Fighting FIRE with Fitness

A MANUAL SUPPORTING THE FIRE FIGHTER PHYSICAL FITNESS MAINTENANCE PROGRAM

CANADIAN FORCES
PERSONNEL SUPPORT AGENCY

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Fire fighting is a physically demanding profession. The safety of the public and the firefighter demands that each and every fire fighter achieve and maintain a high degree of physical fitness.

This manual has been prepared to help DND/CF fire fighters achieve an appropriate level of fitness. The Canadian Forces Personnel Support Agency and ParticipACTION have developed the program with the assistance of the exercise physiology laboratory at York University.

The Office of the Canadian Forces Fire Marshal will provide the technical assistance; equipment and necessary time to ensure that you have the resources you need to meet the physical fitness requirements of your profession. Now it is up to you. Use this manual. It has been designed specifically for you.

Tony Lovett
Lieutenant Colonel
Canadian Forces Fire Marshal

Acknowledgements

The Canadian Forces Personnel Support Agency, in conjunction with ParticipACTION, has developed the "Fighting Fire With Fitness" program for the Canadian Forces Fire Marshal.

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How to Use this Manual

First...

Begin by reading through the manual to get an idea of its scope and format. From training principles and exercise prescription, to special topics such as nutrition and safe training, this manual is designed for you. Regardless of your current fitness level, it will help you get ready for the annual fitness evaluation.

The annual fitness evaluation...

The annual fitness evaluation is made up of 10 simulated fire fighting tasks developed by the Queen's University Ergonomics Unit. The tasks are designed in a circuit that must be completed in a continuous manner. The **training program** outlined here prepares you to pass this evaluation.

Once you pass the annual evaluation circuit, the **maintenance program** will be of more interest to you. A number of options – activity preferences, equipment, scheduling, etc. – are available to add variety to your program and to keep you motivated between test dates.

Whatever training program you follow, it is important to understand the exercise principles – the *how*, *what*, *why* and *when* of exercise programming – as well as how to train safely. These topics and many others are covered in this manual. Use it as a regular guide. If you are ever in doubt about any part of your program, talk to a member of the Base physical fitness staff. They are here to help you.

Introduction

As a professional fire fighter you know that a high level of physical fitness is essential for the safe and effective completion of your duties. Fire fighting is one of the most hazardous and physically demanding occupations. As such, it is important that fire fighters achieve and maintain a level of physical fitness far above that seen in the general population.

To ensure that all DND/CF fire fighters have an adequate level of physical fitness, the Canadian Forces Fire Marshal and the Canadian Forces Personnel Support Agency has established the Fire Fighter Physical Fitness Maintenance Program (FF PFMP). The program consists of a task-based evaluation, a personalized exercise prescription, and supportive follow-up counselling. The aim of the program is to provide all fire fighters with the opportunity, resources and time to achieve the level of fitness mandated by the Forces Fire Marshal. This manual is designed to help you to meet the fire fighter physical fitness standards.

The Canadian Forces Personnel Support Agency, Directorate of Physical Education is responsible for the delivery of the FF PFMP. The Base physical fitness staff is available to help you with your program. Feel free to contact them if you require assistance.

This manual will help you achieve or exceed the fitness level required in your job. While the requirements of the annual fitness evaluation are the same regardless of age, gender, or body size, this manual will help tailor your training program to meet your current fitness level and goals.

Physical fitness is important because …
If you are not physically fit you are likely to fatigue sooner while fighting fires, put yourself at greater personal risk and jeopardize the welfare of others. Having the muscular strength or aerobic capacity to pass each of the circuit components *individually* is not enough. To be sure you can meet the demands of fire fighting, you must have a fitness level that allows you to successfully complete the entire circuit in a *continuous* and efficient manner.

Fitness and Aging

Physical fitness declines with age. However, through regular physical activity and other healthy lifestyle practices, it is possible to slow (or sometimes even reverse) the aging process.

Did You Know...

- After about age 35 aerobic fitness declines approximately one percent per year, but this decline is slowed through regular training.
- Muscular strength and muscular endurance do not decline significantly until after age 60. On average, physically active 50 to 60 year-old individuals are fitter than inactive 30 to 40 year-olds.
- Many fire fighters put on weight (fat) gradually as they age. This extra weight increases the amount of work muscles have to do, which compromises fire fighting performance and makes you less able to tolerate heat. This extra fat also increases the risk of several diseases, such as diabetes and heart problems.
- The most common reason for gaining weight as one gets older is simply consuming too many calories (in food) and not getting enough exercise.
- In addition to physical inactivity and overeating, other lifestyle behaviours such as smoking, misuse of alcohol and poor stress management contribute to diseases associated with aging and have an impact on your physical fitness.

The Basic Fitness Components

Physical fitness is the ability to perform occupational, recreational, and daily activities with minimal fatigue and with enough reserve energy for emergency situations.

The general population is primarily concerned with ***health-related fitness*** – the impact of fitness on their general health status. Fire fighters need to be concerned with ***performance-related fitness*** – a higher level of fitness required to meet the demands of the job, such as a forcible entry or assisting an injured colleague.

The basic fitness components are:

- Cardiorespiratory Endurance (or Aerobic Fitness)
- Muscular Power
- Muscular Strength and Endurance
- Abdominal-Core Strength
- Flexibility
- Body Composition

Cardiorespiratory Endurance

Cardiorespiratory endurance is the ability of the heart, lungs, and blood vessels to efficiently supply oxygen to working muscles. Improved cardiorespiratory endurance is the most important benefit of aerobic exercise and is essential to your training program. A high level of cardiorespiratory endurance will help ensure that you have the energy reserves to work for extended periods of time without undue fatigue and to recover more quickly from intense work.

Muscular Power

Power is the ability of your muscles to generate forces at a high speed. Power is used to carry heavy objects such as a charged hose or the spreader tool and it helps you lift or move objects more quickly with less fatigue. Sprinting and resistance training with weights are common forms of power training.

Muscular Strength and Endurance

Muscular strength is the maximal force that can be produced by a muscle in a single contraction. **Muscular endurance** is the ability of a muscle to do work for extended periods of time. Carrying or dragging a hose a long distance requires muscular endurance, while forcibly hitting a door with an axe or sledgehammer requires muscle strength. In conjunction with high cardiorespiratory fitness, adequate muscular strength and endurance are necessary requirements for safe and effective completion of fire fighting tasks.

Abdominal-Core (AbCore) Strength

Core strength is essential for working safely as well as for general health. The *core* consists of the muscles of the abdomen, hips, and spine. Core strength is critical because all movements either originate in or involve the trunk. By strengthening the core you are better able to use the muscles of the upper and lower body. This, in turn, translates to more efficient and powerful movements. Fire fighters frequently complain of lower back pain, a situation that is often caused by weak hip, abdominal and spinal muscles.

Flexibility

Flexibility is the ability to move a joint or series of joints through a full range of motion. Being flexible means you are able to use this full range of motion on the job *and* during your strength training program. Flexibility also means less strain on your back thus lowering the risk of back problems, and it plays a role in the development of power. Flexibility is joint specific. For example, being flexible in the shoulder doesn't necessarily mean you will have flexible hamstrings.

Body Composition

The body consists of muscle, bone and fat tissues, with body weight being the sum total of these three components. Excess body weight and fatness not only reduce your ability to fight fires effectively, they are also a threat to both the quality and length of your life. Conditions associated with being overweight – and which can be a major cause of disability and prematurely end your career – include heart disease, high blood pressure, diabetes and certain cancers.

Your level of fitness in each of the above components has a direct impact on your performance in the annual fitness evaluation. This manual, if followed correctly, will help you reach your fitness goals and improve your score on the next evaluation.

Sticking With Your Program

While you need to stick as closely as possible to the program outlined in this manual, you may want to make changes from time to time. On days when illness or job demands leave you feeling less than your best, you may need to do an easier workout. In some instances, a rest day may even be warranted. The more you respect your body's signals the more effective and satisfying your workouts will be. This is especially true for the "active rest" day of the exercise program each week.

Getting started is not the hard part about exercising. Sticking with your program and making a lifetime commitment to fitness is what takes effort. The most common reasons cited for dropping out of a program are lack of time, inconvenience, expense, physical discomfort, embarrassment, poor instruction, and inadequate support.

Tips to Help you Stay With Your Program

- Train with a partner or in a group. This will increase your commitment and make it more fun.
- Treat each exercise session as an important appointment. Schedule your workouts into a day timer. If you feel hurried through your workout, you are less likely to enjoy it and less likely to stick with it. When scheduling, allow time for travel, changing, showering, etc.
- Not everyone is a morning exerciser. Schedule your sessions at a time of day that suits you.
- If you are doing your aerobic sessions outside (e.g., running or cycling), change your route occasionally and look for interesting sights.
- Alternate different types of resistance exercises. If you generally use stack machines in your program, try free weights occasionally for a change.
- Keep track of what you do. A personal training log will ensure you increase your training intensities at appropriate times and keep you motivated by showing your progress. See page 80 for details.
- Meals affect energy levels physiologically and psychologically. Don't be hungry during your workouts, but at the same time don't work out right after a large meal.
- Be patient. Look for progress over the long term, not overnight. The key is to make a commitment to lifetime health and fitness. Stick with it and the benefits will come.

When illness, injury, or work commitments force you to take a few days off your regular exercise program, try to do whatever you can. Remember, if you don't use it, you lose it.

Overtraining

To improve you must work hard, but you also need adequate rest to grow stronger. During recovery between sessions, your body systems that were "stressed" during exercise build to higher levels to compensate for the stress that you put on them. If adequate rest time is not included in your program, growth and regeneration cannot occur and performance can plateau or decrease.

What is overtraining?

- Overtraining is due to an excessive *volume* or *intensity* of training, or both, resulting in fatigue. When this is the case, the normal rest period is not enough to allow for recovery.
- Over a prolonged period, the body has a decreased ability to repair itself during rest. Adding more workouts may worsen the situation.
- Overtraining is different from the day-to-day variations in performance or the fatigue you feel after an especially hard workout. The feeling of fatigue can sometimes last for only a short time, in which case recovery can usually be achieved with a few days of rest or light training. In more serious cases the symptoms of fatigue can last for as long as six months, but this generally results from strenuous endurance training lasting beyond an hour (such as training for a marathon).
- Factors that contribute to overtraining include:
    - a program that is too intense
    - poor nutrition or lack of sleep
    - drug (or excessive alcohol) use
    - work pressures
    - emotional conflict, and
    - a monotonous training routine.

