

Middletown Township Fire Department

Training Academy

Physical Fitness Training Program



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Physical Fitness Training Program**

Preface

This manual is designed to assist Firefighters in maintaining a physical conditioning program. To optimize your safety, you should read the health screening information and complete the Physical Activity Readiness Questionnaire that is provided in this manual.

Medical illness and/or physical injury are unlikely with proper training, preparation and, where applicable, consultation with a physician. However, you should know that intake, before training, of certain types of prescription and over-the-counter medication, alcoholic beverages, drugs or steroids may increase the risk of injury.

If you have any doubts about your condition to safely train for and participate in the physical conditioning program, you should see your physician. We also urge candidates who are pregnant to consult with their physicians before starting the exercise program.

If you decide to visit a physician, please make sure to show your doctor the enclosed training information that includes a description of the exercises, so that the physician may fully assess your fitness for these specific test events.

DISCLAIMER NOTICE

The Township of Middletown and its elected officials, officers, agents, servants and employees hereby deny, and therefore disclaim, any and all responsibility or liability to any person or party for any injury, damage, loss and/or death resulting in any way from use of the information contained in this manual.

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SECTION I

Introduction

This manual designed to assist Firefighters in maintaining a physical conditioning program. It is divided into four major sections as follows:

Section II: Preparing to Begin a Fitness Program. This section begins with a discussion of health factors that may affect your ability to begin a fitness program and continues with a discussion of principles of training, and concludes with a fitness test for assessing your current level of fitness.

Section III: Fitness Program. This section presents a fitness program that includes Warm-Up Exercises, Calisthenics, Weight Training, Aerobic Training, and Cool-Down Exercises.

Section IV: Assessment. This section describes the exercises to be performed by the recruit during the three physical fitness evaluations.

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SECTION II: PREPARING TO BEGIN A FITNESS PROGRAM

A. Medical and General Health Factors

Health Screening for Physical Activity ¹

To optimize your safety during a fitness program, some initial screening for important medical and health factors is necessary. The purpose for this type of pre-participation screening is:

Identifying those individuals who have medical conditions serious enough that exercise would either present an immediate risk or aggravate the medical problem, identifying those individuals who have signs and symptoms which suggest a problem or risk factors for diseases, and who should receive further medical evaluation before undergoing exercise training.

It is not necessary for everyone to get a thorough physical examination from a physician prior to starting an exercise program. However we recommend that you consult with your physician prior to beginning training. The following are published guidelines for medical screening:

Medical Screening/Examination

Exercise places increased demands on the body, thus it is essential that you know or determine your current health status and physical condition prior to participation in this fitness program. The American College of Sports Medicine (ACSM) recommends that if you are a male age 40 or greater or a female age 50 or greater, you should have a medical examination prior to participating in this exercise program. If you are younger, active, and free of symptoms of coronary heart disease and at low risk for heart disease, you can probably start the program immediately. If you have a pre-existing medical condition or musculoskeletal injury, you should consult your physician before beginning the program.

Your physician should review the fitness program and evaluate your health status by providing a complete medical exam to determine if it is safe for you to start the program. If your physician does not find any medical condition that would be aggravated by your participation in the fitness program, you will be allowed to participate in the program.

The Physical Activity Readiness Questionnaire (PAR-Q) is recommended as a minimal standard for screening prior to beginning an exercise program or, if some activity is already underway, to exercising more vigorously. The PAR-Q is designed to identify the small number of adults for whom physical activity might be inappropriate and those who should have medical clearance prior to exercise.

¹ Portions of the following are adapted from the American College of Sports Medicine, Guidelines of Exercise Testing and Prescription, draft of 5th ed. (W.L. Kenney, ed.), Waverly Press, Philadelphia 1995, with the permission of the editor.

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Physical Activity Readiness Questionnaire (PAR-Q) 2;

1. Has a doctor ever said you have a heart condition and recommended only medically supervised physical activity?

Yes No

2. Do you have chest pain brought on by physical activity?

Yes No

3. Have you developed chest pain within the last month?

Yes No

4. Do you tend to lose consciousness/fall over as a result of dizziness?

Yes No

5. Do you have a bone or joint problem that could be aggravated by the proposed physical activity?

Yes No

6. Has a doctor ever recommended medication for your blood pressure or a heart condition?

Yes No

7. Are you aware, through your own experience or a doctor's advice, of any other physical reason why you should avoid exercising without medical supervision?

Yes No

If you answered YES to any of these 7 questions, vigorous exercise and exercise testing should be postponed until medical clearance is obtained.

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B. Principles of Training

Terms

Some of the terms used in this training program are explained below, as are some of the principles upon which this training program is based. (Sharkey, 1979).

Physical Fitness

Physical Fitness is defined as “the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies” (President’s Council on Physical Fitness and Sports). An adequate level of physical fitness is required to perform many jobs, to provide energy for recreational activities, and to help avoid some diseases (such as heart disease and osteoporosis). Physical Fitness consists of the following components; cardiovascular fitness, muscle strength, muscular endurance, and flexibility. In order to perform optimally at work and in our other daily activities, it is necessary to develop and maintain adequate levels of fitness in each of these components. The training program is designed to develop all components of fitness because of their role in the PPT events and in maintaining good overall health.

