and were not reflective of job standards (Bissett et al., 2012; Gebhardt et al., 2019). *Bauer v. Holder* (2014) challenged different test score requirements for men and women; the court ruled on a single cut score for men and women as both genders perform the same job duties (Bissett et al., 2012). The court ruled that tests that have bona fide occupational requirements (BFOR) can be discriminatory if the tests are directly related to the job tasks. It is not reasonable to accommodate a person who cannot successfully complete the tasks (Anderson et al., 2001). Many agencies have stopped having physical fitness standards due to previous lawsuits or the fear of lawsuits (Angiuli, n.d.; Bissett et al., 2012). However, not holding officers accountable for their physical conditioning can also be a liability for law enforcement agencies. One of the

most significant legal cases regarding law enforcement physical fitness was *Parker vs. Washington, D.C.* (1988). The agency was held liable for an unfit officer shooting an unarmed suspect that he could not control due to his poor physical conditioning (Cooper Institute, n.d.). By employing unfit officers who cannot perform their required duties, law enforcement agencies may be accused of vicarious liability and found guilty of negligent retention, negligent assignment, failure to train, and failure to supervise (Bonneau & Brown, 1995). The Cooper Institute has worked with law enforcement agencies developing fitness standards and testing physical fitness levels since 1976 (Cooper Institute, n.d.). It has been shown that agencies can mandate officer physical fitness standards. When the set standards meet the legal requirements of being job-specific and nonarbitrary, they are legally defensible in court (Cooper Institute, n.d.; Petersen & Anderson, 2016; Probus, 2016).

Gaps in Literature

Numerous articles were located relating to law enforcement officers and their need for physical fitness or the training needs of law enforcement officers (particularly those in specialty or tactical units) and the effects of age and body fat on physical fitness levels. However, no research was found that explicitly detailed the relationship between law enforcement officers' fitness levels and enforced mandatory physical fitness standards. Therefore, this research sought to fill in the gap in the literature. Agencies considering enacting physical fitness standards and agencies seeking to validate the continued need for physical fitness standards would benefit from this research.

Summary

As applied to physical fitness policies, organization theory refers to an organization implementing policies that its members must follow. According to the organization theory,

agencies with physical fitness policies will have officers who maintain high levels of physical fitness. Agencies that do not have or enforce physical fitness policies will have officers who are out of shape unless individually or self-motivated, as described in the self-determination theory. As applied to physical fitness, self-determination theory refers to a law enforcement officer's motivation to maintain a high level of physical fitness. Officers who are internally motivated will maintain a top level of physical fitness regardless of whether their department mandates a particular level of physical fitness. Officers who are externally motivated will maintain a top level of physical fitness only because of a policy requiring them to maintain a specific physical fitness level. Officers who are not motivated (amotivation) will only exercise if forced.

Law enforcement officers are called upon to manage various situations throughout their shifts, requiring a high level of physical fitness to perform their duties. Police officers should be in good physical condition to perform their duties. Officers should be in good physical condition, and they should also be in better shape than the general public or violators they may need to apprehend. Unfortunately, many officers are overweight or obese. In addition to not being able to perform job duties, being overweight or obese can lead to numerous health issues. Exercising and maintaining a proper level of physical fitness can alleviate many health issues. Law enforcement agencies should enforce physical fitness standards policies to ensure their members maintain a high level of physical fitness.

Reviewed literature focused on the necessity of law enforcement officers to maintain high levels of physical fitness. Studies show how law enforcement officers lose muscle mass and increase body fat as they age. Studies showed the effects of load carriage on the performance of these physical ability tests. Numerous studies showed the effects of stress on law enforcement officers and the health effects of being overweight or obese. Proper exercise and nutrition can

help officers maintain lean muscle mass, prevent or alleviate the health effects of obesity, and reduce the risk of on-the-job injuries. No research was observed to specifically detail the relationship between the fitness level of members of law enforcement agencies and physical fitness policies.

CHAPTER THREE: RESEARCH METHODS

Overview

Most law enforcement agencies require strict physical fitness standards be met before hiring. However, few agencies require members to maintain those physical fitness standards for the duration of the law enforcement officer's career. A foundation has been laid outlining the benefits of law enforcement officers maintaining physical fitness to perform their job duties. There is, however, a gap in the research as to why some agencies have physical fitness standards policies and other agencies do not. Furthermore, more research was needed to determine the implications of physical fitness standards on the fitness levels of incumbent law enforcement officers. This study intended to fill this gap in the literature. The following sections outline the design of the research study, research questions and hypotheses, participants, instrumentation, procedures, and data analysis.

Design

This research study consisted of a mixed-methods, nonexperimental research approach incorporating quantitative methodologies (Likert-scale surveys given to sworn law enforcement officers) and qualitative methodologies (open-ended surveys and interviews with law enforcement agency heads). During a nonexperimental research study, the researcher used correlational studies and data collected from surveys instead of experiments to collect data (Parylo, 2012). No interventions were introduced to participants, nor were there any experimental methodologies used with participants during this research. Quantitative research methods primarily involve surveys using checks in boxes (such as a Likert scale) to allow for measurements to be analyzed and compared to determine statistical relationships (Mustafa, 2011; Watson, 2015). This quantitative research design encompasses a between-participants variety

because the study compares differences between participants and policy enactments (Cone and Foster, 2010). The quantitative data collected was used to statistically determine the relationship between the physical fitness levels of law enforcement officers and law enforcement agency physical fitness standards policies. While the quantitative data was used to determine the relationship between the physical fitness levels of law enforcement officers and departments with physical fitness policies, it did not explain why some agencies have physical fitness policies and other agencies do not.

According to Jenkins (2015) and Maxfield and Babbie (2018), most criminal justice research is conducted via quantitative methods; however, quantitative research methods do not allow for the input of criminal justice practitioners. Qualitative research methods allow for open-ended questions and enable the researcher to get more in-depth meanings and personal experience feedback from those being interviewed (Creswell, 2013; Ranscombe, 2019). This research project sought to have substantial input from criminal justice practitioners using mixed methods (qualitative interviews and quantitative computer-generated self-report surveys). This study also explored the relationship between required physical fitness standards (or lack thereof) and the physical fitness levels of law enforcement officers. The qualitative data collected from interviews and open-ended survey questions completed by agency heads were used to fill in literature gaps as to why some agencies decide to have or not have physical fitness standards policies (Glesne, 2016). A mixed-methods approach was the most appropriate approach for this study due to the need to incorporate quantifiable data for statistical purposes and qualitative data for thematic comparisons (O'Leary, 2012).

Non-probability purposeful sampling was used to narrow the selection of participants (state law enforcement agencies) while allowing for a large enough sample pool to generalize the

study. First, the researcher searched law enforcement agencies and was able to obtain a listing of agency heads and training officers. Next, information was obtained to determine if agencies have required physical fitness standards. Moreover, training officers and agency heads were contacted to determine if physical fitness standards were enforced and how they were enforced. Agencies were then divided into two categories: those that implement post-academy graduation physical fitness standards and those that do not have the standards.

Once agencies were divided into two categories, the researcher conducted a purposeful random sample of agencies from each category for participation in the research study. The department heads were contacted by email explaining the research project and requesting a phone interview to further discuss the research project (Appendix A). Agencies were contacted until four agencies from each category agreed to participate in the research study. Agency heads were assured of the anonymity and confidentiality of their participation and response to interview questions. An informed consent form was included in the email (Appendix B). The research project was discussed during the phone interview, and permission was requested to survey the department's sworn law enforcement officers. If approval was given, the department head (or agency representative) was interviewed using a guided interview (see Appendix D). This interview determined necessary information on the agency's size, any post-academy graduation physical fitness standard requirements, enforcement of standards, and opinion on members' physical fitness levels and its relationship to physical fitness standards. For those agency heads unwilling or unable to complete a telephone interview, the interview questions were provided in an email to answer if they agreed to participate. After the interview, an email was sent with a link to the survey for members to complete. The link also provided information about the purpose of this study and assurance of anonymity and confidentiality (see Appendices

E and F). The researcher gave a timeline of two to three weeks to complete the survey. At the midway point of the timeline, a follow-up email was sent to the members reminding them of the survey and the importance of completing it (see Appendix G).

The survey was designed to solicit responses regarding law enforcement officers' physical fitness levels and attitudes about physical fitness standards. An informed consent disclaimer was inserted at the beginning of the survey, which required participants to answer in the affirmative (by checking a box) before beginning the survey (Appendix F). Variables were determined to be either dependent (measurable changes) or independent (constant). Four dependent variables and two dependent variables were measured. The dependent variables that were measured included:

- Fitness levels (DV1).
- Length of time with the department (DV2).
- Self-perceived fitness level (DV3).
- Attitude toward mandated physical fitness standards (DV4).

Independent variables included agency-mandated physical fitness standards (IV1) or no agency-mandated physical fitness standard (IV2).

