

Identifying Fitness Strategies for the East Whiteland Fire Department

Dan Kerrigan

East Whiteland Fire Department

Malvern, PA

Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used language, ideas expressions, or writings of another.

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Abstract

A firefighter's physical conditioning significantly impacts fireground performance, personal health and wellness, personal safety, and the safety of co-workers. The problem was that East Whiteland Fire Department (EWFD) personnel did not maintain an appropriate level of fitness to execute their duties. The purpose of the research was to identify strategies to improve fitness in the EWFD. The research questions were (a) why aren't EWFD personnel maintaining an appropriate level of fitness for duty, (b) what are other fire service organizations doing to address the fitness issue, (c) what are the available program options for fitness programs, and (d) of the available programs, which require specific certification to administer? A descriptive research method was used that included an internal organizational survey, external fire service organization surveys on regional and national levels, personal interviews with professional trainers, and a pilot study to collect data from a sample fitness program. The results indicated trends regarding a general lack of motivation and direction among fire service professionals with regard to fitness, clear indicators of program components that could help to make fitness programs more successful, and a definitive correlation between the type of organization (career or volunteer) and the existence of a fitness program. Recommendations included the implementation of a formal physical fitness program and associated written policy for the EWFD, the use of a professional fitness coordinator to administer the program, the incorporation of a fitness room in a proposed new fire station, the development of a periodic assessment program to evaluate personnel fitness, a future EWFD worker's compensation claim payout analysis to compare to data collected prior to the implementation of a fitness program, and renewed efforts from the United States Fire Administration (USFA) and the National Fire Protection Association (NFPA) to prioritize firefighter health and wellness.

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Introduction

According to the United States Fire Administration (USFA), 83 firefighters died in the line of duty in 2011 (United States Fire Administration [USFA], 2012). This represents a decline in line of duty deaths (LODD) for the second straight year. While many strides have been made in reducing LODDs, according to *Fire Chief Magazine* (2012), heart attacks were still responsible for 50 of those deaths (60%), nearly the same proportion (63%) from 2010.

It is clear that the fire service still faces a significant challenge in reducing the number of fatalities associated with poor health and fitness. Many reports have and continue to document the effects of a lack of concern for overall health and fitness in America. In fact, even though heart disease remains the number one killer in the United States, people are not scared enough to do anything about it (Carter, 2006). This dilemma becomes an even more serious one when considering the duties associated with that of a firefighter.

The East Whiteland Fire Department (EWFD) is a microcosm of the national fire service health and fitness issue. The problem is that East Whiteland Fire Department personnel do not maintain an appropriate level of fitness to execute their duties. The overall lack of fitness for duty has created an increased risk to the health and safety of the personnel in the EWFD – one that can be controlled. The purpose of this research is to identify strategies to improve fitness in the EWFD. The research questions are (a) why aren't EWFD personnel maintaining an appropriate level of fitness for duty, (b) what are other fire service organizations doing to address the fitness issue, (c) what are the available program options for fitness programs, and (d) of the available programs, which require specific certification to administer? A descriptive research method will be utilized that includes an internal survey, external surveys on regional and national

levels, personal interviews with professional trainers, and a pilot study to collect data from a sample fitness program.

Background and Significance

East Whiteland Township, located approximately 20 miles west of Philadelphia in Chester County, PA, is home to a resident population of over 10,000 people and U.S. Headquarters to several National and International firms. The township is governed by a three-person elected Board of Directors and Township Manager who serves at the will of the board of directors.

The EWFD was formed in 1990 with the hiring of a single firefighter. The department has grown to nine full time line personnel (including a supervisor), 11 part time personnel, three Assistant Fire Marshals, and the Director of Codes and Life Safety who oversees the department. Initially formed to augment the local volunteer fire department's staffing, the EWFD has evolved into the primary emergency service provider (fire, rescue, and BLS transport) for East Whiteland Township. The EWFD has an annual operating budget of over \$1.3 million and continues to expand its staffing to assure a consistently high level of response to emergencies in within its primary district. Personnel operate out of one station and provide 24/7 coverage on a four platoon system, each platoon working three days on, two days off, three nights on, and four days off. The administrative personnel (director and assistant fire marshals) work a 40 hour week and augment response during work hours as well as participate in call-back for operations and fire investigations at significant incidents. In 2011, the department totaled 600 fire calls and 761 medical calls.

The EWFD is a small organization that relies heavily on individual personnel. Unfortunately, over the last three years, the lack of fitness within the department has been cause

for one termination due to medical physical failure and another long term disability claim directly related to a significant medical procedure to address obesity. In other words, nearly one quarter (22%) of our full-time line personnel have been personally affected by their own lack of fitness, and this has had a tremendous impact on the EWFD in terms of coverage (manpower) and costs associated with gaps in coverage.

The EWFD participates in comprehensive medical evaluations on an annual basis that conform to *NFPA 1582: Standard on Comprehensive Occupational Health for Fire Departments*; however, there is no policy or standard within the department that relates to firefighter fitness, particularly one that conforms to *NFPA 1583: Standard on Health-Related Fitness for Fire Department Members*. Additionally, although some personnel engage in workout programs on at least a casual basis, there is no designated physical fitness program available to the personnel while on duty. Although NFPA 1583 "...establishes minimum requirements for the development, implementation, and management of a health-related fitness program (HRFP)"(National Fire Protection Association [NFPA], 2008, p. 4), the standard does not specify the use of any particular physical fitness program for fire department members; rather, it is left up to the organization which specific type of physical training program to use.

On a national scale, between 1999 and 2010, the American fire service lost 664 firefighters to medical incidents; 552 of them were cardiac in nature (Sendlebach, 2011, p. 2). This research is significant because the future impact of a continued lack of attention to personal fitness has several implications for the fire service in the United States and at the local organizational level, most notably the increased potential for injury or death as a result of a preventable disease (heart attack). Additionally, the identification of strategies to increase level of fitness for members of the EWFD not only serves to improve the health and well being of our

personnel (thus helping to insure that each member is an asset to the community and to his/her co-workers), it also serves to reduce potential financial claims based on the payment of workers compensation claims and insurance premium reimbursements.

Aside from heart disease, the implementation of a physical fitness program has great potential to reduce the risk of on the job injuries suffered due to poor strength, flexibility, and mobility and endurance. A recent worker's compensation analysis of the EWFD covering the period 6/1/2005 – 6/30/2012, indicated seven claims resulting in over \$97,000 in payouts for injuries suffered during the period (see Figure 1). These figures represent the cost of treatment for injuries alone; lost time and shift coverage wages are not included. Since East Whiteland Township is self-insured, the first \$35,000 of non-worker's compensation claims is also reimbursable to the insurance carrier as well. During the time period analyzed, there was \$35,000 in charges reimbursed to the insurance carrier, and that dollar amount is included in the total payout figure.

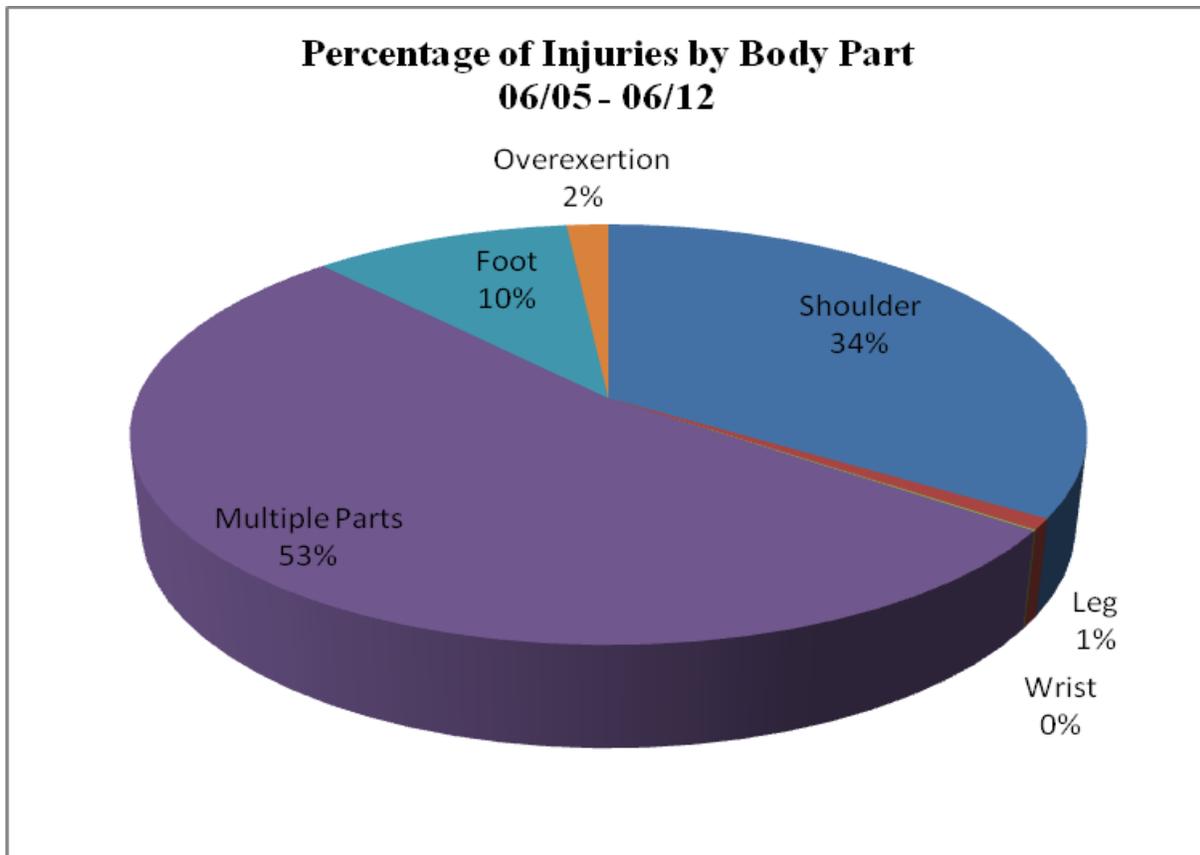


Figure 1: EWFD injury claims by body part.

According to the data, shoulder and multiple parts accounted for 87% of the total accident claims and 87% of the total dollars paid out (see Figure 2).

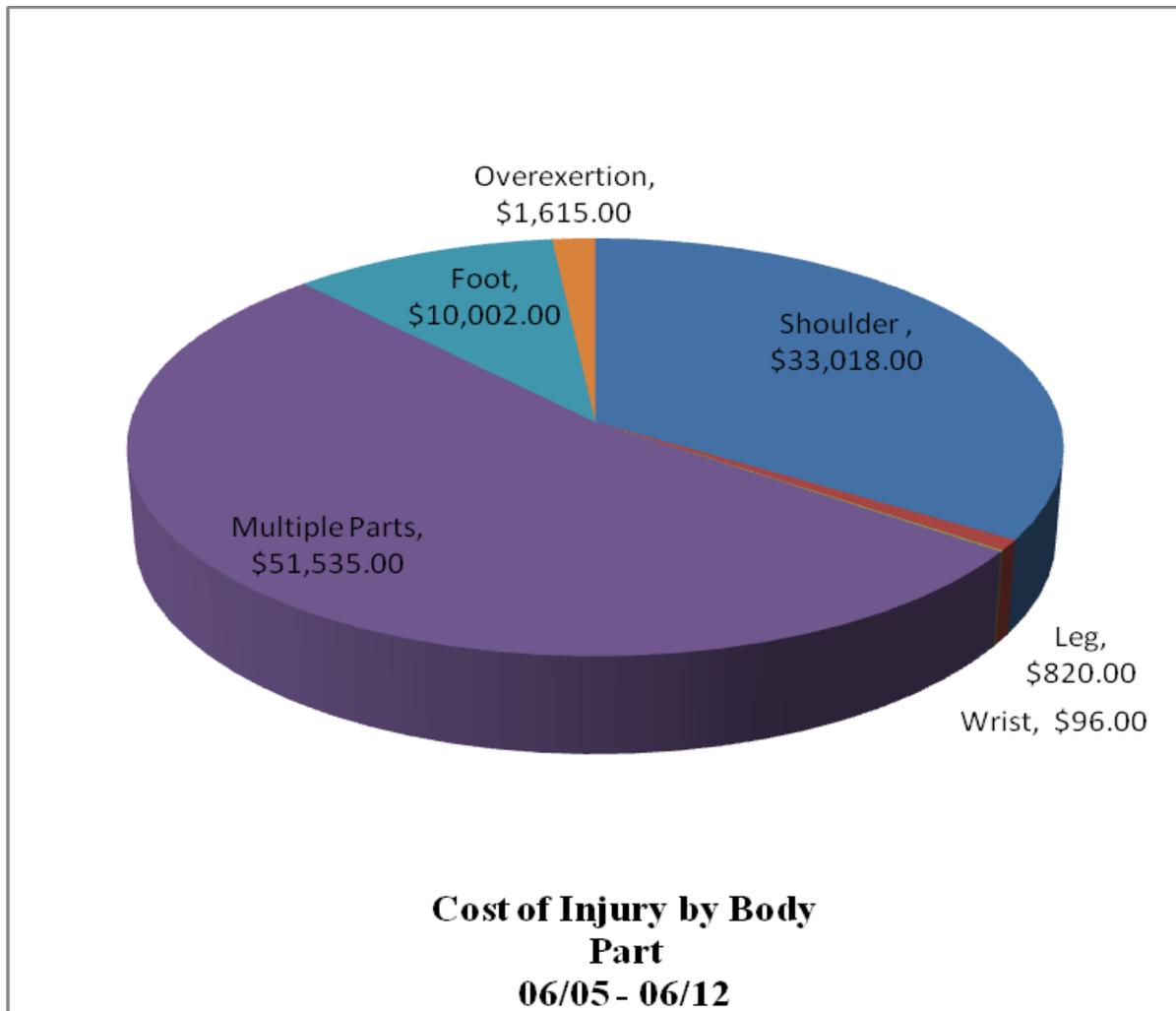


Figure 2: EWFD cost of injuries by body part.