Cardiovascular fitness is the ability of the heart and lungs (i.e., cardio respiratory system) to supply the working muscles with adequate amounts of oxygen and fuel during endurance activities that last for more than 5 minutes. Regular participation in swimming, running, and bicycling improves cardiovascular fitness.

Muscle strength (also referred to in this Preparation Guide simply as “strength”) is a measure of the greatest amount of force a muscle can apply; that is, the most weight a muscle group can move one time. In addition to its importance in many job-related tasks improving muscular strength also helps prevent injuries to the muscles and makes bones and tendons stronger. A muscular strength program requires heavy weight to be lifted 3 - 6 times.

Muscular endurance is a measure of a muscle’s ability to maintain a submaximal force or repeatedly apply a submaximal force without a rest; that is, the number of times you can lift a certain amount of weight. Adequate levels of muscular endurance allow your muscles to perform a task for a longer period of time before the muscles get tired. Poor endurance of the back and abdominal muscles have been implicated as the cause of much of the low back pain suffered by American adults. A muscular endurance program require lighter weights to be lifted 12 -15 times.

Flexibility is a measure of the range of motion at a joint. Adequate levels of flexibility are necessary in order to make daily movements with ease and to help prevent injuries to muscles and joints. In addition, there is evidence to suggest that inadequate flexibility of the back and legs is related to low back pain.

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Training Guidelines

One or a combination of these FIT parameters may be increased to overload the body. Whether you select to increase Frequency, Intensity, or Time depends upon the goals of your fitness program. For example, if you wish to increase muscular strength, you could increase exercise intensity by increasing the amount of weight lifted and decreasing the number of times you lift the weight lifted and decreasing the number of times you lift the weight. If you wish to increase cardiovascular fitness you could increase the time you spend exercising or the frequency of exercise. To gain a certain level of physical fitness, you must use a realistic progression to overload the body by altering the FIT parameters in gradual steps.

Training consists of exercising specific muscles or muscle groups and stressing different systems of the body. It involves having the muscle or muscles apply and maintain a force for a short time and/or repeatedly. Weight training, calisthenics, stretching, and aerobic activity are all important training methods that will result in adaptations that will enable the body to perform more effectively. The rate of improvement or adaptation is related to the FIT parameter. Three FIT parameters should be used for all exercises. These are: Frequency, Intensity, and Time.

Frequency refers to the number of times that you exercise per week. For example, to overload the cardiovascular system increase the frequency of your workouts from 3 to 4 times per week. Intensity refers to the amount of overload placed on the body. For example, to overload the cardiovascular system increase your exercise pace by walking one mile in 11 as opposed to 12 minutes.

Overload

For improvement in fitness level to take place via adaptation, a part of the body must be subjected to more than it is accustomed. For example, in order for muscular strength to improve, the muscles must apply a greater force than they normally would apply during regular daily activities. This increase in intensity of force, or overload, elicits an adaptation. Increasing the duration of an activity would also be an overload.

Use and Disuse

The body needs activity and does not “wear out.” Lack of activity results in weak muscles, including the heart, poor circulation, shortness of breath, increased body fat, and weakening of bones and connective tissue. Regular activity results in good muscle tone, a strong heart, good circulation, endurance, and strong bones and connective tissue ligaments, tendons, etc.).

Individual Response

Individuals respond differently to the same training program. The differences in response may be the result of any of the following factors: heredity, physical maturity, state of nutrition, habits of rest and sleep, level of fitness, personal habits such as smoking and alcohol intake, level of motivation, the environment, and the influence of physical disability, disease, or injury.

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Pre-Exercise Don'ts

Do not eat, smoke, and drink alcohol or caffeinated beverages for at least one hour before an exercise session. Eating a large meal prior to exercise results in less blood being available to carry oxygen to the skeletal muscles used during exercise. In addition, eating, drinking alcohol, and/or smoking prior to exercise can increase your resting heart rate by as much as 10 beats per minute. This increase coupled with the exercise-related increase in heart rate may lead to dizziness or nausea.

Pre-Exercise Do's

Do drink water before, during, and after exercise. About 20 minutes prior to exercise, frequently (i.e., every 15-20 minutes) consume small amounts (i.e., 4-6 ounces) of water as opposed to large amounts infrequently.

If you choose to exercise outdoors, dress according to the weather conditions. Lightweight, light colored clothing is best for warm sunny days. You also may want to wear a hat and sunblock. Dark colored clothing, which absorbs the sun, may be worn on cooler days.

Temperature and humidity conditions should be considered before exercising outdoors. Sweat evaporates off the skin to cool the body when the temperature is high, but when the humidity is high this cooling process does not occur. If the humidity is 80% or greater and the temperature is 90 degrees or higher, you should not exercise outdoors. Instead exercise indoors or earlier in the day before humidity and temperature become factors.

Warm-up

Warm-up is a gradual increase in intensity of physical activity and should always precede strenuous activity. A 5-10 minute warm-up period allows the individual to:

- Mentally prepare for exercise,
- Increase body temperature slowly,
- Stretch the muscles and joints, and
- Increase heart rate and breathing gradually.

