

Physical Ability Testing for Volunteer Firefighters

EXECUTIVE LEADERSHIP

By: Marcy Marohl-Bruflat
Township Fire Department, Inc.
Eau Claire, Wisconsin

Chippewa Valley Technical College Fire Service
Eau Claire, Wisconsin

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Abstract

Township Fire Department, Inc. (TFD), Eau Claire, Wisconsin, is a not-for-profit fire department consisting of five separate township fire departments that have been incorporated into one department. A new accountability system had been implemented requiring three tag/tier firefighters pass a physical agility test every other year to enter the “hot zone”. However, a physical agility test was not required to join the department. The problem was the lack of a valid, cost-effective, consistently administered physical agility test. The purpose of this paper was to examine the importance of a physical fitness assessment for volunteer firefighters, both upon hire and regularly after hire. Another purpose of this paper was to research the physical ability testing process of other local volunteer departments in order to create a valid, widely accepted test and test process.

Descriptive research was used and four research questions were asked.

1. How important is a physical ability standard for new and incumbent members of a volunteer fire department?
2. How is physical ability testing being conducted, for new and incumbent volunteer firefighters, by fire departments in the Chippewa Valley Technical College (CVTC) district?
3. What elements are involved in the physical ability testing nationally?
4. How can TFD improve their current physical ability testing?

A thorough literature review was completed and a survey was distributed to volunteer fire departments within the CVTC district. Research showed that while physical ability tests were required and important for firefighters, they were not being conducted for the volunteer departments in the Chippewa Valley. A major barrier to test implementation

was the fear of losing firefighters. Recommendations included changing “physical agility” to “physical ability”, requiring testing for entry personnel, conducting testing at a local gym or health club, continuing use of three tiered system for accountability.

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Introduction

Township Fire Department, Inc. (TFD) is a not-for-profit fire department consisting of five separate township fire departments incorporated into one department. The townships of Seymour, Washington, Union, Pleasant Valley and Brunswick make up the departments' jurisdiction. Approximately 135 individuals comprise the total membership of the department. In order to become a member of Township Fire Department, a written application must be filed, then an interview with the Assistant Chief and Battalion Chiefs is held.

To remain a member of the department a firefighter must attend at least 50% of all training and meetings, and must attend the department's mandatory training, which includes bloodborne pathogens and hazardous materials training. To remain an interior firefighter, one who can complete tasks in the "hot zone", a physical agility test must be passed every other year. While this requirement to pass a physical agility test to remain an interior firefighter exists, a test is not required to join the department. The problem was the lack of a valid, cost-effective, consistently administered physical agility test for entry onto the department. The purpose of this paper was to examine the importance of a physical fitness assessment for volunteer firefighters, both upon hire and regularly after hire. The second purpose of this paper was to research the physical ability testing process of other local volunteer departments in order to create a valid, widely accepted test and test process.

Descriptive research was used and four research questions were asked.

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2. How is physical ability testing being conducted, for new and incumbent volunteer firefighters, by fire departments in the Chippewa Valley Technical College (CVTC) district?
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Background and Significance

Township Fire Department, Inc. consists of five separate townships incorporated into one department. The townships of Seymour, Washington, Union, Pleasant Valley and Brunswick make up the departments' jurisdiction. Each township receives funds for physical facilities from their own township and board. Funding for all other expenses, including apparatus and personnel, comes from Township Fire Department, Inc. The department is governed by a Fire Board. The Township Fire Department Board, is made up of the chairs of each township served, or his or her designee. This Fire Board, with input from the fire chief and officers, determine the future strategic plan of the fire department.

One of the responsibilities of the Fire Board is to approve all Standard Operating Guidelines (SOGs). Each firefighter is responsible for following the SOGs, which are found in manuals at each of the respective stations. The SOGs are frequently revised to reflect the direction of the board and department.

Just recently the SOG regarding the firefighter accountability system was revised (see Appendix A). The department has changed the accountability system from a two tag/tiered system to a three tag/tiered system. In brief review of the system, an individual with one tag is either a student firefighter or firefighter emeritus, with limited

responsibilities. The student firefighters are under 18 years old and can not drive an apparatus or operate in a “hot zone” including interior fire attack, collapse zones, hazardous materials zones or potentially dangerous areas. They can do basic firefighting work such as wash equipment and apparatus, station chores, and non-threatening work on the fire scene. Student firefighters are required to meet the training, meeting and physical agility requirements of the department mentioned earlier.

The firefighter emeritus includes individuals who have been with the department for many years and do not have the physical abilities to participate actively as a firefighter. Due to their experience, and knowledge of the history of the department, these firefighters are a very valuable resource to the department. They pass on the traditions in the department, unify the department, and demonstrate to the younger members values such as camaraderie, family, respect and wisdom. Upon occasion, these individuals may respond to the fire ground to bring rehab supplies or other resources. They are voting members, and participate in fund-raising and other station activities that are of a non-emergency nature. Emeritus firefighters are not required to attend the required percentage of training and meetings, or pass the physical agility test, but they must attend the department’s mandatory training, which includes bloodborne pathogens and hazardous materials training.

Members that carry two tags are reserve firefighters. The main responsibility of the two tag or reserve firefighters is to drive and operate apparatus. They also do basic fire department work, such as wash equipment and apparatus, complete station chores, and/or bring rehab supplies and resources to the fireground. They are voting members who participate in fund-raising and other station activities. The reserve firefighters do not

enter the “hot zone” or do physically challenging tasks. Reserve firefighters must attend the required percentage of training sessions and meetings but they are not required to pass the physical agility test.

The final membership tier is the three tag tier. The firefighters who carry three tags are responsible for all firefighting tasks. In order to be a three tag holder, the firefighter must pass the physical agility test every other year and complete all the training and meeting requirements.

One important component to identification in the tag system is the physical agility test. There is no history on exactly when the “physical agility test” was implemented or how the physical ability stations were selected. The TFD physical agility test form is included in Appendix B. The test is administered every other year to all the firefighters who want to be a three-tag firefighter and function in the “hot zone” on scene. During the testing year, the test is administered at each of the five stations during a different month. This allows for flexibility in when the firefighter can attempt the test. If a firefighter can not take the test because they have an injury or some other medical reason, a report on that firefighter is given to the medical review officer. The medical review officer will determine if the firefighter will be allowed to test at a later date. If the firefighter is allowed to test at a later date, he/she is temporarily suspended as a three-tag firefighter until the test has been successfully passed.

While the requirement to pass a physical agility test upon becoming a member and every other year thereafter exists, one problem was the lack of a valid, cost-effective, consistently administered physical agility test upon entrance to the department. Other

physical ability test issues included lack of participation every other year, test validity, and consistency in the method of test administration.

This author, the training officer for Township Fire Department – Seymour Station One, is also the Fire Training Program Director for Chippewa Valley Technical College (CVTC). CVTC is one of 16 technical colleges that comprise the Wisconsin Technical College System. Each of the technical colleges is prepared to provide fire service training within their respective jurisdictions. The mission of CVTC is to deliver superior, progressive technical education that improves the lives of students, meets the workforce needs of the region and strengthens the larger community. The Fire Service Training Department of CVTC accomplishes this through a variety of means. CVTC provides state-mandated and funded training, and numerous specialty courses, designed to meet the diverse training needs of the fire departments within its jurisdiction. CVTC is also a state testing site for firefighter certifications. The CVTC Fire Service Program Director provides advice, direction, and information, and acts as an advocate for the 53 fire departments within the CVTC district.

