AEROBIC TRAINING PROGRAM
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This program is designed for police and fire applicants:
- in the medical process who have a conditional offer of employment,
- preparing for the cardiovascular stress test, or
- training after failing the stress test

This document is designed to:
1. provide a training program for you.
2. provide an expectation you should have for improvement and possible level of maximal oxygen consumption (VO2 max).
3. provide some tips to assist your training and to dispel some general misconceptions regarding training and taking the test.

Your Results

      The Civil Service Commission expects each candidate to have a minimal level of aerobic or cardiovascular fitness. The most accurate measure of aerobic fitness is the measurement of your maximal oxygen consumption (Vo2 max) during a graded exercise test on a treadmill. The longer you "last" on the treadmill protocol, the more work you are doing and a significant increase in work will result in a greater VO2 max. If you did not meet the required standards the first time you took the stress test, it is very likely that you will be able to achieve the required VO2 max if you train appropriately for an adequate period of time.

Training Program

      There are minimal and optimal criteria which have been established by scientific studies on the effect of training, which you should consider in order to improve your VO2 max. This program contains the optimal training program for improvement. IN order to achieve optimal improvement, you must follow the program which includes the frequency, duration and intensity of exercise as noted below.

Frequency: Exercise 5 times per week, no more than once per day.

Duration: Each session should include 30-40 minutes of continuous exercise.

Intensity: The effort you make must be aerobic and of sufficient difficulty. The attached program identifies a sufficient intensity based on a pace per mile. Other methods can be used, for example, you can determine an appropriate intensity based on heart rate. You can negate the effects of your training effort by working at too low of an intensity as well as at too high of an intensity.

Type: The type of exercise must be aerobic and continuous and must use large muscle groups. In practice this means that if you can achieve the correct intensity the following will be effective: walking, running, cycling, aerobics, swimming and other exercises. The most effective is likely to be the type that is most closely related to the type of test, in this case walking/running. There are other effective types of exercise but they do not include weight training and other resistance exercises, nor do they include most sports activities (usually because the activity is not continuous and the intensity varies).

The training program attached is designed to be self-explanatory. It should provide a helpful guide for you to follow. This is not the only effective way to achieve improvement in VO2 max but it is one that has been used successfully.

Estimate of your VO2 max

You can get a rough estimate of your VO2 max by running your best time for 1.5 miles on a track (usually 6 laps). This must be done on measured track. It should also be done at a constant pace (e.g. sprinting at the end makes the estimate less accurate). This is only an estimate which has some error. The treadmill test with a measured VO2 max is a much more accurate test, but a rough estimate may be helpful.

Below is a chart developed by Dr. Kirby to provide this estimate:

Time for 1.5 miles (min:sec)	Rough estimate of VO2 (ml/kg/min)
20:00	20
19:00	26
17:30	30
16:30	31.5
16:00	33
15:00	35
14:00	36
13:00	39
12:30	41
12:00	42
11:30	43.5
11:10	45
10:45	46.5
9:45	50

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This training schedule is for a walk/jog program that has been designed to accommodate the novice as well as the well-trained participant. It provides you with progressive stages to follow as your conditioning improves.

You should start in the stage indicated by your actual or predicted VO_2. You can estimate your present cardiovascular fitness level by a commonly used "field test." This estimate has some error but can be helpful in determining the level at which you should be training. Before starting any exercise program it is wise to check with your physician to insure you are ready for vigorous exercise.

The field test is to run 1 ½ miles on a measured track (6 times around the standard high school track).

Try to run your best time, but at a consistent pace. The chart below identifies the estimated level of fitness, based on your time for 1 ½ miles. Use this general level to determine the stage to begin training from Table 1 enclosed.

Measurement of Cardiorespiratory Fitness:
The 1.5-Mile Run Test

Directions

The objective of this test is to run 1.5 miles as fast as you can. The test can be performed on an oval track or any accurately measured course. Before you perform the test, be sure to warm-up with 10 minutes of walking or jogging and 5 minutes of stretching. After performing the test, be sure to cool-down with 5 minutes of walking or jogging and 10 minutes of stretching.

Standards

Listed below are standards for the 1.5-mile run test. Once you have identified your fitness rating, then you can use the accompanying "Aerobic Training Program" to prepare for your Graded Exercise Test.

Standards for Men (minutes:seconds)

Rating	18-29	30-39	40-49	50-59	60+
Poor	>13:25	>14:04	>14:30	>15:22	>15:48
Fair	12:59-13:25	13:38-14:04	14:04-14:30	14:56-15:22	15:22-15:48
Average	11:28-12:58	12:07-13:37	12:33-14:03	13:25-14:55	13:51-15:21
Good	10:49-11:27	11:28-12:06	11:54-12:32	12:46-13:24	13:12-13:50
Excellent	<10:49	<11:28	<11:54	<12:46	<13:12

Standards for Women (minutes:seconds)