Warm-up consists of low intensity aerobic activity such as walking or slow jogging followed by calisthenics and light stretching.

Stretching

Muscle groups should be stretched in order to improve flexibility at a joint. Stretching exercises should be performed slowly and gently, without any bouncing, bobbing, jerking or lunging. Stretching exercises can be performed as part of the warm-up, following 5 minutes of low intensity aerobic activity or as part of the cool-down phase.

Calisthenics

Calisthenics are exercises that can be performed without equipment, although hand or ankle weights may be used. These types of exercises can be used to develop strength,

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muscular endurance, and flexibility. Calisthenics usually involve the repetitive lifting and lowering of a body segment as in push-ups, curl-ups, and arm circles.

Weight Training

Weight training consists of exercises that involve moving a weight that is external to the body. Such exercises are used to develop strength, muscular endurance, and (sometimes) flexibility. Particular care must be taken if free weights (for example, barbells) are used in training. They may cause injury if they fall on a person or if undue strain occurs in trying to control the weight (for example, to keep it from falling). This can happen as a result of the hands slipping, if a person attempts to lift a weight that is too heavy for him/her to support, or if poor technique is used. For these reasons, weight machines may be safer for novices to use in weight training. If you use free weights for weight training, be sure always to work with a partner who can assist you.

Aerobic Training

Aerobic training improves cardiovascular fitness. The training of the cardiovascular system is accomplished by continuous rhythmical motion over time, using large muscle groups. Jogging, bicycling, stair climbing, rowing, walking, swimming, hiking, cross country skiing, skating, and aerobic dancing are good activities for aerobic training.

Cool-Down

The cool-down phase is as critical as the warm-up and should last 5 – 10 minutes. This phase of activity is important for the following reasons:

- it allows the heart rate to decrease gradually.
- continued activity maintains adequate circulation, prevents pooling of blood, and hastens recovery.
- it provides a time for thorough stretching and relaxation activity.

Cooling down consists of slowing down your activity, walking, light calisthenics, and stretching exercises.

Unusual Reactions

If, during or immediately after exercise, you have any of the following reactions, stop exercising immediately and consult a physician as soon as possible:

- Labored or difficult breathing (not the deep breathing normally associated with exercise)
- Loss of coordination
- Dizziness
- Tightness in the chest
- Sharp pain in any muscle or joint
- Numbness

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SECTION III: FITNESS PROGRAM

A. General Directions for Fitness Program

The fitness program is divided into the following sections:

- Warm-up
- Strength and Muscular Endurance Exercises (Weight Training and Calisthenics)
- Aerobic Training Exercises
- Cool-Down

The strength and muscular endurance exercises do not have to be done on the same day or during the same exercise session as the aerobics program. In other words, they may be done on separate days or at different times on the same day. However, every exercise session should be preceded by a warm-up period and followed by a cool-down period. For example, if the strength and muscular endurance exercises are done on the same day but at a different time than the aerobics program, warm-up and cool-down exercises should be performed before and after each of the two exercise sessions.

The warm-up exercises are designed not only to get a person physically and mentally ready for the muscular and/or aerobic exercise sessions, but also to help develop flexibility in various joints. The strength and muscular endurance exercises can be done in one of two ways, depending on the availability of equipment. Some degree of strength and muscular endurance can be developed by doing calisthenics, which require little or no equipment, **but is more typically accomplished by training with weights.** Training with weights can be done either by using free weights, such as barbells, or by using weight machines, for example, "Universal" or "Nautilus" systems. Once a program has begun using a particular method for strength and muscular endurance exercises, it should be continued for the duration of the training period for comparative purposes.

Since there are no equipment requirements for the aerobics training, the same program can and should be followed by everyone. A weekly log sheet is provided so that applicants can keep track of their progress in developing strength, muscular endurance, and cardiovascular fitness. Copies of the log sheet will have to be made for each week of the training program.

B. Warm-up Exercises

The warm-up period should last 5-10 minutes. The whole set should be performed before each exercise session. If the strength and muscular endurance exercises are performed on different days or at different times of the day than the aerobic exercises, the warm-up should be performed before each separate exercise session.

Each stretch should be performed in a slow, gentle manner. Move to the point that a stretch, not pain, is felt in the muscle. Hold that position for 10-20 seconds. Repeat each exercise 3 to 5 times.

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Exercise Descriptions

The following stretches are effective for improving in each muscle group. Begin your warm-up periodically by performing light aerobic activity, such as marching or jogging in place and arm circles.

1. Side-to-Side Look

Stretches the neck muscles. Slowly turn head and look to right. Then slowly turn head back to center and look to left.

2. Forward and Down Look

Stretches the neck muscles. Slowly look downward. Do not put chin on chest. Repeat on other side.

3. Standing Cat Stretch

Stretches the upper and lower back. Stand with feet slightly wider than shoulder-width apart. Keep knees bent. Hinge forward at hips and place hands just above knees. Do not bend at the waist. Begin with back straight and flat, arch back up pulling in with abdominals and curl chin towards chest. Return to flat back position. Do not arch back down past the flat back position.