Two years ago, CVTC worked with the career fire departments in the CVTC district to implement the International Association of Fire Fighters – Candidate Physical Ability Test (CPAT). At this time, several members of TFD questioned the use of physical ability testing like the CPAT for volunteer departments. Within the Chippewa Valley Technical College district there are 49 volunteer departments and 2 combination departments. One of the combination departments, Menomonie Fire Department, Menomonie, Wisconsin, uses the CPAT for testing candidates that apply for a position within their volunteer or paid-per-call ranks. The other CVTC combination department is

the Chippewa Fire Protection District (CFD). CFD uses the CPAT for candidates wishing to become full-time firefighters, but not for the candidates within its' volunteer ranks. It was realized that CVTC could provide the medium for research surveys to investigate what volunteer departments were doing to assess the physical ability levels of their firefighters.

This project is significant to the volunteer fire service. Career fire departments across the nation have focused on physical fitness and physical ability testing for years. Many volunteer fire departments have never addressed physical fitness and physical ability testing. Potential reasons for this lack of focus on fitness among volunteers may be the decline in fire department applicants, the more universal problem with fitness in the United States, the lack of administration or facilities for testing, or others.

Volunteer and career firefighters alike should be treated as professionals. Fires burn the same in volunteer communities as they do in municipalities. NFPA standards, such as NFPA 1001, do not differentiate between career and volunteers in their professional qualifications. Training required of career firefighters is required by most states for volunteers as well.

Physical ability qualification for entry on a career department is standard procedure. Physical ability testing should therefore be part of the volunteer fire service also. This is extremely significant and important when almost half of the fatalities suffered in the fire service are from heart attack.

To address such a controversial issue, strong leadership is paramount. Therefore, this project relates closely to Chapter One of the National Fire Academy's Executive Leadership course. This chapter on "Developing self as a leader" discusses the

characteristics of a successful leader as one having vision and purpose, while being a risk-taker. These skills will be necessary to address the topic of volunteer firefighter physical ability testing and volunteer fitness.

Besides the linkage to the Executive Leadership course, there is a direct linkage to the United States Fire Administration's third operational objective. This objective is to "reduce the loss of life from fire of firefighters". Researching physical ability testing and creating a vision based on the results can assuredly help to accomplish this objective.

Literature Review

Importance of Physical Fitness for Firefighters

Physical fitness for firefighters has always been an important issue. The occupation of firefighting puts maximal stress on the body for long periods of time in extreme weather conditions. Historically, the issue has been discussed at a national level for many years. Studies from the 1970's demonstrated the need for fitness in firefighters. In a 1975 study of the heart rates of firefighters during the activity of firefighting, Barnard and Duncan (1975) found that data acquired from a 27 year old firefighter working two structure fires demonstrated close-to-maximal to maximal heart rates. The firefighter's heart rate remained at or higher than 160 beats per minute for over 90 minutes. This level of work requires a high level of conditioning. In the 1981 Federal Emergency Management Agency (FEMA), *Activities and Practices for Improving Fire Department Safety and Health Programs* manual, FEMA states;

Firefighters are not unlike athletes in their need for physical strength and endurance. An athlete generally takes ample time to warm up in order to prepare for the imminent physical exertion. Firefighters do not usually have a sufficient

period in which to ready themselves for their physical tasks. An alarm often takes a firefighter from a sedentary state to a state of intense physical exertion in a few minutes. Intense heat may sharply contrast with subzero outside temperatures. These situations affect a firefighter physiologically. A firefighter should be prepared by being in good health and physical condition. The cardiovascular system must be properly conditioned to meet the extremes of temperature, oxygen demand, and stress. (FEMA, 1981)

The importance of physical fitness for firefighters has not changed over the years. “Physical fitness is a critical component of health and performance. Without high levels of fitness, fire and rescue workers can’t do their jobs either safely or well” (Pearson, Hayford, and Royer, 1995). The United States Fire Administration (USFA) echoes this belief and gears it specifically toward volunteer fire departments. In the 1998 *Recruitment and Retention in the Volunteer Fire Service Final Report*, USFA authors state “volunteer fire department members who are not fit for active duty should be given non-stressful assignments on the scene or at the station” (USFA, 1998).

The National Fire Protection Agency (NFPA) has been collecting information on firefighter injury and fatality since 1977-78 (Karter, 1998). Five years ago, in 1997, the major types of injuries during fireground, and non-fireground, operations were sprains, strains, and muscle pain (Karter, 1998). One of the actions Karter (1998) suggests to improve firefighter safety was to implement evaluation and conditioning programs. That same year, 35 of the 94 career and volunteer firefighter fatalities were from heart attacks (Washburn, 1998). Washburn (1998) echoes Karter’s suggestion when Washburn states, “Even though the total number of heart attack deaths has dropped since 1977, additional

reductions in firefighter deaths should be possible if we continue to stress health and fitness...Properly screening fire service applicants, making sure they meet fitness requirements throughout their careers, and testing their health annually are essential if they're to be ready for the stress of duty-and if we're to reduce the number of fatal heart attacks that firefighter continue to suffer on duty each year" (Washburn, 1998). In the 1999 United States Firefighter Injuries report, Karter (2000) stresses "Other steps include implementation of regular medical examinations; a physical fitness program...". Finally, the volunteer fire service is recognized in the 2001 NFPA Firefighter Fatality Report. In the report, Fahy and LeBlanc (2002) stress "...attention to fitness and health throughout a firefighter's career or volunteer service is essential".

The Technical Committee on Fire Service Occupational Medical and Health began developing NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Fighters*, in 1997 (NFPA, 2000). The technical committee felt, "...other areas of fire fighter health and safety (i.e. protective equipment and clothing, fire apparatus, and incident command) had evolved to address specific areas of occupational safety, but had not focused on health" (NFPA, 2000). The committee reviewed NFPA statistics that showed that almost 50 percent of fire fighter fatalities are heart attacks, and almost 50 percent of those who died had heart-related problems. NFPA 1582 stresses the need for annual medical evaluations which would potentially help to identify the firefighters who have heart-related problems. The focus of NFPA 1583 would be fitness programs for the other 50 percent fire fighter fatalities that did not have heart-related problems, but were not physical ready for the required tasks.

The Importance of Physical Ability Testing for Firefighters

Every successful fitness program begins with some type of ...fitness assessment (Institute of Human Performance, 1990). Physical fitness testing has five major benefits including:

1. Provide a reference point for comparison with future progress.
2. Develop an exercise program specific to the needs of each subject.
3. Minimize risks to individuals with physical limitations.
4. Provide incentive/motivation for adherence and improvement
5. Provide realistic expectations for improvement.

(Institute of Human Performance, 1990)

Physical ability and medical evaluations need to be completed for both volunteer and career firefighters. In their 2001 Firefighter Fatalities report (Fahy and LeBlanc, 2002), the statistics comparing percent of heart attacks suffered by volunteers was 47.6%, while the percent of heart attacks suffered by career firefighters was 41.7%. One interesting note was that almost 50% of the heart attacks suffered by the volunteer firefighters occurred in firefighters over the age of 55, while all of the heart attacks career firefighters suffered, were to career firefighters under the age of 55. This statistic may be swayed by the average age of career firefighters versus volunteer firefighters. The age factor makes fitness very important for the volunteer firefighter. Pearson, et al., (1995) discuss the age factor and fitness. Pearson, et al, state “Research has shown a direct relationship between physical fitness and the physiological changes that occur in the body due to aging. The rate of deterioration can be slowed by the maintenance of adequate fitness levels through regular physical activities” (Pearson, et al., 1995). This stresses the

importance of implementation of fitness programs after the initial physical ability assessments, especially for the older volunteer firefighters.