Research Questions and Hypotheses

Research has been conducted on law enforcement's physical fitness aspects and physical job requirements. Additionally, research has shown that most agencies do not have or enforce physical fitness standards after officers complete the academy and get hired. According to organizational theory, members will perform duties required of them by their organization and will not perform duties not required of them (Matteson & Ivancevich, 1999; Wheatley, 1994). Therefore, when law enforcement officers are required by policy to be physically fit and meet specific standards, they are more likely to be physically fit than officers who work for agencies

that do not require it. For this research, three quantitative research questions (RQ), along with correlating hypotheses (Ha), null hypotheses (Ho), and two qualitative research questions were established. This research sought to determine the relationship between physical fitness policies and law enforcement physical fitness by asking the following questions:

RQ1: Is there a statistically significant difference in the relationship between the physical fitness levels of law enforcement officers and law enforcement agencies that enforce (or do not enforce) physical fitness standards? The dependent variable (DV) was the physical fitness level of the law enforcement officer, and the independent variable (IV1) was the physical fitness policy or lack thereof (IV2).

The hypotheses below were proposed at a 95% confidence interval with a p-value of > 0.05. P is the significance level of the ANOVA test, and alpha is the significance level. If the p-value < alpha= 0.05, the researcher rejected the null hypothesis and accepted the alternative hypothesis.

H1a: Agencies that have and enforce physical fitness standards will have a statistically significant number of law enforcement officers who are fitter than agencies that do not have or enforce physical fitness standards.

H1o: Agencies that have and enforce physical fitness standards do not have a statistically significant number of law enforcement officers who are fitter than agencies that do not have or enforce physical fitness standards.

RQ2: Do law enforcement officers employed by agencies that have (and enforce) physical fitness standards spend statistically more time working on their physical conditioning than officers working for agencies that do not enforce mandatory physical fitness standards? The dependent variable (DV) was the amount of time an officer spends exercising or involved in

organized sports; the independent variable was the enforcement of physical fitness standards (IV1) or lack of enforced physical fitness standards (IV2).

The hypotheses below were proposed at a 95% confidence interval with a p-value of >0.05. If the p-value < 0.05, the researcher rejected the null hypothesis.

H2a: Law enforcement officers employed by agencies that have and enforce physical fitness standards spend statistically more time working on their physical conditioning than officers who work for agencies that do not have or enforce physical fitness standards.

H2o: Law enforcement officers employed by agencies that have and enforce physical fitness standards do not spend statistically more time working on their physical conditioning than officers who work for agencies that do not have or enforce physical fitness standards.

RQ3: Are fit law enforcement officers (as self-reported on a 5-point Likert scale) statistically more interested in their agencies adopting required (or voluntary) physical fitness standards? The dependent variable (DV) was the opinion on required physical fitness standards. The independent variable was the fitness level of the officer (IV1 for fit officers and IV2 for officers who do not measure fit according to a standard BMI chart).

The hypotheses below were proposed at a 95% confidence interval with a p-value of >0.05. If the p-value < 0.05, the null hypothesis was rejected.

H3a: Fit officers will be statistically more in favor of their agency mandating required physical fitness standards than officers who are not fit (as determined by a self-reported survey on a 5-point Likert scale).

H3o: Fit officers are not statistically more in favor of their agency mandating required physical fitness standards than officers who are not fit (as determined by a self-reported survey on a 5-point Likert scale).

RQ4: What are the opinions of state law enforcement agency heads regarding the enactment or enforcement of post-academy graduation physical fitness standards?

RQ5: Why do state agencies have (or not have) post-academy graduation physical fitness standards for their law enforcement officers?

Participants and Setting

The researcher compiled a list of state police agencies for all 50 states; Hawaii does not have a state police agency. An inquiry was made about whether the agency had (and enforced) a physical fitness policy with required fitness standards for officers beyond academy graduation. Agencies were then divided into two categories, those that have and enforce mandatory physical fitness standards for officers beyond the academy graduation and those that did not. A purposeful random sampling of agencies was then conducted to invite agencies to participate in the research study. The agency heads were contacted by email. Each agency head was presented the research study's information and requested to participate in representing their respective agency (see Appendix A). Each agency that did not respond to the email within two weeks was sent a follow-up email (see Appendix C). Agencies were contacted a maximum of three times or until they responded with an agreement to participate or a response indicating they declined to participate. Additional agencies were contacted until four agencies in each category agreed to participate in the research study. Agency heads were asked to answer a brief survey consisting of eight open-ended questions regarding the agency policy, provide a copy of their physical fitness policy, and grant permission for agency members to participate in the study (see Appendix D). Upon approval from the department to participate, the researcher sent an email to agency members detailing the research study, voluntary participation, and an informed consent release (see Appendix E and Appendix F). The email provided a link for members to answer Likert-scale

survey questions regarding their physical fitness (see Appendix F). A follow-up email reminded members to complete the survey (see Appendix G). The surveys were all conducted online through a survey uploaded onto SurveyMonkey.

The researcher contacted state law enforcement agencies from 49 states for information regarding their physical fitness policies. As a result, eight state agencies agreed to participate. A total of 703 law enforcement officers from four agencies with post-academy graduation physical fitness policies completed the survey. Of those responses, 74 were removed for being incomplete or not agreeing to the informed consent. A total of 686 law enforcement officers from four agencies without post-academy graduation physical fitness policies completed the study. Of those responses, 75 were removed for being incomplete or for not agreeing to the informed consent. Of the 1240 law enforcement officers who completed the study, 1119 were men, 112 were women, and 9 declined to answer their gender.

Instrumentation

Members from the chosen sample departments were emailed links to the survey to be completed electronically. Each member was provided a link to the survey and requested to complete it by a specific date. Members were asked to give consent before completing the survey and were assured that their responses would remain confidential (Appendix F). The researcher captured no personally identifiable information in the survey. Survey questions provide several response boxes to be checked (Likert-scale). A copy of the survey is included in the appendix (see Appendix F). Respondents were also able to add additional comments on their opinions on required physical fitness standards and the overall physical fitness level of members of their department. Collected data was then imported into SPSS 28 (Statistical Package for Social Sciences) to analyze the data.

In addition to completing the computerized self-report survey presented to members of their departments, agency heads were interviewed. This information provided additional qualitative data. Agency heads (or representatives) were interviewed at the beginning and after the research project (Appendices D and H). Interviews with agency heads were used to address the following questions:

1. What was the rationale for physical fitness standards policies or the lack thereof?
2. How were policy decisions made along with what influenced those decisions?
3. What was the agency head's perspective on the level of physical fitness of department members?

The wording of questions was vital to allow the interviewee to respond to the question without eliciting a particular answer (Patton, 2002). Furthermore, responses from questions may lead to other questions being raised and additional data generated. During the second (post-survey) interview with department heads, the researcher discussed any opinion changes on establishing, enforcing, or maintaining physical fitness standards. A copy of both sets of interview questions is included in the appendix. If requested, once the research was concluded, the participants were provided non-identifiable data results from the surveys completed by members.

The researcher designed the survey instrument used in this research study. Questions were designed to obtain data regarding physical fitness levels, attitudes regarding law enforcement officer physical fitness levels, and attitudes regarding agency policies concerning mandated physical fitness standards. The researcher used similar survey questions from Angiuli (n.d.), Fortenbery (2016), Poncio (2020), and Quinones (n.d.). However, none of the listed researchers asked the same questions; only one researcher interviewed agency heads or representatives. Members of law enforcement agencies completed the online survey. In contrast, agency heads

were interviewed over the telephone at the beginning and end of the study. Those agency heads who were unable or unwilling to conduct a telephone interview were provided the written questions and permitted to email their responses back to the researcher.

Member Surveys

Participants were required to read an informed consent disclaimer and check a box that noted they understood and agreed to participate in the survey before starting it (see Appendix F). Participants were also informed they could stop the survey at any point without repercussions. Furthermore, their participation was voluntary, and their information would remain confidential. No personally identifiable information was obtained in the survey. All survey questions had blocks to check for answers or a scroll to select for the answer. The researcher gave directions for answering the questions. There were 21 questions on the member survey, and it was estimated to take less than 15 minutes to complete the survey (see Appendix F). The survey incorporated yes/no questions and 5-point Likert scale questions. The response options were Strongly Agree = 5, Agree = 4, Neither Agree nor Disagree = 3, Disagree = 2, and Strongly Disagree = 1. A standard BMI chart was used to determine each participant's body mass based on their reported height and weight (see Appendix I). Age and gender were recorded for statistical comparison. The weight upon graduation from the academy and length of service were used as independent variables to determine if there was a significant decline in fitness level as the officer progressed in years of service. At the end of the final question, there was an open dialog box to allow participants to elaborate on their opinion on physical fitness standards. See the appendix for the survey and instructions sent to members.