4. Shoulder Turn

Stretches the lower back. Stand with feet slightly wider than shoulder-width apart. Keep knees bent. Hinge forward at hips and place hands just above knees. Do not bend at the waist. With back straight and flat, gently press left shoulder downward and bring right shoulder upward with a smooth twisting motion. Repeat on other side.

5. Chest Stretch

Stretches chest muscles. Stand next to wall approximately 8 – 12 inches away. Extend arm back placing palm of hand on wall below shoulder level. Thumb faces the ceiling. Slowly rotate body away from wall.

6. Shoulder Stretch

Stretches the shoulders and upper back muscles. Stand up straight with feet shoulder-width apart and knees slightly bent. Reach left hand across body to right shoulder. Use right hand to hold arm. Place right hand on back of left arm just above the elbow. Gently press the left arm with the right hand. Do not rotate torso. Repeat on the other side.

7. Arm Circles

Stretches the chest and shoulder muscles. Standing with feet shoulder-width apart and knees slightly bent, perform slow, full-arm circles backward 5 to 10 times, then forward the same number of times. The thumbside of the hand should always lead and the arms should brush past the ears and the sides of the trunk.

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8. Side Stretch or Reach

Stretches the muscles on the sides of the trunk. Standing with feet shoulder-width apart and knees slightly bent, place the left hand on the right outer thigh and extend the right arm overhead with the thumb pointing backward. Reach straight up with the right hand as you slide the left hand down your thigh towards your knee until you feel a stretch up your side. Do not allow the right foot to raise the floor. Reposition the arms and do the same on the other side.

9. Wall Lean

Stretches the muscles in the back of lower legs. Stand about an arm's distance away from a wall with feet slightly apart. Put both hands on the wall. Keeping the heel on the floor, toe slightly turned in and the leg straight, slide one-foot back until a stretch is felt in the calf. Repeat on the other side.

10. Stride Stretch

Stretches the muscles in the front of the thigh. Stand facing sturdy bench approximately 2 – 3 feet high. Keeping hips and shoulders straight forward place one foot flat on the top of bench. Maintain erect posture while pushing hips forward until you feel the stretch in the front of the hip. Do not allow the front knee to go beyond the mid-foot. Repeat on the other side.

11. Hamstring Stretch

Stretches the muscles in the back of the thigh. Stand facing sturdy bench approximately 2 -3 feet high. Keeping hips and shoulders straight forward, place one heel on top of bench. Maintain a flat back while hinging slightly forward at the hips until you feel the stretch. Do not bend at the waist. Sit with your back flat against the wall. Bring the soles of your feet together and allow your knees to drop to the floor. Gently press the knees toward floor with hands.

12. Groin Stretch

Stretches the muscles of the inner thighs and hips. Sit with your back flat against the wall. Bring the soles of your feet together and allow your knees to drop to the floor. Gently press the knees toward the floor with the hands.

13. Knee to Chest

Stretches the muscles in the lower back and the back of the thighs. Lie on the floor on your back. Pull one knee toward chest with hands clasped behind your bent knee. Repeat with other leg. Finally, pull both knees toward chest.

14. Supine Leg Stretch

Stretches the muscles of the back of the thigh. Lie on the floor on your back with one leg bent and foot flat on the floor and the other leg extended in the air. Wrap a towel behind the extended knee. Slowly pull the leg back toward your head. Repeat on the other side.

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C. Calisthenics

Calisthenics are an alternate method to increase strength. They are exercises that use body weight as the load or resistance. The exercise routine should be performed 3 to 4 time per week. To begin with, each exercise should be performed as many times as possible at a continuous, steady pace, and that number repeated for each exercise during the first week. Thereafter, the number of repetitions for each exercise should be increased by at least the number indicated for each exercise below. Remember to keep a performance log.

The following exercises are to be avoided because they create too much stress in certain joints. More effective calisthenics exercised are listed and explained in this section of the Manual.

DO NOT DO THESE EXERCISES

- Deep knee bends
- Double leg lifts (raising both legs while lying on the back)
- Straight leg sit-ups (sit-ups with straight legs)
- Toe-touches from a standing position (bending at waist and touching toes while keeping legs straight)

1. Push-ups

For the chest, shoulder region and back of the upper arms. With hands outside the shoulders, push up while keeping the back straight. Push-ups can be performed with legs straight and your weight resting on toes, or with legs bent and weight resting on your knees. Return until the chest almost touches the floor. Aim at increasing by at least 1 push-up per week.

2. Chin-ups

For the shoulder region and arm flexion. With an underhand grasp, pull up until the chin is over the bar. Let down as slowly as possible. Increase by at least 1 per week.

3. Dips

For the muscles in the arms, shoulders and chest. Grasp the sides of a chair and let your feet slide forward while supporting your weight on your arms. Lower your body by bending the elbows to about 60 degrees and then push up to the starting position. Keep body close to the chair. Increase by at least 1 per week.

4. Chair Squats

For the leg muscles. Stand about 6 inches in front of a chair, facing away from the chair. With feet slightly wider than shoulder-width, move hips back as you squat until the thighs are almost parallel to the ground, without sitting down on the chair. The kneecaps should be aligned towards the second toe and the knees should not travel beyond the mid-foot. Hold for 1-2 seconds. Return to the standing position. Increase the number of squats

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by at least 1 per week, up to a maximum of 25. As an advanced exercise, the exercise can be done with a weight secured to the back, for example, a backpack.