Rating	18-29	30-39	40-49	50-59	60+
Poor	>15:22	>15:48	>16:14	>17:06	>17:06
Fair	14:56-15:22	15:22-15:48	15:48-16:14	16:40-17:06	16:40-17:06
Average	13:25-14:55	14:04-15:21	14:30-15:47	15:22-16:39	15:22-16:39
Good	12:46-13:24	13:25-14:03	13:51-14:29	14:43-15:21	14:43-15:21
Excellent	<12:46	<13:25	<13:51	<14:43	<14:43

After determining your fitness rating, refer to Table 1 to identify the appropriate stage in which to begin based on an assessment of VO_{2max}. This chart coincides with the assessment of your VO_{2max}. Each stage has specific objectives that will serve as the exercise program for you. Remember you can use HR range values to ensure appropriate intensity. The most common and easily employed estimate of

appropriate heart rate to ensure appropriate intensity is to sue the formula: Training Heart Rate = .80 (220 – age).

Within each stage the specific objectives are goals in themselves. Although you may not complete it at first, you should accomplish each objective successfully for three days before moving on to the next objective. Exceptions are the starred(*) objectives, which need only be done once. These starred objectives are self-assessment measures, which are ways of monitoring your progress. They may serve as specific indicators of your readiness to continue. It should be noted that each requires an effort that goes beyond the criteria necessary for training to occur. They might be considered similar to a track athlete's time trial, which is a practice race he or she runs to assess his or her present capability. If you are unable to meet the time for a starred objective, go back one or two objectives and repeat them at a greater (faster) intensity, which should improve your capability of meeting the starred objective.

Progression through these stages should be gradual and slow. Pay careful attention to your training heart rate. Although a minimum of three repetitions of each nonstarred objective is required, three may not be optimal. Continue each objective until you feel comfortable in completing the task. Rest periods should be of sufficient length to allow you to become comfortable. Usually this will be about 3 to 5 minutes of slow walking. Walking periods in the upper stages may be eliminated, but do so with caution; they are included to provide a lower intensity needed by many.

Table 1. Beginning Stages for a Walk/Run Program*

Fitness Level

Age Range	Excellent	Good	Average Fair		Poor
Men					
20-29	9	8	6	5	4
30-39	8	7	6	5	4
40-49	8	7	5	4	3
50-59	8	6	5	3	2
60+	7	5	3	2	1
Women					
20-29	7	7	6	5	3
30-39	7	6	5	5	3
40-49	6	6	4	2	2
50-59	6	4	3	2	1
60+	5	3	2	2	1

*Begin your program with the stage listed across from your age range and under your fitness level category.

Stage 1 Objectives:

1. Walk for 10 minutes, rest 3 minutes, walk 10 minutes.

2. Walk for 20 minutes.

3. Walk 15 minutes, rest, walk ½ mile.

4. Walk 1 mile, rest, walk 1 mile.

*5. Walk ½ mile under 6:30 minutes, rest, walk 1 mile.

6. Walk/run ¼ mile, walk 1 mile, walk/run ¼ mile.

7. Walk 2 miles.

8. Walk/run ½ mile, walk 1 mile, walk/run ½ mile.

*9. Walk/run 1 mile, (under 13:15 minutes) walk ½ mile, walk/run 1 mile.

Go to Stage 2, Objective 3.

Stage 2 Objectives:

1. Walk ½ mile, rest, walk ½ mile , rest, walk ½ mile.

2. Walk 1 mile, rest, walk 1 mile.

3. Run/walk 1 ¼ miles, rest, run/walk 1 mile.

*4. Run/walk 1 ½ miles (under 20:15 minutes).

5. Walk 2 miles.

6. Run/walk 1 mile (under 12:00 minutes), walk 1 mile.

*7. Run/walk 1 ½ miles (under 18:30 minutes).

Go to Stage 3, Objective 3.

Stage 3 Objectives:

1. Run/walk ½ mile, rest, run/walk ½ mile, rest, run/walk ½ mile.

2. Run/walk 1 mile, rest, run/walk 1 mile.

3. Run ½ mile (under 5:30 minutes), rest, run/walk 2 miles.

4. run/walk 2 ½ miles.

*5. Run/walk 2 miles (under 23:30 minutes).

6. Run/walk 1 mile (under 11:00 minutes), rest, run/walk 1 ½ miles.

*7. Run/walk 1 ½ miles (under 16:45 minutes).

Go to Stage 4, Objective 3.

Stage 4 Objectives:

1. Walk 1 mile, rest, run/walk ½ mile.

2. Run ½ mile, walk ¼ mile, run ½ mile.

3. Run ½ mile, walk ¼ mile, run ½ mile, walk ¼ mile, run ½ mile.

4. Run/walk ¾ mile (under 8:00 minutes), rest, walk 1 ½ mile.

*5. Run/walk 1 mile (under 10:30 minutes), rest, walk 1 ½ mile.

6. Run ¾ mile, walk ¼ mile, run ½ mile.

7. Run 1 mile, rest, run/walk 1 ½ mile.

*8. Run/walk 1 ½ miles (under 16:00 minutes), rest run/walk 1 mile

Go to Stage 5, Objective 3.