Signs of Overtraining

- Fatigue (most common)
- Increased injury rate
- Persistent muscle soreness (longer than 48 hours)
- Increased frequency of viral infections
- Apathy and loss of interest in training
- Insomnia
- Loss of appetite
- Lack of adaptation to exercise (plateau)
- Loss of strength
- Moody and irritable
- Depression
- Loss of menstruation.

What should I do?

Rest is the answer. If you feel you may be suffering from overtraining see a member of the Base physical fitness staff for assistance with modifying your training program.
Remember, the longer overtraining has occurred, the more rest will be needed. If overtraining has gone on for a short period (three to four weeks), a few days rest is usually sufficient. When you return to your training, begin with alternate training days for the first two weeks, then resume a regular program (at a less demanding level than what caused the overtraining).

Continuing to exercise when overtrained will only prolong the required rest period.
It is better to rest early and for a shorter time.

Here are Some Ways to Prevent Overtraining

- Heed early warning signs and adjust your schedule accordingly.
- Seek the advice of the physical fitness staff on the Base.
- Avoid monotonous training.
- Maintain adequate nutrition.
- Get sufficient rest between workouts *and* at night. Decreasing your training (same intensity but lower volume) for up to twenty-one days will not decrease performance.
- **Increase loads slowly -- by no more then 2.5 kg (5 lb) for upper-body, and 5 kg (10 lb) for lower-body exercises at one time.**
- Keep a training log noting the intensity and duration of your workout, how you felt during the workout and levels of muscle soreness and fatigue. A training log can reveal important patterns in your recovery and is the best method of measuring progress.

Injury Prevention and Safety

Injuries have a real effect on training and fire fighting readiness because they require greater rehabilitation and recovery time than most illnesses. **Prevention is the key. Overdoing it can lead to overuse injuries.** Higher levels of aerobic fitness help protect against future injury. That is, as physical fitness increases, the risk of injury is reduced.

General Recommendations for Injury Prevention

- Be realistic. Your goals and the frequency, duration, and intensity of your training must be appropriate for your current fitness level. The monthly Fitness Checks will help you progress at the appropriate rate.
- If you have been relatively sedentary or have a low fitness level you may need to begin with intervals of aerobic activity as short as 5-10 minutes of light to moderate intensity and gradually increase to the desired intensity and duration.
- Be aware of the early signs of potential injury:
  - increasing or prolonged muscle soreness (> 48 hours)
  - bone and joint pain
  - excessive fatigue, and
  - decreases in performance.
- Smoking cigarettes has been linked to increased risk of exercise-related injuries. If you smoke, make every effort to stop.
- There is a level above which increased training does not have much effect on fitness but substantially increases risk for injury. This level is different for each person, making it important to "listen" to your body.
- Begin each session with a warm-up and light stretching to prepare for the demands of the workout. Finish each session with a cool-down and stretch of the major muscles used during the workout.
- Remember that your rest days are just as important as your workouts.
- Always use correct form when lifting and carrying. Bend at the knees, keep your back straight, lift with your legs, and turn with your feet, not at the waist .

Injury Management

Follow the **RICE** formula if you sustain an injury. This will minimize damage and speed recovery. Seek medical attention if the injury is severe or worsens.

Rest the injured area.

Ice the injured area (10-20 minutes every two hours).

Compress the injured area with a tensor bandage or towel if swelling occurs.

Elevate the injured area above the heart.

Safety Tips For Running

- Run on grass, dirt, or running tracks whenever possible. If road running is your only option, try to find a flat surface.
- Roads are higher in the middle and the slant can lead to ankle, knee, and hip problems. If you run on roads like this, run out and back on the same side so that the effect of the slant on your joints is countered.
- Avoid regular running on short indoor tracks as the constant turns can cause overuse injuries.
- Keep your body upright but relaxed. Choose a comfortable, natural stride length.
- Drink lots of water, especially on hot days. Wear light clothing that breathes.
- When running in cold weather, always layer your clothes and guard against the wind.

Buy running shoes that provide adequate cushioning, with a good heel and arch support.

General Fitness Training Principles

Overload

Although all exercise has health benefits, not all exercise produces a change in fitness. In order to see fitness improvements the body must be overloaded (stressed) beyond what it is normally accustomed to. Overload is achieved by increases in the *frequency, intensity* and *duration* of the activity. As your fitness level improves, training must be increased to maintain overloading.

Specificity

To achieve improvements in the various fitness components, specific muscle groups must be trained. This is why it is important to exercise each of your major muscle groups and take joints through their full range of motion on a regular basis. The Base physical fitness staff can tailor an exercise program to help you achieve weight control, aerobic fitness, anaerobic fitness, muscle strength, muscular endurance, power or flexibility. If, for example, you find your aerobic fitness is weak, a specific program designed to improve this component of fitness can be prepared for you.

Reversibility

Training improvements are not permanent. **If you don't use it, you will lose it.** Thus, once you reach your desired level of fitness, it must be sustained with a maintenance program. Maintenance programs are not as demanding as training programs, but they are just as important. Once you reach your goal, regular training is required to ensure you maintain your fitness.

Individuality

Not everyone responds the same way to a training program. Some individuals are naturally slim and fit; some respond faster and more favourably to conditioning. For example, not everyone will develop large, well-defined upper body muscles. This doesn't mean that those who do not develop in this manner are unfit, it simply means they have responded differently to the training. Don't try to keep up to others who may be advancing more quickly than you are. Everyone progresses at his or her own rate.

Aerobic Exercise Principles

The **FITT** principle will be used to tailor a program to meet your fitness goals. The single best predictor of performance on the evaluation circuit is aerobic fitness. As your aerobic capacity increases, your circuit performance time on the FF PFMP evaluation will decrease. In addition, the better your aerobic capacity, the easier it will be for you to complete your fire fighting duties.

The FITT Principle

F - Frequency	3-5 times per week
I - Intensity	60-90% of age-predicted maximum heart rate*
T - Time	20-60 minutes
T - Type	Activities that are continuous and rhythmical, and use large muscle groups (e.g., walking, jogging, cycling, rowing, stair climbing, etc.)

*maximum heart rate = 220 - age for men, maximum heart rate = 226 - age for women

These are general guidelines only. Age, gender, initial fitness level, current exercise habits and program goals all influence the design of your exercise prescription. Since it is important that you become involved in an exercise program that is specific to your current abilities and preferences the Base physical fitness staff will discuss these with you when designing your program.

Frequency

Frequency is the number of times per week that you exercise. To develop the required fitness level for successful performance on the annual circuit test, you should work out five times a week until you reach the maintenance stage. Once you reach the standard it may be maintained with as few as three workouts a week.

Intensity

Activities that are weight-bearing (like running) tend to stress the aerobic system more and provide better training results than activities that are weight-supported like cycling.
During aerobic exercise, intensity is commonly measured by taking your pulse and ensuring it is within the target training zone (see pg 22). In weight training, intensity refers to the amount of weight lifted or the number of repetitions of the lift. In general, the more fit the individual, the higher the exercise intensity needs to be to produce further improvement.

Time

Intensity and duration (time) are opposites. This means that if the exercise intensity is high, the length of time (duration) you will be able to do the exercise will be shorter. In general, you should increase the time spent doing continuous aerobic activity (running, cycling, etc.) to 20-30 minutes minimum before increasing the intensity (running faster or cycling up hills, for example). If you are just starting an exercise program you may only be able to complete 5 to 10 minutes of continuous aerobic exercise at a low intensity. Your individual exercise prescription, designed by the Base physical fitness staff, will recommend the appropriate intensity and duration for your training program.

Type

In the initial and improvement stages of the exercise program (as explained on the next page), it is important to closely monitor exercise intensity. For this reason, select activities such as walking, jogging, and cycling when getting started. Sport activities such as basketball and racquet sports are highly dependent on skill and vary in terms of intensity. It may be better to leave these types of activity until improved fitness is achieved.

Active Living

Considerable health benefits can be gained from moderate-intensity physical activities such as brisk walking, yard work, and active chores around home. While everyone should pursue these activities, you must realize they will not provide the improvement in physical fitness needed for the successful completion of your annual evaluation circuit. For the fitness you need, exercises such as running and weight training must be done on a regular basis.

Stages of Progression for Aerobic Training

There are three general stages of progression for aerobic training programs. You will need to make adjustments to your training program in accordance with your rate of improvement.

Initial Conditioning Stage

This stage generally lasts four to six weeks and consists of stretching exercises, light calisthenics and low-level aerobic training. The goal is to gradually progress until you are able to perform 20 minutes of continuous aerobic exercise by the sixth week. Fire fighters with good to excellent initial cardiorespiratory fitness should skip this initial conditioning stage.
In most, if not all, cases, DND/CF fire fighters will omit this stage, although it may be necessary when returning to work following a period of rehabilitation from an injury.

Improvement Stage

The improvement stage lasts between 12 and 20 weeks. The goal during this time is to increase the exercise intensity gradually, increase the duration of exercise every two to three weeks and increase the frequency of exercise from three to five times per week. Intensity, duration and frequency of exercise should be increased one at a time. The greatest conditioning effects occur during the first six-to-eight weeks of training.

Maintenance Stage

The maintenance stage begins after reaching your desired level of aerobic fitness. It generally begins four to six months after the initiation of an aerobic training program and continues on a regular, long-term basis. During this stage, a number of recreational activities can be included in the program for variety and enjoyment. For example, if you are jogging four or five days a week at the end of the improvement stage you may choose to jog only two or three days and do racquet sports or basketball, for example, on the other two days.

Gauging Exercise Intensity

Exercise intensity has a direct bearing on your rate of improvement. Monitoring your heart rate prior to, during, and at the end of your training session is important to accurately determine the intensity of your program and chart your progress.

Ideally, your resting heart rate should be taken as soon as you wake in the morning before getting out of bed, but taking it while relaxing will suffice. Monitoring your heart rate *during* an exercise session will ensure that you are working in your prescribed target heart rate zone and achieving maximal benefits. Post-exercise heart rates should be taken to ensure that adequate recovery from the session is occurring.

As you progress through your program, your resting and exercise heart rates should become progressively lower for the same amount of work, indicating that your cardiorespiratory system is becoming more efficient. Over time you should also see your heart rate return to resting, or near resting values, faster after exercise.

There are three ways to gauge intensity during your training program:

- Monitor your exercise heart rate
- The Talk Test, and
- Rating of Perceived Exertion

Ways to Monitor Your Heart Rate

Wearing a Portable Heart Rate Monitor

This is by far the easier method for heart rate monitoring. Monitors are accurate and reliable; the disadvantage is their cost. Most sporting goods stores carry a line of monitors.