5. Lunges and Forward Traveling Lunges

For the leg muscles. Stand with feet hip-width apart in a stride position and hands on hips. Lower the body directly between the feet by bending the knees to approximately 90-degree angles. Press back up to starting position. Perform the same number of lunges on the other side. Increase the number of lunges by at least 2 per week, up to a maximum of 25.

Variation: Step forward with right foot and lower the body weight to a lunge position. Knees bent to approximately 90-degree angles. Push through the hips and thighs in order to bring the left foot forward to meet the right foot. Continue to lunge, walking forward, alternating feet.

6. Bench Steps

For the leg muscles. Step up onto a bench that is 8-12" high, bringing up both feet and then down again, one at a time, for 30 seconds (up-updown-down). Switch the lead foot and repeat for 30 seconds. Increase the time for each lead foot by 10 seconds per week, up to a maximum of 60 seconds of stepping up and down with each lead foot.

7. Standing Side Leg lifts

For the hip and outer thigh muscles. Stand with feet shoulder-width apart and hands on hips. Transfer body weight completely to the left leg. Lift a straight right leg directly to the side. Lower right leg just short of resting foot on the floor then lift again. Maintain erect posture. Perform the same number of lifts on the other side. Increase the number of lifts by at least 2 per week, up to a maximum of 25 per side.

8. Curl-ups

For the abdominal region. Lie face up on the floor with legs bent and heels approximately 8-12 inches from buttocks. Using abdominal muscles, tilt hips towards ribcage as you raise head and shoulders off of floor pressing lower back towards floor. Eyes stay focused over knees. Hands and arms may be supporting head, crossed over chest, sliding up legs or resting on floor. Increase by a least 2 per week.

9. Opposite Arm and Leg Lifts

For the muscles of back, buttocks, and the back of the legs. Lie face down on the floor with forehead resting on a towel. Arms are stretched overhead with hands shoulder-width apart. Raise the left arm and the right leg approximately 4-8 inches from the floor. Lower to starting position. Repeat on other side. Increase by at least 1 per week, up to a maximum of 15 raises per side.

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D. Aerobic Training Program

The aerobic training program is designed to develop cardiovascular endurance as well as muscular endurance in the legs. The running and the stair climbing programs should be done 3 times per week, or as indicated.

Exercise Descriptions

1. Running Program

Significant improvements in aerobic conditioning should be evident after 10-12 weeks of training. The following program is designed with a progression that extends up to 16 weeks. If you continue to train for longer periods, you should continue to progressively increase the distance while maintaining and then increasing the intensity of your running. Start the program by walking, then walk and run, or run as necessary to meet changing time goals.

| Week# | Distance (miles) | Time Goal (minutes:seconds) | Times Per Week |
|-------|------------------|--------------------------------|----------------|
| 1 | 2.0 | 32:30 | 3 |
| 2 | 2.0 | 30:30 | 3 |
| 3 | 2.0 | 27:00 | 3 |
| 4 | 2.0 | 26:00 | 3 |
| 5 | 2.0 | 25:00 | 3 |
| 6 | 2.0 | 24:30 | 3 |
| 7 | 2.0 | 24:00 | 3 |
| 8 | 2.0 | 22:00 | 3 |
| 9 | 2.0 | 21:00 | 3 |
| 10 | 2.0 | 19:00 | 3 |
| 11 | 2.0 | 18:00 | 4 |
| 12 | 2.0 | 17:00 | 4 |
| 13 | 2.5 | 22:00 | 3 |
| 14 | 2.5 | 21:30 | 4 |
| 15 | 3.0 | 27:00 | 3 |
| 16 | 3.0 | 26:30 | 4 |

2. Stair Climb

Keeping a moderate but steady pace, climb up stairs to the second floor from where you start (for example, from the first to the third floor) and then descend the stairs to the level from which you started. As you begin your training do not try to walk at full speed; gradually increase your speed climbing up the stairs. You should climb quickly but safely, remaining in control at all times. Do not skip steps, either on your trips up or down. On your trips down the stairs, you should walk briskly back and down the stairs to the level from which you started. There is no need to descend the stairs at a pace faster than a brisk walk. Repeat as many times as you can without resting, and count each round trip you can complete while keeping the same steady pace. For the first week of exercises, complete as many round trips as were done on the first day and record the

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amount of time you kept moving on the stairs. Increase the number of round trips by 1 per week, up to a maximum duration of 10 minutes of climbing up and down the stairs. Thereafter, try to increase the number of round trips you make during the 10 minutes.

E. Cool-Down

The cool-down session should be performed for 5 to 10 minutes at the end of each exercise period. The purpose of this phase of the program is to gradually decrease the heart rate, to continue adequate blood circulation, and to decrease the chance that dizziness, nausea or other problems may follow the exercise session. After the aerobic training session, begin to do the following stretching exercises. These are a part of the warm-up set and their descriptions can be found in the Warm-up Exercise section of this manual.