Demands have been placed on firefighter equipment manufacturers to develop safer, lighter, more protective equipment and gear. While technology has advanced and created developments such as thermal imaging cameras, integrated personal alarm systems and electronic personal accountability systems, the human machine remains the limitation. Fahy and LeBlanc (2002) stress “The fire service spends a great deal of money on vehicle maintenance. The same care should be devoted to the firefighters” (Fahy and LeBlanc, 2002).

Physical Fitness Requirements

At the Second Symposium on Occupational Health and Hazards of the Fire Service, in April of 1973, Dr. Marshall Conrad commented on the need for standards in the fire service. He states “Standards for firefighters are felt to be particularly important as applied to recruitment, physical examination, and physical performance standards” (Conrad, 1973). As far back as 30 years ago Conrad suggested the following recommendations:

- (1) A compulsory annual medical examination at the department’s expense.
- (2) A compulsory daily exercise program based on a Physical Fitness Training Manual published by the department.
- (3) A supervised sports program to encourage fitness through games and athletics.
- (4) Advice on proper diet to help prevent obesity.
- (5) An annual performance test graded according to age (Conrad, 1973).

In the literature that discusses volunteer recruitment and retention, very little is reported on the need for entry or annual physical ability testing. In the 2001 Wisconsin Administrative Code, Comm 30.02(1)(a), the 1997 edition of NFPA 1001, *Standard for Firefighter Professional Qualifications*, has been adopted by reference. Due to this adoption, fire departments must follow the NFPA 1001 Standard as law. NFPA 1001 (1997), Chapter 2-2 states “Physical fitness requirements for entry-level personnel shall be developed and validated by the authority having jurisdiction”. NFPA 1001, Appendix A, Explanatory Materials A-2-1(c) (1997) suggests “The candidate should meet the requirements of NFPA 1582, *Standard on Medical Requirements of Fire Fighters*, within a reasonable period of time prior to entering into training or testing for Fire Fighter I, to ensure his or her ability to safely perform the required tasks”. This standard, NFPA 1582, has not been adopted by the Wisconsin Administrative Code, and deals only with a physician’s medical evaluation. NFPA 1582 does not address the accepted factors for fitness, which include cardio-respiratory fitness, muscular strength, muscular endurance, flexibility, and body fat. As NFPA 1001 is currently under revision, its revision may include NFPA 1583. In a study by Charles Dotson, “two-thirds of the firefighters do not met a physical performance profile...reflecting youth, high aerobic capacity, high muscular strength and endurance, above average lean body weight and minimal body fat” (Dodson, 1977).

NFPA 1500 also has not been adopted by Wisconsin Administrative Code. NFPA 1500 (1997) suggests the need for physical performance requirements for members who engage in emergency operations. NFPA 1500 states “Members who engage in emergency operations shall be annually evaluated and certified by the fire department as meeting the

physical performance requirements specified...Members who do not meet the required level of physical performance shall not be permitted to engage in emergency operations” (NFPA 1500, 1997). Emergency operations are defined in NFPA 1500 1-5 as “activities of the fire department relating to rescue, fire suppression, emergency medical care, and special operations, including response to the scene of the incident and all functions performed at the scene” (NFPA 1500, 1997).

Finally, fitness is not only important for the health and safety of the firefighters. Davis (1994) believes “once on the scene, physical fitness plays a critical role. Indeed, fitness is germane to the overall success of the department’s mission, for without this very basic building block, nothing gets done. Technology can help, but it’s still physical effort that will be required to get the job done expeditiously”.

Physical Ability Testing for Volunteers

The debate regarding standards for career firefighters and volunteer firefighters has been an ongoing battle. NFPA 1583, the standard for Health-Related Fitness Programs for Fire Departments, defines a Fire Department Member as “A person involved in performing the duties and responsibilities of a fire department (NFPA 1583, 2000).” While the explanatory materials located in the appendix of NFPA standards are not part of the requirements of the document, they clarify information within the document. Within the Appendix A Explanatory Materials for NFPA 1583 the definition of Fire Department member is expanded on. “A fire department member can be a full-time or part-time employee or a paid or unpaid volunteer, can occupy any position or rank within the fire department, and can engage in emergency operations” (NFPA, 2000). They continue to define a fire department as “An organization providing rescue,

fire suppression, and related activities and, in many cases, emergency medical services, hazardous materials operations, and special operations (NFPA, 2000).” They do not designate between volunteer and career as the tasks are the same for both. In NFPA Chapter 4, a fitness assessment is required. “All members shall participate in a periodic fitness assessment...conducted at least annually (NFPA, 2000).”

Even with the advent of the CPAT, a nationally validated physical ability test for entry firefighters, the physical ability testing of incumbents remains a controversial issue. Some concerns that are debated when discussing incumbent testing address issues including modification for age differences, modifications for responsibilities (inspector versus firefighter), remedial plans (exercise prescriptions) for individuals who do not pass, and more.

These discussions usually revolve around the full-time or career firefighters. Volunteer firefighters, who for the purpose of this paper will be defined as no pay and paid-per-call firefighters, carry the same statistics regarding firefighter fatality and heart attacks. FEMA (1981) recognizes that volunteer firefighters face the same hazards as career firefighters. “Volunteers face many of the same hazards as their paid counterparts...”

In her article “In Good Shape? Fire Service Wrestles with Physical Fitness Standards”, Lauren Simon Ostrow (1997) identifies the conflicts that need to be addressed when considering physical ability testing.

“The fitness issue is complicated not only by the specifics regarding implementation, but also by political divisions that exist in the fire service, most notably that between paid and non-paid departments...The IAFF, which

represents paid firefighters, is committed to mandatory fitness programs and minimum fitness standards that it believes will protect the health and safety of its members. The National Volunteer Fire Council, on the other hand, the national voice for non-paid firefighters, prefers a more lenient approach to fitness because the ranks of volunteers sometimes are so thin that these departments can't afford to discourage potential members" (Ostrow, 1997).

While the NVFC is recently beginning to address the issue of fitness, physical assessment of firefighters is still being ignored. "The partnership effort (between the USFA and NVFC) will involve developing examples of health and wellness programs aimed at the needs of the volunteer firefighter. These programs will address fitness and exercise; diet; smoking cessation; and other areas that will have a positive impact on the volunteer fire service community (NVFC, 2002).

Career fire departments have recently been addressing the fitness issue through the work of the IAFC and IAFF in the Wellness and Fitness Initiative. Not many volunteer departments have followed suit.

"Some states and governing bodies are attempting to influence some of these factors (i.e. factors leading to cardiovascular disease) as they pertain to firefighters. In the state of Florida, for example, firefighters must meet a multitude of physical requirements to be eligible for firefighter certification, and firefighters must sign an affidavit stating that they have been smoke-free for one year prior to being eligible for employment as a certified firefighter. The problem in Florida's case is that volunteer firefighters are not held to the same standard" (Hollins, 2000).