Pulse Counting

- Use your right index and middle finger to apply light pressure to the radial artery (on the inside of the left wrist just above the base of the thumb) or the carotid artery (on the side of the neck just beside the Adam's apple).
  Do not press too hard.
- Count your *resting* heart rate for *15 seconds*, and multiply by four to get beats per minute.
- Count your *exercise* heart rate for *10 seconds*, and multiply by six to get beats per minute.

Calculating The Target Heart Rate Zone

To be sure you are working in your "training zone" you will need to calculate your target heart rate. You want to exercise at an intensity that raises your heart rate to between 60% and 90% of your age-predicted maximum.

Here is how to calculate it...

a) Maximum age-predicted heart rate = 220 - age (yrs) for men, 226 - age (yrs) for women

b) To find 60% of your maximum heart rate: multiply your answer in (a) by .6

c) Divide this by 6 to get number of beats per 10-second count

d) To find 90% of your maximum heart rate: multiply your answer in (a) by .9

e) Divide this by 6 to get the number of beats per 10-second count

For example, the target heart rate zone for a *30-year-old male* would be ...

a) 220 - 30 = 190

b) 190 x .6 = 114

c) 114/6 = 19 beats in 10 second count

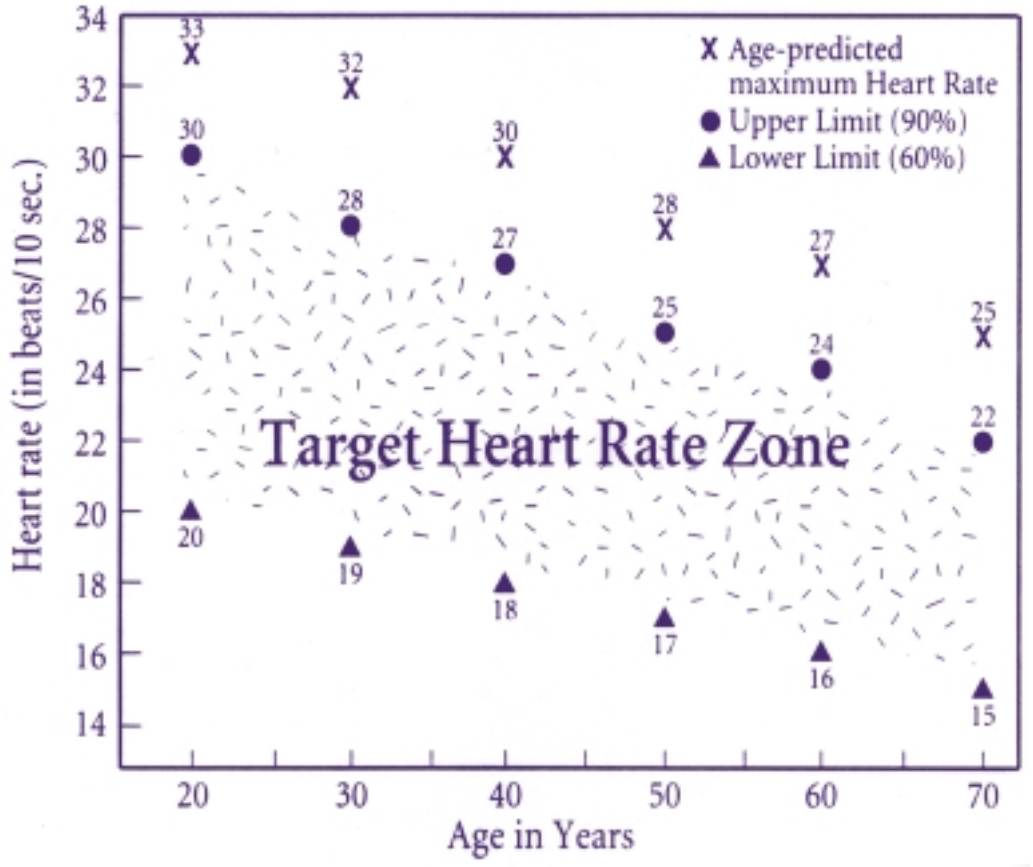
d) 190 x .9 = 171

e) 171/6 = 29 beats in 10 second count

Thus, the target heart rate range is between 114 and 171 beats/min or between 19 and 29 beats in a 10-second count.

You may also estimate your training heart rate using the Target Heart Rate chart on the following page.

Target Heart Rate Zone Chart



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Talk Test

Although not as accurate as heart-rate monitoring or the RPE scale (discussed below), the Talk Test is also useful. The underlying principle is that you should be able to maintain a conversation while exercising. If you are unable to, then you are exercising too vigorously. This method will be utilized mainly for your continuous aerobics sessions, and is referred to as the level of intensity where you can "Just Talk."

Rating of Perceived Exertion (RPE)

The Rating of Perceived Exertion Scale is a subjective measure of how hard you feel you are exercising. RPE is a reasonably accurate measure of intensity because you must "listen to how you feel" during exercise: If it feels too difficult, it probably is. Review the accompanying chart. Use the intensities corresponding to 12 (somewhat hard) and 16 (hard) on the chart to set the minimum and maximum training intensities for your exercise prescription.
RPE can be used instead of heart rate, or ideally, in combination with heart rate, to monitor your intensity and to adjust your program for maximum benefits.

RATING OF PERCEIVED EXERTION SCALE

Rating	How Hard Does The Activity Feel?
6	
7	VERY, VERY LIGHT
8	
9	VERY LIGHT
10	
11	FAIRLY LIGHT
12	
13	SOMEWHAT HARD
14	
15	HARD
16	
17	VERY HARD
18	
19	VERY, VERY HARD
20	

Getting Started – The Exercise Prescription

The exercise prescription includes:

- Warm-up and light stretching
- Individualized aerobic training program
- Individualized muscular strength and endurance training program
- Cool-down
- Flexibility exercises (optional)

Where to from here?

- Read through (or at least skim) the remainder of the manual to become familiar with the contents and format of the program.
- Complete the "Fitness Checks" prior to beginning any part of the program.
- Include a warm-up, light stretching, and cool down during *every* session.
- Make sure you read the section on Injury Prevention and Safety (on pages 13 and 14) before beginning.

Self Assessment ("Fitness Checks")

Fitness Checks will be conducted during the first week of each block in the training program. To standardize the Fitness Checks and ensure you get accurate results:

- do not eat, drink caffeine beverages, or smoke for two hours prior
- do not consume alcoholic drinks for six hours prior
- do not engage in strenuous physical activity for six hours prior, and
- wear shorts, a short-sleeved or sleeveless shirt, and running shoes.

For all Fitness Checks use the same piece of equipment so that an accurate assessment of progress can be made. Record your results on the Fitness Check Worksheet on page 25.

Aerobic Fitness Checks

Two Aerobic Fitness Checks are provided. You may choose to do either the Rockport 1-Mile Walk Test or the Twenty Metre Aerobic Shuttle Run.

Rockport 1-Mile Walk Test

The Rockport 1-Mile Walk Test is a safe and effective way for you to assess your aerobic capacity. The only equipment requirements are a stopwatch and a running track (or equivalent flat surface. You must be able to measure a distance of one mile accurately.)

You will WALK one mile as quickly as possible, maintaining a steady pace and measuring the time from start to finish. Running or jogging is *not* permitted. Start the stopwatch as you begin. Upon completion, continue walking and immediately take your heart rate. Count your pulse beginning with zero, for 15 seconds and multiply the number of beats by four, (this gives you your heart rate in beats-per-minute). Record both the time required completing the one mile (to the nearest second) and your immediate post-exercise heart rate on the Fitness Check Worksheet.

Follow the instructions on the next page to determine your fitness category.

FITNESS CHECK WORKSHEET

AEROBIC CHECK: ROCKPORT 1-MILE WALK TEST

	WEEK 1	WEEK 5	WEEK 9
TIME (to nearest second)			
HEART RATE (beats per minute)			
FITNESS CATEGORY			