Agency-Head Interviews and Surveys

Upon agreeing to be included in the research study, agency heads were interviewed over the telephone (see Appendix D). Agency heads were read the informed consent disclaimer and were required to answer in the affirmative before the interview could begin (see Appendix B). The interview lasted less than 30 minutes. During the interview, open-ended questions were asked to obtain information about the agency's size and the agency head's opinion on the physical fitness levels of members and fitness standards. A total of eight questions were asked during the initial interview phase, with the flexibility to ask additional questions and allowance for agency heads to supplement or expound upon their responses (see Appendix D). The agency head interviews were conducted before disseminating the surveys to the agency members. After completing the research study, a follow-up interview was scheduled with agency heads (or designees) to determine if any responses had changed. The follow-up interviews were expected to last less than 30 minutes. Agency heads were also questioned whether knowledge of other departments' physical fitness standards policies would influence their agency's policy on physical fitness. A total of three questions were asked in the follow-up interview phase, with the flexibility to ask additional questions and allowance for agency heads to supplement or expound upon their responses (see Appendix H). The identity of all agency heads participating in the study remained confidential. The researcher thanked the agency heads for their participation in the research study and for allowing their members to participate in the study. The agency heads who desired a copy of the completed study were sent a copy upon final approval of the study.

Scoring

The online surveys were conducted via a link through SurveyMonkey.com. SurveyMonkey allows for disseminating surveys, collecting responses, tabulating responses

through bars and graphs, and exporting data into spreadsheets and SPSS 28 software. The quantitative data obtained through the responses were downloaded, entered into SPSS 28 software, and analyzed. The questions in the member survey were designed to answer the research questions. The responses to each question were analyzed to determine the statistical relationship between the dependent and independent variables in the correlating research question. Notes were taken during the interviews with the agency heads and were coded by this researcher.

Procedures

This study's ethical guidelines and procedures were followed as outlined by the Academy of Criminal Justice Sciences (ACJS, n.d.). These guidelines include not causing harm to participants, recognizing the potential for harm, and maintaining anonymity in the research (ACJS, n.d.). Due to surveys being conducted online and interviews being conducted through a telephone call, the physical safety of participants was assumed. There were no anticipated psychological effects for participating in the survey or interview. However, all participants were briefed on informed consent, privacy, and anonymity (no personally identifiable information was collected from surveys). Additionally, all participants were advised they could end their participation in the study at any time.

Informed Consent

The researcher provided participants with information regarding the study to obtain informed consent to participate (see Appendices B and F). Obtaining informed consent includes providing information on the purpose of the research, who is conducting the research, possible uses for the research, and how or why they were selected to participate in the study. Participants were also provided information on the approximate time commitment to complete the study

(surveys were estimated to take less than 15 minutes while interviews were estimated to last 30 minutes). Potential risks for participation were expected to be minimal as the study was a non-trauma-inducing survey format. All agencies that agreed to participate in the study were asked to sign a consent letter (via a check box in the survey); members completing the survey understood they needed to grant consent by reading the informed consent page and checking the box.

Privacy

Participants were assured that their responses would remain confidential. While the identity of the interviewees (agency heads) was known, their identity was protected, and no personal or agency identifiable information was disclosed. Agency head interviews were labeled with pseudonyms such as Agency 1, Agency 2, etc. Agencies were only identified by northeast, southeast, northwest, and southwest regions. No personally identifiable information was collected from any individual completing the surveys.

Institutional Review Board (IRB)

The Institutional Review Board (IRB) ensures all ethical standards and procedures are followed. Liberty University's IRB ensured all ethical standards and federal guidelines were followed. IRB approval must be granted before beginning any research study with human or animal participants, and forms must be filled out and signed by students and committee members. A completed application was submitted and approved before beginning this research to comply with the Liberty University's IRB requirement (a copy of the completed forms is included in the appendix). Upon approval from Liberty University's IRB, agencies were contacted for participation in this research study.

Ethical Considerations

This research was guided by the Academy of Criminal Justice Sciences (ACJS, n.d.). The ACJS guides practices and research to monitor for potential harm and ensure no researcher knowingly places themselves or participants at risk. Additionally, the ACJS addresses practices to safeguard the confidentiality of data received and the anonymity of participants (ACJS, n.d.). The physical safety of participants was assumed by conducting the surveys online and interviews over the phone. Law enforcement officers were asked non-identifiable and non-trauma-inducing questions during the survey. Each participant in the research study was assured of their anonymity and the confidentiality of their response. Each participant read and acknowledged their consent forms before participating in the research. Since the surveys were conducted online, electronic consent forms were used. Each participant was informed that their participation was voluntary, and they could withdraw or stop the survey at any point without repercussion. Agency heads were interviewed by telephone and were emailed informed consent forms. The informed consent form was read to the interviewees before the interview, and verbal affirmations were obtained. After the interviews, the data were transcribed and coded. All participants in the research study were over the age of 18. All participants were law enforcement officers; as a result, they were not considered a vulnerable population. No harm was incurred from participating in the research study. Data was coded on this researcher's computer. The researcher stored all data on an encrypted password-protected external hard drive stored in a fireproof locked cabinet when not in use.

Data Analysis

Quantitative data were obtained by completing online surveys completed through SurveyMonkey then downloaded into a spreadsheet. The data was then uploaded into the SPSS

software and analyzed. All data were stored on a separate password-protected external hard drive, with the researcher being the only person with the password. The external hard drive was stored in a fireproof and water-proof case when not in use. The analysis of variance (ANOVA) was the appropriate analysis as it identified differences between the means of two groups and determined if correlations and regressions among the variables were related to each other (George & Mallery, 2016). The dependent variables (BMI, years of service, perceived levels of fitness, and attitudes toward department-mandated fitness policies) were studied in different combinations to examine their relationship with the independent variables (fitness policy or lack thereof). According to George and Mallery (2016), a *p*-value less than .05 is considered statistically significant. Therefore, if the *p*-value was considered statistically significant, the null hypothesis should be rejected.

Dissemination of Study Findings

After completing the research study, all agencies that participated in the research study were provided the research results upon request. Agencies were contacted at the end of the study to thank them for their participation and ascertain their desire for study results. Additionally, the researcher solicited law enforcement magazines such as the Cooper Institute (a physical fitness training organization) for potential publication. By disseminating the research study results, law enforcement agencies can make better-informed decisions regarding the impact of physical fitness standards on their members. The researcher maintained all responses to ensure confidentiality and anonymity.

Validity and Reliability

The correct sampling procedure is necessary to establish external validity and transferability of the collected data (Creswell, 2013; Hancock, 2015). Triangulation of data

through multiple collection methods, such as interviews and surveys, allowed the data to be analyzed from different perspectives (Hancock, 2015; Maxfield & Babbie, 2018). Additionally, the larger the sample size, the more generalizable the study was to other law enforcement agencies. In contrast, not all 49 state law enforcement agencies agreed to participate in this research study, the eight that participated increased the reliability and replicability of the study.

Limitations

This study was limited to state law enforcement agencies with agency heads willing to be interviewed and allowed their members to participate in the survey. Agency heads were interviewed by telephone, and members were surveyed online through a link on SurveyMonkey.com. As the surveys contained self-reported data, there was a minor risk of gathering inaccurate or misrepresented data. Additionally, members' BMI was determined based on a standard body mass chart (see Appendix I). Some members were classified as "fit" or "unfit" when their actual body composition belied the chart classification. Furthermore, the researcher surveyed only state law enforcement agencies; the accumulated data may not generalize to all law enforcement agencies. However, with the attempt to include agencies from across the United States, it is believed that the sample can apply to a wide range of agencies.

Summary

This study used a purposeful sample of state law enforcement agencies to determine whether having and enforcing mandated physical fitness standards influenced the physical fitness level of law enforcement officers. This study sought to determine if a significant relationship exists between agencies with physical fitness standard policies and the physical fitness level of law enforcement members by using quantitative analysis. Using qualitative analysis, the

researcher wanted to understand what factors influenced agency heads to implement and enforce physical fitness standards policies.

CHAPTER FOUR: DATA ANALYSIS AND RESULTS

Overview

The objective of this mixed-methods research was to examine the relationship between the physical fitness levels of state law enforcement officers and the physical fitness policies of state law enforcement agencies. The researcher examined the perceptions of eight law enforcement agency heads (or representatives) and 1240 sworn law enforcement officers from eight selected states. The listed research questions, along with the associated hypothesis and null hypothesis, guided the analysis. The quantitative portion of this research involved:

1. An online survey was completed by 1240 sworn law enforcement officers regarding their physical fitness level.
2. Their opinion on physical fitness levels of their department members.
3. Their opinion on physical fitness standard policies.

Analysis of variance (ANOVA) and *t*-tests were conducted to address these objectives.
The qualitative portion of this research involved a telephone interview with agency heads (or representatives) regarding physical fitness policies.

Research Questions and Hypothesis

RQ1: Is there a statistically significant difference in the relationship between the physical fitness levels of law enforcement officers and law enforcement agencies that enforce (or do not enforce) physical fitness standards? The dependent variable (DV) is the physical fitness level of the law enforcement officer, and the independent variable (IV1) is the physical fitness policy or lack thereof (IV2).

The hypotheses below were proposed at a 95% confidence interval with a p-value of > 0.05. P was the significance level of the ANOVA test, and alpha was the significance level. If the

p-value < alpha= 0.05, the null hypothesis was rejected, and the alternative hypothesis was accepted.

