Chapter 8—*Aerobic Fitness Programs*

T his chapter presents programs for three levels of aerobic fitness: a starter program for low fit or previously sedentary individuals (fitness under 35 mL/kg•min); an intermediate program (fitness 35 to 45); and an advanced program for those with a score above 45. Use the programs or design your own, using the prescriptions (Chapter 2) and principles of training (Chapter 7). But before you begin any program complete the PAR-Q health screening questionnaire in Chapter 6.

Starter Program

Use the Walk Test to determine your exercise level:

Walk Test

Walk at a brisk pace for 10 minutes.

If you cannot walk at a brisk pace for 5 minutes begin with the Red Walking Program (see page 56).

If you can walk for 5 minutes but can't walk for 10 minutes, begin with the third week of the Red program.

If you can walk a full 10 minutes but are somewhat tired, start with the White Walk-Jog Program.

If 10 minutes is easy, and you have done some jogging, wait a day and take the Walk-jog Test.

Walk-jog Test

Alternately walk 50 steps (left foot strikes ground 25 times) and jog 50 steps for 10 minutes.

If you can't complete 10 minutes, begin with week three of the White program.

If you complete 10 minutes but feel tired and winded, begin with week four of the White program.

If you do the Walk-jog test comfortably, start the Blue Jogging Program.

Red Walking Program

Week	Activity (every other day at first)
1	Walk at a brisk pace for 5 minutes, or for a shorter time if you become uncomfortably tired. Walk slowly or rest for 3 minutes. Again walk briskly for 5 minutes, or until you become uncomfortably tired.
2	Same as week 1, but increase pace as soon as you can walk 5 minutes without soreness or fatigue.
3	Walk at a brisk pace for 8 minutes, or for a shorter time if you become uncomfortably tired. Walk slowly or rest for 3 minutes. Again walk briskly for 8 minutes, or until you become uncomfortably tired.
4	Same as week 3, but increase pace as soon as you can walk 8 minutes without soreness or fatigue.

When you've completed week 4 of the Red program, begin at week 1 of the White program.

White Walk-Jog Program

Week	Activity (four times a week)
1	Walk at a brisk pace for 10 minutes, or for a shorter time if you become uncomfortably tired. Walk slowly or rest for 3 minutes. Again, walk briskly for 10 minutes, or until you become uncomfortably tired.
2	Walk at a brisk pace for 15 minutes, or for a shorter time if you become uncomfortably tired. Walk slowly for 3 minutes.
3	Jog 10 seconds (25 yards). Walk 1 minute (100 yards). Do this 12 times.
4	Jog 20 seconds (50 yards) Walk 1 minute (100 yards). Do this 12 times.

When you've completed week 4 of the White program, begin at week 1 of the Blue program.

Blue Jogging Program

Week	Activity (five times a week)
1	Jog 40 seconds (100 yards). Walk 1 minute (100 yards). Do this nine times.
2	Jog 1 minute (150 yards). Walk 1 minute (100 yards). Do this eight times.
3	Jog 2 minutes (300 yards). Walk 1 minute (100 yards). Do this six times.
4	Jog 4 minutes (600 yards). Walk 1 minute (100 yards). Do this four times.
5	Jog 6 minutes (900 yards). Walk 1 minute (100 yards). Do this three times.
6	Jog 8 minutes (1200 yards). Walk 2 minutes (200 yards). Do this twice.
7	Jog 10 minutes (1500 yards). Walk 2 minutes (200 yards). Do this twice.
8	Jog 12 minutes (1760 yards). Walk 2 minutes (200 yards). Do this twice.

From the President's Council on Physical Fitness and Sports.

Intermediate Program

If you've completed the starter program or if you have been reasonably active, you're ready for the intermediate program. The program systematically increases intensity and duration of exercise to help you reach a fitness level of 45 (mL/kg•min). Each week of the program includes three phases: a basic workout, short interval runs (underdistance), and longer runs (overdistance). The program is based on training techniques used by athletes.

If you are not a runner, adapt the underdistance and overdistance concepts to your training. If a week's program seems too easy, move ahead; if it seems too hard, move back a week. And remember to make the warmup and cooldown part of every session.

Week 1

Basic Workout (Monday, Thursday)
1 mile in 11 minutes; active recovery (walk). Run twice.

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 5 minutes 30 seconds. Run twice (recover between repeats).
$1/4$ mile in 2 minutes 45 seconds. Run 4 times (recover between repeats).
Jog $1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
2 miles slowly. (Use the talk test: jog at a pace that allows you to converse.)