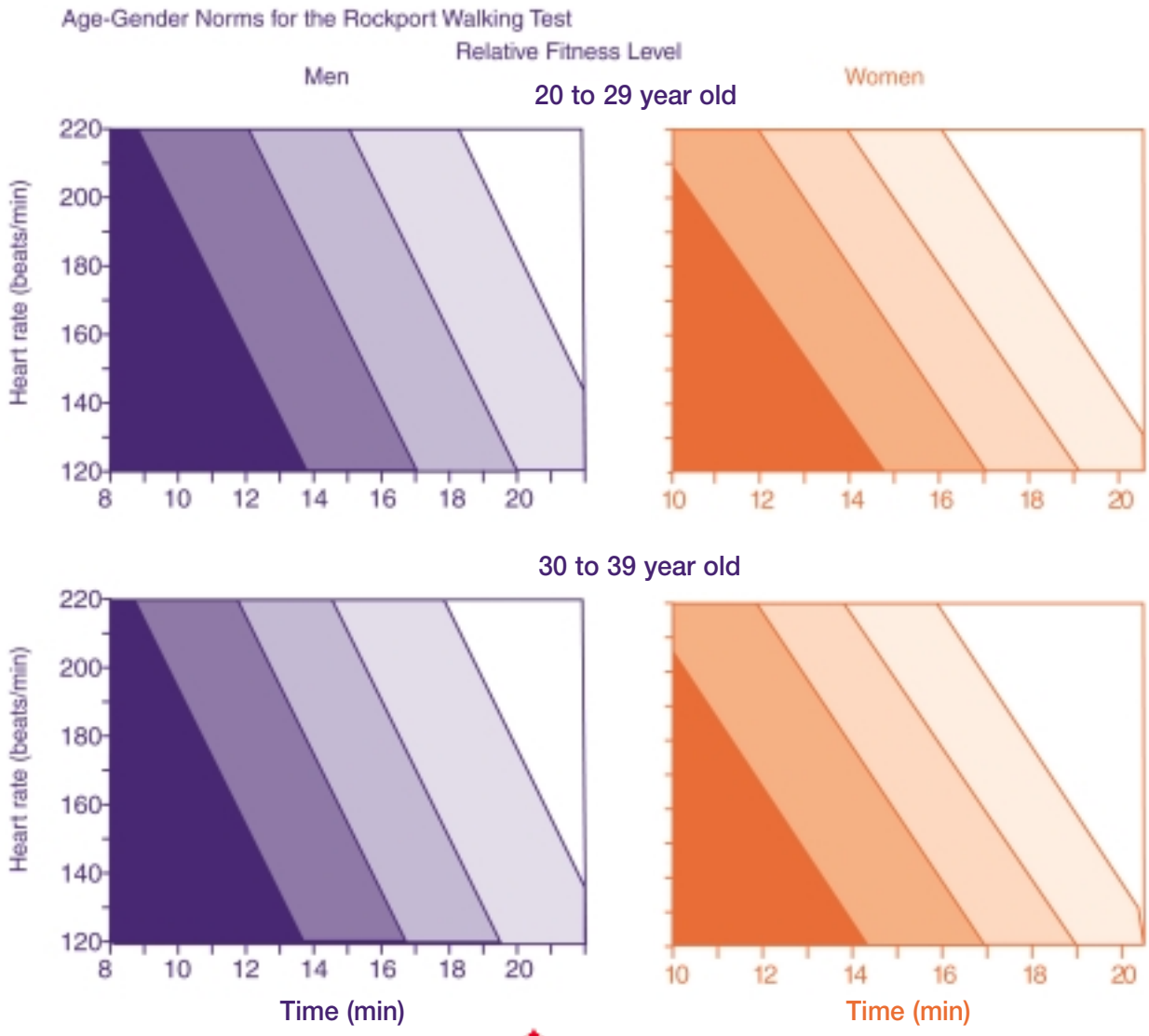
ROCKPORT 1-MILE WALK TEST - FINDING YOUR FITNESS CATEGORY

Find the Rockport Fitness Walking Test™ chart for your age and gender. On the chart, find your time for the walking test in minutes and your heart rate in beats-per-minute. Follow these lines until they meet at a point on the chart. This point tells you how fit you are compared to others your age. For example, if your mark places you in the "above average" section of the chart, your aerobic fitness is better than the average person in your category.

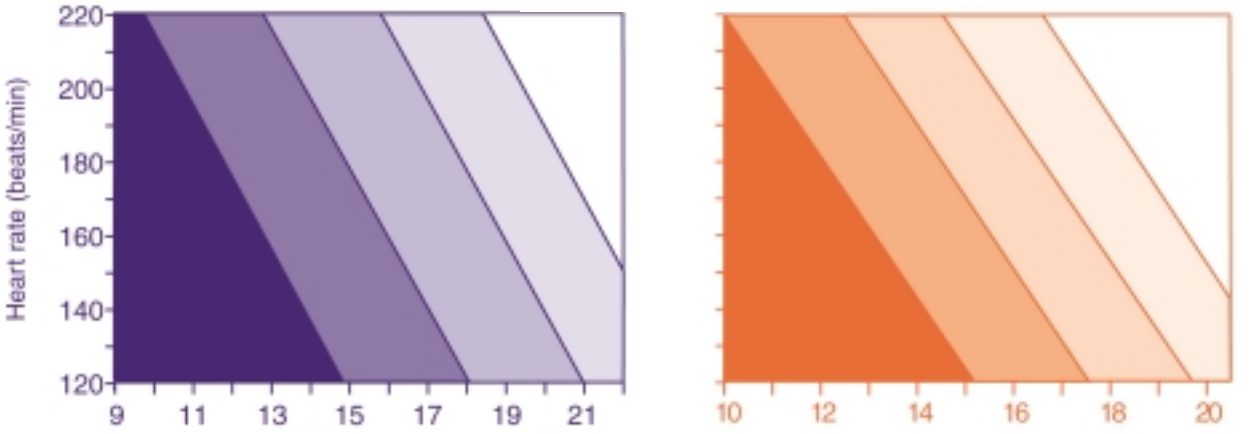
The charts are based on weights of 77 kg (170 lbs) for men and 57 kg (125 lbs) for women. If you weigh substantially less, your aerobic fitness level will be somewhat *underestimated*. Conversely, if you weigh substantially more, your aerobic fitness level will be somewhat *overestimated*.

You may also go to the Internet and do the calculation at http://www.rockport.com/fitness/ test.html

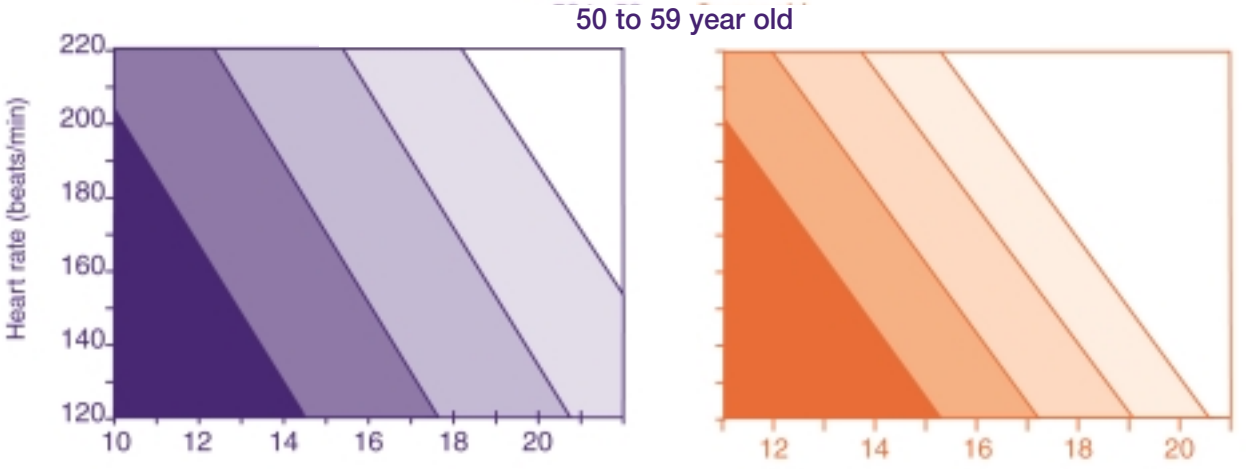
ROCKPORT FITNESS CHARTS



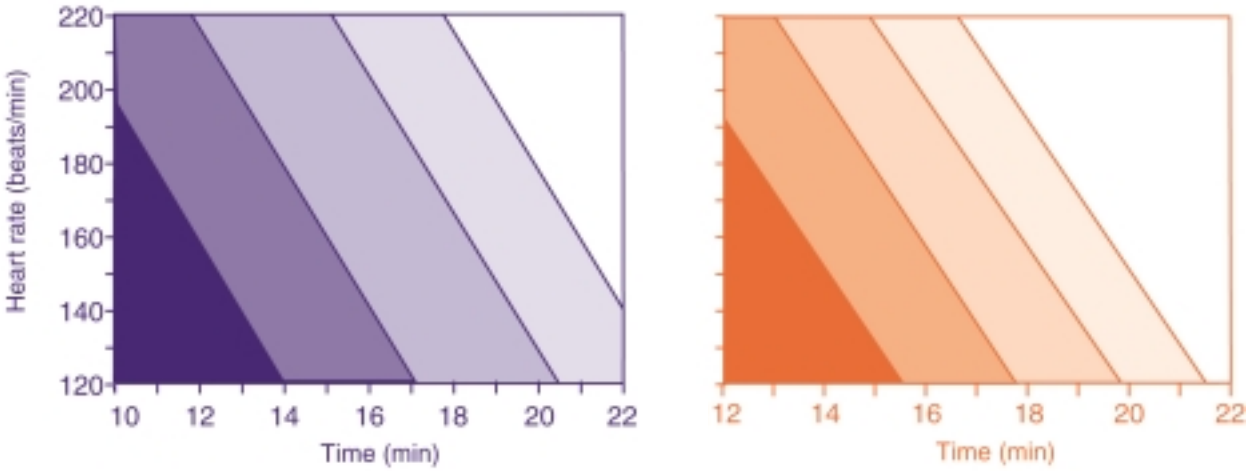
40 to 49 year old

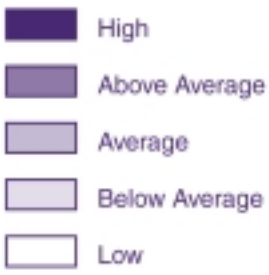


50 to 59 year old



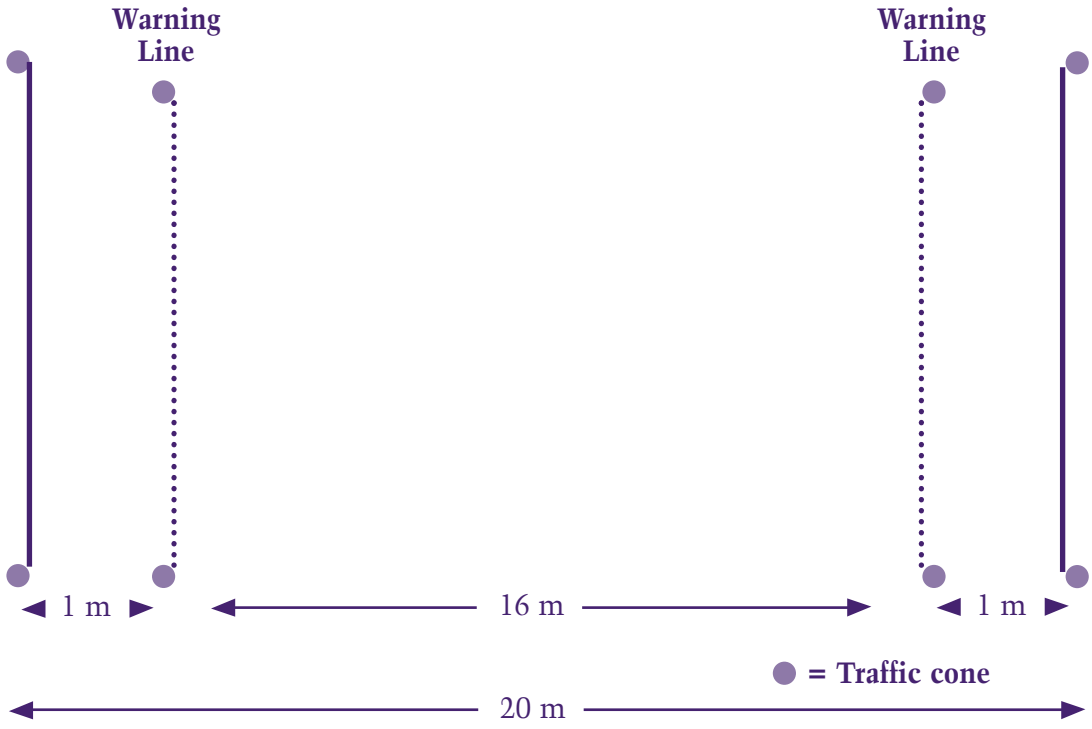
60 + year old





Twenty Metre Aerobic Shuttle Run

The 20 Metre Aerobic Shuttle Run provides an alternative way to evaluate your aerobic fitness. To do this check you will need the assistance of a member of the Base Physical Fitness staff who will provide you with the necessary equipment. In this test you run back and forth over a 20-metre course in time with a taped audio signal. The time permitted to cover the 20 metre course initially requires a very slow run, then is made progressively faster until you are no longer able to maintain the required pace. The audio signal informs you of the stage you are at as the test progresses. When you fail to reach the warning line (1 metre before the 20 metre end line) in the required time (before the beep), this is a warning to you that you must pick up your pace. You must stop after two ***consecutive*** warning-line misses. The final stage ***completed*** provides you with your aerobic fitness score. You should aim to achieve stage 8 or above. If you are interested in doing this check instead of the Rockport 1-Mile Walk you should contact the Base physical fitness staff.