H1a: Agencies that have and enforce physical fitness standards will have a statistically significant number of law enforcement officers who are fitter than agencies that do not have or enforce physical fitness standards.

H1o: Agencies that have and enforce physical fitness standards do not have a statistically significant number of law enforcement officers who are fitter than agencies that do not have or enforce physical fitness standards.

RQ2: Do law enforcement officers employed by agencies that have (and enforce) physical fitness standards spend statistically more time working on their physical conditioning than officers working for agencies that do not enforce mandatory physical fitness standards? The dependent variable (DV) is the amount of time an officer spends exercising or being involved in organized sports; the independent variable is the enforcement of physical fitness standards (IV1) or the lack of enforced physical fitness standards (IV2).

The hypotheses below were proposed at a 95% confidence interval with a p-value of >0.05. If the p-value was < 0.05, the null hypothesis was rejected.

H2a: Law enforcement officers employed by agencies that have and enforce physical fitness standards spend statistically more time working on their physical conditioning than officers who work for agencies that do not have or enforce physical fitness standards.

H2o: Law enforcement officers employed by agencies that have and enforce physical fitness standards do not spend statistically more time working on their physical conditioning than officers who work for agencies that do not have or enforce physical fitness standards.

RQ3: Are fit law enforcement officers (as self-reported on a 5-point Likert scale) statistically more interested in their agencies adopting (or maintaining) required (or voluntary) physical fitness standards? The dependent variable (DV) is the opinion on required physical fitness standards. The independent variable is the fitness level of the officer (IV1 for fit officers and IV2 for officers who do not measure fit according to a standard BMI chart).

The hypotheses below were proposed at a 95% confidence interval with a p-value of >0.05. If the p-value was < 0.05, the null hypothesis was rejected.

H3a: Fit officers will be statistically more in favor of their agency mandating required physical fitness standards than officers who are not fit (as determined by a self-reported survey on a 5-point Likert scale).

H3o: Fit officers are not statistically more in favor of their agency mandating required physical fitness standards than officers who are not fit (as determined by a self-reported survey on a 5-point Likert scale).

RQ4: What are the opinions of law enforcement agency heads regarding the enactment or enforcement of post-academy graduation physical fitness standards?

RQ5: Why do state agencies have (or not have) post academy graduation physical fitness standards for their law enforcement officers?

Descriptive Statistics

This study involved mixed-methods research. The researcher explored three quantitative research questions and two qualitative research questions. For the quantitative research questions, an analysis of variance was conducted to ascertain the effects of the dependent variables on the independent variables for each research question (RQ1, RQ2, and RQ3). Interviews were conducted for the qualitative research questions (RQ4 and RQ5), and responses

were coded for themes. The data resulted from anonymous online surveys completed by 1240 sworn law enforcement members from eight state law enforcement agencies. The F (frequency), the sum of squares, mean square, degrees of freedom, and significance was determined for each analysis, and tables were listed with explanations for each research question. For each qualitative research question, agency heads (or representatives) for eight state law enforcement agencies (four with enforced physical fitness standards policies and four without enforced physical fitness standards) were interviewed.

Results

This study involved mixed-methods research. For the quantitative research questions [RQ1, RQ2, and RQ3], an analysis of variance [ANOVA] was used to determine whether the mean of one group [agencies with physical fitness policies] differed from the mean of another group [agencies without physical fitness standards policies] (George & Mallery, 2016). In addition to the ANOVA testing, *t*-tests were completed for RQ1, RQ2, and RQ3. According to George and Mallery (2016), *t*-tests are used to compare "sample means to see if there is sufficient evidence to infer that the means of the corresponding population distributions are differ" (p. 149). For this research, the t-tests involved independent-sample t-tests. The two groups from which the samples were obtained (members from agencies with and without enforced physical fitness policies) did not overlap (George & Mallery, 2016). The data analyzed for RQ1, RQ2, and RQ3 was obtained from anonymous surveys completed by sworn law enforcement members.

For the qualitative research questions, the themes developed from the responses were used to compare responses among the two groups (agencies with physical fitness standards and agencies without policies.) For research question four (RQ4) and research question five (RQ5),

telephone interviews were conducted with four agency heads (or representatives). These agencies represented four agency heads with enforced physical fitness standards policies and four agency heads (or representatives) without enforced physical fitness policies. Of the four agencies that had and enforced physical fitness policies, three agencies have had the policies long-term. One agency recently enacted and began enforcing a physical fitness standards policy. Of the remaining four agencies, two agencies had a physical fitness policy listed in the policy manual but did not enforce the policy; two agencies did not have any physical fitness standards policy. Notes were taken during the interviews, and common themes were developed.

Research Question 1

Members were surveyed to determine their perceived (self-reported) level of physical fitness. Responses were recorded on a 5-point Likert scale. Responses were shown as "required" for members from agencies that had and enforced physical fitness standards and "not required" for members from agencies that do not have or enforce physical fitness standards. Responses were recorded as "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree." Those members who chose not to answer the question were recorded as "did not answer." The responses to the question regarding whether members consider themselves to be physically fit are shown in Table 1. Additionally, members were asked if their weight met the physical fitness standards of their agency. Responses were captured as a "yes" or "no" and separated between agencies with required weight standards and agencies that did not have or enforce required weight standards. The total number of responses and the total "no response" answers were also listed. The responses to members meeting the required weight standards were recorded in Table 2.

Table 1

Likert Scale Response to Members Considering Themselves to Be Physically Fit

	Required Standards		No Required Standards		Total	
	Number	%	Number	%	Number	%
Strongly agree	159	25.3%	169	27.7%	328	26.5%
Agree	271	43.1%	308	50.4%	579	46.7%
Neither agree nor disagree	122	19.4%	87	14.2%	209	16.9%
Disagree	68	10.8%	40	6.5%	108	8.7%
Strongly disagree	7	1.1%	6	1.0%	13	1.0%
Did not answer	2	0.3%	1	0.2%	3	0.2%

Table 2

Members Weight Meeting Weight Standards

	Required standards		No required standards		Total	
	Number	%	Number	%	Number	%
Yes	273	43.4%	285	46.6%	558	45.0%
No	135	21.5%	55	9.0%	190	15.3%
No response	221	35.1%	271	44.4%	492	39.7%
Total	629	100%	611	100%	1240	100%

Group statistics were evaluated to determine the mean, standard deviation, and standard error mean. Participant member responses were gathered into two groups, those members in agencies requiring physical fitness standards and those members in agencies not requiring physical fitness standards. For the group statistics, responses were divided into two categories, those members from agencies with enforced physical fitness standards were categorized as "required," and those members from agencies that do not have and enforce physical fitness standards were categorized as "not required." The number of members responding to the survey for each category was shown as "N". The results are presented in Table 3.

Table 3

Group Statistics for Members Considering Themselves to be Physically Fit

	N	Mean	Std. Deviation	Std Error Mean
Required	627	2.1914	.97331	.03887
Not Required	610	2.0262	.87810	.03555

For research question 1 (RQ1), an independent sample *t*-test was performed; the results are shown in Table 4. The *t*-test showed a significant difference between the physical fitness required group and the physical fitness not required group (T = 3.135, sig. 2 tailed = 0.002). An analysis of variance was also performed (Table 5) for RQ1 to ascertain the effects of enforced physical fitness standards on the likelihood that participants were physically fit. The ANOVA model was statistically significant, with an F= 9.802, p = .002 < alpha. Therefore, agencies that have and enforce physical fitness standards affect the physical fitness of law enforcement officers. For RQ1, the alternative hypothesis H1a was accepted, and the null hypothesis H1o was rejected.

Table 4

T-test for Members Considering Themselves to be Physically Fit

	Levene's Test for Equality of Variance		t-test for Equality of Means						
								95% Confidence Interval Of the Difference	
	F	Sig	t	df	Sig(2-tailed)	Mean difference	Std. Error difference	lower	upper
Equal variances not assumed	24.491	.000	3.135	1228.055	.002	.16516	.05268	.06181	.256851

Table 5

ANOVA Test for Members Considering Themselves to be Physically Fit

	Sum of Squares	DF	Mean of Squares	F	Sig.
Between Groups	8.434	1	8.434	9.802	.002
Within Groups	1062.614	1235	.860		
Total	1071.048	1236			

Research Question 2

Members were surveyed to determine the amount of time and the average number of days a week they engaged in physical fitness. For the amount of time members engaged in physical activity, responses were recorded as "less than 30 minutes," "30 minutes," "45 minutes," "60 minutes," and "over 60 minutes." Some members recorded multiple answers, making the total number of responses higher than the total number of members responding to the survey. The responses to the amount of time engaged in physical activity each week are shown in Table 6. Members also responded with the number of days they participated in physical activity. The responses were captured on a scale of 0 – 7 days on average per week; the number of members who did not respond to the question was listed as "did not answer." The responses to the question regarding the amount of time engaged in physical activity are shown in Table 7.