There has been a national committee formed to investigate fitness and the volunteer firefighter, but the efforts to address this issue are in its' infancy. The U.S. Fire Administration and the National Volunteer Fire Council have initiated the Volunteer Fire Service Fitness and Wellness Project, a partnership initiative to reduce loss of life among volunteer firefighters from heart attack and stress ("NVFC Launch Fitness Project",2002) In establishing entry requirements for volunteer firefighters, Wheeler (1989) states that the only requirement in becoming a volunteer firefighter for the Scottsbluff Fire Department was five dollars, a signature, a legal driver's background, popular vote and then they must attend a certain percentage of calls. Even with these limited requirements for entry, the volunteers recognized the importance of physical conditioning. After conducting a survey of three volunteer departments, Wheeler (1989) found that all three departments felt unanimously that entry firefighters should be in good physical conditioning.

The USFA (1998) believes many volunteer fire departments now require physicals for their members, either annually or every few years. However, this does not clarify if it is a medical physical that is required or a physical ability test. In fact, the USFA (1998) determined that "Approximately one-half of the fire departments represented at the workshops require members to pass some sort of physical exam. Most only request that a member's personal physician sign a form stating the member is fit for duty".

The Virginia Beach, VA., combination paid/volunteer fire department has integrated fitness into its overall department goals. This department requires all firefighters undergo an annual fitness assessment including measures for aerobic

capacity, muscle strength, muscle endurance, flexibility, and body composition (Gray, 1991). Gray (1991) explains when firefighters fail the fitness assessment, they are put on limited duty and are expected to improve their fitness level to the minimum standard within six months. A rehabilitation program helps the firefighters to make progress toward their reinstatement.

Components of a physical ability test for firefighters

The CPAT is a nationally validated physical ability test, currently used by many career fire departments, to “obtain a pool of trainable candidates that are physically able to perform essential job tasks at fire scenes” (IAFF, 1999). The IAFF only supports the use of this test for entry firefighter candidates. It is not approved by the IAFF for use with incumbent firefighters.

This test contains eight stations that measure a firefighter’s physical ability while completing tasks that relate to fireground activities. The tasks include a step mill test, hose drag and pull, equipment carry, ladder raise, forcible entry sledge hammer swing, mannequin drag, blind maze crawl, and ceiling breach and pull. All stations must be completed while wearing a 50-pound weighted vest, with an extra 25 pounds added on during the step mill station.

While this test has many merits, it is very expensive to implement. Costs for administering this test include purchase of the equipment at over \$25,000.00, cost for personnel to administer the practice sessions and exam (twelve personnel are required to administer the exam successfully), mailings, and printing of the candidate preparation guide booklet (Marohl, 2001). These costs make this exam prohibitive for most volunteer fire departments that are struggling to operate on very limited funds.

The CPAT has been touted as being a physical ability test that is not a performance test. In other words, an individual can come into the test without prior knowledge of firefighting skills. This is an important component, and one that gives the test high marks. Paul O. Davis (1995) clarifies the difference between fitness and performance.

A fitness test is health-based, and a performance test is job-based. People may be classified as unfit because they are overweight, hypertensive or exhibit other negative health factors that may affect performance, yet pass the performance test. Conversely, a person may be highly fit and fail the performance test, because the test is designed to determine if one can perform the necessary essential functions, not to establish a fitness level...in summary, the fitness test answers the question “What is my physical condition?” and the performance test answers “Can I drag the hose, can I do the job?” They are related, but different, test instruments.

(Davis, 1995)

An important distinction also needs to be made between the words physical ability and physical agility. Webster (1990) defines agility as “the quality or state of being able to move with quick easy grace”. While this is admirable, physical fitness or physical ability is what fire departments are seeking. According to the NFPA 1583 standard (2000), physical ability includes the fitness components of aerobic capacity, body composition, muscular strength, muscular endurance and flexibility. The sample fitness assessment provided by NFPA 1583 can be found in Appendix C (NFPA, 2000). The fitness assessment discussed in NFPA1583, 4-4 states,

The annual fitness assessments shall consist of the following components, which measure fitness not performance;

- (1) Aerobic capacity
- (2) Body composition
- (3) Muscular strength
- (4) Muscular endurance
- (5) Flexibility (NFPA, 2000)

In researching other sources for components of a physical ability test, the components listed in the Physical Fitness Coordinator's Manual for Fire Departments (1990) appeared reasonable. The fitness evaluation includes cardiovascular, muscular strength, muscular endurance, power, flexibility, and body composition assessments. In a more recent review of the fitness components by the American Association of Health, Physical Education and Dance, Davis (1995) states "to evaluate an individual, an appropriate test is administered for each component i.e. cardio-respiratory endurance, muscular strength and endurance, flexibility, and body composition." While these tests are not as job-related as the CPAT, they are a general fitness evaluation and have merit for the general population. Inquiring through local health clubs, the cost of administering this fitness evaluation would be approximately \$25.00 per firefighter candidate.

Barriers to Implementation of a Physical Ability Assessment

Physical ability assessments meet added resistance when the fire department is a volunteer organization. "The adoption of standards to promote safety and health for firefighters coupled with the decreasing number of individuals desiring a second career as

a volunteer firefighter require fire chiefs to make a thorough assessment of the fitness of their department” (Anderson and Rosatti, 1989).

Conrad (1973) mentions a barrier that occurred in 1973 that remains today. He recognizes problems when he states “...how to impose continuing physical standards, and how to handle the older firefighter who does not meet these standards, is particularly difficult” (Conrad, 1973). Ross (1996) confronts this issue “Where I have a problem is that if a person’s physical conditioning is so critical to get hired in the first place, is it not just as critical to perform this same job two or ten years later?” There is always resistance to change when firefighters have been in the system for a long time. Ross (1996) brings up four questions that are pertinent to volunteer departments that are left unanswered in the literature.

1. Is an experienced fire fighter able to work “smarter” and therefore does not require the same level of fitness as a relatively inexperienced fire fighter?
 2. Do fitness levels need to be correlated to the work performed for each rank in the fire service?
 3. Who will administer the fitness tests and can they be free from bias, reliable and valid?
 4. What do we do with those fire fighters who are unable to do the job now or at least pass the simulated test which would predict their capacity?
- (Ross, 1996)

Without giving reasons, the USFA (1998) stated “many fire departments fear that they may lose members if physicals are required”. This may be because of the resistance

to change or the fear on the firefighter's behalf that he/she may not pass the exam. Volunteer firefighters may receive pay per call or some stipend for their work as a volunteer. Typically this is a miniscule amount of money that barely covers their personal costs for their participation on a department. These personal costs can include automobile costs for response to the station and/or scene, child or elder care while at training, meetings, or incidents, insurance, and others. The question of whether the stipend received by firefighters would balance a requirement to take a physical ability test remains. This question is not addressed in the literature.

Another question not addressed in the literature is the legal responsibility of the fire department to require a certain level of physical ability testing for incumbent firefighters. As stated earlier, NFPA 1001 (1997) requires physical fitness requirements for entry-level personnel shall be developed and validated by the authority having jurisdiction" (NFPA 1001, Appendix A, Explanatory Materials A-2-1(c) (1997)). Once an individual has become a member of the department, the requirement has been met. While NFPA 1583 has not been adopted by Wisconsin Administrative Code, the standard requires annual physical ability testing.

Cost can also be prohibitive for either a medical physical or a physical ability assessment. The USFA (1998) believes "many departments cannot afford the cost of physicals for members". Even for physical ability testing the cost of a valid, reliable test can be prohibitive. At CVTC, administering the CPAT costs departments with over 100 personnel \$1000.00, not including overtime personnel costs of upward of \$1500.00 (Marohl, 2001).