While it is impossible to accurately link each injury claim directly to the lack of a physical fitness program, this data could provide a baseline for comparison in future years in order to ascertain whether the implementation of a physical fitness program has had a positive effect on injury and claim reduction.

This research aligns with the Executive Fire Officer Program's Executive Development course in its intent to address an organizational or cultural change within the EWFD. As this research relates to firefighter health and wellness, it aligns with USFA Operational Objective #1, to reduce the risk at the local level through prevention and mitigation; specifically, line of duty

deaths and injuries. Finally, this research also coincides with several of the National Fallen Firefighter Foundation (NFFF) life safety initiatives, including NFFF Initiative #1 – Define and advocate the need for a cultural change relating to safety ; incorporating leadership, management, supervision, accountability, and personal responsibility, Initiative #2 – Enhance the personal and organizational accountability for health and safety throughout the fire service, and Initiative #6 – Develop and implement national medical and fitness requirements that are equally applicable to all firefighters, based on the duties they are expected to perform.

Literature Review

The author began the literature review by reviewing available literature that addressed the first research question: *Why aren't EWFD personnel maintaining an appropriate level of fitness for duty?* In order to better understand the reasons why EWFD personnel were not maintaining an appropriate level of fitness, it was necessary to gain a better understanding of the barriers to personal fitness in America and in the fire service specifically.

According to Averkamp (2012), the top five reasons people in America do not exercise include lack of time, lack of energy, lack of motivation, too costly, and sickness or injury. Within the fire service, many, if not all of these reasons are addressable at an organizational level by implementing a formal physical training program; or, in the case of fear of injuries, could have a direct impact on their reduction. Even though the premise is simple, agreeing that physical fitness is an important aspect of job performance in the fire service and actually implementing an effective physical fitness program do not necessarily intertwine. Averkamp's (2012) reasons for the lack of attention to personal fitness are not ones that cannot be fixed using a technical approach. Rather, as Heifetz and Linsky (2002) point out, the challenges that are presented when dealing with personal physical fitness are adaptive in nature in that they

“...require experiments, new discoveries, and adjustments from numerous places in the organization...” (p. 13).

The USFA identified physical activity as an emerging health issue in *Emerging Health and Safety Issues in the Volunteer Fire Service* (2008). While this report draws attention to a specific demographic (volunteers) within the service, the issue of physical fitness transcends volunteer-career boundaries. The benefits of a fitness program are well-documented. Strength and flexibility training can effectively develop musculoskeletal strength and endurance, improve functional movement, and is strongly recommended for overall improvement in health, injury prevention, rehabilitation, and overall quality of life (Schneider, 2010). Basri and Bergman (2010) explain that a key to success in improving health and fitness is to have a plan in place; as it is the plan that contributes to the success (p. 88). Furthermore, Staley, Weiner, & Linnan (2011) assert that firefighters in particular, tend to share common thematic perceptions of fitness: They (firefighters) agree it is important to their job and personal health; however, environmental, social, and cultural factors including poor facilities, availability of equipment and lack of proper motivation from superiors can negatively influence their motivation to follow through with a program. The USFA also concurs with the assessment of Staley, Weiner, & Linnan (2011) in general, pointing toward lack of information on risk to self, lack of individual goals, lack of appropriate training, lack of time, and lack of motivation as top reasons why fire service fitness programs have not worked (United States Fire Administration [USFA], 2009).

The literature reviewed supports the idea that in order to address the question of why people in general, and firefighters in particular do not participate regularly in formal or organized physical fitness programs, a multi-faceted approach in identifying the causative factors is needed. Consequently, survey and interview questions were structured to identify these factors.

The author continued the literature review by reviewing available literature to answer the question: *What are other fire service organizations doing to address the fitness issue?* The information gained in answering this question served to narrow the focus of the research more specifically to address fire service needs.

Released in 2008, NFPA 1583, *Standard on Health Related Fitness Programs for Fire Department Members* strived to "...provide the minimum requirements for a health-related fitness program for fire department members that enhances members' ability to perform occupational activities efficiently and safely and reduces the risk of injury, disease, and premature death" (NFPA, 2008, p. 4). The components of such a program include the assignment of a qualified fitness coordinator, periodic fitness assessments for all members, an exercise program that is available to all members, health education and counseling for all members, and a process for data collection and maintenance of health-related fitness data (NFPA, 2008). However, addressing the adaptive nature of the fitness problem in the fire service must also include the creation of policies that "...expand existing fire suppression/first responder training to include physical fitness and well-being strategies" (Staley, Weiner, & Linnan, 2011, p. 615).

According to Schneider (2010): "A well-designed fitness program should include both physical activity and exercise" (p. 46). While physical activity can be a catchall phrase that simply encompasses the act of moving around, exercise is a structured, planned movement or set of movements, repetitive and intended to improve various components of physical fitness (Schneider, 2010). In order to increase support for such programs, the USFA suggests that active endorsement and promotion by senior fire service leadership is necessary for the development of successful health and wellness programs (United States Fire Administration [USFA], 2008).

Several fire service organizations have garnered this support across the country and have taken steps to improve the health and fitness of their members.

The Lake Forest, IL Fire Department is one such organization that has placed a high priority on the overall health of its firefighters. In 2005, the department formed a fitness committee and established a mandatory wellness/fitness program (Matrinelli, 2010). Since its inception, the program has grown with the help of a federal grant used to acquire additional equipment and fund medical physicals. However, the success of the program also presented challenges. According to Bob Henderson, the department's lead fitness coordinator, a proposal was crafted to acquire a larger space to house their fitness equipment, and with the support of their new chief, the department obtained the support of other city departments in order to convert the room to their new fitness center (as cited in Martinelli, 2010, p. 94). Martinelli (2010) concludes that the combination of the new fitness room, ample equipment, the support of the department's leadership team, and a program that was made mandatory were all key components that resulted in its overall success.

In the Clinton Fire Department (MS), members are required to participate in a bi-annual physical assessment that includes a timed run, a sit-up assessment (minimum number within two minutes), a maximum number of push-ups within two minutes, a hose carry encompassing two flights of steps, and a weighted drag (Burnside, 2010). Although his department does not mandate on-duty work outs, Burnside established in his report another critical component of any successful fitness program: Periodic physical assessments. Burnside (2010) also indicated that within the Clinton Fire Department, "CFD firefighters have a positive attitude towards transformational change in regards to improving health and safety" (p. 11). As Johnson (2012) explains, "Firefighting is unique in terms of the extreme demands placed upon individual..." (p.

25). Clearly, such demands speak to the necessity of physical training along with periodic evaluations of department members.

The Silver City Fire Department (NM) established a comprehensive fitness program that is required of all members that use self-contained breathing apparatus (SCBA). Components of the program include daily conditioning workouts, monthly fitness testing, annual health and physical assessments, semi-annual firefighter ability testing, and a rehabilitation program for at-risk individuals, sick or injured employees (Silver City Fire Department, n.d.). According to the department web page, the on-duty workouts are not activity-specific; however, they are one hour in length and documented by the shift captain. Additional documentation is completed with regard to monthly physical testing and semi-annual physical ability testing.

The Peoria Fire Department (AZ) conducted a case study relative to initiating a fitness training program during their recruit academy. The program ran over 13 weeks and was a mixture of the Bigger Faster Stronger (BFS) strength and flexibility program, and the Enduro Strength program, developed by Monte Eggherman (Eggherman, 2011). The premise was to initiate and engrain fitness training from the recruit's inception into the service. It focused on weight lifting and various functional exercises performed while wearing personal protective equipment (PPE) or weighted vests. Recommendations based on this program included initiating fitness training in the recruit academy as well as a focus on mental health wellness and nutrition (Eggherman, 2011).

The International Association of Fire Chiefs (IAFC) and the International Association of Firefighters (IAFF) worked in conjunction with the American Council on Exercise (ACE) to develop a Peer Fitness Trainer Program (PFT) course and certification that provides firefighters with the necessary skills to develop and implement a variety of fitness programs that are specific

to the fire service industry (American Council on Exercise, 2012). With this approach, these organizations provide a means to train in-house personnel in delivering the organization's chosen fitness program without specific regard to the type of program administered, leaving the choice of programs up to the organization itself. Once certified, personnel must maintain their certification through continuing education and re-certify every two years. Additionally, the IAFC has also developed a guide to implementing a fitness/wellness program specifically designed for small and medium-sized fire departments. This guide provides a 15-step plan on how to implement a Wellness/Fitness Initiative (WFI) based plan within an organization (International Association of Fire Chiefs [IAFC], n.d.).

The information discovered in the literature review indicates that significant adaptive challenges existing in developing implementing successful fitness programs. These challenges include not only physical equipment and space, but also cultural and organizational changes that support health and wellness in an organization. The programmatic means by which these problems can be addressed are numerous, but they can be tailored to fit each organization's needs. The need for cultural change however, is a driving factor that must be championed through commitment and engagement from executive level fire service management.

Additional literature review was conducted by the author in order to answer the question: *What are the available options for fitness training programs?* The information uncovered provided information about several fitness and conditioning programs as well as examples of fire service participation in such programs.

The occupation of firefighting is widely considered one of the most strenuous and rigorous ones in the country. The physical demands are daunting, and they require personnel to maintain their physical fitness in order to remain effective. Core fitness needs include: Upper

body/overhead strength, leg strength, endurance, mobility, and stability. In addition, firefighters benefit from improved flexibility, coordination, balance, agility, recovery and resilience. These attributes correspond to many of the benefits in adopting a fitness program as outlined by the IAFC/IAFF Wellness/Fitness Task Force, including greater strength and stamina, increased joint mobility and flexibility, better posture, and enhanced capacity to recover from strenuous work (International Association of Fire Chiefs, 1999). The task force goes on to recommend specific types of exercise equipment to address the specific fitness needs of firefighters, including: Leg press machine, bench press, leg curl machine, seated row machine, an assortment of weights, an assortment of dumbbells, and a curl bar (Riddle, 1999).

Taking these requirements into consideration, the Orange County Fire Authority (OCFA) implemented a comprehensive wellness and fitness program that was crafted to be scalable in their organization. Instead of using a commercially available product or program, the OCFA decided to create their own. Some of its primary components include physical exams, a Peer Fitness Trainer Program, and the installation of appropriate exercise equipment in each fire station (Orange County Fire Authority Firefighter Wellness and Fitness Program, n.d.). The program is mandatory and begins in the recruit academy, allowing officials to capture data from the very beginning of a new hire's employment with the authority.

Other commercially available programs include CrossFit, P90X, and Russian Kettlebell programs. CrossFit is a comprehensive fitness program that delivers fitness and conditioning on a broad, general scale (CrossFit: Forging Elite Fitness, n.d.). According to their website, it is designed for scalability and does not discriminate based on age or gender. Individuals participating in CrossFit follow prescribed, varied workouts designed by certified CrossFit trainers. East Fork Fire (NV) implemented CrossFit because "...many otherwise qualified

applicants were failing to achieve passing scores on the department's CPAT-like obstacle course, a realistic simulation of the tasks these soon-to-be-firefighters would face in the field" (Gilson, 2007, p. 2). In the case of East Fork Fire, certain CrossFit tools were purchased and made available to members in four of their stations, providing members with the opportunity to work out while on duty (Gilson, 2007).