Stage 5 Objectives:

1. Run/walk 1 mile, rest 10 minutes, run/walk 1 mile.

2. Run ½ mile, walk ¼ mile, run ½ mile, walk ¼ mile, run ½ mile.

3. Run ¾ mile, walk ¼ mile, run ¾ mile.

4. Run ¾ mile (under 7:30 minutes), rest 10 minutes, run ½ mile.

5. Run 1 mile, walk ½ mile, run ¾ mile.

*6. Run 1 mile (under 10:00 minutes), rest 10 minutes, run ½ mile.

7. Run 1 ½ miles, walk ¼ mile, run ½ mile.

8. Run 1 ¾ miles, walk ¼ mile, run ½ mile.

*9. Run 1 ½ miles (under 15 minutes), rest, celebrate and run ¾ mile.

Go to Stage 6, Objective 2.

Stage 6 Objectives:

1. Run 1 mile, walk ¼ mile, run 1 mile.

2. Run 1 ½ miles, walk ¼ mile, run 1 mile.

3. Run 1 ½ miles (under 14:30 minutes), rest 5-10 minutes, run 1 mile.

4. Run 2 miles, walk ½ mile, run ½ mile.

5. Run 2 miles (under 19 minutes), walk ¼ mile, run ½ mile.

6. Run 2 ½ miles, rest 5-10 minutes run ½ mile.

*7. Run 1 ½ miles (under 13:50 minutes), walk ¼ mile, run 1 mile.

8. Run 2 ½ miles, walk ½ miles, run ¾ miles.

9. Run 2 miles (under 18 minutes), walk ¼ mile, run 1 mile.

10. Run 2 miles, walk ¼ mile, run 1 mile.

*11. Run 1 ½ miles (under 13:15 minutes), rest, celebrate and run 1 ½ miles.

Go to Stage 7, Objective 3.

Stage 7 Objectives:

1. Run 1 ½ miles, walk ¼ mile, run 1 mile .

2. Run 2 miles, walk ¼ mile, run 1 mile.

3. Run 2 ½ miles, walk ¼ mile, run 1 ½ miles.

4. Run 2 miles (under 17 minutes), walk ¼ mile, run 1 ½ miles.

5. Run 4 miles.

6. Run 1 mile (under 8 minutes), run 2 miles.

7. Run 4 ¼ miles.

*8. Run 1 mile (under 7:45 minutes), run 2 miles.

9. Run 4 ¾ miles.

*10. Run 1 ½ miles (under 12 minutes), run 2 ½ miles.

11. Run 5 miles, walk home.

12. Run 2 miles (under 16 minutes), run 2 miles.

*13. Run 1 ½ miles (under 11:30 minutes), walk ¼ mile, celebrate, run 2 ½ miles.

Go to Stage 8, Objective 4.

1. Run 2 miles, walk ¼ mile, run 1 ½ miles.

2. Run 2 ½ miles, walk ¼ mile, run 1 ½ miles.

3. Run 3 miles, walk ¼ mile, run 2 miles.

4. Run 2 miles (under 15:30 minutes), walk ¼ mile, run 2 ½ miles.

5. Run 5 ½ miles.

6. Run 1 mile (under 7:15 minutes), walk ¼ mile, run 3 miles.

7. Run 6 miles.

8. Run 3 miles (under 24:00 minutes), walk ¼ mile, run 2 miles.

9. Run 6 ½ miles.

*10. Run 1 ½ miles (under 14:30 minutes), run 3 miles.

11. Run 7 miles.

12. Run 2 miles (under 14:30 minutes), run 3 miles.

*13. Run 1 ½ miles (under 9:45 minutes), walk ¼ mile, run 4 miles.

Go to Stage 9, Objective 3.

Stage 9 Objectives:

1. Run 3 miles, walk ¼ mile, run 3 miles.

2. Run 4 miles, walk ¼ mile, run 2 miles.

3. Run 5 miles, walk ¼ mile, run 2 miles.

4. Run 4 miles (under 30:00 minutes), run 2 miles.

5. Run 6 miles.

6. Run 7 miles.

*7. Run 2 miles (under 13:30 minutes).

8. Run 8 miles.

*9. Run 5 miles (under 37:30 minutes).

*10. Run 1 mile (under 6 minutes).

*11. Run 2 miles (under 12 minutes).

*12. Run 3 miles (under 20 minutes).

13. Run 6 miles (under 44 minutes), run 2 miles.

*14. Run 1 ½ miles (under 8:00 minutes).

Stage 10, Objectives:

1. Run 7 miles.

2. Run 5 miles (under 35:00 minutes).

3. Run 8 miles.

4. Run 5 miles (under 33:00 minutes), run 3 miles.

*5. Run 2 miles (under 11:00 minutes).

*6. Run 3 miles (under 17:00 minutes).

7. Run 6 miles (under 38:00 minutes), run 2 miles.

8. Run a total of 90 miles in a 3-week period.

9. Run a total of 45 miles in one week.

10. Run a total of 60 miles in one week.

11. Run a total of 75 miles in one week.