Table 6

Amount of Time Members Engage in Physical Activity Weekly

	Required Standards		No Required Standards		Total	
	Number	%	Number	%	Number	%
Less than 30 minutes	134	17.7%	118	15.3%	252	16.5%
30 minutes	192	25.3%	192	24.9%	384	25.1%
45 minutes	162	21.3%	151	19.6%	313	20.5%
60 minutes	160	21.1%	193	25.1%	353	23,1%
Over 60 minutes	111	14.6%	116	15.1%	227	14.9%
Total	759	100%	770	100%	1529	100%

Table 7

Number of Days Members Engaged in Physical Fitness Activity

	Required Standards		No Required Standards		Total	
	Number	%	Number	%	Number	%
0	43	6.8%	18	2.9%	61	4.9%
1	72	11.4%	21	3.4%	93	7.5%
2	65	10.3%	67	11.0%	132	10.6%
3	130	20.7%	118	19.3%	248	20.0%
4	123	19.6%	126	20.6%	249	20.1%
5	118	18.8%	141	23.1%	259	20.9%
6	43	6.8%	60	9.8%	103	8.3%
7	30	4.8%	56	9.2%	86	6.9%
Did not answer	5	0.8%	4	0.7%	9	0.7%
Total answered	624	100%	607	100%	1231	100%

Group statistics were evaluated to determine the mean, standard deviation, and standard error mean. Participant member responses were gathered into two groups, those members in agencies requiring physical fitness standards and those members in agencies not requiring physical fitness standards. For the group statistics, responses were divided into two categories. Members from agencies with enforced physical fitness standards were categorized as "required," and those who did not have or enforced physical fitness standards were categorized as "not required." The number of members responding to the survey for each category was shown as "N". The results are presented in Table 8.

Table 8

Group Statistics for the Amount of Time Engaged in Physical Fitness

	N	Mean	Std. Deviation	Std Error Mean
Required	624	4.4327	1.82948	.07324
Not Required	607	5.0692	1.69697	.06888

For research question two (RQ2), an independent sample t-test was performed (see Table 9). The t-test showed a significant difference between the physical fitness required group and the

physical fitness not required group (T = -6.331, sig. 2 tailed = 0.000). An analysis of variance was also performed (see Table 10) for RQ2 to ascertain the effect of enforced physical fitness standards on participants' likelihood of being physically active. The ANOVA model was statistically significant, with an F = 39.998, p < 0.001 < alpha. Therefore, agencies that have and enforce physical fitness standards affect the physical activity of law enforcement officers. For RQ2, the alternative hypothesis H2a was accepted, and the null hypothesis H2o was rejected.

Table 9

T-test for Members Regarding the Amount of Time Engaged in Physical Fitness

	Levene's Test for Equality of Variance		t-test for Equality of Means						
								95% Confidence Interval Of the Difference	
	F	Sig	t	df	Sig(2-tailed)	Mean difference	Std. Error difference	lower	upper
Equal variances not assumed	7.366	.007	-6.331	1226.236	.000	-63650	.10054	-.83375	-.43925

Table 10

ANOVA test for the Amount of Time Spent Engaged in Physical Fitness

	Sum of Squares	DF	Mean of Squares	F	Sig.
Between Groups	124.656	1	124.656	39.998	<.001
Within Groups	3830.267	1229	.3.117		
Total	3954.923	1230			

Research Question 3

Members were surveyed to determine their desire to see physical fitness standards enforced by their agency. Responses were recorded on a 5-point Likert scale. Responses were recorded as "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree." Those members who chose not to answer the question were recorded as "did not

answer." The responses to whether members wanted to see physical fitness standards enforced by their agency are shown in Table 11.

Table 11

Members Wanting to See Physical Fitness Standards Enforced by Their Department

	Required Standards		No Required Standards		Total	
	Number	%	Number	%	Number	%
Strongly agree	193	30.7%	212	34.7%	405	32.7%
Agree	213	33.9%	180	29.5%	393	31.7%
Neither agree nor disagree	141	22.4%	135	22.1%	276	22.3%
Disagree	56	8.9%	51	8.3%	107	8.6%
Strongly disagree	23	3.7%	33	5.4%	56	4.5%
Did not answer	3	0.5%	0	0	3	0.2%
Total answered	626	100%	611	100%	1237	100%

Group statistics were evaluated to determine the mean, standard deviation, and standard error mean. Participant member responses were gathered into two groups, those members in agencies requiring physical fitness standards and those in agencies not requiring physical fitness standards. For the group statistics, responses were divided into two categories. Members from agencies with enforced physical fitness standards were categorized as "required," and those from agencies that did not have or enforced physical fitness standards were categorized as "not required." The number of members responding to the survey for each category was shown as "N". The results are presented in Table 12.

Table 12

Group Statistics for the Opinion of Wanting Physical Fitness Standards Enforced

	N	Mean	Std. Deviation	Std Error Mean
Required	626	2.2061	1.08695	.04344
Not Required	611	2.2029	1.16143	.04699

For research question three (RQ3), an independent sample *t*-test was performed (see Table 13). The *t*-test showed there was not a significant difference between the physical fitness required group and the physical fitness not required group (T = .049, sig. 2 tailed = 0.961). An analysis of variance (see Table 14) was also performed for RQ3 to ascertain the effect of physical fitness levels on the likelihood that participants would like fitness standards enforced by the department. The ANOVA model was not statistically significant, with an F = .002, p = 0.961 > alpha. Therefore, agencies that have and enforce physical fitness standards did not affect whether participants would like fitness standards enforced by their department. For RQ3, the alternative hypothesis H3a was rejected, and the null hypothesis H3o was accepted.

Table 13

T-test for Members Regarding Wanting Physical Fitness Standards Enforced

	Levene's Test for Equality of Variance		t-test for Equality of Means						
								95% Confidence Interval Of the Difference	
	F	Sig	t	df	Sig(2-tailed)	Mean difference	Std. Error difference	lower	upper
Equal variances not assumed	3.674	.055	.049	1224.992	.961	.00312	.06399	-.12232	.12867

Table 14

ANOVA Test for Members Wanting Physical Fitness Standards Enforced

	Sum of Squares	DF	Mean of Squares	F	Sig.
Between Groups	.003	1	.003	.002	.961
Within Groups	1561.252	1235	1.264		
Total	1561.255	1236			

Research Question 4

Before beginning the research into the effects of physical fitness standards, 49 state law enforcement agencies were contacted to ascertain if they had and enforced physical fitness

standards policies. (Hawaii did not have a state law enforcement agency.) It was determined that 22 states had and enforced physical fitness standards, and 27 states either did not have or did not enforce them. The agency heads for each state agency were then contacted for participation in this research study. Multiple emails were sent to agencies that did not agree or declined to participate, and phone calls were made to agency heads and training staff to improve participation. The results of the request to participate in the study are shown in Table 15.

Table 15

Agency Response to Participation in Research Study

	Required standards	no required standard
Agreed to participate	4	4
Decline to participate	8	10
No response	10	13
Total	22	27

The researcher interviewed agency heads or representatives regarding the size of the agency and their opinions on the physical fitness levels of agency members. Agency heads or representatives were asked to select a range between 0 – 250, 251 – 500, 501 – 1,000, 1,001 – 2,000, 2,001 – 3,000, or over 3,000. The breakdown of sizes for participating agencies is shown in Table 16. Themes were developed for responses regarding agency members' perceived physical fitness level as stated by the agency heads or representatives. The themes of the perceived fitness level of agency members are shown in Table 17.

Table 16

Participating Agency Size

	Required standards	No required standards
0 – 250	0	0
251 – 500	1	2
501 – 1,000	0	1
1,001 – 2,000	3	1
2,001 – 3,000	0	0
Over 3,000	0	0

Table 17

Representative Themes of Perceived Fitness Level of Agency Members

Required standards	No required standards
Some in good shape	Generally good to very good
As an agency could be improved	Could be better, good start
Pretty good at keeping in shape in relation to other departments	Decent shape
Range of fitness levels, most are intermediate to advanced	Poor, great out of academy, then many struggle to maintain fitness

For research question four (RQ4), agency heads or representatives were interviewed regarding the enactment of post-academy graduation physical fitness standards and how such policies were enforced. A listing of how policies were enforced or why agencies did not have policies are shown in Table 18.