P90X is a similar program to CrossFit in that it is based on regularly varied, programmed workouts; however, it also attempts to minimize physical fitness plateaus through "muscle confusion" (P90X Extreme Home Fitness, n.d.). The program continually targets different muscle groups so that the body does not get used to any particular routine. The program is designed so that it can be accomplished in the home or place of employment. Ellis and Ellis (2009) reviewed P90X and CrossFit in response to their increasing popularity among fire service agencies. They reported that the P90X is a DVD based program that included several workout DVDs, nutrition information, and a fitness guide, with the exercise routines completed as guided by the DVDs. In comparing the two systems they noted that CrossFit workouts typically ran 20-45 minutes while P90X workouts ran 45-60 minutes, and P90X emphasized physique and weight loss while CrossFit was performance-based. Also, P90X did not require special equipment, where CrossFit did (Ellis & Ellis, 2009).

Russian Kettlebells (cast iron weights with handles) is another fitness training option that uses the concept of doing the minimum amount of work to get the maximum amount of results. Kettlebells have been around since the 1700s and have become increasingly popular in more recent times. Because their mass is off center, they are apt to force individuals to use muscle groups that would more likely mimic real life situations as compared to machines that have defined direction and range of motion (Dixon, 2010). According to Dixon (2010), the kettlebell

works multiple muscle groups simultaneously due to the inertia created during use. This translates to highly efficient, targeted workouts without the need for a lot of expensive equipment. Participants must first learn the basic movements with the kettlebell; after which, even the most basic workouts provide a full body workout (Dixon, 2010). Ross (2003) credits kettlebell training with keeping him on the job in the fire service even after back surgery initially caused a disability retirement from the Phoenix (AZ) Fire Department. Ross (2003) claimed that the kettlebell training not only increased his strength and endurance, but also strengthened his back enough to eliminate his pain and allow him to test for a new firefighter position at the age of 48. The results of the literature review influenced the author to work collaboratively with a local fitness trainer in designing and testing a pilot fitness program for firefighters in addition to conducting survey-related research.

The author concluded the literature review by addressing the question: *Of the available programs, which require specific certification to administer?* The information gathered was useful in identifying obstacles other departments faced when implementing fitness programs, from a delivery standpoint.

There are many benefits to assigning or using a fitness coordinator when implementing a fitness program; however, there are also programs available that require someone certified in a particular discipline to make the program a success. Walterhouse (1996) explains that the continuous commitment required for a successful fitness program dictates the necessity for the program to be mandatory in nature. According to Robinson (1999): “A fitness coordinator, supportive and knowledgeable in all aspects of fitness, is the key to a successful program (p. 12). However, Robinson (1999) also points out that it takes personal initiative to see results. Taking the “train-the-trainer” approach is another cost-effective solution to providing personnel with a

person to organize, motivate and manage a physical fitness program (Ball, 1999). In either case, a fitness trainer or coordinator provides support in developing plans designed to reach fitness goals, motivating personnel, and record-keeping of fitness records including medical evaluations, fitness evaluations, exposures, and injury reports (Robinson, 1999), thus contributing to the long-term success of the program.

Peer Fitness Trainers (PFT) and personal training certifications are options to develop in-house personnel for the role of fitness coordinator. The American Council on Exercise has developed a specific PFT training program in conjunction with the IAFC/IAFF Wellness/Fitness Initiative, and they also provide resources to attain a personal trainer certifications similar to the PFT on a more generic level. Their certifications include training on how to program exercise sessions for small and large groups and the application of the science behind physical fitness within a program, along with the option of studying advanced topics such as lifestyle and weight management (American Council on Exercise, 2012).

Traditional weight lifting and aerobic exercise machine use have not traditionally required monitoring by a specifically trained individual; however, instruction in appropriate techniques is important. Other commercially available programs such as P90X are self-guided and self motivated, while CrossFit can be completed individually or in a gym, the latter requiring membership and using certified personal trainers trained in the discipline to run the program (Ellis & Ellis, 2009).

Kettlebell training systems mimic CrossFit options. Participants typically attend “boot camp” sessions run by Russian Kettlebell Certified (RKC) instructors so that proper techniques are taught and used in order to maximize results and minimize the chance of injury (Dragon Gym website, n.d.). However, programs are becoming available that provide intensive instruction and

testing, which, if successfully completed, provide the trainee with the necessary knowledge and skills to program and administer classes to personnel at their departments with the support of certified RKC instructors (Killing it With Kettlebells website, n.d.). Based on the findings of the literature review, specific investigation into the relevance of certified trainers was conducted and the results were used to determine what, if any advantage existed when using a certified trainer to administer departmental fitness programs.

Procedures

The procedures used to identify strategies for improving fitness in the EWFD included the distribution of an internal survey to EWFD personnel, a regional (five county) external fitness survey distributed to fire service organizations throughout Chester, Montgomery, Bucks, Delaware and Philadelphia counties, a nationwide external fitness survey distributed throughout the 50 states, interviews conducted with local fitness professionals, and a pilot study conducted to evaluate an example fitness training program using five test subjects over a 12 week period.

Why aren't EWFD personnel maintaining an appropriate level of fitness for duty?

In order to gain an understanding of the factors influencing EWFD personnel when considering personal physical fitness, a 10 question survey (see appendix A) was distributed to the 25 personnel that make up the department. The survey was created using Survey Monkey® and distributed electronically to each member with a link to the survey contained within an email message. The questions were designed to assist in determining respondents' overall attitude toward physical fitness, any barriers that might exist currently in the organization that would prevent personnel from engaging in a regular fitness program on duty, and what, if any organizational changes could be made that would increase the chances of implementing a successful physical fitness program within the EWFD.

What are other fire service organizations currently doing to address the fitness issue?

In order to address this question, two surveys were designed using Survey Monkey®. The two surveys were identical in nature, but they were sent to two separate demographic categories: One survey (see Appendix B) was sent to a sampling of fire service organizations in the five county region encompassing Chester, Montgomery, Bucks, Delaware, and Philadelphia counties in Southeastern PA. 20 fire service organizations were randomly selected from each county, (excluding Philadelphia which received one), with the goal of reaching 50 responses. The other survey (See Appendix C) was sent nationally to a cross-section of fire service organizations in all 50 states. In order to attain the goal of 50 responses nation-wide, 70 surveys were sent with each state receiving at least one survey. The purpose for sending two separate surveys was to a) determine on a regional level what other fire service organizations were doing to address the fitness issue, given the fact that the region is largely made up of volunteer organizations, and b) determine what organizations are doing on a national scale to address the same issue. The questions were designed to assess what types of physical fitness programs were being used, whether they were policy-driven, whether they were mandatory or voluntary, whether they were being administered by a professional trainer, and whether an assessment was in place to periodically evaluate the fitness of personnel. Additionally, a question was presented in order to determine the type of organization answering the survey (volunteer, combination, or career) for statistical purposes. All regional and national surveys were sent as a link in an email message to a representative of each department.

What are the available options for fitness programs?

Personal interviews were conducted with three (3) fitness professionals in order to determine, from their professional perspective, what fitness program options were available that

would specifically serve to enhance or improve the level of fitness of fire service personnel. Interview participants were each asked to relate their experience and knowledge in fitness programs, whether any programs required specific training and certification to administer, what process, if any, is used to attain certification to administer such programs, and any other information they thought might be useful to the research regarding such programs for the fire service (see Appendix D). Respondents also provided biographical information and personal experience. Interview responses were communicated through email documents to the author.

A pilot study was also conducted by choosing a fitness modality (Russian kettlebells), collaborating with a local fitness professional to design a program that specifically targeted the primary fitness needs of fire service personnel, and engaging in a 12-week study with five (5) local emergency service personnel that volunteered to participate in the study. Participants trained three (3) times per week for 12 weeks in a program that was designed so that they could complete the sessions at a gym, at home, or at a fire station and that could either be completed independently or in a group setting with a trainer. Each participant was provided with four (4) one-hour sessions designed to train them on the specific skills and movements needed to execute the elements of the program properly. The participants then followed a strict regimen of exercises (see Appendix E) and were monitored from baseline (week one) through week 12 to determine what, if any progress was made in terms of increased strength and endurance. Data was collected and recorded at week one (baseline), and at the end of weeks four, eight, and 12.

Of the available programs, which require specific certification to administer?

One of the advantages of being employed in the fire service is that personnel may have the ability to participate in fitness training while they are on duty. The ability to do so can free up valuable off-duty time and also promote a positive attitude about fitness throughout the

department. The ability to participate safely in fitness training while on duty could be impacted by the availability of trained personnel (either in-house or contracted) to administer the necessary training program. As such, three (3) professional trainers were also interviewed in order to determine what programs require specific certification to administer and if any of these programs offer “train-the-trainer” classes so that in-house personnel can safely conduct fitness training sessions for co-workers while on duty.

Although medical monitoring is a critical component of any health and wellness program, this research was specifically limited to the physical fitness component of such programs. The research was also limited by the responses collected from the surveys and the personal experience and professional knowledge of the fitness professionals interviewed by the author and by the data collected from the five (5) participants in the fitness program pilot study conducted in conjunction with the research. Specific recommendations relevant to the EWFD were limited by the data collected through the pilot study and related interview responses.

Results

Why aren't EWFD personnel maintaining an appropriate level of fitness for duty?

Of the 25 surveys sent, 22 responses were received (see Appendix C). 82% of the respondents indicated that they participate in some form of fitness program. None of the survey participants indicated that they exercise while on duty. The majority of respondents (45.5%) indicated that they exercise at more than one location, with just under 23% exercising at home or at a gym, respectively. Although the majority of respondents participate in a form of physical fitness, there was a wide variance in the type of program used. While just over half engage in running, walking or jogging (54.5%), there was no consistency in any of the other program choices (See figure 3).

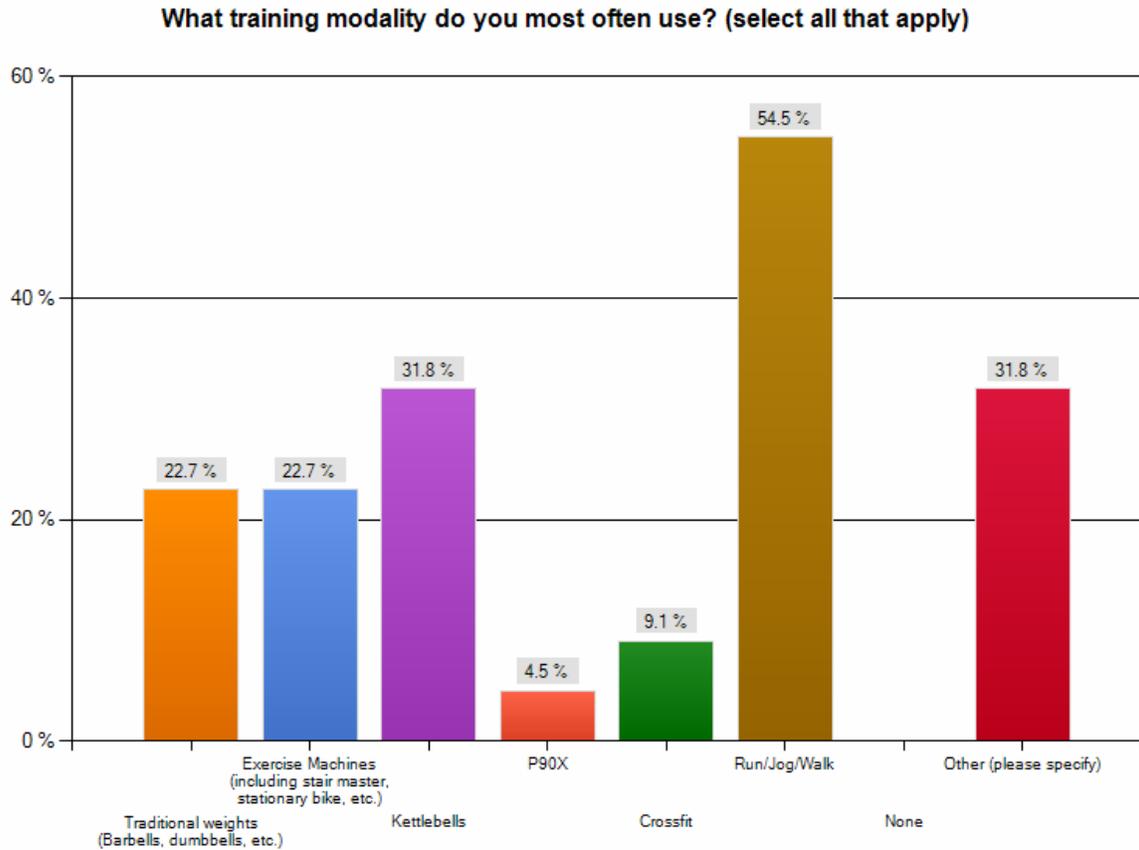


Figure 3: EWFD exercise modality comparison.