The 20-Metre Shuttle Run

Power Checks

Use the Power Checks Worksheet (p. 31) to record your results in the following two measures.

Standing Long Jump

Standing behind a line, bend your legs and jump as far forward as possible (see diagram below). Record your best distance of three attempts. Measure from your toes on the starting line to where your heels land. Use a full arm swing and bend your legs to get a good push off.

Vertical Jump

Affix a measuring tape vertically on a wall as shown in the diagram . Standing close to the wall, reach your arm as far up the wall as possible, marking the wall with chalk (standing height). Move slightly away from the wall. Squat down, pause and then jump straight upward, again marking the wall with chalk at the highest point (jump height). Record both standing and jump height on the Power Checks Worksheet. Subtracting your standing height from your jump height will determine your vertical jump. Record your best jump of three attempts.

POWER CHECKS WORKSHEET

FITNESS ITEM	WEEK 1	WEEK 5	WEEK 9
Vertical Jump			
Standing height	.....	.....	.....
Jump height.....	.....	.....	.....
Difference.....	.....	.....	.....
Standing Long Jump (best of 3 attempts)			

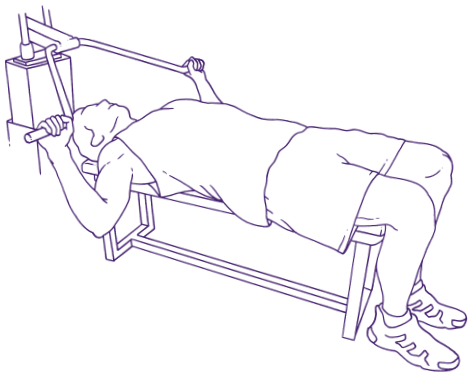
Strength Checks

Use the Strength Checks Worksheet (p. 33) to record your results in the following four measures.

Bench Press

Use either a bench press machine or a barbell. **If using a barbell, have a partner spot you to ensure safety.** Lie back on the bench, feet flat on the floor, and grip the bar with the hands slightly more than shoulder-width apart. Try one repetition with 55 kg. If you are able to lift this weight, continue to do as many repetitions as you can. If 55 kg is too heavy, lower the weight to 45 kg.

If you use 55 kg and do 15 reps or less, use 45 kg for your next fitness check. If you do more than 15 reps, use 65 kg next time. If you use 45 kg and do 15 reps or less, use 45 kg again next time.



Squats

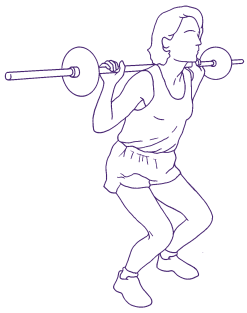
Use a squat rack with a barbell and **have a partner spot you to ensure safety.** Begin with feet shoulder-width apart, back erect and barbell on the shoulders. Squat to a 90 degree angle by bending the knees and keeping the back straight, then return to the starting position. If you can successfully squat 70 kg, continue to do as many reps as you can.

If you are unable to squat 70 kg, drop the weight to 60 kg.

If you use 70 kg and do 15 reps or less, use 60 kg for your next fitness check.

If you do more than 15 reps, use 80 kg next time.

If you use 60 kg and do 15 reps or less, use 60 kg again next time.



EXPRES Push-ups

Lie flat on your stomach with your legs together. Place your hands directly under your shoulders, fingers pointing forward and your back kept straight. Push up by straightening your arms and locking your elbows. Other than your toes and hands, no other part of your body can touch the floor while performing the push-ups. Perform as many push-ups as possible, using a steady rhythm.

EXPRES Sit-Ups

Lie on your back, knees bent at 90 degrees and feet held down by a partner. Your hands must remain on your ears and your buttocks must remain on the mat. Press your lower back against the floor and curl up touching your elbows to your knees (not your thighs). Return to the starting position making sure that your shoulder blades touch the floor before starting the next sit-up. Perform as many sit-ups as possible in 60 seconds.

STRENGTH CHECKS WORKSHEET

FITNESS ITEM	WEEK 1	WEEK 5	WEEK 9
Bench Press Weight lifted..... # repetitions.....	....	....	....
Squat Weight lifted..... # repetitions.....	....	....	....
Push-ups (# repetitions)			
Curl-ups (# repetitions)			

In addition to the Fitness Checks, you can judge if you are making progress on a weekly basis as follows...

- Are you covering more distance in a set time when walking or jogging?
- Does it take you less time to cover a set distance when running or cycling?
- Using the Perceived Exertion Scale, do your training sessions feel less demanding?
- Over time, is your heart rate lower when exercising at the same intensity and duration?
- Is your resting heart rate lower than it was initially?

WARM-UP AND COOL-DOWN

A 5-10 minute warm-up and cool-down including stretching exercises is essential during each exercise session.

Warm-Up

During a proper warm-up, blood flow increases to the working muscles, body temperature goes up, and heart and respiration rates rise. A good warm-up helps reduce the risk of muscle and joint injury or soreness. For best results:

- gradually increase the speed of exercise to prepare the body for the higher intensity work during the aerobic session
- include easy jogging, brisk walking, or similar activities at a low intensity
- do the same activity that you will be doing during your conditioning session but at a lower intensity.

Part of the warm-up includes stretching exercises. Pay particular attention to warming up your legs, lower back, hip, groin and shoulder areas.

Cool-Down

On completion of the session, continue exercising at a low intensity for an additional five minutes. This light activity:

- prevents pooling of blood in the extremities and reduces the chance of dizziness and fainting.
- speeds recovery and decreases residual soreness.

Return to the exercises that stretch the muscles most used during the exercise session. Sample exercises for warm-up and cool-down are included in the series on pages 35 and 37.

Light Stretching for Warm-Up and Cool-Down

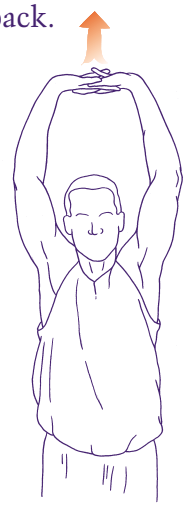
Stretching Properly

- Warm the muscles with light activity before stretching.
- Stretch slowly and smoothly, do not bounce.
- Hold the stretched position at the point of tension, never pain.
- As tension subsides, stretch further and hold the new position.
- Avoid stretching injured or painful muscles or ligaments.
- Breathe slowly and rhythmically, never hold your breath.
- Hold each stretch for at least 10 seconds. Work up to holding for 30 seconds.
- Do each stretch in the series one time.

Stretching Exercises

1 Overhead Stretch

Interlock your fingers above your head, straighten your arms and stretch them up and slightly back.

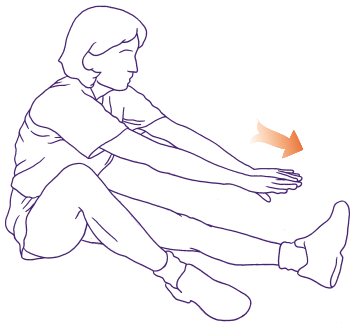


2 Side Stretch

Reach one arm overhead and the other down the side of the leg.

3 Sit and Reach

One leg straight, one bent with sole of foot near knee of straight leg. Reach out along straight leg.



4 Groin Stretch

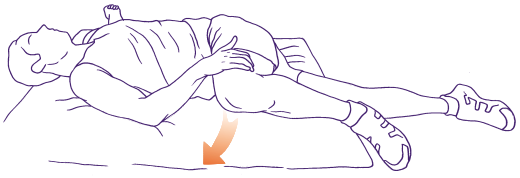
Relax with your knees bent, soles of feet together and knees apart for a comfortable stretch. For an added stretch, put gentle pressure on the insides of your knees with your hands.

5 Low back Stretch

Pull one knee toward your chest by grasping the back of the thigh with your hands. Keep the back of your head touching the floor.

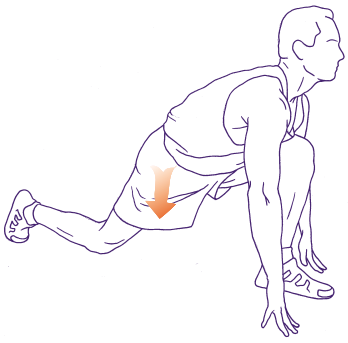
6 Leg Crossover

Place one bent leg across the other, stretching it toward the floor with gentle pressure from the opposite hand. Look in the other direction toward your outstretched arm.



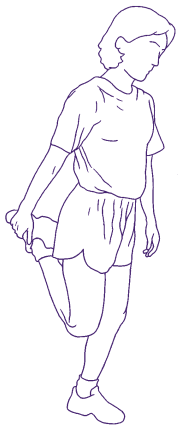
7 Lunge

Crouch over your bent front leg with the knee directly above the ankle. Place the knee of the back leg on the floor, then gently press the hip downward.



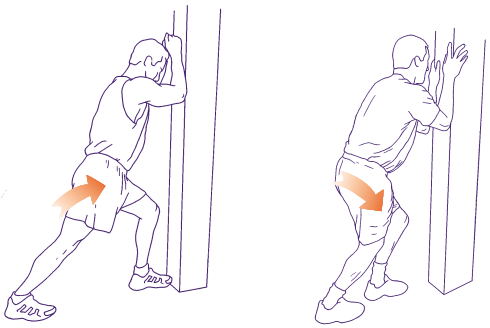
8 Thigh Stretch

Bend one knee, grasp the ankle, and pull your heel gently toward the buttock. Place your other hand on the wall for balance if you like, and don't arch your back.



