6 | Walk, Run, Swim!

In this chapter you will learn to:

- Design a walking program.
- Design a running program.
- Design a swimming program.

Walking, running, and swimming all provide excellent aerobic workouts. These three types of exercise will be discussed in this chapter for two reasons: 1) walking and running are the most common types of exercise that people engage in, and 2) all three modes of exercise can be used to test your level of physical fitness on the Navy PRT tests.

Walking and Running Gear

To maintain or improve your fitness and avoid injuries while walking and running you need to use the right exercise gear. Below are some tips and information to help you purchase training gear.

Shoes

A good pair of shoes will provide shock absorption, cushioning, motion control and durability. The proper shoes will help correct biomechanical problems, such as foot **pronation** (inward roll of your ankle) and arch height, which can lead to pain or injury of the lower leg and knees. Specialty stores, magazines, and web sites have a lot of information about the latest footwear and what footwear is best for you based on your foot type.

Tips for Buying Shoes

- Know your foot type; i.e., pronation and arch (normal or high arch, or flat-footed).

- You should have a thumb's width between your longest toe and the end of the shoe.
- Replace shoes every 300 to 500 miles. Wearing worn-out shoes can eventually lead to injuries.
- Try on shoes towards the end of the day while wearing athletic socks and any inserts you use while exercising. Feet are smallest first thing in the morning and swell slightly as the day progresses. The shoe should hold your heel firmly in place.
- Do not buy shoes based on their brand name. Try on several different shoes to determine which one might be best for you, for the type of exercise you perform. Consider going to a specialty shoe store where a knowledgeable salesperson can evaluate your gait and foot type and recommend a shoe.

Other Gear

- **Orthotics** are shoe inserts that provide additional foot support and control for people with biomechanical conditions that may cause pain while running. They can be purchased as over-the-counter inserts or custom-made. Commercial orthotics are sold according to shoe size and can work as well as custom inserts. If the pain continues or returns when you increase your mileage, see a sports medicine specialist or podiatrist.
- **Clothes** - In hot weather, wear light-weight, light-colored clothes. In cold weather, dress in layers. Experience will teach you what to wear. When weather conditions are extreme, substitute outdoor training with indoor activities.
- **Heart Rate Monitors** gauge exercise intensity by continuously monitoring heart rate. These consist of a wrist watch and a chest strap: the chest strap detects your heart beat and transmits it to the watch which displays heart rate in beats per minute. This allows you to check and maintain your heart rate within your target training zone (see Chapter 5) while you exercise.
- **Reflectors** and portable **beverage containers** are great for your safety and health when exercising outdoors. Other gear, such as walkmans, can provide entertainment, however, consider your training environment to determine whether they will hinder your safety by decreasing your awareness of your surroundings.

Walking

Walking is the easiest, most common, low impact exercise that people engage in. However, there are many misconceptions about the usefulness of walking for weight loss and cardiorespiratory conditioning. These health benefits can be realized by walking, as long as the intensity is high enough to increase your heart rate to 60-75% of your max HR (Worksheet 5-1).

When you walk, keep your back straight and your stride comfortable. **Do not use ankle or hand weights** because they increase the stresses placed on your joints, especially as you quicken your pace. If you have been sedentary and would like to begin a walking program, start by walking on a flat surface. Walk for 15 minutes at a pace that allows you to talk somewhat easily. Walk every other day. Each week increase the time you walk by 10% until you can walk for 20 minutes continuously. Once you can comfortably walk for 20 minutes, increase your pace by no more than 10% each week until you can walk 1 mile in 20 minutes (3 m.p.h. pace). Once you reach this point, hold your pace and gradually increase your distance (by no more than 10% each week) until you can walk 2 miles. Once you have reached this point, try the walking program outlined in Table 6-1.

Table 6-1. Outline of a Walking Program

Weeks	Frequency times/week	Miles	Goal Time (min)/ pace	Comments
1-2	3	2.0	40 min / 3.0 m.p.h*	Quicken your pace by 1 min each week
3-4	4	2.0	38 min / 3.2 m.p.h.	
5-6	5	2.0	36 min / 3.3 m.p.h.	
7	5	2.0	34 min/ 3.5 m.p.h.	Increase your distance by 1/2 mile each week
8	5	2.5	43 min/ 3.5 m.p.h.	
9	5	3.0	51 min/ 3.5 m.p.h.	
10-15	5	3.0	45 min/ 4.0 m.p.h.	
16-17	4	3.5	53 min/ 4.0 m.p.h.	
18-19	4-5	4.0	60 min/ 4.0 m.p.h.	