Over 77% of respondents either strongly or somewhat agreed that a mandatory fitness program would be successful (see Figure 4). While no respondents indicated that they participate in a formal exercise program while on duty, an overwhelming majority (95%) either strongly agreed or somewhat agreed that they would participate in such a program if the appropriate equipment and facilities were available in the station, and over 77% either strongly or somewhat agreed with the statement that they would participate in a work fitness program if it were administered by a fitness professional (see Figures 5 & 6). Respondents unanimously agreed that their fitness had a direct impact on both personal and co-worker fireground safety.

A mandatory fitness/conditioning program in my department would be successful.

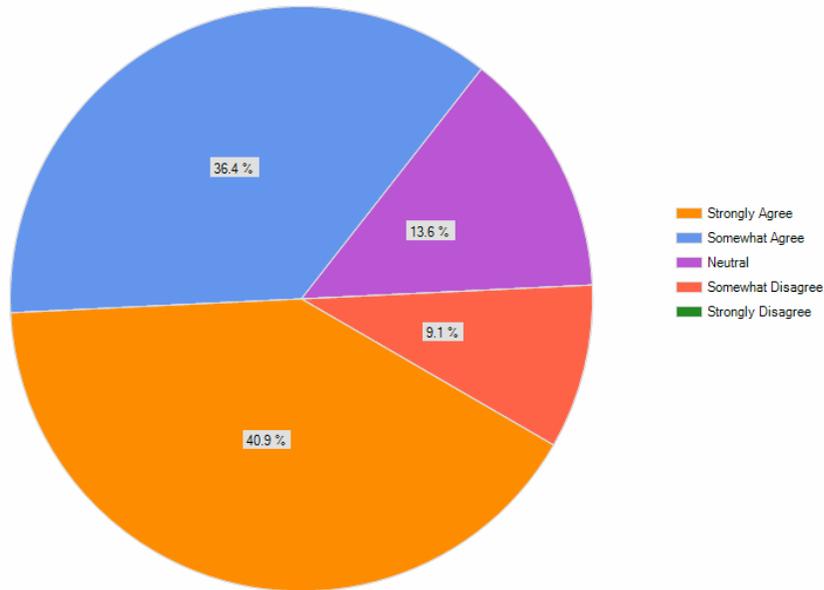


Figure 4: EWFD mandatory fitness program response comparison.

I would participate in a fitness program at work if the appropriate equipment and space were provided in the station.

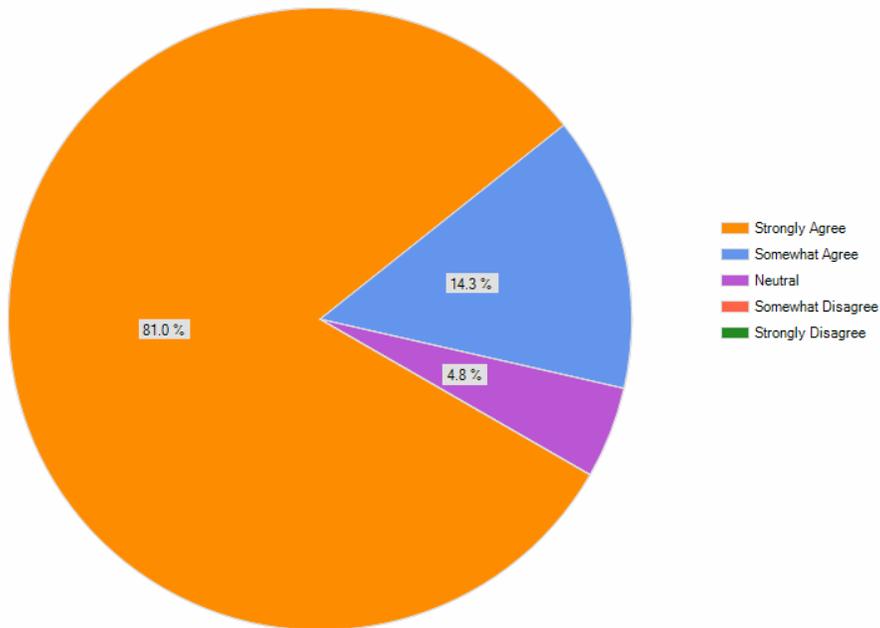


Figure 5: EWFD work fitness program participation response comparison.

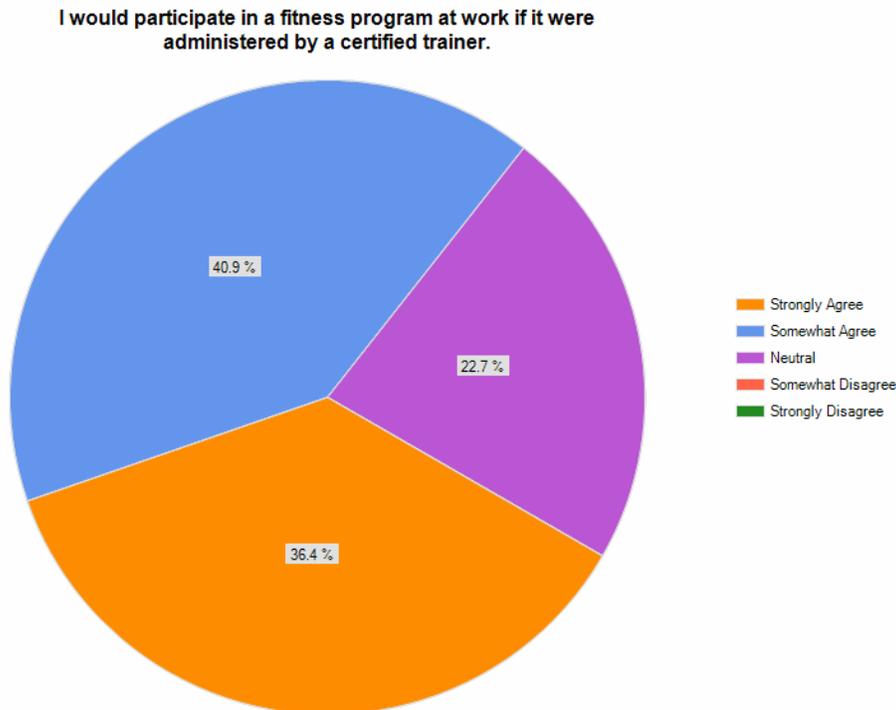


Figure 6: EWFD professional fitness trainer response comparison.

What are other fire service organizations doing to address the fitness issue?

The results of two separately distributed surveys were collected and analyzed individually and compared to each other in order to gain a better understanding of the fitness problem on a regional level (an area primarily made up of volunteer or combination organizations) and on the national level, where the majority of respondents indicated they were part of a career or combination organization.

60 responses were received from the regional survey request. Nearly 80% of the respondents indicated that their organization does not currently participate in a physical fitness program. The respondents in this survey primarily classified their organizations as follows: 67% volunteer, 27% combination, and 2% career. Conversely, 49 responses were received from the national survey request. The results indicate nearly 78% of the organizations are currently participating in a fitness program. The respondents in this survey primarily classified their

organizations as follows: 69% career, 26% combination, and 4% volunteer. Figure seven (below) graphically depicts the makeup of the type of organizations that exist regionally versus nationally and the general disparity between career and volunteer organizations that employ some type of formal physical fitness program.

Comparison of Fitness Programs in Place on Regional vs. National Level

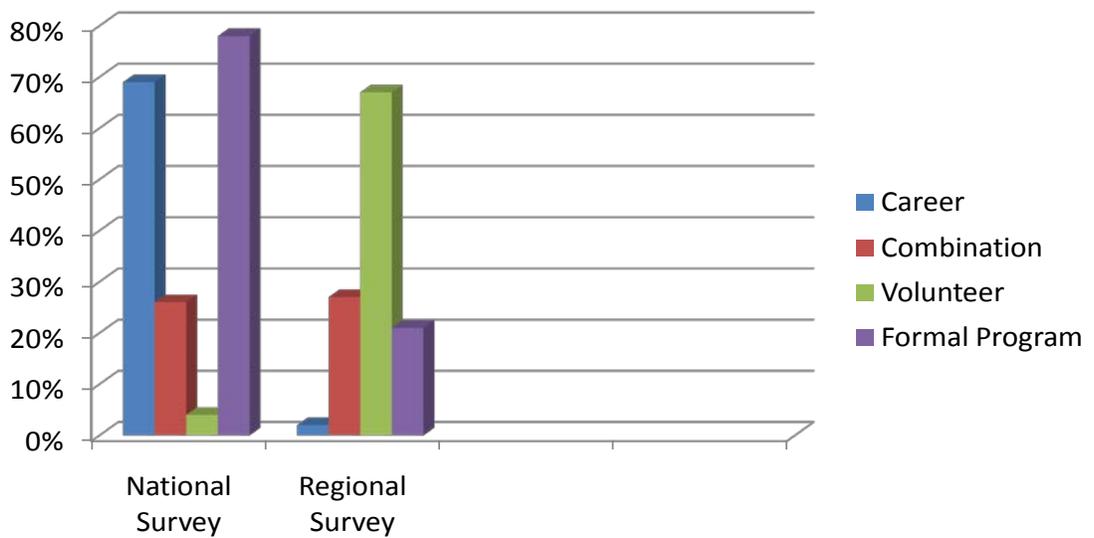


Figure 7: Comparison of formal fitness programs by region.

National survey results also showed that 33% of those organizations surveyed made their fitness programs mandatory, but 61% of respondents have a written program in place regardless of the mandatory or voluntary nature of the program, and 45% are administered by a certified trainer. Further, 63% of national respondents also indicated that their members participate in an annual or semi-annual fitness assessment. In similar fashion to the EWFD internal survey, there was a wide range of programs used, with 100% of the national respondents indicating they utilize

both traditional weights and exercise machines, along with over 81% incorporating running, jogging or walking (see Figure 8).

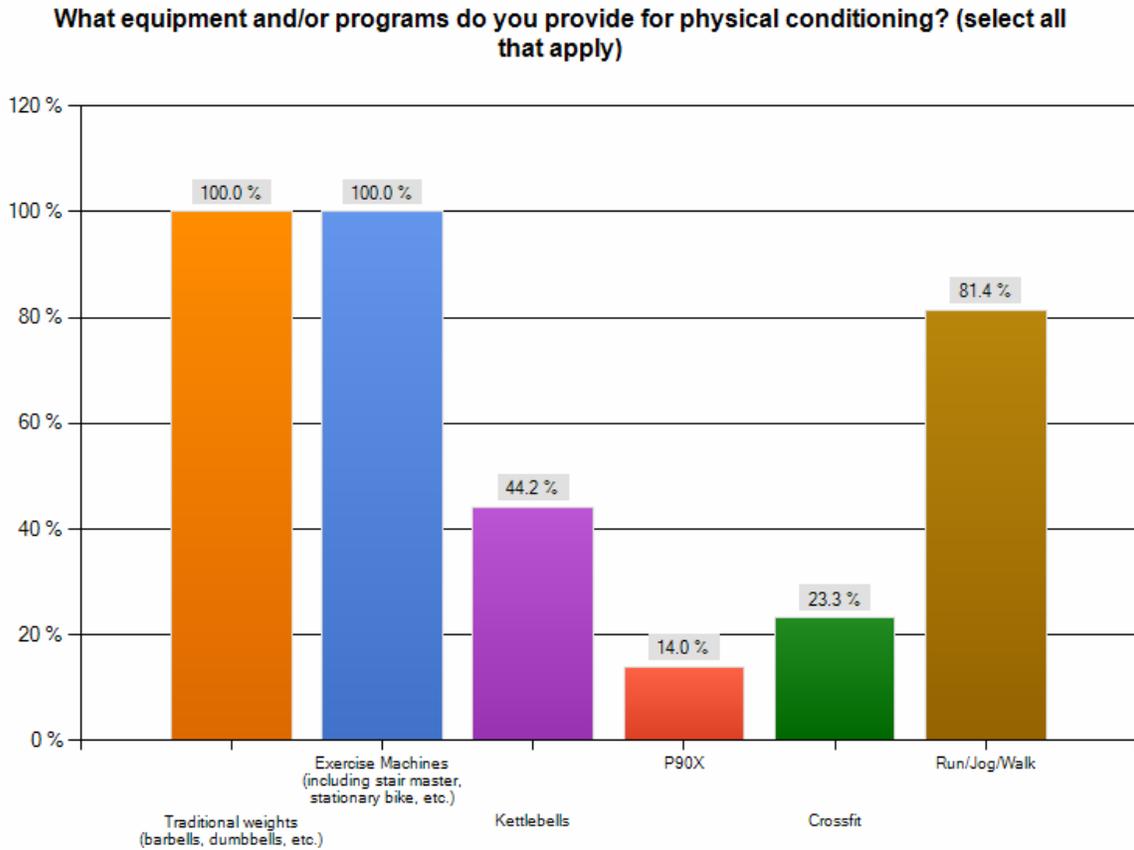


Figure 8: Equipment and programs by type being used nationally.