Table 18

Enforcement of Physical Fitness Policies

Required standards	No required standards
Annual testing	Never had a policy
Bi-annual testing	Policy not enforced

Agencies heads or representatives agreed the enforcement of physical fitness standards was a complicated issue involving member buy-in and union or collective bargaining agency

agreement. All four agencies that have and enforce physical fitness standards stated it was a matter of their agency culture and to ensure the overall health and wellbeing of their members. One agency explained physical fitness as a part of their agency culture and further explained how important mental and physical fitness were for the wellbeing of their officers. Another agency expounded on the importance of physical fitness for the health and wellbeing of their members. The third agency stated that having physical fitness standards ensured the readiness of their members to perform their duties. The fourth agency echoed responses on the overall health, fitness, and readiness for duty as primary reasons for having and enforcing physical fitness policies. The four agencies without enforced physical fitness standards would like to see more of these standards enforced. However, due to budget issues, lack of member buy-in, and issues regarding unions or collective bargaining agents, many physical fitness standards were not being placed in the policy or enforced. Three agencies stated they have never had physical fitness standard policies beyond academy graduation and hiring. One agency stated it had never been talked about. Another agency stated the state did not want to provide relief time or payment for physical fitness-related activities. The third agency noted that there was strong opposition from members due to the fear of reprisal (discipline or firing) for not meeting standards. The fourth agency stated they have a policy listed, but it has never been enforced. The fourth agency further elaborated that there was no language in the policy stating what the standard was, how it would be enforced, or what a member was supposed to do to meet or maintain the policy. Table 19 depicts the themes for the opinions of state law enforcement agency heads or representatives regarding the enactment or enforcement of post-academy graduation physical fitness standards.

Table 19

Themes Regarding the Enactment or Enforcement of Physical Fitness Policies

Required standards	No required standards
Part of culture	Lack of membership buy-in
Concern for health and wellbeing of members	Executive decision not to enforce
Goal to promote health and wellbeing	Never been talked about as an agency
Long-term benefits of health and fitness for duty	Never put into place
	Issues related to collective bargaining
Readiness to respond to situations	Budget issues (payment for achievements)

Research Question 5

The themes developed for research question five (RQ5) discussed why agencies have (or do not have) post academy graduation physical fitness standards for their law enforcement officers. The overarching theme from all interviews was the care and concern for law enforcement members and the desire to see members be healthy, safe, and able to perform their duties. One agency that has and enforces a physical fitness standards policy stated they do so due to their agency's culture and the desire to see members healthy and able to perform their job. Another agency echoed the theme of promoting the overall health of their members and members' ability to perform their job duties in all types of conditions. Two agency heads also mentioned their members' overall health, including mental health, physical health, and physical conditioning. Agencies that did not have or enforce physical fitness standards stated a history of never having a policy. Furthermore, they discussed no longer enforcing it due to unions or collective bargaining agents, lack of ability to fulfill collective bargaining agreements for incentives to meet standards, and lack of members' buy-in. One agency stated the primary issue was pay. If officers were paid more, the agency could be more selective of who they hired. They could enforce fitness policies; however, with low pay and too many vacancies, they could not enact or enforce physical fitness policies. A second agency also stated that the primary

opposition to enforcing a fitness policy was the cost of implementing the policy to give members time off to exercise or reward them for achieving and maintaining standards. Two agencies stated that the primary obstacle to physical fitness policies was the challenge of enforcing the policy. Challenges to enforcing the policy were due to member opposition and lack of buy-in and union or bargaining agency opposition to physical fitness policies. Table 20 shows themes regarding why agencies have or did not have or enforce physical fitness policies.

Table 20

Reasons for Having or Not Having Physical Fitness Policies

Required standards	No required standards
Care and concern of members	Never had a policy
Desire to see members healthy and safely able to perform job duties	Membership fear of reprisal
Part of agency culture	Unions and collective bargaining agents
Promotion of overall health of members	Lack of ability to fulfill collective bargaining agreement for incentives
Member ability to perform duties in all conditions	Lack of membership buy-in
	Challenges enforcing fitness policies
Promote mental and physical health	Lack of agency financial ability/low pay

Agency heads and representatives were asked their opinion on how physical fitness standards affected the physical fitness levels of their law enforcement members. Participants were asked if they felt enforced physical fitness standards increased the level of physical fitness of their members, would increase the physical fitness standards of their members, or would not increase the physical fitness levels of their members. All four agency heads or representatives of agencies with enforced physical fitness standards policies stated having a physical fitness policy increased the physical fitness levels of their members. All four agency heads or representatives of agencies without enforced physical fitness standards policies stated having enforced physical fitness standards policies would increase the physical fitness levels of their members. Table 21

shows the survey question results regarding the effects of having a physical fitness standard policy on the physical fitness level of agency members.

Table 21

Effects of Physical Fitness Policies on Member Fitness Levels

	Required standards	No required standards
Increases	4	n/a
Would increase	n/a	4
Would not increase	0	0

General Findings Summary

In addition to the stated research questions, law enforcement members were questioned (via the online survey) regarding their opinion on their physical fitness level. This question was related to their ability to perform their job, the physical fitness levels of other members in their department, and whether having physical fitness policies would affect the fitness levels of department members. ANOVA tests were conducted on the recorded responses to the questions. The results were significant for members stating they were in the proper condition to perform their required job duties ($F = 8.827$, $p = .003$) and for members believing most sworn law enforcement officers in their department were physically fit ($F = 9.262$, $p = .002$). However, the results were not significant for the belief that more members would be physically fit if physical fitness standards were enforced ($F = 2.601$, $p = .107$). A table showing the results of additional group statistics (Table 22), t-test (Table 23, Table 24, and Table 25), and ANOVA tests (Table 26) performed can be located in the appendix. It is interesting to note that while only 9.7% of respondents considered themselves not to be physically fit (disagreed or strongly disagreed), 15.3% of respondents stated their weight did not meet weight standards.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of the study was to determine the relationship between agency physical fitness standards policies and law enforcement physical fitness levels. This study analyzed sworn law enforcement officers' responses to questions regarding their physical fitness level, their opinion on physical fitness standard policies, and how such policies affect their physical fitness levels. A discussion of the study results along with limitations to the study is discussed in this chapter. Implications of the study for law enforcement agencies and ideas for further research are also included in this chapter.

Discussion

The researcher utilized confidential telephone interviews and member surveys to understand physical fitness levels and opinions on agency physical fitness standard mandates. This researcher removed professional experiences and personal opinions from this study to minimize potential bias. The results of this study identified the physical fitness levels of sworn law enforcement officers and how they are affected by agency-mandated physical fitness standards.

Most agencies have minimum physical fitness standards for new hires; however, many agencies do not have required physical fitness standards that members must maintain throughout their career (Hauschild et al., 2017; Petersen & Anderson, 2016; Strandberg, 2014). As law enforcement officers progress in their careers, many fail to maintain their physical fitness levels, thus decreasing their ability to perform their job duties (Davis et al., 2016; Milligan et al., 2016; Vukovic et al., 2019). Officers who maintain their physical conditioning are healthier and better able to perform their job duties (DeNysschen et al., 2018). Failure to maintain physical fitness

levels results in a decreased ability to perform job duties and an increase in weight-related and stress-related health concerns (Davis et al., 2016; Milligan et al., 2016; Vukovic et al., 2019). Other researchers have explored the relationship between physical fitness standards and injury (Fortenberry, 2016; Hancock, 2017) or the relationship between wellness policies and stress levels (Hamel, 2015); few researchers have explored the relationship between law enforcement officer physical fitness levels and agency physical fitness policies.

In this study, sworn law enforcement officers completed an anonymous online survey while agency heads (or representatives) completed a confidential telephone interview. The survey questions explored opinions regarding the individual's physical fitness level, co-workers' physical fitness levels, opinions on agency physical fitness standards policies, and how agency physical fitness standards policies affect physical fitness levels. The telephone interviews explored agency heads' opinions on why their agency has (or does not have) physical fitness standards policies and their opinion on the physical fitness level of agency members. The results of this mixed-method study were recorded in Chapter Four. A summary and interpretation of the findings are reported in this chapter, along with limitations of this study, implications of the results of this study, and recommendations for future research.

Summary of the Findings

The research findings supported the first hypothesis – agencies that have and enforce physical fitness standards have a statistically different number of law enforcement officers that are fitter than agencies that do not. Additionally, the study findings support the philosophy behind organizational theory. When agencies mandate members to maintain physical fitness standards, the members will follow the organizational directive or mandate.

The research findings supported the second hypothesis – members employed by agencies that have and enforce physical fitness standards statistically spend more time working on their physical conditioning. Members required to maintain physical fitness levels spend more time working on their physical condition to meet the organizational directive of fitness level standards, consistent with organizational theory.

The research findings rejected the third hypothesis – fit law enforcement officers are not statistically more in favor of their agency mandating physical fitness standards. This research finding supported self-determination theory in that members used their own source of motivation regarding maintaining fitness levels. Sixty-four percent of all sworn officers surveyed favored agency-mandated physical fitness standards. Fifty-five percent of surveyed members felt agency-mandated standards would cause them to increase their physical fitness levels. Seventy-two percent of surveyed members felt agency-mandated physical fitness standards would cause their co-workers to increase their physical fitness levels.