Adapted from OPNAVINST 6110.1D Jan. 1990. *m.p.h. = miles per hour.

You can maintain a walking program indefinitely and reap the health and fitness benefits. Once you can walk 60 minutes at a 4 m.p.h. pace, add hills or inclines to vary your exercise intensity, add variety to your routine, and to combat boredom. The key to maintaining your aerobic fitness level is to maintain your walking intensity between 60% and 75% of your max HR.

Running

A running program should only be started if you are able to walk 4 miles at a 4.0 m.p.h. pace. There are several reasons to begin a running program, such as managing your body weight, increasing your cardiovasclar fitness, and building your self-esteem.

Running Form

Once you have identified your goal, begin your program by paying particular attention to your running form. This will ensure your running style is biomechanically efficient and safe for your joints. The key is to run naturally and remain relaxed. Running is a function of footstrike, forward stride, body angle, and arm drive.

Figure 6-1. Three Traits of a Good Running Form

- **Footstrike** - For distance runners the heel-ball footstrike method works well: (1) the outside of the heel strikes the surface; (2) the foot rolls inwards to the ball of the foot while the knee is slightly bent; and (3) the foot lifts off from propulsion provided by the big toe. This method provides good shock absorption.
- **Forward Stride** - Your foot should contact the ground in line with your knee, which should be slightly bent. As you run faster the length and frequency of your strides will increase and you will begin lifting your knees higher. Do not overstride such that your foot hits the ground ahead of your knee (i.e. your leg should not be straight at point of impact). Overstriding is hard on the knees, back and the hips and can cause injuries. Alternatively, short choppy strides, which usually result from tight or inflexible muscles, require more energy and are inefficient.
- **Body Angle** - Keep your back straight, your head up and look forward as much as possible. Lean forward only when going uphill or sprinting as this puts stress on leg muscles and may cause back pain and shin splints. Leaning back puts tremendous

pressure on the back and legs and has a “braking effect”. The key is to run “tall” and remain relaxed: allow your shoulders to hang in a relaxed manner and let your arms drop from time to time.

- **Arm Drive** - Relax your shoulders, elbows, wrists and fists. Occasionally let your arms hang by your sides and loosely shake them out. Vigorous pumping of your arms is unnecessary during distance running.

Training Surfaces

The best running surfaces are unbanked, smooth cinder tracks or artificially surfaced tracks. Grassy trails can hide uneven terrain that may aggravate biomechanical problems or cause injury. Concrete and asphalt sidewalks and roads are often banked and provide no shock absorption, so you need shoes with good shock absorption. Beaches also tend to be slanted, whether the sand is firmly packed or loose. Avoid running barefoot on this surface, no matter how good the sand feels between your toes! Lastly, always change the direction you run on a track or path from one session to the next to reduce any biomechanical problems that may result from the track conditions and repetition.

Other running surfaces include treadmills and water. Most treadmills are state of the art in terms of cushioning and you can control the speed and intensity of your workout. Deep water or aqua running is mainly used for rehabilitation as it takes the pressure off muscles and joints while providing cardiovascular benefits. This type of exercise is becoming popular at various swim centers.

Beginning a Running Program

When transitioning from a walking to a running program, combine walking and jogging, gradually increasing the time spent jogging while decreasing the time spent walking. Remember that your exercise intensity should be between 60%-75% of your max HR, so adjust your pace accordingly. Table 6-2 outlines a beginning jogging program to help make your transition easier. Advance to the next phase once you can consistently perform the walk-jog cycles outlined within your target heart rate zone.

If you are interested in running for fitness, a good goal is 6 to 8 miles per week, spread over 3 running days of 2 to 3 miles each. Maintaining this weekly mileage is sufficient for improving or maintaining your aerobic fitness. The duration of your runs will depend solely on your pace. Distance is the goal, so take walking breaks as necessary until you have reached your target mileage. Start a running log to track your workouts (Worksheet B-1). Note mileage, time, heart rate, and perceived exertion (see Chapter 5).