The results of the regional survey indicated that the vast majority of respondents do not engage in a formal program. The corresponding survey questions relating to type of program and administration of such programs were similarly weighted. The complete results of both surveys can be found in Appendix D (regional survey) and Appendix F (national survey).

What are the available options for fitness training programs?

Three (3) professional trainers were interviewed in order to better determine the extent and effectiveness of available programs and provided their responses via email communication

(see Appendix G for interview questions). Additionally, a pilot study was conducted over a 12 week period using five (5) emergency service personnel that volunteered to participate. The program used Russian kettlebells as a primary modality, and study participants followed a strict regimen with data collection occurring at the onset of the program and at the end of weeks four, eight and 12 (See Appendix H for full program details).

From personal communications with Stephen Maze, Assistant Strength and Conditioning Coach at Drexel University, (PA), (B.S. in Exercise Science, Certified Strength and Conditioning Coach through National Strength and Conditioning Association, Certified USA-Weightlifting Sports Performance Coach, Certified Russian Kettlebell Instructor, and Certified Precision Nutrition Eating Coach) on September 6, 2012; Somnath Sikdar, owner of the Dragon Gym in Exton, PA, (5th Degree Black Belt Master Level Instructor, Certified by World Taekwondo Headquarters (Kukkiwon), Mun Moo Kwan Korea, Dragon Gym USA & Chae Teok Goh (9th Degree), RKC Instructor Certified by Pavel Tsatsouline, BSEE 2002 from University of PA) on September 12, 2012; and Pat Flynn, RKC (Martial Artist, Russian Kettlebell Certified, author of four fitness and conditioning books and owner/operator of a top fitness and conditioning blog called Chronicles of Strength) on September 28, 2012, they provided the following in responses to the interview questions:

Author: What are the available options for fitness training programs?

Maze: “The available options for fitness training programs, today, are endless. With ever growing and evolving Internet and rapidly developing social media, fitness information, products, and program can be found just about anywhere. However, what is the most commonly being practiced in various gyms and training centers will include methods such as Olympic Weightlifting, Powerlifting, Kettlebell Training, Bodybuilding, Strongman, Sport Performance,

Gymnastics, Martial Arts, Crossfit, and more. There are also thousands of specialized group fitness classes such as Spinning, Zumba, Bodypump, Cardio kickboxing, Yoga, Aquatics, and more. The availability of these options will ultimately depend on a person's location. However, with new technologies and information sharing, many fitness training programs are becoming available to many anywhere" (S. Maze, 2012).

Sikdar: "The options are basically unlimited, but we can split them into two major categories. One) Training programs for preparation/performance and, two) Training programs for recreation/aesthetics. Now while category one may have elements of category two the same cannot be said in the reverse direction. Examples of preparation/performance programs include Russian Kettlebell Certification (RKC) style Kettlebell training, squat-bench-deadlift/powerlifting type programs when the goal is not competition, Olympic Lifting Style programs when the goal is not competition, Martial Arts Training when the primary goal is not competition, Strong Man Style Training, Sprinting, short range, long range cardio – Running, cycling, rowing, etc." (S. Sikdar, 2012). Sikdar placed programs such as CrossFit and P90X in the recreational category where aesthetics is a component or the training directly relates to a particular competition.

Flynn: "There are hundreds of programs available. The problem is the focus on what program might be best to meet an individual's goals. In other words, individuals should explore programs based on personal fitness goals and decide what program will be most effective in helping to achieve those goals. Overall, the most effective programs tend to focus on athleticism, or training like an athlete, not to be confused with training to be an athlete. In the public safety arena, key considerations would include strength, agility, flexibility, endurance, and resilience" (P. Flynn, 2012).

Author: Describe the programs mentioned in terms of equipment needed, time commitment, cost, availability, benefit (especially as it relates to firefighters)?

Maze: “With the abundant amount of fitness programs available for firefighters there is much to consider. Much will depend on the above when making decisions to best implement a training program for firefighters. To start, I would recommend assessing a few key areas of Firefighter physical development. Then look to use a combination of training methods in order cover multiple areas of fitness that will be most related and beneficial to firefighters. For example, my recommendation for a *firefighter* fitness and training program should include look to develop in these five primary areas: 1) Athleticism and Muscular Strength (Olympic Weightlifting/Powerlifting), 2) Muscular Endurance (Strongman/Kettlebell Training), 3) Cardiovascular Endurance (High Intensity Interval Training), 4) Flexibility (Power Yoga), and 5) Body Composition (Nutrition Coaching). Olympic Weightlifting (Clean, Jerk, and Snatch) will require a one barbell, 150-300lb bumper plate set, and 8’x8’ of training space. However, the biggest drawback is that it will initially require a large amount of coaching in order to learn the lifts properly. So the time commitment will depend on one’s own learning curve. However, Powerlifting (Squat, Bench Press, Deadlift), which uses the same equipment, may be a better option, especially when considering the individuals training age and history. The cost, if purchasing for personal use is moderate, but is a fantastic investment. If practicing at a training center or receiving personal coaching the cost may be slightly high or moderate. The benefit for firefighters is un-paralleled. Aside from being universally the number one method of developing explosive power and strength, weightlifting demands athletic ability. Firefighters must have a high degree of athleticism in order to carry out their duties effectively. Weightlifting will develop all of the requirements for athleticism along with very high degrees of muscular

strength. I highly recommend Strongman training for Firefighters. To be perfectly honest, it is probably even more beneficial to firefighters than Olympic weightlifting and powerlifting. It is the number one method of developing applied muscular strength and endurance, and it is the most specific type of training to that of a firefighter. The equipment needed can vary and be slightly costly; however, many of the training methods and programs will use simple pieces such as sandbags, farmer bars, sleds, atlas stones, training logs, large truck tires, sledge hammers, etc., Many of which can be homemade and cost very little. Strongman requires almost no coaching and can be performed instantly. As stated before, it is not only most specific to a firefighter's work but will develop every aspect of muscular endurance and strength more effectively and efficiently than any other method. Aerobic capacity and endurance can be enhanced and developed a number of ways. Interval training done at high intensities with proper recovery would be a great method to use for firefighters. A firefighter will need to perform short to moderate burst of intense actions, followed by periods of short or quick recovery. Sprint or kettlebell training can provide this type of fitness. Sprint training will simply required proper running shoes, open space (a track), or hills; however, sprint training can be done on treadmills or stationary bikes as well. I would recommend a blend of hills, bike training, and flat surface combinations to provide a different action stimulus to the body. Kettlebell training is another way to achieve great strength and endurance capabilities. A pair or multiple set of kettlebells can be required, but a great training session can be performed with just one bell. Kettlebell training will require some coaching to properly learn the lifts, but once learned is a great investment. When looking to specifically develop aerobic capacity and endurance I would be mindful of how much kettlebell work is being done in conjunction with other training methods. Kettlebell training done correctly is a fantastic system of combining strength and cardiovascular training;

however, it will place a lot of stress on the nervous and muscular systems, which may hinder muscle recovery and effect overall strength gains.

Sikdar: “There is a lot to get into here, so I will only mention the optimal choice in all the aforementioned categories. Kettlebells and kettlebell training will offer the most versatility, usability and benefit for firefighters. The equipment needed would consist of a small selection of kettlebells of varying weights. Effective kettlebell training can be accomplished in two-three hours per week and the cost of kettlebells varies between \$1-\$2 per pound. The benefits include being highly time efficient, the training can be done intermittently as time is available, and it increases strength, endurance and resilience” (S. Sikdar, 2012).

Flynn: “In terms of cost-efficiency, basic callisthenic programs are very cost effective because they may only require simple devices such as a pull-up bar. Many exercises can be done using body weight only. Kettlebells requires a minimal investment and essentially creates a gym unto itself. The bells are scalable based on experience and strength, and very little space is required” (P. Flynn, 2012).

Author: *Can any or all of the programs you spoke of be administered on a regular basis at a person’s place of employment (i.e. fire station)?*

Maze: “Yes, each of these programs with the adequate amount of equipment and space can be administered on a regular basis, even at a person’s place of employment. In fact providing some kind of fitness training capability at ones work place would be a tremendous benefit or perk to their work environment” (S. Maze, 2012).

Sikdar: “Only kettlebells could be effectively administered in a limited space like a fire station if the organization wanted formal training in a minimal amount of space. Traditional

programs such as weightlifting and exercise machines require large areas and are quite expensive” (S. Sikdar, 2012).

Flynn: “Any program can be administered at a fire station, as long as the proper space and equipment are available. Most organizations are pressed for space, so to properly execute a traditional weightlifting program with aerobic elements that require specialized machines is extremely difficult. Kettlebells provides a targeted workout that addresses the core fitness needs of firefighters with minimal space requirements” (P. Flynn, 2012).

Author: *In your experience, what are the most common personal barriers to personal health and fitness, even when it may be a necessity of an individual’s occupation?*

Maze: “In my experience these are the three most common personal barriers to one’s personal health and fitness: 1) Lifestyle: Depending on the individual, their current and past lifestyle may be a significant limiting factor in their pursuit for health and fitness. This will include many various issues such as their career or occupation, family obligations, travel schedules, hobbies, social engagements, etc., 2) Readiness to change: A person’s readiness and willingness to change is the next most common barrier. Although many people want to be active, fit, and very healthy, the truth is most are simply not ready to make the necessary changes in order to do so, 3) Social Support: An individual’s social support is another difficult barrier to overcome. We live a difficult society that does not truly promote the ideals of a healthy lifestyle. Having a strong social support structure to aid and assist one’s goals and lifestyle choices is critical their success. However, a weak social support will do the opposite and make the barrier even more difficult to overcome” (S. Maze, 2012).

Sikdar: “Priorities are the most common barrier. Most professionals arrange their day, *then*, try to fit in personal health and fitness. In fact it should be the opposite. Schedule your day around your health” (S. Sikdar, 2012).

Flynn: “Poor beliefs and poor habits. Bad habits are hard to break, and beliefs are hard to re-establish. A general lack of motivation is the result” (P. Flynn, 2012).

Author: *Anything else you want to add that you think would bring value to the discussion from your personal experience as a professional trainer?*

Maze: “I believe the health and fitness industry has taken great strides over the past decade. Especially with growing technologies and information sharing, there is a tremendous amount of resources available to the public. However, there is little regulation over the content and the context of all of this information. The same goes for the practice and application of it all. Therefore it is important to look for understanding and perspective when discovering various health and fitness programs, professionals, and research” (S. Maze, 2012).

Flynn: “I would add that I believe enjoyment and pain are two huge factors in the personal attitude toward fitness. By that I mean there has to be some level of enjoyment in the program in order to maintain motivation. The notion that effective exercise has to be associated with a high degree of pain is also absurd, and it is a very common misconception in the fitness and conditioning arena” (P. Flynn, 2012).

The respondents of the interview questions also addressed the research question: *Of the available programs, which require specific certification in order to administer?*

Maze: “Many of the training programs do not necessarily *require* a specific certification in order to administer. Training methods such as weightlifting, bodybuilding, kettlebell training, etc. have been used for hundreds of years without specific qualifications. However, specific

fitness programs conducted through established organizations like Bikrams Yoga, Spinning, Taekwondo, Gymnastics, etc. will most likely need a qualification or certification in order to practice. Many professional organizations and businesses will strictly require specific degrees, certifications, and qualifications of their employees and new hires. For example, the gold standard for a Collegiate Strength and Conditioning Coach is to be a Certified Strength and Conditioning Specialist through the National Strength and Conditioning Association. The certification in particular also requires an individual to possess a college degree in order to be eligible for the written exam. Unfortunately, there is very little regulation and control over the fitness industry today, and fitness professionals are not required to actually be licensed or registered in order to perform their practice. I personally feel there is a large discrepancy between a professional being ‘certified’ and being ‘qualified’. Many certifications are simple tests, exams, or a practical weekend workshops, that are for the most part, fairly easy to pass. Formal education and practice is a good aspect to have; however, there is a need for a lot of practical knowledge and experience for a trainer or coach to possess before truly practicing. Therefore, I feel it is very important to look into a fitness professional background, education, history of formal training, and practical experience in the field, to discover if they are actually ‘qualified’ to administer practices they market themselves to do”.

Maze (2012) continued: “There are many processes to become actively involved in the fitness and health industry. To become certified, anyone can easily Google the particular certification, sign-up, pass the test or attend the workshop, and be certified. However if someone wants to be qualified to teach and coach these programs I would recommend the following: To start, the most important step would be to already possess a strong personal background and passion for health and fitness, along with being active and self educated. Hopefully, this will

lead to the next step of gaining some kind of formal education. This can be obtained through either a college degree or through an accredited organization. The next step would be to gain practical and applied experience in the particular field of study. This can be some kind of internship, mentorship, or clinical practice with a professional organization. After these steps, continued personal experience, practice, and education, one then can become qualified to teach the programs used as examples” (S. Maze, 2012).