9 Calf Stretch

One foot in front of the other and feet pointing straight ahead. Rock forward toward a wall bending the front leg to stretch the calf muscle of the back (straight) leg. Repeat with legs closer together and squatting to stretch the soleus muscle lower in the back leg.



10 Ankle Rocker

Slowly rock on the outside of the feet, from heels, to side, to toes, to the other side. The knees should make a circular motion.

Stretching for Improved Flexibility

Stretching for improved flexibility is best done at the end of each exercise session – after the cool-down or as a part of it while the muscles are warm. For maximum improvement, stretch three to five times a week. Initially hold each stretch for 10 seconds, working up to 30 seconds as your body adapts. Repeat each exercise two to three times.

Abdominal-Core (AbCore) Exercises

Performing AbCore Exercises Properly

- Learn correct technique before increasing the intensity of the exercises. If you are uncertain how to do an exercise, check with a member of the Base physical fitness staff.
- Work the muscles primarily in a zero-to-45 degree range of motion. Beyond this range, the loading on the muscles is less effective.
- Exhale during the lifting phase and inhale during the lowering phase.
- Keep your abdominal muscles tightly contracted throughout the entire set.
- By strengthening the abdominal and core muscles you will be able to use muscles of the upper and lower body more efficiently and powerfully.

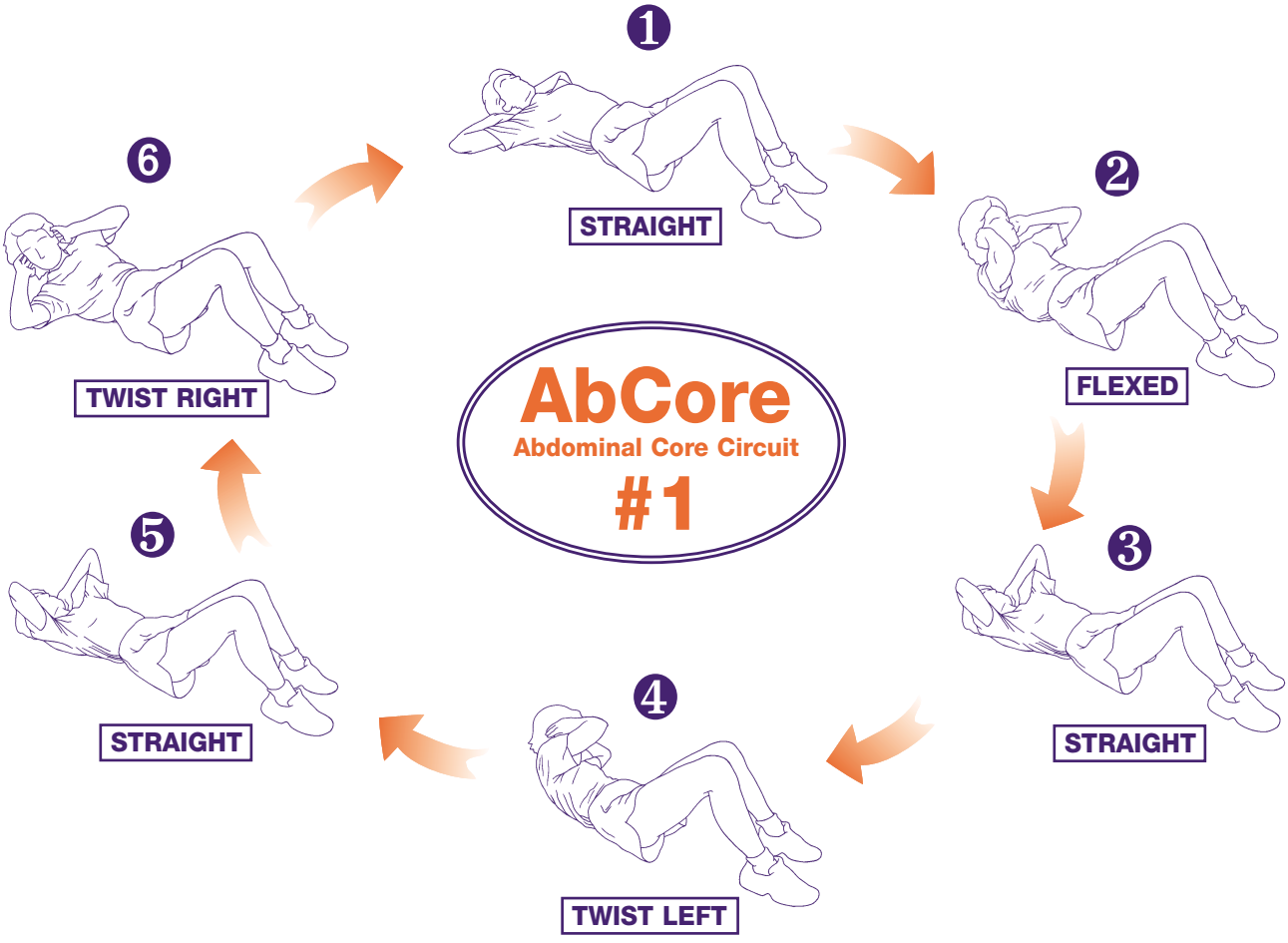
Progression

- As with other types of training, you need to apply the principle of progression to cause further adaptations.
- Start with Circuit #1 and progress from there as explained in the instructions.

Abdominal Core (AbCore) Circuit #1

Floor Exercises

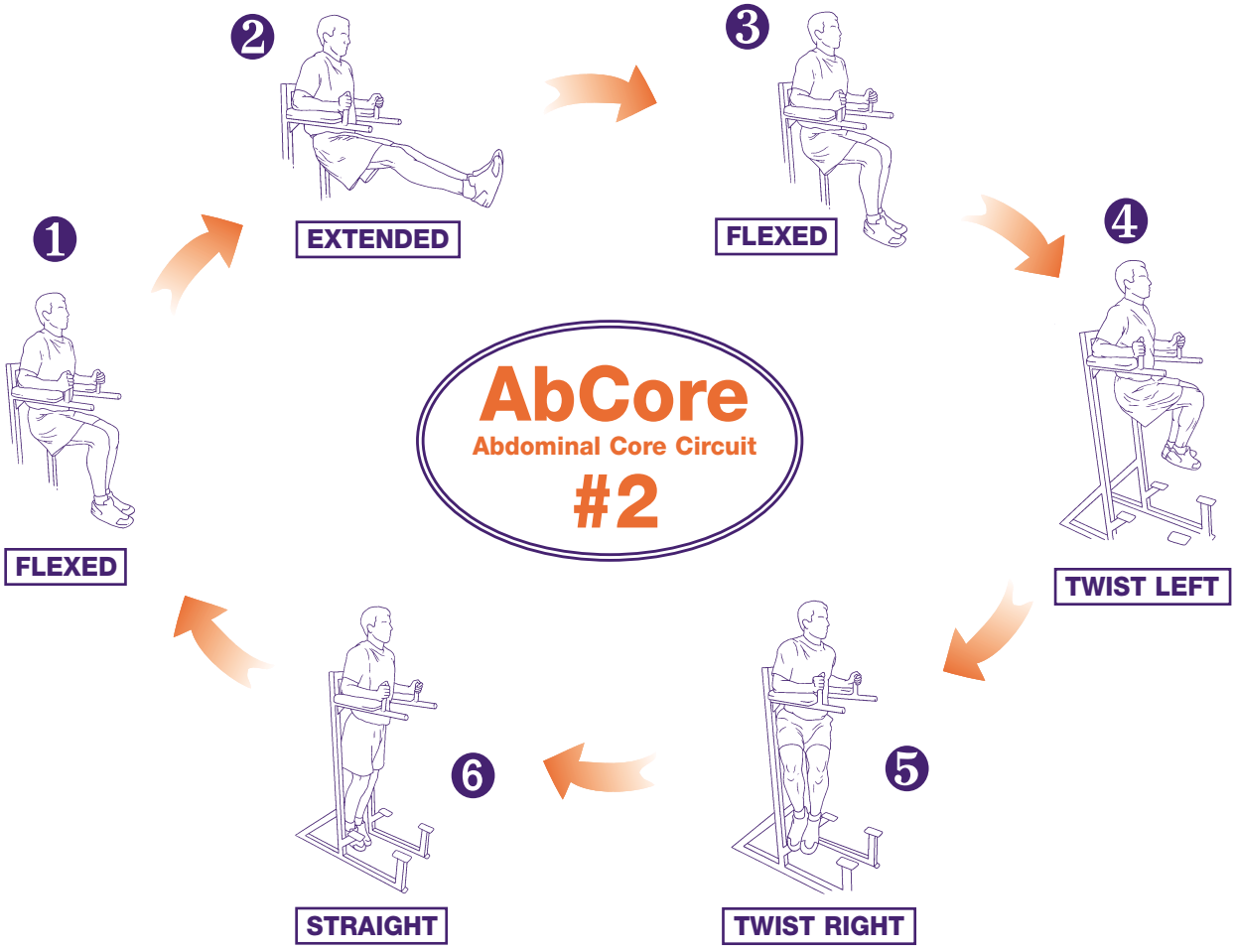
- Keep the lower body stable with the feet flat on the floor. Use the abdominal muscles to lift and twist the upper body as shown in the sequence.
- One complete sequence involves moving from position 1 through position 6, as per the diagrams below. When you get to position #6, continue to #1 and repeat the sequence.
- To begin, do the sequence of exercises (positions 1 through 6) 20 times for one set. Repeat the sequence two more times for a total of 3 sets of 20. Rest 2-3 minutes between sets.
- When you can do 3 x 20 comfortably, increase to 3 x 30, then again to 3 x 40.
- When you can do 3 x 40 comfortably, move on to Circuit #2.