The issue of test administration needs to be addressed by the department. NFPA 1583 makes suggestions that address all these issues. The standard requires the department to appoint a health and fitness coordinator (HFC), who shall be a member of the department or an outside agent. NFPA 1583 suggests “Appropriate outside agents can be found at local colleges or universities in the exercise science, kinesiology, physical fitness, or fire technology departments. The private sector can also provide qualified personnel to serve as HFCs. Such sources include hospital-based fitness programs, medical facilities, or private companies that provide fitness assessment and wellness programs” (NFPA, 2000).

Finally, the physical ability assessment is just the first step toward a healthier department. An exercise prescription for each individual firefighter must be made. This means that a fitness program must be implemented by each firefighter based on the results of the assessment. In order for a department to complete this NFPA 1583 (2000) suggests two sources for development of an exercise facility, in Appendix A.2.4.2. These include:

1. Exercise equipment placed directly in each station.
2. Contracted use of a gym in a high school, university or other educational institution or private or governmental agency.

Procedures

For purposes of this research, the following definitions were used. The definitions are reflections of local and regional perspectives and may not be applicable to the reader’s situation. This is the reason they are included in the procedures portion of this paper.

Firefighter Emeritus: Any fire department member who is no longer physically able to participate in the basic fireground operations, including working in the hot zone. These firefighters are voting members of the fire department and participate in all auxiliary functions of the fire department, such as fund-raisers and meetings.

Hot Zone: Any area of high hazard on the fire scene. While this terminology is typically used in hazardous materials situations, the “hot zone” can refer to other fire scenarios. During structural firefighting the “hot zone” would include interior fire attack, collapse zones, and/or areas of extension. During vehicle extrication the “hot zone” would include any work being done in the inner circle.

Interior Firefighter: A firefighter who will enter the “hot zone” which includes any high hazard area at a fire department incident, whether any type of fire, hazardous material, vehicular accident or special rescue. These firefighters are required to pass the physical ability test every other year.

Reserve Firefighter: Fire department members who are not physically able to enter the “hot zone”. These firefighters are able to operate apparatus. Reserve firefighters are voting members who participate in fund-raising and other station activities. Reserve firefighters must attend the required percentage of training sessions and meetings but they are not required to pass the physical agility test.

Student Firefighter: Any fire department member who is under the age of 18. Student firefighters can not drive an apparatus or operate in a “hot zone” including interior fire attack, collapse zones, hazardous materials zones or potentially dangerous areas. They can do basic firefighting work such as wash equipment and apparatus, station chores, and

non-threatening work on the fire scene. Student firefighters are required to meet the training, meeting and physical agility requirements of the department.

Volunteer Firefighter: A fire department member who is either unpaid or receives minimal reimbursement for training, meetings and/or incident response.

The literature review began in the Chippewa Valley Technical College library. Through a thorough search, local materials and interlibrary loan, resources were identified. Terminology used for the search included, firefighter fitness, firefighter physical ability testing, volunteer firefighter recruitment, volunteer firefighter retention, firefighter injury, firefighter fatality and physical fitness. Over 100 sources were reviewed to compile the information within the literature review. Older sources were used for a historical perspective only.

A survey instrument (Appendix D) was developed to assess the frequency of Chippewa Valley fire departments volunteer firefighter physical ability testing and assessment tools employed during the physical ability test. The survey also investigated reasons a fire department may have for not conducting a physical ability test for their new and incumbent members.

The surveys were distributed to the 41 volunteer fire departments within the Chippewa Valley Technical College district. All 41 surveys were completed by the fire chief or training officer. The Chippewa Valley Technical College fire training coordinator conducted phone interviews with each of the 41 departments regarding the completed surveys.

This research is limited in its scope and by the population surveyed. A broader search for information of physical ability testing, from larger organizations may have

elicited better results. A national survey could have identified some volunteer fire departments that are conducting physical ability testing.

The survey was also limited for several reasons. The surveys were completed based on the opinions of the fire chief or training officer completing the survey. The assumption is made that the chief or training officer understands the opinions of the department members. To accumulate a more accurate result, the researcher could have provided each department with information regarding physical ability testing and the elements involved in such testing. After this initial information session, the researcher could have surveyed all the fire department members to determine if they felt they would be able to pass the test and/or if the implementation of physical ability testing would cause them to resign from the department.

Results

Research Question One: How important is a physical ability standard for new and incumbent members of a volunteer fire department? The literature review addressed the importance of physical fitness (ability) for firefighters. Historically, articles stressing the importance of physical fitness for firefighters date back to the late 1970s. A national statistic that remains constant regards the heart attack percentage of firefighter fatalities. Firefighters have died on-duty from stress-related heart attacks at a consistent rate of 40% since the NFPA has been recording and investigating of fatalities. While the percentage of heart attack fatalities remains constant, fatalities from other causes have decreased. Fitness, physical ability, is the one element that the firefighter, individually, has some control over.

Many articles in the review maintained that in order for the firefighter to be the most effective firefighter he/she has the potential to be, fitness is paramount. When operating at near maximal heart rates for long periods of time, firefighters must have had trained to that level.

Unless physical ability testing is completed, firefighters will not know their level of fitness. NFPA 1001, adopted by reference into the Wisconsin Administrative Code, requires physical fitness requirements for entry-level personnel. This is echoed by NFPA 1500, the standard on Health and Safety for Firefighters, and NFPA 1583, the standard for Health-Related Fitness programs for Fire Departments. A firefighter must demonstrate physical ability both upon joining a department and periodically thereafter.

Research Question Two: How is physical ability testing being conducted, for new and incumbent volunteer firefighters, by fire departments in the Chippewa Valley Technical College (CVTC) district? Five related areas regarding the use of physical ability testing were studied in the survey that was distributed to the volunteer fire departments in the Chippewa Valley Technical College district.

The first survey question addressed each fire department's new firefighter application process, and how physical ability testing fit into the application process. While a majority of the departments surveyed had a formal application process that involved a written application, interview, and background check, only one department required a physical ability test, and a medical physical, for their volunteer firefighter applicants (see Table 1). This department, Menomonie Fire Department, Menomonie, Wisconsin, is a combination fire department. While they can hire from outside their department, they also hire from their volunteer ranks. The physical ability test is required

for hire onto the volunteer ranks and does not need to be repeated if the volunteer were to be offered a position on the career side. Two of the responding departments required a medical physical, not a physical ability test, as part of the application process

Table 1: Survey Results Question One

Steps in the Fire Department Application Process		
Types of Steps	Yes	No
We have no formal application process	5	N/A
Written Application	33	6
Interview	26	13
Physical Ability Test	1	39
Background Check	29	10
Other	3 – Medical Physical	

The second area covered within the survey dealt with the chief/training officer's belief as to how the implementation of a physical ability test requirement for new fire department applicants would affect firefighter recruitment. This was based on the assumption that the physical ability test would be required for membership on the department, not only for interior "hot zone" firefighting. Most of the departments (27) felt it would have no affect on the number of applicants (see Table 2). However, almost half of these respondents felt that some of the applicants would not be able to pass the physical ability test. While discussing the results with each department, the 16 departments that responded with "No affect" stated that the candidates they have applying are all very young and appear to be in relatively good condition. However, concern was voiced by the chief/training officers, that if the physical ability test did eliminate some applicants from membership on the department, or prevent some

individuals from applying, it would have a negative impact on an already low membership.