Sikdar: “Russian Kettlebells Challenge (RKC) and Killing it With Kettlebells (KIWK) are recognized certifications for kettlebells. Only KIWK teaches you how to teach in addition to teaching you proper techniques, and certifies you on that ability” (S. Sikdar, 2012).

Sikdar (2012) also provided the following comments on specific certifications: “In terms of state/federal regulation, I don’t know that any training modality requires certification/licensing to either participate or instruct. In my mind that is a good thing. Regulation tends to stifle competition and reduce quality. To my knowledge, certification is generally done by private organizations that either hold intellectual property or trademarks for certain training modalities” (S. Sikdar, 2012).

Flynn: “I run a kettlebell certification program that teaches participants the proper techniques in using bells, but it also teaches participants to program sessions, teach in small and large groups, and to identify correctives. There is regular follow-up for certified trainers in the program and it can be run at our gym or we can come to you to provide the training. It is a three-day program with testing and evaluation at the end” (P. Flynn, 2012).

In addition to the interviews conducted, five (5) participants employed in the public safety profession completed a pilot study that used the Russian kettlebell as a primary modality. This study was voluntary and spanned 12 weeks, with each participant training three (3) times

per week based on a specific program that was designed by Pat Flynn, RKC, in collaboration with the author, and data was collected at regular intervals throughout the program (see Figure 9).

	Week 1	Week 4	Week 8	Week 12	% Gain (Total Bell Weight)
Participant #1					
Turkish Get-up	12 Kg	12 Kg	16 Kg	20 Kg	67%
Swings	16 Kg	24 Kg	24 Kg	20/24 Kg Combo	175%
Military Press	16 Kg	Double 16 Kg	16/20 Kg Combo	Double 24 Kg	200%
Squat	16 Kg	Double 16 Kg	20/24 Kg Combo	24/28 Kg Combo	225%
Participant #2					
Turkish Get-up	16 Kg	16 Kg	16 Kg	20 Kg	25%
Swings	24 Kg	28 Kg	36 Kg	40 Kg	67%
Military Press	24 Kg	Double 24 Kg	Double 28 Kg	Double 28 Kg	133%
Squat	28 Kg	36 Kg	Double 28 Kg	28/32 Kg Combo	114%
Participant #3					
Turkish Get-up	12 Kg	16 Kg	20 Kg	24 Kg	100%
Swings	20 Kg	24 Kg	28 Kg	32 Kg	60%
Military Press	16 Kg	24 Kg	Double 24 Kg	Double 24 Kg	200%
Squat	20 Kg	Double 24 Kg	24/28 Kg Combo	28/32 Kg Combo	200%
Participant #4					
Turkish Get-up	8 Kg	8 Kg	12 Kg	16 Kg	100%
Swings	8 Kg	16 Kg	20 Kg	20 Kg	150%
Military Press	8 Kg	8 Kg	12 Kg	12 Kg	50%
Squat	8 Kg	12 Kg	12 Kg	16 Kg	100%
Participant #5					
Turkish Get-up	16 Kg	20 Kg	24 Kg	24 Kg	50%
Swings	28 Kg	28 Kg	36 Kg	40 Kg	43%
Military Press	Double 20 Kg	Double 24 Kg	Double 28 Kg	28/32 Kg Combo	50%
Squat	Double 24 Kg	Double 28 Kg	Double 28 Kg	Double 32 Kg	33%

Conversions:
 (Approximate) 8 Kg=18 Lbs 12 Kg=26 Lbs 16 Kg=35 Lbs
 20 Kg=47 Lbs 24 Kg=53 Lbs 28 Kg=61 Lbs
 32 Kg=70 Lbs 36 Kg=80 Lbs 40 Kg=88 Lbs

Figure 9: Kettlebell fitness program pilot study results.

Discussion

Why aren't EWFD personnel maintaining an appropriate level of fitness for duty?

Averkamp (2012) asserted that one of the top five reasons people do not exercise is lack of motivation, with a second reason being the costliness of programs. The results of the internal study agree with Averkamp's research in suggesting that a primary motivator in better

participation while on duty would be the combination of better facilities, better equipment, the option of engaging a professional trainer, and the establishment of a mandatory fitness program.

In contrast to evidence from Schneider (2010) indicating strength and flexibility training are strongly recommended for overall health improvement and injury prevention, the research indicated that over half of the respondents participate in a running, jogging or walking regimen, with much lower percentages engaging in more comprehensive fitness training that includes strength and flexibility training (See Appendix B). Although the internal survey research agrees with Staley, Weiner, & Linnan (2011) in establishing the importance of physical fitness to the occupation of firefighting and overall health, the wide variance in specific exercise regimens used by results also suggest that EWFD personnel do not generally develop personal fitness plans that set goals in order to contribute to the success of the plan, as suggested by Basri & Bergman (2010). The overall implications of a lack of focused, formal training programs and specific motivation and mandates from superiors lends itself to a continued unorganized approach to physical fitness and potentially, increased instance of injury or death to EWFD personnel.

The internal survey research was conclusive in establishing that it is not a question of how important physical fitness is to department personnel or that there is a lack of understanding of the impact of fitness on fireground safety. Rather, it points to a lack of planning, facilities, and specific, documented guidelines regarding fitness. Without changes in these categories, EWFD personnel are likely to continue addressing fitness in this unorganized and somewhat uneducated manner.

What are other fire service organizations doing to address the fitness issue?

The results of the regional survey are in direct contrast with recommendations from Staley, Weiner, & Linnan (2011) that suggest an expansion of firefighter training to include physical fitness and well-being strategies, and seems to suggest a lack of health and wellness promotion from organizational leadership as recommended by the USFA (2008). To that end, the regional survey strongly concurs with the contention that the lack of fitness programs in the volunteer fire service is an emerging health issue that has severely impacted the volunteer service (USFA, 2008). Conversely, on a national level where the majority of organizations polled were career oriented, the results are more closely aligned with Staley, Weiner, & Linnan (2011) as well as NFPA 1583 and the recommendation that organizations provide minimum requirements for a health-related fitness program for its members (2008).

Included in the components of such a program were the assignment of a fitness coordinator and periodic assessments for all employees. In line with the IAFC/IAFF/ACE (2012) initiative to develop a Peer Fitness Trainer Program (PFT), and recommendations from NFPA 1583 (2008) to include the assignment of a qualified fitness coordinator, 45% of national respondents utilize the services of a professional trainer to administer their programs. Again in direct contrast to the regional respondents, regional polling indicated 73% of the organizations do not currently engage in such a program at all.

Overall, there is a strong link between the make-up of the organizations polled (career vs. volunteer) and the implementation of health and fitness programs. The USFA (2008) suggested that active endorsement by senior fire service leadership is necessary for the development of such programs, and the results of the surveys indicate that this support exists on a much greater level in career-based departments than in organizations that are primarily volunteer-based.

Regardless of employee designation (paid or volunteer), the surveys both indicate a lack of specific direction in terms of type of program used. This data aligns with several examples cited in the literature review including Lake Forest Fire Department, IL (Martinelli, 2010), Clinton Fire Department, MS (Burnside, 2010), Silver City Fire Department, NM (n.d.), and the Peoria Fire Department, AZ (Egherman, 2011), where each department has developed a physical fitness program based on internal departmental assessments and needs with widely varying use of equipment and routines.

The implications of the research coincide with the continuing trend of firefighter fatalities largely being a result of heart disease rather than fireground injury (USFA, 2012) on a regional and national scale. From an organizational perspective, there are severe health-related implications attached to continued lack of a formal fitness program, particularly due to the size of the EWFD and low number of personnel. Consideration of the past history of medical issues already experienced within the organization as a ratio to total number of employees only serves to strengthen this point.

What are the available options for fitness training programs?

Interview participants generally agreed on the fact that there are a multitude of fitness options available in today's society. There was also general consensus on the specific fitness needs in the firefighting community, which aligns with the IAFC/IAFF Wellness/Fitness Task Force (1999), where strength, stamina, joint mobility, flexibility, better posture and increased capacity to recover from strenuous work were all cited as specific factors which must be addressed. Interview respondents also concurred with Riddle (1999) that there is a wide variety of equipment available that can help firefighters achieve their fitness goals.

In terms of types of programs and their effectiveness for firefighters, there was less cohesiveness between interview respondents. Rather, the suggested programs tended to more closely align with each respondent's personal background and experience with specific modalities, although all respondents consistently cited the use of Russian kettlebells as a sound overall strength and conditioning modality. Responses to this question paralleled the general theme that organizations tend to evaluate, pursue, and implement fitness program modalities based on assessments conducted within the organization, as indicated by Gilson (2007), Orange County Fire Authority (n.d.), Silver City Fire Department (n.d.), Burnside (2010), and Martinelli (2010), all of whom describe varying organizational programs and assessments that employ a wide range of equipment.

The pilot study incorporated the Russian kettlebell into a program that addressed the core fitness needs of firefighters as established through research and literature review. Other factors that influenced the design of the pilot study included consideration of the efficiency of the individual training sessions, the time required to accomplish the training on a weekly basis, and its overall targeted effectiveness relative to gains in strength and endurance.

Since the kettlebell can be considered a gym unto itself that addresses all of the core fitness needs of the participants, it was not necessary to compare the results of the study to tasks outside of the study. Rather, by recording initial kettlebell weights used and charting progress, positive, verifiable increases in strength and endurance were documented for each participant based on the increase in the weight(s) of the kettlebells used for each exercise. Increases in kettlebell weights used by participants ranged from 25% to 200% over the length of the study depending on the exercise. The results and the program format coincide with Walterhouse's (1996) observation that continuous commitment is necessary for a program to be successful.

They also support Ross (2003), who credited his ability to return to the fire service profession after a disability retirement to the Russian kettlebell, which works in both conditioning and rehabilitative fashions to improve strength and stability. The program demonstrates the need for personal commitment and potential for personnel to become directly engaged in their own success, as suggested by Robinson (1999) as well as being a program that has the availability of in-house certification, in alignment with Ball (1999), who suggested that utilizing department personnel is one of the most cost effective methods to implement and maintain a formal program. *Of the available programs, which require specific certification in order to administer?*

A common theme throughout the literature review was the suggestion that a formal fitness program would stand a better chance of success if it included the designation of specific personnel to administer the program. The interview respondents concurred with Walterhouse (1999), Robinson (1999), and the IAFC/IAFF/ACE initiative to expand the ranks of PFTs within the fire service to better manage fitness programs. Interview respondents tended to use the term “qualified” versus “certified” when describing personnel trained to properly administer such programs. Additionally, national survey results, although not considered a mandate, indicated that 45% of respondents had a professional trainer assigned to administer their fitness programs.

The approach to the research was to evaluate current facts and information through literature review and original research in order to identify the factors that influence participation in physical fitness programs from a personal and organizational standpoint. The results clearly documented specific trends and factors internally in the EWFD and on a broader scale; including inconsistencies in the programs being used by organizations, the motivational factors involved in personal fitness improvement, and the impact that an organization’s status as career or volunteer had on the implementation of fitness programs.

Sufficient evidence was collected to recommend the implementation of a Russian kettlebell physical fitness program for the EWFD that takes into consideration current the economic climate and space limitations that exist at the EWFD in addition to the efficiency and effectiveness of the program as demonstrated in the pilot study.

Additionally, the data collected also formalized some of the causative factors that influence the implementation of fitness programs from an organizational standpoint, particularly when comparing career and volunteer organizations. To that end, the research also provided data that led to recommendations on a national level that are designed to help place a higher priority on the fitness and conditioning of fire service personnel from a cultural and organizational standpoint nationwide.

Recommendations

In the near term (0 months to 1 year), due to the physical space limitations of the current fire station, it is recommended that EWFD administration investigate and implement a fitness program that uses Russian kettlebells as a primary modality. Based on the pilot study conducted and the responses provided through the interview process, the kettlebell program accomplishes the goal of improving firefighter fitness and conditioning at a significantly lower cost than most programs that use traditional equipment, and it can be conducted in a small space. Since the EWFD already has in place a documented medical monitoring program, it is recommended that a policy on physical fitness be developed that, once implemented, enforces mandatory program participation. It is further recommended that the EWFD establish an in-house fitness coordinator, through the PFT program, a specific fitness program certification such as Killing it With Kettlebells™, or both; in order to provide for consistency in on-going training of members and maintenance of the fitness program. It is recommended that EWFD administration

determine and implement a periodic fitness assessment program in order to assure that personnel are maintaining the appropriate level of fitness.