Themes for research questions four and five included the desire to see members maintain and increase their overall physical conditioning. However, there were concerns that members feared reprisal for failure to meet standards and issues regarding unions and collective bargaining agents. An additional theme associated with the enforcement of physical fitness policies included: testing costs, rewarding members for achieving standards, and giving members time off to exercise. The researcher also noted member buy-in and union or collective bargaining agents' support as challenges. Unions and collective bargaining agent issues included how policies would be written or enforced and rewards for meeting standards (extra time off or monetary payment). Another challenge was punishments (discipline or termination); how would agencies manage members for not meeting newly enacted standards (especially for older

members who would be more significantly impacted due to years of being out of shape). It should also be noted that agencies that have and enforce physical fitness policies rated their members' fitness levels as "intermediate," "advanced," "great," or "pretty good to great." While representatives from agencies without physical fitness standards rated their members as "could be better," "poor," "generally good," or "decent shape." One agency that began enforcing a physical fitness policy three years ago noticed a marked improvement in the physical fitness level of its members in each of the last three years. When agency heads (or representatives) were asked their opinion on how physical fitness affects the physical fitness level of members, the four agencies with physical fitness standards all stated the policies increased the physical fitness level of their members. They believed the policies held their members to a higher standard. The agencies without enforced physical fitness standards all stated they felt having a physical fitness standard would increase the physical fitness level of their members.

Implication

This research has implications for law enforcement agencies regarding physical fitness standards policies, the development of physical fitness standards policies, and the enforcement of such policies. Data gathered from this research added to the body of knowledge regarding physical fitness standards of agencies, why some agencies have physical fitness standards policies, and why some agencies do not have or enforce physical fitness standards policies. Furthermore, this research added to the existing body of knowledge by incorporating sworn law enforcement officers' opinions on their physical fitness level, their opinion on the physical fitness level of their constituents, and their opinion of physical fitness standards policies.

Sixty-four percent of law enforcement officers (from agencies with and without enforced physical fitness standards) wanted physical fitness standards enforced. An additional 22% of

surveyed officers neither agreed nor disagreed to wanting physical fitness standards enforced; only 13% of surveyed members did not want physical fitness standards enforced. Ten percent of officers surveyed considered themselves not physically fit, while five percent admitted they were not in the proper physical condition to do their job. Additionally, 35% of surveyed officers felt officers in their departments were not in proper physical conditioning to do their job. Furthermore, 55% of surveyed officers stated that having physical fitness standards would increase their fitness level. Seventy-two percent of surveyed officers stated that having physical fitness standards would improve other members' fitness in their department.

Limitations

Limitations to this research included a limited number of state agencies participating in the research project. Forty-nine state agencies were contacted for participation; however, only eight agencies agreed to participate during the research collection phase. Two other agencies gave consent; however, the consent was given after all initial agency head interviews were conducted and the member survey was closed. Another limitation was that only state law enforcement agencies participated in the research. Furthermore, while there were 1240 participants, there were a total of 8,383 sworn members from the eight surveyed agencies eligible to participate. As a result, the fitness levels and opinions of 7,143 members were missing and could have potentially changed the findings of this study. The number of female responses (112) compared to male responses (1,119) also limited the generalizability of the data collected.

Recommendations for Further Research

Further research regarding the effects of physical fitness policies on law enforcement officers could focus on different populations of law enforcement officers (city, county, state, federal, or tribunal). Additionally, further research should include a more substantial number of

law enforcement agencies. Different testing instrumentations (including in-person surveys or physical fitness testing) would provide additional data on fitness levels. Future researchers should consider other theoretical constructs and assumptions in future research endeavors.

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Appendix A: Agency Head Email

Tina Hall

Agency Head
Agency
Agency Address

Colonel XX,

I am a retired law enforcement officer (Special Operations Lieutenant) and current Ph.D. candidate at Liberty University. As part of my dissertation process, I am conducting research on state law enforcement agency post academy graduation physical fitness policies and the relationship of physical fitness policies on law enforcement physical fitness levels. Through a process of purposeful random sampling, your agency has been selected to participate in my research study.

You and your department's participation in the research study will be confidential. The research study will involve a brief telephone interview with you (or your representative) regarding your physical fitness policy (or lack thereof). Your response will remain confidential; a pseudonym or code will be used and no personally or agency identifiable information will be recorded or listed in the study. The telephone interview will last less than thirty minutes. Approval will be obtained for your sworn law enforcement members to complete an online survey (which you may also complete). The survey will be anonymous for members and their responses will be confidential. Upon completion of the study, you will be contacted again for a brief follow-up interview with three questions. The follow-up interview will last less than thirty minutes.

Agencies will benefit from this research study by obtaining information regarding the relationship between law enforcement agency physical fitness policies and law enforcement member physical fitness levels. At the conclusion of the study, if you would like a copy of the results of the survey (statistical data from all departments combined, as there will be no identifiable information for individual departments), the results will be emailed to you. During the study, to protect the integrity and confidentiality of collected data, all data will be stored on an encrypted, password protected, external hard drive which will be stored in a locked fireproof safe when not in use.

Attached is an informed consent form regarding information about this study. Please respond to this email regarding your agency's participation in this research study. If you agree to participate in the study, please sign the attached form and email it back to me along with a contact phone number to reach you for the interview. Your participation in this research study will be greatly appreciated. Should you have any questions regarding this study you may contact me at the information below. Additionally, should you desire the contact information for my faculty advisor it will be provided to you.

Thank you,
Tina Hall

Appendix B: Agency-Head Informed Consent

Informed Consent – Agency Head or Representative

Title of the Project: Law Enforcement Physical Fitness

Principal Investigator: Tina Hall

Invitation to be Part of a Research Study

You are invited to participate in a research study. To participate, you must be a sworn law enforcement officer. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to study law enforcement officer physical fitness levels in relation to law enforcement physical fitness standards policies.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following things:

1. You will be asked to acknowledge this informed consent and agree to being interviewed and allowing the sworn law enforcement members of your agency to participate in this research study.
2. You will be requested to participate in a brief (less than thirty minute) telephone interview at the beginning of the research study (you may alternately choose to answer the eight interview questions online and email the responses back to the researcher).
3. Upon completion of the research, you will be requested to participate in a brief (less than thirty minute) follow-up interview during which you will be asked three questions and presented with basic information regarding other agency physical fitness policies.

Alternately, you may choose to answer the follow-up questions online and email your responses back to the researcher.

4. You may also choose to participate in the law enforcement member survey that will be sent to your agency for dissemination to sworn law enforcement members.

How could you or others benefit from this study?

This study may provide benefits to your agency or other agencies in deciding to keep or enact post academy graduation physical fitness standards.

What risks might you experience from being in this study?

The risks involved in this study include: no known risk. The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

- No identifiable information will be collected in the survey. Law enforcement member participant responses will be anonymous and confidential. Law enforcement officers will complete the online survey. Agency head participants will complete a telephone interview. Pseudonyms and codes will be used to protect the confidentiality of agencies and agency heads participating in the research study.
- Data will be stored on an encrypted, password protected external hard drive stored in a locked fireproof safe when not in use. Only the researcher and analyst will have access to the data. Data may be used in future presentations. Data will be retained for a minimum of three years.
- Notes will be taken during the telephone interview. All interviewed participants will be given a pseudonym or code to protect the confidentiality of their responses. Notes will be stored on an encrypted, password protected, external hard drive that will be kept in a fireproof safe when not in use.
- No audio or video recording will occur during this research study.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or your employing agency. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

For law enforcement officers, if you choose to withdraw from the study, please exit the survey and close your internet browser Your responses will not be recorded or included in the study.

For agency heads, if you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Tina Hall. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her. You may also contact the researcher's faculty sponsor, Dr. J. Perry.

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You may copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

_____

Printed Subject Name and Agency

_____

Signature & Date

Appendix C: Agency-Head Follow-up Email

Tina Hall

Agency Head
Agency
Agency Address

Colonel XX,

This is a follow-up to the email that was sent on (date) regarding your agency participation in my research study. Your department's participation in the research study will aid in understanding the relationship between law enforcement physical fitness policies and law enforcement physical fitness levels. Your agency's participation in the research study will be confidential and personally or agency identifiable information will be reported in the study.

Attached is an informed consent form regarding information about this study. Please respond to this email regarding your agency's participation in this research study. If you agree to participate in the study, please sign the attached form and email it back to me along with a contact phone number to reach you for the interview. Your participation in this research study will be greatly appreciated. Should you have any questions regarding this study you may contact me at the information below. Additionally, should you desire the contact information for my faculty advisor it will be provided to you.

Thank you,
Tina Hall

Appendix D: Agency-Head Initial Interview

Agency Head Initial Interview

Welcome to My Survey for Agency Heads or Representatives

Thank you for participating in our

1. What is the size of your agency (number of sworn law enforcement officers)?

- ◯ 0 - 250
- ◯ 251 - 500
- ◯ 501 - 1,000
- ◯ 1,001 - 2,000
- ◯ 2,001 - 3,000
- ◯ over 3,000

2. What is your opinion on the physical fitness level of members of your department?

3. Does your agency have a post academy graduation physical fitness standard listed in

- ◯ Ye
- ◯ No

4. If yes, is it enforced?

- ◯ Ye
- ◯ No

5. Why or why not?

6. If the policy is enforced, how is it enforced?

- ◯ monthly weigh-ins
- ◯ annual fitness testing
- ◯ both monthly weigh-ins and annual fitness testing
- ◯ annual weigh-ins
- ◯ both annual fitness testing and annual weigh-ins

7. Do you feel physical fitness standards increases/ would increase/ would not affect physical standards of your members.