Table 2: Survey Results Question Two

Affect of physical ability test requirement for new fire department applicants	
Type of Effect	Positive Response
No affect. Same number of applicants	20
Not as many applicants	8
Same number of applicants, some could not pass test	13
Other	0

Researching the requirements for the current volunteer firefighters to remain active was the focus of the third survey question. Many requirements were being made of the volunteers with regards to training hours and training levels. Only one department required the incumbent firefighters to take a periodic physical ability test (see Table 3). As mentioned earlier, Township Fire Department, Inc. requires a test every other year for the third tier/tag members who want to enter the “hot zone” on scene.

Table 3: Survey Results Question Three

Requirements for current fire department members to remain active		
Requirements	Yes	No
No requirements to remain active	1	N/A
Attendance at training, meetings, functions	36	4
Attendance at specific mandated training	22	18
Respond to certain percentage of calls	10	30
Pass a scheduled physical ability test	1*	39
Other	26 – must complete firefighter classes within certain time period	

*Must pass test only to be an interior “hot zone” firefighter, not to remain on department

The most notable response to the question of effect of a newly implemented physical

ability test for incumbent firefighters was that only seven departments felt a test would have no effect on the number of interior, or hot zone”, firefighters. (see Table 4). Most of the departments felt they would lose potential interior firefighters. However, the vast majority of these respondents felt those that would not pass a test, usually do not enter the “hot zone” or work interior on a fire. Only ten fire departments felt they would lose firefighters they normally would use for interior attack, either to not passing the test or from resignation.

Table 4: Survey Results Question Four

Effect of physical ability test requirement for incumbent firefighters	
Type of Effect	Yes
No effect. Same number of interior firefighters	7
Lose interior firefighters	4
Lose interior firefighters, usually firefighters who do not go interior	23
Lose members due to resignation	6
Other	0

Finally, there were many reasons why fire departments did not have a physical ability test for their entry or incumbent firefighters. As displayed in Table 5, the main reason fire departments did not give a physical ability tests to new or incumbent firefighters was because they had either never had given one, or never had even thought of giving one. It is important for information regarding physical ability testing be made available to the departments. During the phone interviews, many of the chiefs/training officers were in favor of some kind of test, however still felt it could have a negative impact on the department. A feeling by 22 departments was that some of their firefighters

would quit if they were required to take a physical ability test. This is a concern when membership for some of the departments is already way below minimum.

Table Five: Survey Results Question Five

Reasons for not administering a physical ability test	
Reason	Yes
Never had or even thought of having one	32
Thought of having a test, but haven't	6 – circled on answer sheet
No one to administer a test	25
Firefighters would quit	22
Firefighters would not apply	12
Cost	9
Time required for administration	11
No interest	20
No facility for test	13
Other	4
	<ul style="list-style-type: none"> • career/volunteer discrepancies • training currently involves heavy physical demands with cardio elements • organizing the testing process • embarrassing for older firefighters • legalities of test

Research Question Three:

What elements are involved in the physical ability testing nationally?

The research identified two major national tests of physical ability relating to the fire service. One of these tests, the CPAT, focuses specifically on firefighter physical ability. The test, which has been in operation for three years, is a physical ability test for use with new firefighter candidates. Created and backed by the IAFF and IAFC, it is not meant for use with incumbent firefighters. This test contains eight stations that test a firefighter's physical ability while completing tasks that relate to fireground activities.

The tasks include a step mill test, hose drag and pull, equipment carry, ladder raise, forcible entry sledge hammer swing, mannequin drag, blind maze crawl, and ceiling breach and pull. All stations must be completed while wearing a 50-pound weighted vest, with an extra 25 pounds added on during the step mill station.

The second nationally recognized test is the fitness assessment found in NFPA 1583. The elements contained in the fitness assessment include test of aerobic capacity, body composition, muscular strength, muscular endurance and flexibility.

The literature review supported the fitness measurement found in the NFPA 1583 standard with information from the American Association of Health, Physical Education and Dance (Davis, 1995). The test recommended by this organization includes similar components to the NFPA 1583 fitness assessment, such as components of cardio-respiratory endurance, muscular strength, muscular endurance, flexibility, and body composition.”

Research Question Four:

How can TFD improve their current physical ability testing? Based on the literature and survey results, there are several differences in what TFD is doing and what is being done nationally and at other local volunteer departments. Some elements for consideration from the literature review include implementing a physical ability test for new firefighters. The research claims this would help to establish a baseline. Exercise prescriptions could be part of the result of the baseline physical ability testing. Another suggestion from the research, and surveys, are annual medical physicals. Additionally, the physical ability test could be graded according to age. There could be potential to use a local fitness club to complete the assessment in a controlled and unbiased environment.

Finally, the extended use of a fitness center for fire department members could help firefighters remain in shape for the incumbent testing.

Discussion

From research and review, the volunteer fire service needs to make the distinction between the words physical ability and physical agility. Webster (1990) defines agility as “the quality or state of being able to move with quick easy grace”. According to the NFPA 1583 standard (2000), physical ability includes the fitness components of aerobic capacity, body composition, muscular strength, muscular endurance and flexibility. Physical ability is the quality fire departments are seeking in their new and incumbent firefighters. “Physical fitness is a critical component of health and performance. Without high levels of fitness, fire and rescue workers can’t do their jobs either safely or well” (Pearson, Hayford, and Royer 1995, p.6)

Many career fire departments have addressed the physical ability testing of new fire department candidates with the IAFF and IAFC Wellness and Fitness Initiative and the introduction of the CPAT. Firefighter fatalities do not differentiate between career and volunteer. Therefore, if physical ability standards are important for one, they should be equally important for the other. CPAT has been implemented in the Chippewa Valley Technical College district for career and combination fire departments. However, the CVTC survey conducted did not show that volunteer departments were also doing physical ability testing for their members. The surveys demonstrated just the opposite.

Volunteer departments need to be made aware of the methods they can use to accomplish physical ability testing. While the CPAT has been validated and is a job-related measure of physical ability, it is a expensive and time-consuming assessment for

volunteer departments to implement. Volunteers could be better served through a physical ability assessment such as the NFPA 1583 Fitness Assessment. The NFPA 1583 Fitness Assessment is readily available and could be conducted in-house, at a local gym, through a university or in a high school. This would make the test easier to administer and less expensive, which would address two of the reasons volunteer fire departments gave for not doing physical ability testing.

The United States Fire Administration (USFA) directs comments specifically toward volunteer fire departments. USFA authors state “volunteer fire department members who are not fit for active duty should be given non-stressful assignments on the scene or at the station” (USFA, 1998). Many times, with limited numbers of volunteer firefighters responding to an incident, this is not an option. However, only by testing individuals periodically, can the fire department know what level of physical ability they possess, or if they are “fit for active duty”. Physical fitness testing has five major benefits including:

1. Provide a reference point for comparison with future progress.
2. Develop an exercise program specific to the needs of each subject.
3. Minimize risks to individuals with physical limitations.
4. Provide incentive/motivation for adherence and improvement
5. Provide realistic expectations for improvement. (Institute of Human Performance, 1990)

Not only is physical ability testing important for these reasons, but in the state of Wisconsin, it is required. As NFPA 1001 has been adopted by reference in the Wisconsin Administrative Code, the contents therein are requirements. NFPA 1001, Chapter 2-2

states “Physical fitness requirements for entry-level personnel shall be developed and validated by the authority having jurisdiction” (NFPA, 1997). In this case, the authority having jurisdiction is the fire department and the fire department chief. NFPA 1500, a standard not adopted by Wisconsin, states “Members who engage in emergency operations shall be annually evaluated and certified by the fire department as meeting the physical performance requirements specified...Members who do not meet the required level of physical performance shall not be permitted to engage in emergency operations” (NFPA 1500, 1997). While physical ability assessment is controversial due to volunteer recruitment and retention, it is a necessary part of the fire department application process. Physical ability tests are also paramount for incumbent firefighters wishing to participate in “hot zone” response.