In the mid-term, (one year-three years), it is recommended that an on-going monitoring program be established that records and tracks the progress of the EWFD members and their participation in the fitness program. In conjunction with the design and development of EWFD's new fire station, it is recommended that a fitness room be incorporated into the facility that can accommodate the appropriate equipment and the appropriate space to utilize such equipment. Consideration should be given to consultation with area gym owners and trainers in developing this room so that it is designed to the standards needed in order to be effective.

In the long term (three years and beyond), it is recommended that a study be completed that compares EWFD worker's compensation claim payouts prior to the implementation of the fitness program versus after the incorporation of said program within the organization. It is also recommended that follow-up research be conducted to determine EWFD personnel attitudes toward their own physical conditioning so that the results can be compared to the results of the internal study conducted as part of this research.

The research also clearly indicated a disparity in the existence of fitness programs on a regional and national level that coincides with organizational status as career or volunteer. As such, it is recommended that the USFA revisit its position on firefighter health and fitness and implement changes that better prioritize health and wellness in the fire service, particularly in the volunteer organizations throughout the country.

Specifically, it is suggested that the USFA work closely with the NFPA in refining NFPA 1583 in order to develop more influential language in terms of appropriate fitness programs for the fire service. Whether an intended consequence or not, it is obvious that connecting volunteer

firefighter certification to federal grant funding had a significant positive impact on the number of nationally certified fire service personnel. To that end, it is recommended that the USFA consider developing requirements that fire service organizations enter into a formal fitness program that includes a written policy and to document such initiatives in order to be considered a priority for federal grant funding in the future. It is further recommended that the USFA consider realigning its funding priorities to place a higher importance on fitness programs, equipment, and medical monitoring for the fire service in order to advocate, from an executive fire service leadership standpoint, the critical importance of improving firefighter health and wellness.

It is recommended that future researchers conduct similar research within their organizations to better determine the causative factors affecting the health and wellness of members. Although many commonalities were identified in this research with respect to the reasons why personnel do not engage in a fitness program and what factors may influence increased participation, it must also be understood that each fire service organization may face unique adaptive challenges as well, and any positive change to such an organizational culture can only be achieved if the leadership of each organization understands those challenges.

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Appendix A

East Whiteland Fire Department Internal Fitness Survey

1. Do you currently engage in a fitness/conditioning program?

- Yes, at work
- Yes, at home
- Yes, at a gym
- Yes, at more than one location
- No

2. How frequently do you train?

- Once a week
- Twice a week
- Three times a week
- More than three times a week
- Never

*

3. What training modality do you most often use? (select all that apply)

- Traditional weights (Barbells, dumbbells, etc.)
- Exercise Machines (including stair master, stationary bike, etc.)
- Kettlebells
- P90X
- Crossfit
- Run/Jog/Walk
- None
- Other (please specify)

*

4. If you do not work out, what reason most closely describes why?

- Not enough time
- No personal motivation
- Availability of equipment
- No motivation from superiors
- Physical Environment at fire station not conducive
- I am already fit/conditioned for my job
- N/A
- Other (please specify)

5. A mandatory fitness/conditioning program in my department would be successful.

- Strongly Agree
- Somewhat Agree
- Neutral
- Somewhat Disagree
- Strongly Disagree

6. I would participate in a fitness program at work if the appropriate equipment and space were provided in the station.

- Strongly Agree
- Somewhat Agree
- Neutral
- Somewhat Disagree
- Strongly Disagree

7. I would participate in a fitness program at work if it were administered by a certified trainer.

- Strongly Agree
- Somewhat Agree
- Neutral
- Somewhat Disagree
- Strongly Disagree

8. My physical conditioning has a direct impact on my personal safety on the fire ground.

- Strongly Agree
- Somewhat Agree
- Neutral
- Somewhat Disagree
- Strongly Disagree

9. My physical conditioning has a direct impact on co-worker safety on the fire ground.

- Strongly Agree
- Somewhat Agree
- Neutral
- Somewhat Disagree
- Strongly Disagree

10. I place a high priority on my personal fitness and conditioning.

- Strongly Agree
- Somewhat Agree
- Neutral
- Somewhat Disagree
- Strongly Disagree

Appendix B

EWFD Survey Results

Fitness and Conditioning Questionnaire-EWFD Internal

Do you currently engage in a fitness/conditioning program?		
Answer Options	Response Percent	Response Count
Yes, at work	0.0%	0
Yes, at home	22.7%	5
Yes, at a gym	22.7%	5
Yes, at more than one location	45.5%	10
No	9.1%	2
<i>answered question</i>		22
<i>skipped question</i>		0
How frequently do you train?		
Answer Options	Response Percent	Response Count
Once a week	18.2%	4
Twice a week	27.3%	6
Three times a week	27.3%	6
More than three times a week	27.3%	6
Never	0.0%	0
<i>answered question</i>		22
<i>skipped question</i>		0
What training modality do you most often use? (select all that apply)		
Answer Options	Response Percent	Response Count
Traditional weights (Barbells, dumbbells, etc.)	22.7%	5
Exercise Machines (including stair master, stationary bike, etc.)	22.7%	5
Kettlebells	31.8%	7
P90X	4.5%	1
Crossfit	9.1%	2
Run/Jog/Walk	54.5%	12
None	0.0%	0
Other	31.8%	7
<i>answered question</i>		22
<i>skipped question</i>		0

If you do not work out, what reason most closely describes why?		
Answer Options	Response Percent	Response Count
Not enough time	4.5%	1
No personal motivation	4.5%	1
Availability of equipment	0.0%	0
No motivation from superiors	0.0%	0
Physical Environment at fire station not conducive	9.1%	2
I am already fit/conditioned for my job	0.0%	0
N/A	81.8%	18
Other (please specify)	0.0%	0
<i>answered question</i>		22
<i>skipped question</i>		0
A mandatory fitness/conditioning program in my department would be successful.		
Answer Options	Response Percent	Response Count
Strongly Agree	40.9%	9
Somewhat Agree	36.4%	8
Neutral	13.6%	3
Somewhat Disagree	9.1%	2
Strongly Disagree	0.0%	0
<i>answered question</i>		22
<i>skipped question</i>		0
I would participate in a fitness program at work if the appropriate equipment and space were provided in the station.		
Answer Options	Response Percent	Response Count
Strongly Agree	81.0%	17
Somewhat Agree	14.3%	3
Neutral	4.8%	1
Somewhat Disagree	0.0%	0
Strongly Disagree	0.0%	0
<i>answered question</i>		21
<i>skipped question</i>		1
I would participate in a fitness program at work if it were administered by a certified trainer.		
Answer Options	Response Percent	Response Count
Strongly Agree	36.4%	8
Somewhat Agree	40.9%	9
Neutral	22.7%	5
Somewhat Disagree	0.0%	0
Strongly Disagree	0.0%	0
<i>answered question</i>		22
<i>skipped question</i>		0

My physical conditioning has a direct impact on my personal safety on the fire ground.		
Answer Options	Response Percent	Response Count
Strongly Agree	100.0%	22
Somewhat Agree	0.0%	0
Neutral	0.0%	0
Somewhat Disagree	0.0%	0
Strongly Disagree	0.0%	0
<i>answered question</i>		22
<i>skipped question</i>		0
My physical conditioning has a direct impact on co-worker safety on the fire ground.		
Answer Options	Response Percent	Response Count
Strongly Agree	100.0%	22
Somewhat Agree	0.0%	0
Neutral	0.0%	0
Somewhat Disagree	0.0%	0
Strongly Disagree	0.0%	0
<i>answered question</i>		22
<i>skipped question</i>		0
I place a high priority on my personal fitness and conditioning.		
Answer Options	Response Percent	Response Count
Strongly Agree	68.2%	15
Somewhat Agree	27.3%	6
Neutral	4.5%	1
Somewhat Disagree	0.0%	0
Strongly Disagree	0.0%	0
<i>answered question</i>		22
<i>skipped question</i>		0

Appendix C

Regional (Five County) Physical Fitness Program Survey

1. Does your organization currently participate in a physical fitness/physical conditioning program?

- Yes
 No

2. If you answered yes to Question #1, is your program voluntary or mandatory? (If you do not have a physical fitness program, select N/A).

- Mandatory
 Voluntary
 N/A

3. Is your physical fitness program administered by a certified trainer?

- Yes
 No
 N/A

4. Is/are your fitness trainer(s) employees or hired/contracted from an external source?

- Employee(s)
 Hired Professional(s)
 Both
 N/A

5. What equipment and/or programs do you provide for physical conditioning? (select all that apply)

- Traditional weights (barbells, dumbbells, etc.)
 Exercise Machines (including stair master, stationary bike, etc.)
 Kettlebells
 P90X
 Crossfit
 Run/Jog/Walk

Other (please specify)

6. Does your department have a written policy, standard operating procedure, or standard operating guideline in place relating to physical conditioning?

- Yes
 No

7. Does your organization conduct ongoing, periodic assessments of your members' physical fitness?

- Yes
- No

8. What assessment tool does your department use to evaluate your members' physical fitness?

- Candidate Physical Agility Test (CPAT)
- NFPA 1582
- Assessment center created within the organization
- My organization does not periodically assess the physical fitness of its members
- Other (please specify)

9. What frequency does your organization evaluate your members' physical fitness?

- Annually
- Semi-Annually
- N/A
- Other (please specify)

10. What best categorizes your organization?

- EMS Only
- Career, Fire/Rescue and EMS
- Career, Fire/Rescue Only
- Combination, EMS Only
- Combination, Fire/Rescue and EMS
- Combination, Fire/Rescue Only
- Volunteer, EMS Only
- Volunteer, Fire/Rescue and EMS
- Volunteer, Fire/Rescue Only

Appendix D

Regional (Five County) Fitness Survey Results

Fire Service Fitness Program Survey-Regional

Does your organization currently participate in a physical fitness/physical conditioning program?		
Answer Options	Response Percent	Response Count
Yes	26.7%	16
No	73.3%	44
<i>answered question</i>		60
<i>skipped question</i>		0
If you answered yes to Question #1, is your program voluntary or mandatory? (If you do not have a physical fitness program, select N/A).		
Answer Options	Response Percent	Response Count
Mandatory	0.0%	0
Voluntary	32.0%	16
N/A	68.0%	34
<i>answered question</i>		50
<i>skipped question</i>		10
Is your physical fitness program administered by a certified trainer?		
Answer Options	Response Percent	Response Count
Yes	7.1%	4
No	25.0%	14
N/A	67.9%	38
<i>answered question</i>		56
<i>skipped question</i>		4
Is/are your fitness trainer(s) employees or hired/contracted from an external source?		
Answer Options	Response Percent	Response Count
Employee(s)	1.8%	1
Hired Professional(s)	3.6%	2
Both	1.8%	1
N/A	92.7%	51
<i>answered question</i>		55
<i>skipped question</i>		5

What equipment and/or programs do you provide for physical conditioning? (select all that apply)		
Answer Options	Response Percent	Response Count
Traditional weights (barbells, dumbbells, etc.)	86.7%	26
Exercise Machines (including stair master, stationary bike, etc.)	93.3%	28
Kettlebells	16.7%	5
P90X	0.0%	0
Crossfit	16.7%	5
Run/Jog/Walk	46.7%	14
Other		11
<i>answered question</i>		30
<i>skipped question</i>		30
Does your department have a written policy, standard operating procedure, or standard operating guideline in place relating to physical conditioning?		
Answer Options	Response Percent	Response Count
Yes	1.7%	1
No	98.3%	57
<i>answered question</i>		58
<i>skipped question</i>		2
Does your organization conduct ongoing, periodic assessments of your members' physical fitness?		
Answer Options	Response Percent	Response Count
Yes	13.8%	8
No	86.2%	50
<i>answered question</i>		58
<i>skipped question</i>		2
What assessment tool does your department use to evaluate your members' physical fitness?		
Answer Options	Response Percent	Response Count
CPAT (Candidate Physical Agility Test)	0.0%	0
NFPA 1582	4.1%	2
Assessment center created within the organization	4.1%	2
My organization does not periodically assess the physical fitness of its members	69.4%	34
Other	22.4%	11
<i>answered question</i>		49
<i>skipped question</i>		11
What frequency does your organization evaluate your members' physical fitness?		
Answer Options	Response Percent	Response Count
Annually	14.3%	8
Semi-Annually	0.0%	0
N/A	73.2%	41
Other	12.5%	7
<i>answered question</i>		56

		<i>skipped question</i>	4
What best categorizes your organization?			
Answer Options	Response Percent	Response Count	
Career, EMS Only	0.0%	0	
Career, Fire/Rescue and EMS	0.0%	0	
Career, Fire/Rescue Only	1.7%	1	
Combination, EMS Only	5.1%	3	
Combination, Fire/Rescue and EMS	16.9%	10	
Combination, Fire/Rescue Only	11.9%	7	
Volunteer, EMS Only	0.0%	0	
Volunteer, Fire/Rescue and EMS	18.6%	11	
Volunteer, Fire/Rescue Only	45.8%	27	
		<i>answered question</i>	59
		<i>skipped question</i>	1

Appendix E

National Physical Fitness Program Survey

1. Does your organization currently participate in a physical fitness/physical conditioning program?

- Yes
 No

2. If you answered yes to Question #1, is your program voluntary or mandatory? (If you do not have a physical fitness program, select N/A).