8. If your agency does not have post academy graduation physical fitness standards, what is the biggest obstacle or challenge to having or enforcing physical fitness

Appendix E: Member Email

Law Enforcement Officer,

I am a retired law enforcement officer and Ph.D. candidate conducting a research study. Your agency has been selected to participate in a research study regarding the relationship between law enforcement agency physical fitness policies and law enforcement officer physical fitness levels. Below is a link to complete a brief survey regarding your physical fitness level and your opinion on physical fitness policies. Your participation in the survey is completely voluntary. Your participation in the survey will be anonymous. No personally identifiable information will be collected. No one in your agency will know if you participated in the survey or what your responses were. Information regarding the collection of data from the survey is provided at the beginning of the survey. You must read the information and check a box giving informed consent stating you understand the survey is voluntary prior to beginning the survey. The survey will less than ten minutes to complete.

Your participation in the research study is greatly appreciated.

Sincerely,

Tina Hall

Appendix F: Member Informed Consent and Survey

Welcome to the Law Enforcement Officer Physical Fitness Survey

Informed Consent

Title of the Project: Law Enforcement Physical Fitness

Principal Investigator: Tina Hall

You are invited to participate in a research study. To participate, you must be a sworn law enforcement officer. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research.

What is the study about and why is it being done?

The purpose of the study is to study law enforcement officer physical fitness levels in relation to law enforcement physical fitness standards policies.

What will happen if you take part in this study?

If you agree to be in this study, I will ask you to do the following things:

Answer a series of questions regarding your physical fitness level, your agencies physical fitness policies, and your opinion on physical fitness levels and physical fitness policies. This survey should take less than fifteen minutes to complete. Your information will be completely confidential. Your participation is completely voluntary and you can exit the survey at any time without repercussions.

How could you or others benefit from this study?

This study may provide benefits to agencies in deciding to keep or enact post academy graduation physical fitness standards.

What risks might you experience from being in this study?

The risks involved in this study include: no known risk. The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

No identifiable information will be collected in the survey. Law enforcement member participant responses will be anonymous and confidential. Law enforcement officers will complete the online survey.

Data will be stored on an encrypted, password protected external hard drive stored in a locked fireproof safe when not in use. Only the researcher and analyst will have access to the data. Data may be used in future presentations. Data will be retained for a minimum of three years.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or your employing agency. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Tina Hall. You may ask any questions you have now. If you have questions later, you are encouraged to contact her. You may also contact the

researcher's faculty sponsor, Dr. J. Perry. Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the research using the information provide above.

1. Do you consent to participate in the research study?

○ Yes
○ No

2. What is your age?

18 80

3. What is your gender

male female

4. What is your current weight?

75 400

5. What is your current height?

4' 8'

6. What was your weight upon graduation from the most recently attended law enforcement academy?

75 400

7. How many years have you been employed as a sworn law enforcement officer with your current law enforcement agency?

0 50

8. How many times in the average week do you engage in moderate physical activity such as brisk walking, light bicycling, participation in organized sports, or other forms of exercise?

- ◯ 0
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6
- ◯ 7

9. What is the approximate amount of time spent during each physical fitness related activity session (such as 30 minutes of basketball or 60 minutes of running)?

less than 30 minutes	
30 minutes	
45 minutes	
60 minutes	
more than 60 minutes	

10. Does your agency have a post academy graduation physical fitness standards policy? (If yes, proceed to question 11, if no, proceed to question 14).
    - ◯ Yes
    - ◯ No

11. Is the physical fitness policy enforced? (If yes, proceed to question 12, if no, proceed to question 14).
    - ◯ Yes
    - ◯ No

12. How is the physical fitness standard tested or enforced?
    - ◯ monthly weigh-ins
    - ◯ annual weigh-ins
    - ◯ annual fitness testing
    - ◯ both annual testing and annual weigh-ins
    - ◯ both monthly weigh-ins and annual testing

13. Does your current weight meet the physical fitness standards of your agency (as measured on a standard scale or through additional measures such as pinch test, caliper, underwater weight measurement, etc.)?
    - ◯ Yes
    - ◯ No

14. Would having enforced physical fitness standards your level of physical fitness?

- ◯ Yes
- ◯ No

15. I consider myself to be physically fit

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

16. I am in the proper physical condition to perform my required job duties.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

17. Most sworn law enforcement members of my agency are physically fit.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

18. Having an agency or department enforced physical fitness standards policy would cause me to increase my level of physical fitness.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

19. More members of my department would be physically fit if physical fitness standards were enforced.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

20. I would like to see physical fitness standards enforced by my department.

- ◯ Strongly agree
- ◯ Agree
- ◯ Neither agree nor disagree
- ◯ Disagree
- ◯ Strongly disagree

21. Would you like to elaborate on your opinion on physical fitness levels for yourself, members of your department, or the establishment or requirement of physical fitness standards?

Appendix G: Member Follow-up Email

Law Enforcement Officer,

This is a follow-up email reminding you to complete the below survey regarding the relationship between law enforcement agency physical fitness policies and law enforcement officer physical fitness levels. You may click on the link below to begin the survey process. Your participation in the survey will be anonymous. No personally identifiable information will be collected. No one in your agency will know if you participated in the survey or what your responses were. Information regarding the collection of data from the survey is provided at the beginning of the survey. You must read the information and check a box giving informed consent stating you understand the survey is voluntary prior to beginning the survey. The survey will less than ten minutes to complete.

Your participation in the research study is greatly appreciated.

Sincerely,

Tina Hall

Appendix H: Agency-Head Post Study Interview

Agency Head Post Survey Interview

1. After seeing the results of the survey from members of your department, has your opinion on fitness standards changed?

2. If you do not have enforced post academy graduation physical fitness standards, would the information about) other agencies with physical fitness standards and information on the defense of fitness standards in court aid your department in establishing and enforcing physical fitness?

3. Regardless of current policies and enforcement of physical fitness standards or decisions to desist enforcement of such standards in the future, would you be willing to allow the department to in follow-up research in 3 - 5 years?

Appendix I: BMI Chart

Body Mass Index Table

	Normal						Overweight					Obese										Extreme Obesity														
BMI	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**
Height (inches)	**Body Weight (pounds)**																																			
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	289	295
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443

Source: Adapted from *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report.*

Appendix J: Group Statistics, T-test, and ANOVA Tests of Additional Survey Questions

Table 22

Group Statistics of Additional Survey Questions

	Fitness Standards	N	Mean	Std. Deviation	Std. Error Mean
I am in the proper physical condition to perform my required job duties	required	627	1.9537	.85876	.03430
	not required	608	1.8125	.81038	.03287
Most sworn law enforcement members of my agency are physically fit	required	625	3.1152	1.05741	.04230
	not required	611	2.9378	.98981	.04004
More members of my department would be physically fit if physical fitness standards were enforced	required	627	2.1659	.99740	.03983
	not required	610	2.0754	.97466	.03946

Table 23

T-test I Am in the Proper Physical Condition to Perform My Required Job Duties

	Levene's Test for Equality of Variance		t-test for Equality of Means						
								95% Confidence Interval Of the Difference	
	F	Sig	t	df	Sig(2-tailed)	Mean difference	Std. Error difference	lower	upper
Equal variances not assumed	.844	.358	2.974	1232.090	.003	.14125	.04750	.04806	.23444

Table 24

T-Test Most Sworn Members of My Agency Are Physically Fit

	Levene's Test for Equality of Variance		t-test for Equality of Means						
								95% Confidence Interval Of the Difference	
	F	Sig	t	df	Sig(2-tailed)	Mean difference	Std. Error difference	lower	upper
Equal variances not assumed	3.616	.057	3.046	1231.987	.002	.17739	.05824	.06312	.29166

Table 25

T-test More Members Would Be Physically Fit if Physical Fitness Standards Were Enforced

	Levene's Test for Equality of Variance		t-test for Equality of Means						
								95% Confidence Interval Of the Difference	
	F	Sig	t	df	Sig(2-tailed)	Mean difference	Std. Error difference	lower	upper
Equal variances not assumed	1.836	.176	1.613	1234.976	.107	.09046	.05607	-.01955	.20046

Table 26

ANOVA Tests of Additional Survey Questions

		Sum of Squares	df	Mean Square	F	Sig
I am in the proper physical condition to perform my required job duties.	Between Groups	6.158	1	6.158	8.827	.003
	Within Groups	860.284	1233	.698		
	Total	8663442	1234			
Most sworn law enforcement members of my agency are physically fit	Between Groups	9.722	1	9.722	9.262	.002
	Within Group	1295.342	1234	1.050		
	Total	1305.065	1235			
More members of my department would be physically fit if physical fitness standards were enforced	Between Groups	2.530	1	2.530	2.601	.017
	Within Groups	1201.281	1235	.973		
	Total	1203.811	1236			