Recommendations

The recommendations within this research project take two paths. Listed first are the recommendations for the volunteer departments within the CVTC district, including Township Fire Department, and volunteer departments in general. Secondly, physical ability testing recommendations are made specific to Township Fire Department, Inc.

General Recommendations

Recommendation One: More research needs to be completed by each department to determine exactly how members feel about physical ability requirements for their department. This could possibly be done after a brief information session, which included statistics, regulations, and ideas on implementation. It could include an individual survey given after the information session. This would allow for each member to give their honest opinion on paper. After gathering the information, the chief or training officer

could compile the surveys and, as a department, a plan could be made. This needs to be completed from a positive perspective, not as a tool for punishment or as a tool to get rid of firefighters.

Recommendation Two: CVTC could act as a clearinghouse for information for the volunteer departments. When departments want to know what is being done around the district, or are interested in becoming involved in physical ability testing, CVTC could share that information with the interested department.

Recommendation Three: Departments can start physical ability testing as a voluntary program and make it fun. T-shirts can be given to members who have taken the test. It is helpful if a department considers this just one more way to show concern for their members.

Recommendation Four: Fire departments can consider an accountability system that allows fit firefighters access to the “hot zone”. This is a very controversial topic when departments have limited numbers of firefighters and an increasing number and variety of calls. Fire departments could consider grandfathering in older members and starting the new physical ability system with the new firefighters. The importance of the support positions on the fireground, which can be completed by firefighters not fit to enter the “hot zone”, needs to be stressed. In actuality, not many firefighters get the chance to operate in the “hot zone”.

Recommendation Five: Require a physical ability test upon hire, and every other year for those firefighters who want to be interior firefighters. Conduct this test at a physical fitness center or gym, if possible. By conducting the test at a gym the firefighters will get individual attention, will not be embarrassed in front of peers and can receive an

“exercise prescription” for future fitness plans. A gym will also provide a consistent, valid test, in a controlled environment. If a gym is not available, contact the local high school for ideas on administration. Search the community for someone with a fitness background who may be willing to donate their talents to helping the department with the testing.

Allow firefighters to choose not to take the test, if they do not want to go interior. The survey demonstrated that currently firefighters are fairly self-policing regarding interior attack. Those that are no longer physically able to go inside usually assume other responsibilities on scene. By allowing firefighters to skip the test, the department does not publicly embarrass an individual in front of others.

Recommendation Six: Make this into a fun experience. Use it as a firefighter Olympics. There are national competitions, held around the country every other year, called the Firefighter Games. Encourage your fit members to investigate possibilities of involvement. Mutual aid departments could work together on a fitness plan.

Recommendations for Township Fire Department

TFD – Recommendation One: The terminology can be changed from “physical agility” to “physical ability”. This simply would help to define what the test is about and the measures involved in assessment.

TFD – Recommendation Two: Require testing for entry personnel prior to beginning on the department. This will stress the commitment of the department to physical ability/fitness for its members. It will also accomplish the goals listed within the document of establishing a baseline to provide a reference point for comparison with future progress. An exercise program specific to the needs of each firefighter can be

developed. It would help to minimize risks to firefighters and motivate the new firefighters.

TFD - Recommendation Three: As mentioned above, conduct physical ability testing through a local gym or health club. Conducting the test at a gym will allow the firefighters to get individual attention, and can prevent embarrassment in front of peers. Firefighters can also receive an “exercise prescription” for future fitness plans. A gym will also provide a consistent, valid test, in a controlled environment. If a gym is not available, contact the local high school for ideas on administration. Departments may be able to get a much reduced rate because the gym is testing a larger group of people, and it is a volunteer organization. Rates as low as \$15 per firefighter are available within the CVTC district.

TFD - Recommendation Four: Continue use of three tiered system for accountability.

TFD – Recommendation Five: Adopt the use of the NFPA 1583 Fitness Assessment as a general fitness measurement. It will address the five components of fitness and is a valid, standard tool that has been accepted nationally. The Fitness Assessment can be conducted in a way that is consistent for all firefighters.

Through implementation of these recommendations, volunteer fire departments can take the beginning steps toward a fitter, safer fire department. The next step would be investigating a fitness program for volunteer members. These changes need to be made in a positive light to demonstrate care and concern for the volunteer firefighter.

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TOWNSHIP FIRE DEPARTMENT
CHAPTER 2: STANDARD OPERATING GUIDELINES

Part 1: Response Guidelines

Subject: Identification Tags (Accountability)

Page 1 of 2

Section: 2-1-8

Effective Date: 02-26-90

Revised Date: 06-06-00

- 8.01 Purpose. This policy is established to ensure accountability of all firefighters at the scene of an emergency.
- 8.02 Goal. These procedures will be in effect for all members of Township Fire Department operating at the emergency scene.
- 8.03 Definition. All members of Township Fire Department shall be issued a set of identification tags to be worn on his/her turnout coat.
- 8.04 Application:
- A) Identification tags will be issued as follows:
 - 1) Firefighters and officers will be issued three (3) ID tags.
 - 2) Probationary firefighters will be issued two (2) ID tags.
 - 3) Student firefighters will be issued one (1) ID tag.
 - B) I. D. tags will be carried on the turnout coat.
 - C) Upon arrival at the scene, the "*FIRST TAG*" will be given to the Staging Officer. If the firefighter arrives on scene prior to having a Staging Officer established, then the "*First Tag*" shall be given to the Incident Commander. Likewise if no I.C. has been established the firefighter shall put their "*FIRST TAG*" on the ring carried on the first responding engine.
 - D) At the request of Command, assignments will be carried out by a team of firefighters with one person appointed in charge of the team and responsible for communications for that team. This person will also have in their possession the "*SECOND TAG*" for each firefighter on the team that they are in charge of. When their assignment is completed they will report back to the Staging Officer for another assignment. If that team is not immediately reassigned another task, or the team is split, the firefighter in charge of that team shall hand back to each firefighter their "*SECOND TAG*".

Subject: Identification Tags

Date: 06-06-00

Page 2 of 2

- E) Prior to entering a burning structure, or any other hazardous location as designated by the Incident Commander, the *"THIRD TAG"* will be left with the Entrance Officer and picked up immediately upon leaving the structure or hazardous location.
- F) The *"FIRST TAG"* that was originally given to the Staging Officer or the Incident Commander or put on the first responding engine, will be picked up by the firefighter prior to leaving the scene. Each firefighter before leaving the scene will insure they have all the tags issued to them.
- G) At the end of each run, the Staging Officer and or Incident Commander from the incident will inventory the remaining tags and account for each firefighter whose tag is still in their possession.