Week 2

Basic Workout (Monday, Thursday)
1 mile in 10 minutes 30 seconds; active recovery. Run twice.

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 5 minutes.
$1/4$ mile in 2 minutes 30 seconds. Run twice (recover between repeats).

$1/4$ mile in 2 minutes 45 seconds. Run twice (recover between repeats).
220 yards in 1 minute 20 seconds. Run four times (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
$2 1/4$ miles slowly.

Week 3

Basic Workout (Monday, Thursday)
1 mile in 10 minutes, active recovery. Run twice.

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 4 minutes 45 seconds.
$1/4$ mile in 2 minutes 30 seconds. Run four times (recover between repeats).
220 yards in 1 minute 10 seconds. Run four times (recover between repeats).
100 yards in 30 seconds. Run four times (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
$2 1/2$ miles slowly.

Week 4

Basic Workout (Monday, Thursday)
1 mile in 9 minutes 30 seconds; active recovery. Run twice.

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 4 minutes 45 seconds. Run twice (recover between repeats).
$1/4$ mile in 2 minutes 20 seconds. Run four times (recover between repeats).
220 yards in 1 minute. Run four times (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
$2 3/4$ miles slowly.

Week 5

Basic Workout (Monday, Thursday)
1 mile in 9 minutes; active recovery. Run twice.

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 4 minutes 30 seconds.
$1/4$ mile in 2 minutes 20 seconds. Run four times (recover between repeats).
220 yards in 60 seconds. Run four times (recover between repeats).
100 yards in 27 seconds. Run four times (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
3 miles slowly.

Week 6

Basic Workout (Monday, Thursday)
$1 1/2$ miles in 13 minutes 30 seconds; active recovery. Run twice.

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 4 minutes 30 seconds. Run twice (recover between repeats).
$1/4$ mile in 2 minutes 10 seconds. Run four times (recover between repeats).
220 yards in 60 seconds. Run four times (recover between repeats).
100 yards in 25 seconds. Run twice (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
$3 1/4$ miles slowly; increase pace last $1/4$ mile.

Week 7

Basic Workout (Monday, Thursday)
$1 1/2$ miles in 13 minutes; active recovery. Run twice.

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 4 minutes 15 seconds. Run twice (recover between repeats).
$1/4$ mile in 2 minutes. Run four times (recover between repeats).
220 yards in 55 seconds. Run four times (recover between repeats)
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
$3 1/2$ miles slowly; always increase pace near finish.

Week 8

Basic Workout (Monday, Thursday)
1 mile in 8 minutes; active recovery; run 1 mile in 8 minutes 30 seconds; active recovery; repeat (total of 3 miles).

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 4 minutes. Run twice (recover between repeats).
$1/4$ mile in 1 minute 50 seconds. Run four times (recover between repeats).
220 yards in 55 seconds. Run four times (recover between repeats).
100 yards in 23 seconds. Run four times (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
$3^3/4$ miles slowly.

Week 9

Basic Workout (Monday, Thursday)
1 mile in 8 minutes. Run three times. (recover between repeats).

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 3 minutes 30 seconds.
$1/4$ mile in 1 minute 45 seconds. Run four times (recover between repeats).
220 yards in 50 seconds. Run four times (recover between repeats).
100 yards in 20 seconds. Run four times (recover between repeats).
50 yards in 10 seconds. Run four times (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
4 miles slowly.

Week 10

Basic Workout (Monday, Thursday)
$1^1/2$ miles in 12 minutes. Run twice (recover between repeats).

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly.
$1/2$ mile in 3 minutes 45 seconds. Run three times

(recover between repeats).
$1/4$ mile in 1 minute 50 seconds. Run six times (recover between repeats).
220 yards in 45 seconds. Run twice (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
4 miles; increase pace last $1/2$ mile.

Week 11

Basic Workout (Monday, Thursday)
1 mile in 7 minutes 30 seconds. Run three times (recover between repeats).

Underdistance (Tuesday, Friday)
$1/4$ to $1/2$ mile slowly
$1/2$ mile in 3 minutes 50 seconds. Run four times (recover between repeats).
$1/4$ mile in 1 minute 45 seconds. Run four times (recover between repeats).
220 yards in 45 seconds. Run twice (recover between repeats).
$1/4$ to $1/2$ mile slowly.

Overdistance (Wednesday, Saturday, or Sunday)
More than 4 miles slowly (more than 400 calories per workout).

Week 12

Basic Workout
$1^1/2$ miles in 11 minutes 40 seconds. You've achieved the fitness standard of 45. Proceed to the advanced aerobic fitness program.