- Hamstring Stretch
- Supine Leg Stretch
- Stride Stretch
- Wall Lean
- Shoulder Stretch
- Arm Circles

If your workout session consisted of only the strength and muscular endurance exercises, walk at a moderate pace for a few minutes and then perform the above exercise from the warm-up set.



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SECTION IV: INDIVIDUAL PHYSICAL FITNESS ASSESSMENT

The Training Academy Assessment profile is taken from the New Jersey State Police Training Bureau located in Sea Girt, NJ. We have taken three essential components dealing with physical fitness:

1. Cardio respiratory endurance test.
2. Test of power, to measure an individual's muscular force exertion.
3. Muscular strength.

Included in this handout is the proper method to perform each component and how they are scored with relation to time and number of repetitions performed.

The Individual Physical Fitness Assessment will be conducted on the Training Academy Grounds.

Test Preparation

The following suggestions should help you prepare yourself physically for the test:

- Avoid junk food and concentrate on a well balanced diet for several days before the test.
- Avoid tranquilizers and stimulants such as caffeinated beverages, especially on the day of the test.
- Get a good night's sleep before the test.
- Do not drink a lot of liquids or eat a big meal just before the test.
- Avoid alcohol several days prior to and especially on the day of the test.

During the Individual Physical Fitness Assessment recruits will wear:

- Shorts or sweat pants
- Sneakers (highly recommended)
- White or light colored sweat shirt or t-shirt

Physical Fitness Assessment Test Components

1. Cardio respiratory Endurance Test - 1 mile run/walk
2. Test of Power - Standing long jump
3. Muscular Strength - Number of bent knee sit-ups the recruit can perform in one minute.
4. Muscular Strength - Number of push-ups the recruit can perform in one minute.



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Included in this handout is the proper method to perform each component and how each component is scored with relation to time and number of repetitions performed.

None of the components will be performed until each recruit fully understands what is expected of them.

All orientations will be conducted by the Training Academy instructors.

Physical Fitness Component: Cardio Respiratory Endurance

Definition: The functional efficiency of the heart and lungs. Functional efficiency is the success of the heart, blood vessels, and lungs in satisfying the oxygen requirements of the body.

Test: 1 mile run\walk

Test Instructions:

1. Recruits should pace themselves so they do not become prematurely fatigued.
2. Recruits should stop immediately if chest pain or any unusual discomfort is experienced.
3. A warm up and cool down will be provided.
4. Recruits should refrain from eating or drinking for two hours preceding the test.
5. Any combination of running or walking is allowed to complete the test. Recruits should not run to complete exhaustion. Your time at the midway point will be provided.
6. If weather is hot, test will be conducted early in the morning. Test will be postponed if the temperature and humidity rises above 85 degrees and 85 percent. Final decision will be determined by the Course Coordinator.

Physical Fitness Component: Power

Definition: Work with respect to time. The exertion of muscular force for a brief period of time or explosive muscular contraction.

Test: Standing Long Jump

Test Instructions:

1. The recruit is to spring from a standing position with no prior foot movement. A running start is not allowed.
2. Recruit stands straight with arms overhead.
3. Swing arms downward and backward while bending forward at the waist.
4. Swing arms forward and upward while springing forward and upward off both feet simultaneously, striving for maximum distance.
5. Two successive trials are taken. The best effort is recorded.

Physical Fitness Component: Muscular Strength

Test: Bent Knee Sit-up

Test Instructions:

1. The recruit is to lie on his/her back with knees bent at about 90 degree angle and the feet stabilized; fingers are interfaced behind the head.



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2. The recruit raises the upper body to a point that allows the elbows to touch both knees simultaneously.
3. The recruit lowers his/her body so the shoulder blades touch the ground.
4. The recruit will be assisted by an instructor, so as to anchor recruit and keep an accurate count of repetitions completed. The score is the number of properly executed sit-ups performed in one minute.

Physical Fitness Component: Muscular Strength

Test: Push-ups

Test Instructions:

1. To start the push-up, the recruit assumes the front leaning rest position and places hands where they comfortable. Back, buttocks, and legs must be straight from head to heels.
2. The recruit begins push-ups by bending elbows and lowering entire body until the tops of the upper arms, shoulders, and lower back are aligned and parallel to the ground.
3. The recruit returns to the start position. This is one repetition.
4. The recruit may rest at any time, but may not rest body on ground. The recruit may not relieve pressure from upper body while in the resting position. If the recruit does not keep the body straight or fails to return completely to start position, that repetition will not count.
5. The recruit has one minute in which to do as many correct push-ups as he/she can.
6. An instructor will be assigned to assist and maintain a count of all repetitions completed.

Physical Fitness Component: Muscular Strength

Test: Pull-Ups

Test Instructions:

1. To start the pull-up, the recruit shall grip the overhead bar with both hands. The recruits grip should be about shoulder width apart with palms facing away.
2. The recruit begins from a fully extended arms position or a hanging position.
3. The recruit shall pull himself up to a height at which his chin is higher than the entire bar.
4. The recruits shall return to the starting position and repeat.
5. Failure to return to the fully extended or hanging position prior to attempting the next repetition shall not be counted.
6. No time limit shall be imposed on this test. The test shall end when the recruit lets go of the bar.
7. An instructor will be assigned to assist and maintain a count of all repetitions completed.