Table 6-2. Beginning a Jogging Program

Phases	Walk	Jog	Total Time or Distance	Comments
Phase 1:	1 to 2 min.	Work up to jogging 2 min. continuously.	20-30 min	Check heart rate after every jog interval, heart rate should be 60-75% max HR.
Phase 2:	1 to 2 min.	Quarter mile (1 lap on a 440 meter track).	Jog six, quarter mile laps.	Check heart rate after every quarter mile jog; heart rate should be 60-75% max HR.
Phase 3:	1 min.	Half mile (2 laps on a 440 meter track).	Jog three, half mile laps.	Check heart rate after every half mile jog; heart rate should be 60-75% max HR.
Phase 4:	during warm-up and cool-down	1 mile continuously.	1-mile jog, 1-mile walk.	Periodically check heart rate during jog, adjust pace to keep heart rate in training zone.
Phase 5:	during warm-up and cool-down.	Increase jog by quarter-mile increments until running 2 to 3 miles continuously.	2 to 3 miles.	Periodically check heart rate during jog, adjust pace to keep heart rate in training zone.

Increasing Your Running Workout

If you can comfortably run 6-8 miles per week and you desire to progress further in a running program, start by increasing either your mileage or pace. This is beneficial if you are interested in running 5K or 10K races, if you want to build a solid running base for longer distance races, or if you enjoy progressively working toward new goals. Increasing either your distance or pace too quickly can cause training injuries, so gradually increase one at a time by no more than 10% per week. For example, if you can comfortably run five miles, increase your distance by a half mile and keep your pace constant. Maintain this new distance for at least one week, or until it is consistently easy for you. Consistency is more important than speed.

Increase your mileage or pace by only 10% per week.

Do not increase your mileage and pace simultaneously.

Frequency and Speed

Run three to four times per week with one or two rest days. When running for exercise and not competition, your pace should be even and allow you to talk comfortably. If you run too fast and get breathless, you may not be able to go the distance. Check your heart rate to see that it is within your target training zone (see Chapter 5). Tips to increase your running speed include:

- Increase the length of your stride without overstriding.
- Increase the frequency of your stride.
- Increase both the length and the frequency of your stride.

Distance

Increase your mileage only when you can consistently run your current distance. Twenty to 30 miles per week is a good training distance for an intermediate runner (Table 6-3). As a rule, your risk of injury sharply increases as your running mileage increases. So, if running for exercise rather than competition, keep your weekly mileage below 30 miles. Beyond this, your injury risks far outweigh any additional aerobic fitness benefits. To work on aerobic fitness without running more than 30 miles a week, try cross-training by swimming or biking.

Table 6-3. An Intermediate Running Program

Week	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Total
One	2	-	2	-	2	2	-	8
Three	2	-	3	-	3	2	-	10
Five	3	-	3	-	3	3	-	12
Seven	3	-	4	-	4	3	-	14
Nine	3	-	4	3	-	3	4	17
Eleven	4	-	5	3	-	5	3	20
Thirteen	4	-	5	5	-	4	5	23
Fifteen	5	-	5	5	-	6	5	26
Seventeen	5	-	6	6	-	6	7	30

Cross train or rest on non-run days.

With an endurance base of 30 miles per week you can easily compete in 10Ks, the Army 10 Miler, and other similar events.

Training for Long Distance Runs

If you are interested in building an endurance base for running long distance races, such as a half marathon, the Marine Corps marathon,

the Air Force Marathon, or similar events, contact a local running group, a national running program, or a trainer with experience in coaching distance runners. Training for these distance races can be very challenging, both physically and mentally. For more information on running distance races, contact the American Running and Fitness Association at http://americanrunning.org.

Swimming

Swimming is an excellent exercise for overall fitness. Because the water supports your body weight, swimming is a great cross-training exercise for running and other gravity-intense activities. Swimming is also an alternative for people with orthopedic problems or those who are in rehabilitation.

Beginning a Swim Program

For swimming to be the primary mode of exercise, a swimmer must be skilled. Unskilled swimmers are very inefficient. To emphasize the energy expenditure during a swim, swimming 1/4 mile, or 440 meters, is equivalent to jogging 1 mile. Therefore, it is very likely that an inexperienced swimmer will not be able to swim continuously for 20 to 30 minutes. Knowing this, if you are unfamiliar with the basic swimming strokes, focus on your technique by taking lessons.