Advanced Aerobic Training

This section is for the active individual who wants to further improve fitness and performance. It expands on training techniques introduced in the intermediate program (underdistance and overdistance) and adds other elements used by athletes. Because the program is strenuous, it is important to emphasize several principles of training, including gradual progression and recovery. Also, since advanced training increases the risk of overuse injuries, you should use cross training to reduce repetitive trauma.

Year-round Training

Serious athletes engage in year-round training, which is divided into the following seasons or training cycles:

Off-season—Build aerobic foundation with long-distance training at a slow pace; do general strength training.

Preseason—Increase aerobic/anaerobic thresholds with aerobic intervals (underdistance); develop muscular endurance and power.

Early season—Increase speed with anaerobic intervals; maintain endurance and aerobic/anaerobic thresholds; do sport-specific power and speed training.

Peak season—Maintain training gains and achieve peak performance.

You may not devote 12 months to training for one activity, but you should still use the seasonal approach to training. Seasons are further divided into 4-week training cycles, which consist of 3 weeks of progressive increases in training load, followed by a week of relative recovery. Weekly programs are developed from a menu of training techniques.

Training Techniques

Sample from a menu that includes:

Distance—To improve stamina and the ability to burn fat (1 to 2 hours).

Hills—Sustained resistance training to improve leg strength and endurance (30 to 60 minutes).

Aerobic Intervals—To raise the anaerobic threshold (4 to 6 reps of 2 minutes or more at the anaerobic threshold heart rate).

Cross training—Job- or activity-specific cross training to reduce trauma and train specific muscles (bicycle up hills to build leg strength and endurance).

Muscular fitness—Activity-specific muscular fitness training (three times per week); use 4- to 8-week cycles to develop strength, muscular endurance, and power.

Athletes use other high-intensity training techniques to improve performance:

Fartlek—Medium-distance speed play over varying terrain, alternating faster and slower sections.

Race-pace training—Run at race pace to ensure specificity of training.

Anaerobic intervals—To improve anaerobic performance (30 to 90 seconds each).

Sprints—To improve speed (10 to 30 seconds).

When building a weekly program, alternate long days with short days, hard days with easy days. Do muscular fitness training on a short or easy day, and use cross training for recovery, variety, or specific training. Serious athletes sometimes do twice-a-day training sessions, two to three times a week. However serious the program, always schedule a day of relative rest. Table 8.1 provides a sample program for the preseason.

Firefighters and field workers do not need high-intensity training. Longer duration training will build the stamina required for field work in arduous conditions. Performance improves with increased levels of aerobic fitness, an elevated aerobic threshold, and improved strength and muscular endurance.

Table 8.1—**Sample training program for the preseason**.

Day	Aerobic fitness	Muscular fitness
Monday	Medium distance	Endurance/power
Tuesday	Aerobic intervals Cross training*	
Wednesday	Hills	Endurance/power
Thursday	Aerobic intervals Cross training	
Friday	Underdistance	Endurance/power
Saturday	Overdistance**	
Sunday	Relative rest (cross training)	

Or job-specific training   ** *1 to 2 hours*

Overtraining

When overdone, training can be a stressor that reduces resistance to infection. Highly motivated athletes and workers are prone to overtrain. If you undertake serious training, you should become familiar with the signs and symptoms of overtraining. The most obvious sign of overtraining is a decline in performance. To avoid a drop in performance watch for these signs:

- *Fatigue—If you are tired or exhausted after a night's sleep, cut back on training or take a day off.*

- *Weight loss—A rapid or persistent weight loss could indicate impending problems due to poor eating habits, failure to replace fluids, or excessive fatigue.*

- *Heart rate—A morning heart rate that is more than 10% above your usual rate could be a sign of overtraining or illness; cut back and stop if fatigue is excessive.*

- *Fever—A fever could signal dehydration or an infection; take a day off.*

- *Mood State—Depression, listlessness, irritability, low morale, and similar moods may be a sign of overwork or overtraining.*

During the field season you need to watch out for these signs of overwork, and take steps to recover before you become ill or prone to injury.

Crew Training

Members of organized crews (smokejumpers, hot shots) that have achieved a fitness level of 45 (mL/kg • min) or above are ready for advanced training, a portion of which may be accomplished in groups. Since some members of the crew will be more capable than others, leaders should consider forming several squads. Competition during training is healthy, but too much competition leads to overtraining, and overtraining leads to injuries, lowered resistance, and illness.

Aerobic Alternatives

When extreme weather conditions make outdoor activity unpleasant or impossible, there are a number of alternatives for indoor exercise. In addition to those pictured, many health or fitness clubs feature swimming and treadmills.