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Assessment Scoring

Mile Endurance Run/Walk

Male

| | |
|------------|------------|
| 14:30+ = 0 | 10:23 = 71 |
| 14:00 = 10 | 10:16 = 72 |
| 13:45 = 20 | 10:09 = 73 |
| 13:30 = 30 | 10:02 = 74 |
| 13:15 = 40 | 9:55 = 75 |
| 13:00 = 45 | 9:48 = 76 |
| 12:54 = 46 | 9:41 = 77 |
| 12:48 = 47 | 9:34 = 78 |
| 12:42 = 48 | 9:27 = 79 |
| 12:36 = 49 | 9:20 = 80 |
| 12:30 = 50 | 9:13 = 81 |
| 12:24 = 51 | 9:06 = 82 |
| 12:18 = 52 | 8:59 = 83 |
| 12:12 = 53 | 8:52 = 84 |
| 12:06 = 54 | 8:45 = 85 |
| 12:00 = 55 | 8:38 = 86 |
| 11:54 = 56 | 8:31 = 87 |
| 11:48 = 57 | 8:24 = 88 |
| 11:42 = 58 | 8:17 = 89 |
| 11:35 = 59 | 8:10 = 90 |
| 11:30 = 60 | 8:03 = 91 |
| 11:24 = 61 | 7:56 = 92 |
| 11:18 = 62 | 7:49 = 93 |
| 11:12 = 63 | 7:42 = 94 |
| 11:06 = 64 | 7:35 = 95 |
| 11:00 = 65 | 7:28 = 96 |
| 10:54 = 66 | 7:21 = 97 |
| 10:48 = 67 | 7:14 = 98 |
| 10:42 = 68 | 7:07 = 99 |
| 10:36 = 69 | 7:00 = 100 |
| 10:30 = 70 | |



**Middletown Township Fire Department
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Mile Endurance Run/Walk

Female

| | |
|------------|------------|
| 15:00+ = 0 | 10:53 = 71 |
| 14:30 = 10 | 10:46 = 72 |
| 14:15 = 20 | 10:39 = 73 |
| 14:00 = 30 | 10:32 = 74 |
| 13:45 = 40 | 10:25 = 75 |
| 13:30 = 45 | 10:18 = 76 |
| 13:24 = 46 | 10:11 = 77 |
| 13:18 = 47 | 10:04 = 78 |
| 13:12 = 48 | 9:57 = 79 |
| 13:06 = 49 | 9:50 = 80 |
| 13:00 = 50 | 9:43 = 81 |
| 12:54 = 51 | 9:36 = 82 |
| 12:48 = 52 | 9:29 = 83 |
| 12:42 = 53 | 9:22 = 84 |
| 12:36 = 54 | 9:15 = 85 |
| 12:30 = 55 | 9:08 = 86 |
| 12:24 = 56 | 9:01 = 87 |
| 12:18 = 57 | 9:54 = 88 |
| 12:12 = 58 | 9:47 = 89 |
| 12:06 = 59 | 9:40 = 90 |
| 12:00 = 60 | 9:33 = 91 |
| 11:54 = 61 | 9:26 = 92 |
| 11:48 = 62 | 9:19 = 93 |
| 11:42 = 63 | 9:12 = 94 |
| 11:36 = 64 | 9:05 = 95 |
| 11:30 = 65 | 8:58 = 96 |
| 11:24 = 66 | 8:51 = 97 |
| 11:18 = 67 | 8:44 = 98 |
| 11:12 = 68 | 8:37 = 99 |
| 11:06 = 69 | 8:30 = 100 |
| 11:00 = 70 | |



**Middletown Township Fire Department
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Muscular Strength: Push-ups

Male
REP - SCORE

| | |
|----------|---------|
| 65 - 100 | 29 - 45 |
| 64 - 98 | 28 - 43 |
| 63 - 97 | 27 - 42 |
| 62 - 95 | 26 - 40 |
| 61 - 94 | 25 - 38 |
| 60 - 92 | 24 - 37 |
| 59 - 91 | 23 - 35 |
| 58 - 89 | 22 - 34 |
| 57 - 88 | 21 - 32 |
| 56 - 86 | 20 - 30 |
| 55 - 85 | 19 - 29 |
| 54 - 83 | 18 - 27 |
| 53 - 82 | 17 - 26 |
| 52 - 80 | 16 - 25 |
| 51 - 78 | 15 - 15 |
| 50 - 77 | 14 - 14 |
| 49 - 75 | 13 - 13 |
| 48 - 74 | 12 - 12 |
| 47 - 72 | 11 - 11 |
| 46 - 71 | 10 - 10 |
| 45 - 69 | |
| 44 - 68 | |
| 43 - 66 | |
| 42 - 65 | |
| 41 - 63 | |
| 40 - 62 | |
| 39 - 60 | |
| 38 - 58 | |
| 37 - 57 | |
| 36 - 55 | |
| 35 - 54 | |
| 34 - 52 | |
| 33 - 51 | |
| 32 - 49 | |
| 31 - 48 | |
| 30 - 46 | |