Abdominal Core (AbCore) Circuit #2

Supporting on a Dip Bar

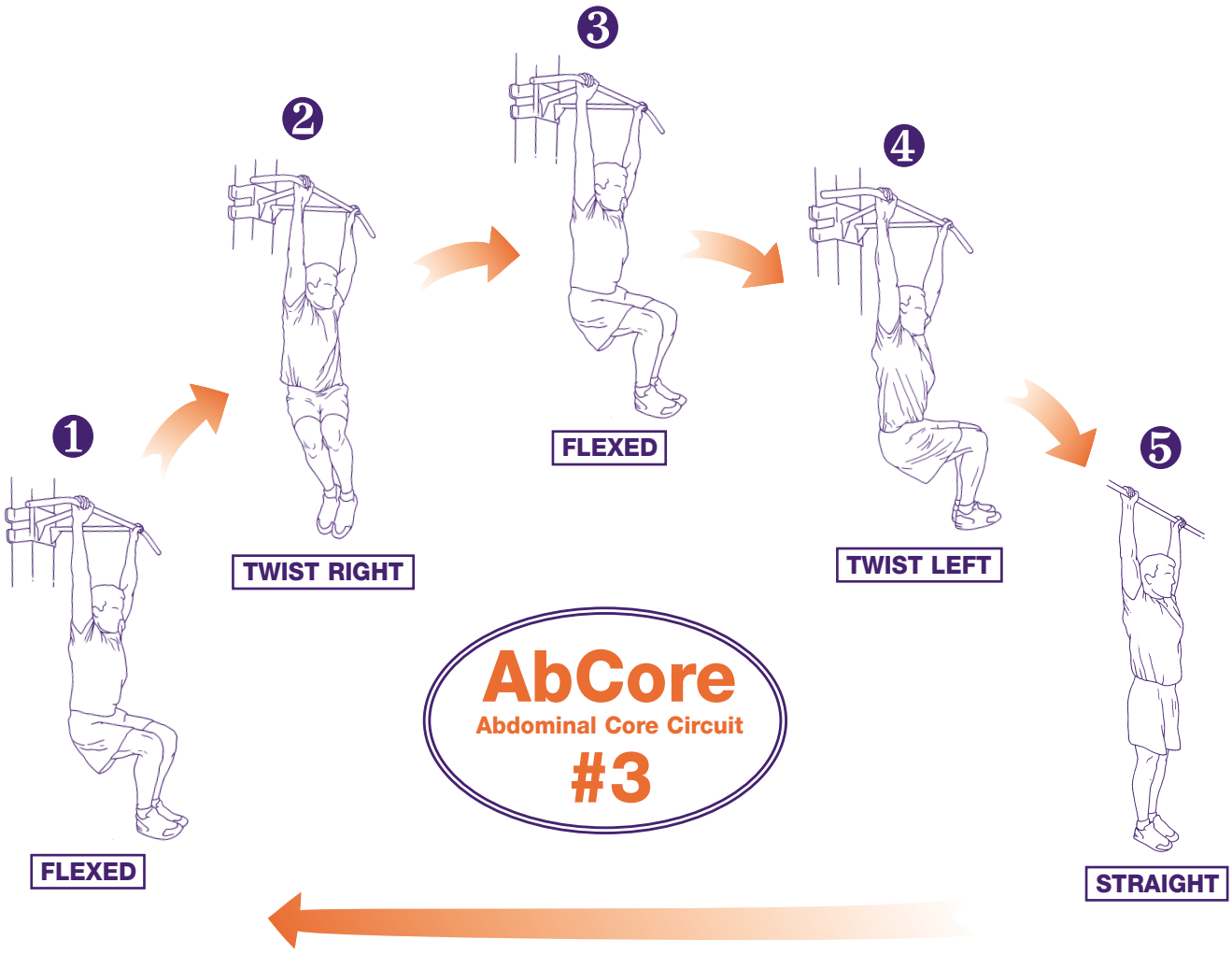
- Support the upper body on a dip bar to keep it stable. Use the abdominal muscles to move the lower body as shown in the sequence.
- One complete sequence involves moving from position 1 through position 6, as per the diagrams below. When you get to position #6, continue to #1 and repeat the sequence.
- To begin, do the sequence (positions 1 through 6) 20 times for one set. Repeat two more times for a total of 3 sets of 20. Rest 2-3 minutes between sets.
- When you can do 3 x 20 comfortably, increase to 3 x 30, then again to 3 x 40.
- When you can do 3 x 40 comfortably, move on to Circuit #3.



Abdominal Core (AbCore) Circuit #3

Hanging from a Chin Bar

- Hang from a chin bar and keep the upper body in a stable position. Use the abdominal muscles to move the lower body as shown in the sequence.
- One complete sequence involves moving from position 1 through position 5, as per the diagrams below. When you get to position #5, continue to #1 and repeat the sequence.
- To begin, do the sequence (positions 1 through 5) 20 times for one set. Repeat two more times for a total of 3 sets of 20. Rest 2-3 minutes between sets.
- When you can do 3 x 20 comfortably, increase to 3 x 30, then again to 3 x 40.



Strength Training Program

This strength training program should be done as a circuit. When the first set of an exercise is completed, you move immediately to the next exercise. Continue in this manner until you have completed two sets of each exercise. Done properly, circuit training can increase muscular strength, muscular endurance and to a lesser degree, cardiorespiratory endurance. In each session you will complete both an upper-body *and* a lower-body circuit. **The exercises are designed to be done in order.** A chart of the exercises appears on page 49.

There are four circuits to choose from for both the upper body and lower body:

- Stack weights
- Free weights (barbells or dumbbells)
- Your own body weight, and
- Medicine ball exercises.

While any of the four circuits will be beneficial, the best results will come from the use of free weights. Free weights allow you to accurately monitor your progress, and they force you to stabilize your AbCore/trunk area. Body weight and medicine ball exercises should be done to fatigue or to the repetition noted, whichever comes first. For body weight exercises, if the number of repetitions becomes too easy, add a few more or slow down the tempo.

In each session you will perform two sets of each exercise. (See the Training Prescription chart on page 46–48 for the number of repetitions.) You can complete them by doing one set of each upper-body exercise, followed by one set of each lower-body exercise, then repeating the whole circuit. Or you may choose to do exercise #1 of upper-body, exercise #1 lower-body, exercise #2 of upper-body, exercise #2 of lower-body, and so on.

Finding Your Starting Load

The proper load is the amount you can lift for **the required repetitions and no more.** This means that in a set of 15 repetitions, the weight should be what you can lift 15 but not quite 16 times. Initially you will have to experiment to find your starting loads. If the load is too heavy for your first set, decrease it for the second one. Always record the weight lifted and number of repetitions completed in your log book (see p. 81). It is not a problem if you don't do all the reps. Performing fewer reps but with a heavier load will still increase your strength.

Safety Tips

- Never sacrifice proper technique by lifting too heavy a weight.
- Use proper lifting techniques when adding weight plates to barbells or lifting free weights to the start position.
- **Work out with a partner, especially when lifting free weights and heavier stack weights.**
- Do each lift in a slow and controlled manner.
- Remember to breath normally. Exhale on the lifting (or hard) phase and inhale on the lowering (relaxation) phase.
- Keep your head in natural alignment. Don't tilt it back or tuck your chin to your chest.

Overview of The Training Program

The first week of each month includes the Fitness Checks and two days of training. Each of the three following training weeks will have five training days, active rest on Day 3 and total rest on Day 7. Here is an overview of a typical month. Full details are provided on the Training Prescription charts starting on page 45.

DAY 1 MONDAY	DAY 2 TUESDAY	DAY 3 WEDNESDAY	DAY 4 THURSDAY	DAY 5 FRIDAY	DAY 6 SATURDAY	DAY 7 SUNDAY
Power Check: Vertical jump Standing long jump **Aerobic Check:** Rockport 1-Mile Walk Test or 20 meter shuttle run	**Strength Check:** Bench press Squat Push-ups Curl-ups	ACTIVE REST	Strength Training	ACTIVE REST	Continuous Aerobic & AbCore Training	REST WEEK 1
Continuous Aerobic & AbCore Training	Strength Training		Strength Training	Continuous Aerobic & AbCore Training	Strength Training	WEEK 2
Continuous Aerobic & AbCore Training	Strength Training		Strength Training	Continuous Aerobic & AbCore Training	Strength Training	WEEK 3
Continuous Aerobic & AbCore Training	Strength Training		Strength Training	Continuous Aerobic & AbCore Training	Strength Training	WEEK 4

Guidelines For The Training Prescription

Fitness Checks

Seven "Fitness Checks" are conducted in Week 1. These tests will be used to measure your progress each month. Instructions for the Fitness Checks are on pages 25–33.

Continuous Aerobic Training

Other than during Week 1, continuous aerobic sessions are done on Days 1 and 5. The duration of each aerobic session is noted in the outline. Monitor your exercise intensity with a combination of heart rate monitoring and Rating of Perceived Exertion. It is also important to focus on maintaining an intensity where you can "just talk" (JT). If you can't maintain a conversation, you are working too hard. Adjust your pace accordingly.

Strength Training

Other than during Week 1, one upper-body and one lower-body strength circuit are done on Days 2, 4 and 6. There are four circuits to choose from for each.
Only lift a load that is reasonable for you. If you can't complete the number of repetitions prescribed, be sure to record the load you do lift and decrease the weight for the second set.

AbCore Exercises

AbCore exercises are done after your continuous aerobic session on Days 1 and 5.

Active Rest

Every Day 3 is an active rest day. This day is for other activities you enjoy. Play a sport, go for a hike …

Training Prescription for Weeks 1 to 4

DAY 1 MONDAY	DAY 2 TUESDAY	DAY 3 WEDNESDAY	DAY 4 THURSDAY	DAY 5 FRIDAY	DAY 6 SATURDAY	DAY 7 SUNDAY
Power Check: Vertical jump Standing long jump **Aerobic Check:** Rockport 1-Mile Walk Test or 20 meter shuttle run	**Strength Check:** Bench press Squat Push-ups Curl-ups	**ACTIVE REST**	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 15 reps	**ACTIVE REST**	**Continuous Aerobic** 20 min. "JT" **AbCore** 1 Circuit	**REST**
Continuous Aerobic 20 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 15 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 15 reps	**Continuous Aerobic** 20 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 15 reps	
Continuous Aerobic 20 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 12 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 12 reps	**Continuous Aerobic** 20 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 12 reps	
Continuous Aerobic 20 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 12 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 12 reps	**Continuous Aerobic** 20 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 12 reps	

Training Prescription for Weeks 5 to 8

DAY 1 MONDAY	DAY 2 TUESDAY	DAY 3 WEDNESDAY	DAY 4 THURSDAY	DAY 5 FRIDAY	DAY 6 SATURDAY	DAY 7 SUNDAY
Power Check: Vertical jump Standing long jump **Aerobic Check:** Rockport 1-Mile Walk Test or 20 meter shuttle run	**Strength Check:** Bench press Squat Push-ups Curl-ups	**ACTIVE REST**	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 10 reps	**ACTIVE REST**	**Continuous Aerobic** 25 min. "JT" **AbCore** 1 Circuit	**REST**
Continuous Aerobic 25 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 10 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 10 reps	**Continuous Aerobic** 25 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 10 reps	
Continuous Aerobic 25 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 10 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 10 reps	**Continuous Aerobic** 25 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 10 reps	
Continuous Aerobic 25 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 8 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 8 reps	**Continuous Aerobic** 25 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 8 reps	