If you have never swum, start by walking or jogging the width of the pool in chest deep water using any flotation device you want. Once you can complete two to four, 5-10 minute exercise bouts within your target HR zone, progress to swimming exercises. Try walking or jogging the width of the pool and swimming back, again using a flotation device. Gradually decrease the distance you walk or jog and increase the distance you swim until you can swim four widths without stopping.

Once you have reached this point, begin swimming the lengths of the pool (1 length = 25 meters; roughly 25 yards). Start by alternating a 25 meter swim with a 30 second rest. Gradually increase the number of lengths you swim without a rest, until you can swim continuously for 20-30 minutes. Then you will have a good base for increasing your distance or pace. Table 6-4 outlines a 10-week swim program for intermediate swimmers.

Table 6-4. Swim Program to Build Your Distance

Week	Distance (meters)	Number of Lengths	Frequency (Days/Week)	Goal Time (minutes)
1	300	12	4	12
2	300	12	4	10
3	400	16	4	13
4	400	16	4	12
5	500	20	4	14
6	500	20	4	13
7	600	24	4	16
8	700	28	4	19
9	800	32	4	22
10	900	36	4	22.5

Table taken from *OPNAVINST 6110.1D*, Jan 1990, p 17.

Interval Training

Pool sessions with a pace clock allow you to design workouts that vary in intensity and emphasis, as well as provide good feedback. While runners often go for long steady runs, a swimmer training this way becomes slow and inefficient. This is due to the inability to increase your respiratory rate during most swim strokes. Since performance can be hindered by limited oxygen or excessive amounts of carbon dioxide, interval training is ideal for swimming. As mentioned in Chapter 5, intervals can train both the anaerobic and aerobic energy systems depending on the time ratio between recovery and work intervals. For swim intervals, swim at a set intensity during the work interval (usually 50-100 yards) then rest during the recovery interval. The basics of interval training include:

- To stimulate aerobic adaptations, recovery intervals should be less than 15 seconds. Short rest intervals keep the aerobic system functioning, particularly during the initial recovery.
- To stimulate anaerobic adaptations, recovery intervals should be longer than one minute, up to twice the duration of the work interval. These effects occur independent of distance or pace. The longer the recovery interval between work intervals the greater the reliance on the anaerobic system.

Open-Water Swimming

Open-water swimming can be a very challenging and rewarding workout. But before heading out to sea, you should be able to swim at least one mile continuously, and consistently, in a lap pool. When swimming in open water you are faced with many safety issues not addressed in pool training, so follow these safety rules:

- Ask lifeguards or locals about the safety of the area. (Are there any strong currents or riptides? What marine life is in the area? Avoid areas where sharks have been spotted.)
- Walk the beach along the course you will be swimming. Look at buoys, surfers, and other swimmers to gauge the direction and strength of the current. Pick landmarks (houses or lifeguard stations) to use as markers while you are swimming.
- Wear proper gear for open-water swimming, including: a comfortable, unrestricted suit (a wet suit in cold water); a swim cap; goggles with UVA/UVB protection; water gloves and fins. Use a waterproof sunscreen all over your body.
- Never swim alone, especially in unfamiliar waters. Ask someone familiar with the waters to accompany you. On your first outing, swim just past the breaking waves. As you feel more comfortable, gradually move further out.
- Follow the shoreline as your primary guide, staying 100 to 150 yards outside the breaking waves. Check your distance from the shoreline as you turn your head to breathe. Swim toward an unmoving target in the distance so you do not get off course. Check your position with this target every 50 to 100 yards and adjust your course appropriately.
- A good starting distance for open-water swimming is a half mile. Use your landmarks to judge your distance. Swim against the current for the first quarter mile, then turn around and swim with the current for the last quarter mile. As you become comfortable swimming in open-water, gradually build up your distance by quarter mile increments.
- Avoid boats and jet skis by wearing a brightly colored suit and cap. If a boat is moving toward you, swim away from it and kick hard, making large splashes that announce your presence.

Section adapted from L. Cox. Seaworthy. *Women's Sports and Fitness* July-August 1995;17(5):73-75.