- Mandatory
 Voluntary
 N/A

3. Is your physical fitness program administered by a certified trainer?

- Yes
 No
 N/A

4. Is/are your fitness trainer(s) employees or hired/contracted from an external source?

- Employee(s)
 Hired Professional(s)
 Both
 N/A

5. What equipment and/or programs do you provide for physical conditioning? (select all that apply)

- Traditional weights (barbells, dumbbells, etc.)
 Exercise Machines (including stair master, stationary bike, etc.)
 Kettlebells
 P90X
 Crossfit
 Run/Jog/Walk

Other (please specify)

6. Does your department have a written policy, standard operating procedure, or standard operating guideline in place relating to physical conditioning?

- Yes
 No

7. Does your organization conduct ongoing, periodic assessments of your members' physical fitness?

- Yes
 No

8. What assessment tool does your department use to evaluate your members' physical fitness?

- Candidate Physical Agility Test (CPAT)
 NFPA 1582
 Assessment center created within the organization
 My organization does not periodically assess the physical fitness of its members
 Other (please specify)

9. What frequency does your organization evaluate your members' physical fitness?

- Annually
 Semi-Annually
 N/A
 Other (please specify)

10. What best categorizes your organization?

- EMS Only
 Career, Fire/Rescue and EMS
 Career, Fire/Rescue Only
 Combination, EMS Only
 Combination, Fire/Rescue and EMS
 Combination, Fire/Rescue Only
 Volunteer, EMS Only
 Volunteer, Fire/Rescue and EMS
 Volunteer, Fire/Rescue Only

Appendix F

National Fitness Survey Results

Fire Service Fitness Program Survey-National

Does your organization currently participate in a physical fitness/physical conditioning program?		
Answer Options	Response Percent	Response Count
Yes	77.6%	38
No	22.4%	11
<i>answered question</i>		49
<i>skipped question</i>		0
If you answered yes to Question #1, is your program voluntary or mandatory? (If you do not have a physical fitness program, select N/A).		
Answer Options	Response Percent	Response Count
Mandatory	32.7%	16
Voluntary	44.9%	22
N/A	22.4%	11
<i>answered question</i>		49
<i>skipped question</i>		0
Is your physical fitness program administered by a certified trainer?		
Answer Options	Response Percent	Response Count
Yes	44.9%	22
No	30.6%	15
N/A	24.5%	12
<i>answered question</i>		49
<i>skipped question</i>		0
Is/are your fitness trainer(s) employees or hired/contracted from an external source?		
Answer Options	Response Percent	Response Count
Employee(s)	32.7%	16
Hired Professional(s)	8.2%	4
Both	8.2%	4
N/A	51.0%	25
<i>answered question</i>		49
<i>skipped question</i>		0
What equipment and/or programs do you provide for physical conditioning? (select all that apply)		

Answer Options	Response Percent	Response Count
Traditional weights (barbells, dumbbells, etc.)	100.0%	43
Exercise Machines (including stair master, stationary bike, etc.)	100.0%	43
Kettlebells	44.2%	19
P90X	14.0%	6
Crossfit	23.3%	10
Run/Jog/Walk	81.4%	35
Other		4
<i>answered question</i>		43
<i>skipped question</i>		6
Does your department have a written policy, standard operating procedure, or standard operating guideline in place relating to physical conditioning?		
Answer Options	Response Percent	Response Count
Yes	61.2%	30
No	38.8%	19
<i>answered question</i>		49
<i>skipped question</i>		0
Does your organization conduct ongoing, periodic assessments of your members' physical fitness?		
Answer Options	Response Percent	Response Count
Yes	63.3%	31
No	36.7%	18
<i>answered question</i>		49
<i>skipped question</i>		0
What assessment tool does your department use to evaluate your members' physical fitness?		
Answer Options	Response Percent	Response Count
CPAT (Candidate Physical Agility Test)	8.7%	4
NFPA 1582	19.6%	9
Assessment center created within the organization	10.9%	5
My organization does not periodically assess the physical fitness of its members	28.3%	13
Other	32.6%	15
<i>answered question</i>		46
<i>skipped question</i>		3
What frequency does your organization evaluate your members' physical fitness?		
Answer Options	Response Percent	Response Count
Annually	59.2%	29
Semi-Annually	4.1%	2
N/A	34.7%	17
Other	2.0%	1
<i>answered question</i>		49
<i>skipped question</i>		0

What best categorizes your organization?		
Answer Options	Response Percent	Response Count
Career, EMS Only	0.0%	0
Career, Fire/Rescue and EMS	67.3%	33
Career, Fire/Rescue Only	2.0%	1
Combination, EMS Only	0.0%	0
Combination, Fire/Rescue and EMS	22.4%	11
Combination, Fire/Rescue Only	4.1%	2
Volunteer, EMS Only	0.0%	0
Volunteer, Fire/Rescue and EMS	2.0%	1
Volunteer, Fire/Rescue Only	2.0%	1
	<i>answered question</i>	49
	<i>skipped question</i>	0

Appendix G

Fitness Professional Interview Questions

Name and credentials:

Date Interviewed:

1. Tell me about your background and professional experience.
2. What are the available options for fitness training programs? Speak in terms of methods, philosophies, and program designs; and where they might be available.
3. Describe the programs mentioned in terms of equipment needed, time commitment, cost, availability, benefit (especially as it relates to firefighters).
4. Can any or all of the programs you spoke of be administered on a regular basis at a person's place of employment (i.e. fire station)?
5. In your experience, what are the most common personal barriers to personal health and fitness, even when it may be a necessity of an individual's occupation?
6. Of the available programs, which require specific certification to administer?
7. Is there anything else you want to add that you think would bring value to the discussion from your personal experience as a professional trainer?

Appendix H

Kettlebell Program Pilot Study

Training Session A:

Turkish Get Up + Two Hand Swing

Training Session B:

Kettlebell Military Press + Front Squats

	Day 1	Day 2	Day 3
Week 1	A1	B1	A2
Workouts			
Week 2	B2	A1	B1
Workouts			

	Day 1	Day 2	Day 3
Week 3	A2	B2	A1
Workouts			
Week 4	B1	A2	B2
Workouts			

As you can see the training sessions alternate and are staggered throughout the four weeks. Once the first four week cycle is up you take no more than one week off and start all over again.

Training Session A1:**Daily Dozen Plus One Warm Up (See Below)**

10 Minutes of Turkish Get Up Practice – It's hard to get any simpler than this. Put ten minutes on the clock, and for the entirety of that ten minute session you will practice your Turkish Get Up. Alternate sides every rep, and take your time! The slower you can go with the get up the better. Start with a moderately challenging weight, eventually working your way up to the big boy and the big girl weights.

20 Minutes of Kettlebell Swing Practice – Take a short break after your get up practice then put another twenty minutes on the clock. For that entire twenty minutes you will perform Kettlebell Swings for fifteen seconds on and fifteen seconds off – meaning you swing for seconds then rest for fifteen seconds, repeating this sequence for the entire twenty minutes. You may find this to be quite difficult at first, especially in the later rounds, so you may start with ten minutes, but work your way up to the full twenty minute practice session as quickly as possible. Also work your way up to using the big boy and the big girl weights for this as well.

Daily Dozen Plus One Cool Down

Training Session B1:**Daily Dozen Plus One Warm Up**

3 x 1 – 5 Kettlebell Military Press Ladders: Ladders are hands down one of the most effective ways to build strength, as they allow us to accumulate an adequate amount work volume and time under tension without overly fatiguing us with high reps. Heavy, low rep movements are what will make us strong. For our purposes we will be performing three, five rung ladders. A rung is simply a step in the ladder, so five rungs means we will be working our way up to five reps. The sequence looks like this:

One Military Press (Left and Right Sides)

Rest (however long you need until you feel fresh enough to start the next set)

Two Military Presses (L+R – perform both reps on one side before switching)

Rest

Three Military Presses (L+R)

Rest

Four Military Press (L+R)

Rest

Five Military Presses (L+R)

Repeat this entire sequence three times, utilizing a progressively heavier bell if possible.

Remember, the military press is where we are going to design and develop our brute upper body strength, so that means that we have to lift heavy at least SOME of the time

3 x 1 – 5 Kettlebell Front Squat Ladder: Exactly the same game as the kettlebell military press ladder, except it should only take about half the time since we do not need to switch sides at all.

It looks like this:

One Front Squat

Rest

Two Front Squats

Rest

Three Front Squats

Rest

Four Front Squats

Rest

Five Front Squats

Again, repeat this sequence three times, aiming to use a heavier bell (or set of bells) each time through.

Daily Dozen Plus One Cool Down

Training Session A2:**Daily Dozen Plus One Warm Up**

3 x 1 – 3 Turkish Get Up Ladders: No different than the Kettlebell Military Press ladder except that we are now utilizing the Turkish Get Up and have restructured the sets and reps. Perform all get ups on one side before switching:

One Turkish Get Up (L+R)

Rest

Two Turkish Get Ups (L + R)

Rest

Three Turkish Get Ups (L+R)

Repeat this sequence three times.

3 x 1 – 10 Kettlebell Swing Ladders: If technique is on point, then go heavy with this:

1 Kettlebell Swing

Rest

2 Kettlebell Swings

Rest

3 Kettlebell Swings

etc...

Up to 10 Kettlebell Swings

Repeat this sequence three times.

Daily Dozen Plus One Cool Down**Training Session B2:****Daily Dozen Plus One Warm Up**

2 x 5 Kettlebell Military Press: Perform two sets of five reps each side of the kettlebell military press with as heavy of a weight as possible. Rest as much as needed in between sets.

3 x 3 Kettlebell Military Press: Perform three sets of three reps each side of the kettlebell military press with a heavier weight than you just used for your 2 x 5 work. Rest as much as needed in between sets.

5 x 5 Kettlebell Front Squat: Perform five sets of five reps of the kettlebell front squat with as heavy of a weight as possible. Rest as much as needed in between sets.

3 x 3 Kettlebell Front Squat: Perform three sets of three reps of the kettlebell front squat with as heavy of a weight as possible. Rest as much as needed in between sets.

Daily Dozen Plus One Cool Down

The Daily Dozen Plus One

The “daily dozen plus one” is a mobility series to be utilized for both a warm up and cool down. It does not matter which order you perform the following mobility drills, just that you perform them all every day, preferably even on the days that you do not train.

1. Frog Stretch
2. Hip Flexor Stretch
3. Cervical Mobility
4. Lying T-Spine Rotations (Brettzel)
5. Four Point Plank
6. Scapular/Shoulder Mobility
7. Wrist and Elbow Mobility
8. Hip Bridge
9. Ankle Mobility
10. Hip Mobility
11. Lying External Hip Rotation
12. Lying Internal Hip Rotation
13. Kettlebell Arm Bar

The Military Press:

The single (and eventually double) kettlebell military press will be our weapon of choice for developing raw upper body strength and for forging strong, resilient shoulders. The kettlebell military press is unrivaled when it comes to increasing functional upper body strength, which you will quickly learn as you progress through the pilot study. And unlike the more common bench press, the military press will serve to improve your shoulder mobility, rather than limit it.

The Front Squat:

Where the military press will amplify the power and stability of our upper body when performed properly and with appropriate weight, the front squat will be what we use to bestow tremendous amounts of lower body strength upon us. This is an exceptionally taxing movement once the weight gets serious requiring a great deal of neuromuscular activation. Heavy front squats will help you to reinforce and establish proper posture under stress and load, cultivate a remarkable amount of lower body strength, and provide for an exceptional cardiovascular workout as well. The best cardiovascular training is the heavy front squat. You will see this once you get into the program.

The Kettlebell Swing:

The two hand kettlebell swing is a posterior (hip dominant) power movement. An athlete's power is always derived from their core, specifically their hips, and the kettlebell swing is an unbeatable movement for generating for body power, grace, and athleticism.

The Turkish Get Up:

The Turkish Get Up has actually been around for hundreds of years believe it or not, and it has clearly stood the test of time as one of the most effective full body, synergistic movements for developing strength, mobility, and stability. The Get Up has you moving from just about every joint in your body and will work wonders for improving your overall joint health and vitality.