Female
REP - SCORE

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



**Middletown Township Fire Department
Training Academy
Physical Fitness Training Program**



Muscular Strength: Pull-ups

Male
REP - SCORE

20 - 100
19 - 99
18 - 98
17 - 97
16 - 96
15 - 95
14 - 90
13 - 87
12 - 84
11 - 80
10 - 75
9 - 70
8 - 60
7 - 50
6 - 40
5 - 30
4 - 25
3 - 15
2 - 10
1 - 5

Female
REP - SCORE

15 - 100
14 - 99
13 - 98
12 - 97
11 - 96
10 - 95
9 - 92
8 - 88
7 - 84
6 - 80
5 - 75
4 - 60
3 - 45
2 - 30
1 - 15



**Middletown Township Fire Department
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Power: Standing Long Jump

| Male | | Female | |
|-----------------|--------------|-----------------|--------------|
| DISTANCE | SCORE | DISTANCE | SCORE |
| 9 - 0 | 100 | 7 - 0 | 100 |
| 8 - 10 | 97.5 | 6 - 10 | 97 |
| 8 - 6 | 95 | 6 - 8 | 94 |
| 8 - 4 | 92.5 | 6 - 6 | 91 |
| 8 - 2 | 90 | 6 - 4 | 88 |
| 8 - 0 | 87.5 | 6 - 2 | 85 |
| 7 - 10 | 85 | 6 - 0 | 82 |
| 7 - 8 | 82.5 | 5 - 10 | 79 |
| 7 - 6 | 80 | 5 - 8 | 76 |
| 7 - 4 | 77.5 | 5 - 6 | 73 |
| 7 - 2 | 75 | 5 - 4 | 70 |
| 7 - 0 | 72.5 | 5 - 2 | 65 |
| 6 - 10 | 70 | 5 - 0 | 60 |
| 6 - 8 | 65 | 4 - 10 | 55 |
| 6 - 6 | 60 | 4 - 8 | 50 |
| 6 - 4 | 55 | 4 - 6 | 45 |
| 6 - 2 | 50 | 4 - 4 | 40 |
| 6 - 0 | 45 | 4 - 2 | 35 |
| 5 - 10 | 40 | 4 - 0 | 30 |
| 5 - 8 | 35 | 3 - 10 | 25 |
| 5 - 6 | 25 | 3 - 8 | 20 |
| 5 - 4 | 20 | | |



**Middletown Township Fire Department
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Physical Fitness Training Program**



Muscular Strength: Bent Knee Sit-up

| Male | | Female | |
|-------------|--------------|---------------|--------------|
| REPS | SCORE | REPS | SCORE |
| 50 | 100 | 45 | 100 |
| 49 | 98 | 44 | 98 |
| 48 | 96 | 43 | 96 |
| 47 | 94 | 42 | 94 |
| 46 | 92 | 41 | 92 |
| 45 | 90 | 40 | 90 |
| 44 | 88 | 39 | 88 |
| 43 | 86 | 38 | 86 |
| 42 | 84 | 37 | 84 |
| 41 | 82 | 36 | 82 |
| 40 | 80 | 35 | 80 |
| 39 | 78 | 34 | 78 |
| 38 | 76 | 33 | 76 |
| 37 | 74 | 32 | 74 |
| 36 | 72 | 31 | 72 |
| 35 | 70 | 30 | 70 |
| 34 | 68 | 29 | 68 |
| 33 | 66 | 28 | 66 |
| 32 | 64 | 27 | 64 |
| 31 | 62 | 26 | 62 |
| 30 | 60 | 25 | 60 |
| 29 | 58 | 24 | 58 |
| 28 | 56 | 23 | 56 |
| 27 | 54 | 22 | 54 |
| 26 | 52 | 21 | 52 |
| 25 | 50 | 20 | 50 |
| 24 | 48 | 19 | 48 |
| 23 | 46 | 18 | 46 |
| 22 | 44 | 17 | 44 |
| 21 | 42 | 16 | 42 |
| 20 | 40 | 15 | 40 |



**Middletown Township Fire Department
Training Academy
Physical Fitness Training Program**



**Firefighter Recruit
Physical Fitness Assessment**

Name: _____
Last First

Student Number: _____

Assessment #1

Date: _____

| | | | |
|------------------------|--|--------------|--|
| Push Up Total (1 min): | | Assessed By: | |
| Pull Up Total: | | Assessed By: | |
| Sit Up Total (1 min): | | Assessed By: | |
| Standing Long Jump: | | Assessed By: | |
| Mile Time: | | Assessed By: | |

Assessment #2

Date: _____

| | | | |
|------------------------|--|--------------|--|
| Push Up Total (1 min): | | Assessed By: | |
| Pull Up Total: | | Assessed By: | |
| Sit Up Total (1 min): | | Assessed By: | |
| Standing Long Jump: | | Assessed By: | |
| Mile Time: | | Assessed By: | |

Assessment #3

Date: _____

| | | | |
|------------------------|--|--------------|--|
| Push Up Total (1 min): | | Assessed By: | |
| Pull Up Total: | | Assessed By: | |
| Sit Up Total (1 min): | | Assessed By: | |
| Standing Long Jump: | | Assessed By: | |
| Mile Time: | | Assessed By: | |