Appendix B

TOWNSHIP FIRE DEPARTMENT, INC.
AGILITY TEST

NAME: _____

DATE: _____ STATION # _____

_____ DISTANCE WALK-RUN / APPROXIMATELY ½ MILE, NO TIME LIMIT

_____ VICTIM MOVEMENT / MOVE TRAINING DUMMY 75 FT. IN ANY
MANNER

_____ LADDER CLIMB / ENGINE EXTENSION 35' LADDER

_____ PULL UPS / 3

_____ ROPE PULL / LIFT 1 DOUGHNUT ROLL TO ROOF OF A BUILDING
USING ROPE

_____ PUSH UPS / 8

_____ SIT UPS / 12 IN ONE MINUTE

_____ PACK CAN DISTANCE WALK / APPROXIMATELY ONE BLOCK

THE AGILITY TEST MUST BE SATISFACTORILY COMPLETED EVERY 2
YEARS. SIX OUT OF THE EIGHT ITEMS MUST BE COMPLETED.

BATTALION CHIEF SIGNATURE:

APPENDIX C

FIGURE A.7.3.1 Sample HRFP form showing demographic and assessment information.

Personal and Demographic Information	
Date of submission (<i>mm/dd/yy</i>): _____ Age: _____ Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female	
Fire department confidential identification code: _____	
Fire-fighter confidential identification code number: _____	
Ethnicity: <input type="checkbox"/> African American <input type="checkbox"/> Asian <input type="checkbox"/> Hispanic <input type="checkbox"/> Native American <input type="checkbox"/> Filipino <input type="checkbox"/> Caucasian <input type="checkbox"/> Other	
Job assignment: <input type="checkbox"/> Structural fire fighting <input type="checkbox"/> Administrative officer <input type="checkbox"/> Field officer	
No. of years in service: _____	
Smoking/Tobacco usage (<i>packs per day</i>): <input type="checkbox"/> <1 pack <input type="checkbox"/> 1 pack <input type="checkbox"/> 2 packs <input type="checkbox"/> 3 or more packs <input type="checkbox"/> None	
Height (<i>in whole inches</i>): _____	
Weight (<i>in whole pounds</i>): _____	
Fitness Assessment	
Mode of Testing	Results
<i>Aerobic Capacity</i>	
<input type="checkbox"/> 1.5 mile walk/run (field test)	
<input type="checkbox"/> Other	Completed in _____ min _____ sec
<input type="checkbox"/> Step test	
Test duration _____	
Step height _____	VO ₂ max _____
<input type="checkbox"/> Other	
<input type="checkbox"/> Submaximal treadmill test	
<input type="checkbox"/> Other	Heart rate _____ Blood pressure _____
<input type="checkbox"/> Submaximal cycle ergometer test	
<input type="checkbox"/> Other	Heart rate _____ Blood pressure _____
Pre-exercise heart rate _____	Post-exercise heart rate _____
Pre-exercise blood pressure _____	Post-exercise blood pressure _____
<i>Flexibility</i>	
<input type="checkbox"/> Trunk flexion (sit and reach test)	
<input type="checkbox"/> Other	Most distal point reached _____
<i>Muscular Strength</i>	
<input type="checkbox"/> Grip strength test (One repetition maximum)	Right hand _____ kg
<input type="checkbox"/> Other	Left hand _____ kg

(NFPA 1583, 1 of 2)

FIGURE A.7.3.1 (Continued).

Mode of Testing	Results
<i>Muscular Endurance</i>	
<input type="checkbox"/> Push-up test [60 sec (max)] <input type="checkbox"/> Other	Maximal number of push-ups performed consecutively without resting _____
<input type="checkbox"/> Sit-up test [60 sec (max)] <input type="checkbox"/> Other	Maximal number of sit-ups performed within 1 minute _____
<i>Body Composition Testing</i>	
Skinfold assessment	Site #1 _____ Site #2 _____ Site #3 _____ percent of body fat _____
Body mass index	Member's weight divided by height ² = <input type="checkbox"/> 20–24.9 kg/m ² <input type="checkbox"/> 25–29.9 kg/m ² <input type="checkbox"/> 30–34.9 kg/m ² <input type="checkbox"/> over 35 kg/m ²
Waist-to-hip ratio	Waist circumference _____ Hip circumference _____ Waist-to-hip ratio = _____
Hydrostatic weighing	Body density _____
Bioimpedance (BIA)	Body density _____

(NFPA 1583, 2 of 2)

(NFPA, 2000)

Appendix D

CHIPPEWA VALLEY TECHNICAL COLLEGE
Fire Department Survey
Firefighter Recruitment/Entry Requirements and Physical Ability Testing

Department Name: _____

Contact/Position: _____

Phone: _____

This survey is being conducted by Chippewa Valley Technical College Fire Service Training and Township Fire Department, in an effort to create a valid, cost effective physical ability test for firefighters. It is hoped that the recommendations used from this research will help to develop a physical ability test that could be used for entry onto a fire department and incumbent testing. This survey will help to determine what physical ability testing is currently being conducted at volunteer fire departments within a like geographic area to Township Fire Department, Inc. This survey is part of an Executive Fire Officer Applied Research Paper for the National Fire Academy. While the paper and survey results may be published, your responses are held confidential.

Please complete this survey to the best of you ability. Return the paper in the enclosed envelope by March 1, 2003. Thank you for your participation.

1. Which of the following steps does the fire fighter application process your department include? Check all that apply.

- _____ We have no formal application process.
- _____ Written application: If you have applicants complete a written application, please include it with your survey.
- _____ Interview: Please list who is involved in the interview process (i.e. chief, assistant chief, town board members etc.)
- _____ Physical Ability Test: If you make your applicants take a physical ability test, please list the types of exercises on the test. (i.e. push-ups, mannequin drag)
- _____ Background Check
- _____ Other: _____

Fire Department Survey

Firefighter Recruitment/Entry Requirements and Physical Ability Testing

2. How do you think requiring a physical ability test for new fire department applicants (i.e. sit-ups, push-ups, stair climb, mannequin drag, etc.) affect your recruitment of firefighters?

- No effect. We would probably have the same number of applicants.
- We would not have as many applicants.
- We would have as many applicants, but some would probably not make it through the physical ability test.
- Other: _____

3. In order to remain an active member of your fire department, what do members have to do? Check all that apply.

- We do not have any requirements for our members to remain active.
- Members must attend a certain number of training sessions, meetings, or functions each year. Explain: _____
- Members must attend specific training sessions on mandated topics such as bloodborne pathogens and hazardous materials.
- Members must respond to certain percentage of calls.
- Members must pass a physical ability test offered yearly or every other year. If so, what are the elements on the test; _____
- Other: _____

4. If your firefighters were required to pass a physical ability rest either annually or every other year to work as an interior firefighter, how do you think that would affect your retention?

- No effect. We would probably have the same number of interior firefighters.
- We would probably lose interior firefighters.
- We would probably lose interior firefighters, however those that would not pass the test usually do not go interior.
- The department would lose members because they would quit.
- Other: _____

Fire Department Survey
Firefighter Recruitment/Entry Requirements and Physical Ability Testing

5. What are the reasons your department does not require a physical ability test?
Check all that apply.

- We never had one or even thought of having one.
- We do not have anyone to administer the test.
- Firefighters would quit.
- Firefighters would not apply.
- It would cost too much to administer.
- It takes too much time to administer.
- No interest.
- No facility for the test.
- Other: _____

If you would like a copy of the survey results, please check here: _____

Thank you for taking time to complete this survey. Please return your survey in the enclosed envelope or mail to:

Marcy Marohl, Fire Training Program Director
Chippewa Valley Technical College
620 W. Clairemont Avenue
Eau Claire, WI 54701

Phone: 715-855-7503
email: mmarohl@cvtc.edu