Training Prescription for Weeks 9 to 12

DAY 1 MONDAY	DAY 2 TUESDAY	DAY 3 WEDNESDAY	DAY 4 THURSDAY	DAY 5 FRIDAY	DAY 6 SATURDAY	DAY 7 SUNDAY
Power Check: Vertical jump Standing long jump **Aerobic Check:** Rockport 1-Mile Walk Test or 20 meter shuttle run	**Strength Check:** Bench press Squat Push-ups Curl-ups	**ACTIVE REST**	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 8 reps	**ACTIVE REST**	**Continuous Aerobic** 30 min. "JT" **AbCore** 1 Circuit	**REST**
Continuous Aerobic 30 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 8 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 8 reps	**Continuous Aerobic** 30 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 8 reps	
Continuous Aerobic 30 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps	**Continuous Aerobic** 30 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps	
Continuous Aerobic 30 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps		**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps	**Continuous Aerobic** 30 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps	

Upper Body Exercises

BODY PART	STACK WEIGHTS	FREE WEIGHTS	BODY WEIGHTS	MEDICINE BALLS
CHEST	Bench press	Bench press (Barbell)	Push-ups (Fingers forward)	Chest press (Lying on back)
BACK	Lat pull-downs	Bent-over rows w/bench (Dumbbells)	Back extensions (machine)	Dead lifts
SHOULDER	Shoulder press	Seated press (Dumbbells)	Push-ups (Hands wide)	Seated press
BICEP	Bicep curls	Bicep curls	Chin ups (Hands under)	Bicep curls
TRICEP	Triceps extensions	Overhead triceps extension	Triceps dips	Triceps overhead Press
FOREARM	--	Wrist rollers	Ball squeezes	--

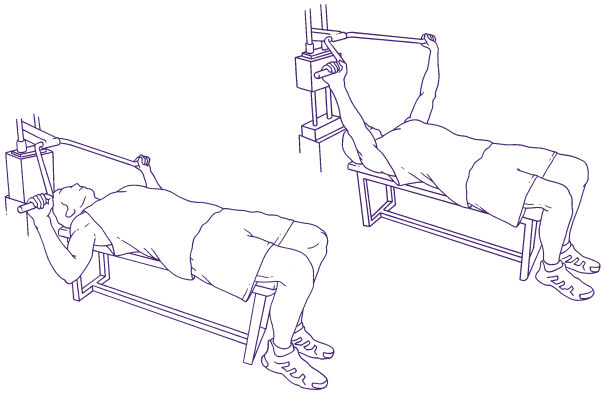
Lower Body Exercises

BODY PART	STACK WEIGHTS	FREE WEIGHTS	BODY WEIGHTS	MEDICINE BALLS
QUADRICEPS	Quad extensions	Squats	Squats	Knee extensions
LEG	Leg press	Step ups	Step ups	Step ups
HAMSTRINGS	Hamstring curls	Dead lifts	Back extensions (machine)	Back extensions (machine)
THIGH	Hip abduction hip adduction	Hip abduction hip adduction (with bands)	Lying hip abduction hip adduction	Squats
CALF	Calf extensions	Calf raises	Calf raises	Calf raises

UPPER-BODY EXERCISES - STACK WEIGHTS

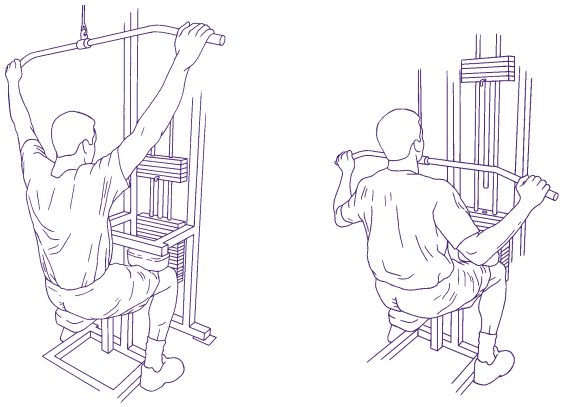
1 Bench Press

Lying flat on the bench, grasp the bar in a secure grip with the hands a comfortable distance apart, and then press it to arms' length above the chest.



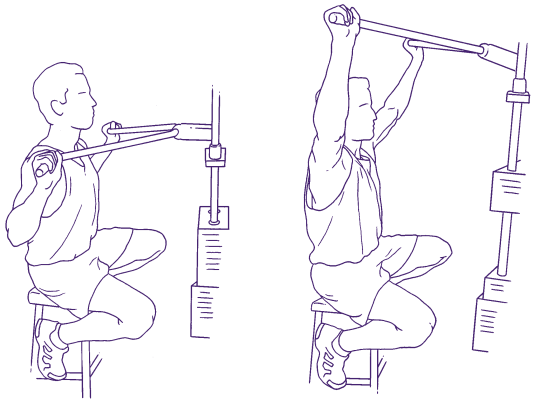
2 Lat Pull-downs

Seated on a bench (or kneeling), pull the bar down in front of your face to shoulder level.



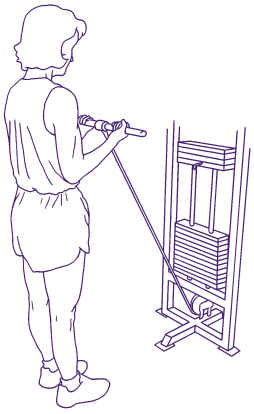
3 Shoulder Press

Seated, push the bar up from shoulder height until the arms are fully extended overhead.



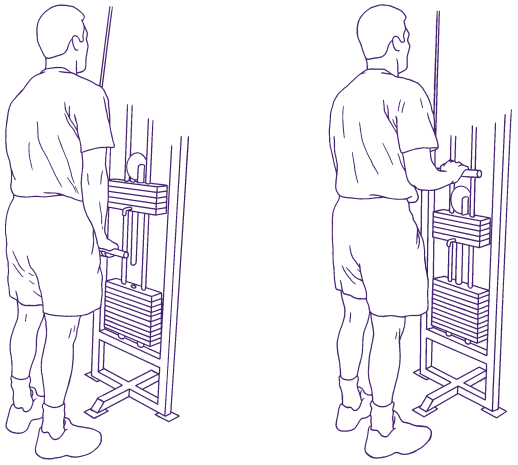
4 Bicep Curls

Arms down in front and fully extended, grasping the bar with the thumbs facing out. Curl the bar, pulling the hands up under the chin.



5 Triceps Extensions

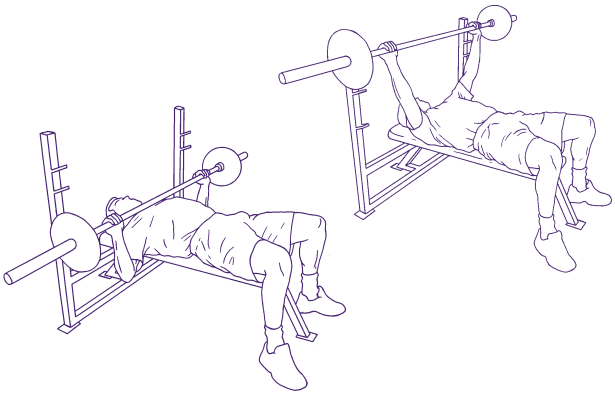
Hands close together and elbows bent 90 degrees; push hands down until the arms are straight.



UPPER-BODY EXERCISES - FREE WEIGHTS

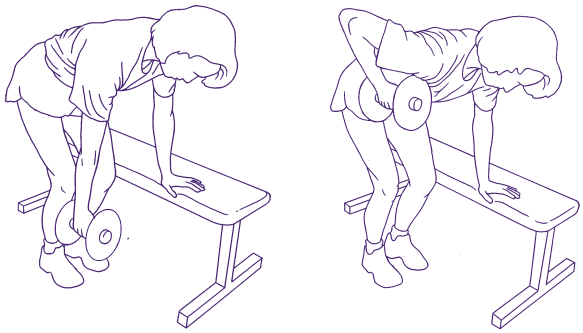
1 Bench Press

Lying flat on the bench, grasp the bar in a secure grip with the hands a comfortable distance apart, and then press it to arms' length above the chest.



2 Bent-Over Dumbbell Row

Standing, lean forward with one arm supported on a bench, knees slightly bent, and back parallel to the floor. Grasp the dumbbell below with arm extended, then flex at the elbow to raise it up under the shoulder.

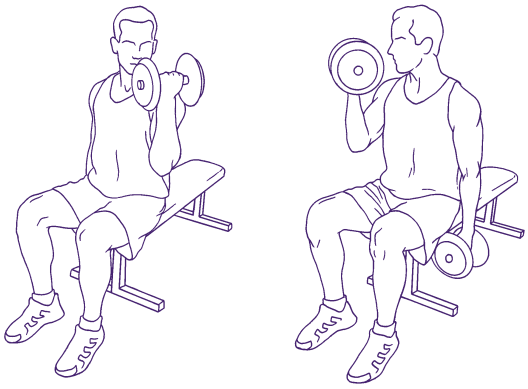


3 Seated Press

Holding dumbbells at shoulder height, straighten the arms pressing the dumbbells to full arm extension overhead.

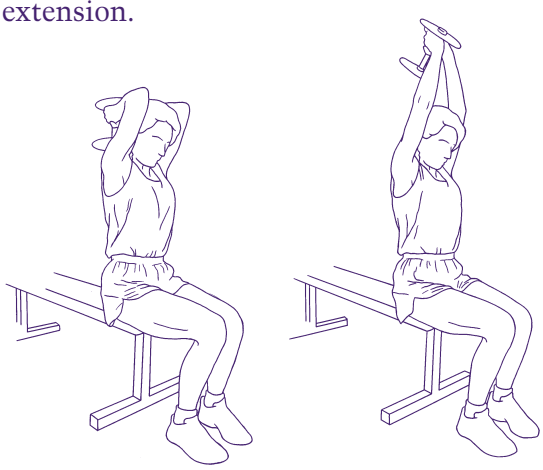
4 Bicep Curl

Seated, arms extended below and at your sides grasping the dumbbells. Curl one dumbbell up to shoulder height then curl it back down. Do alternately with the other arm.



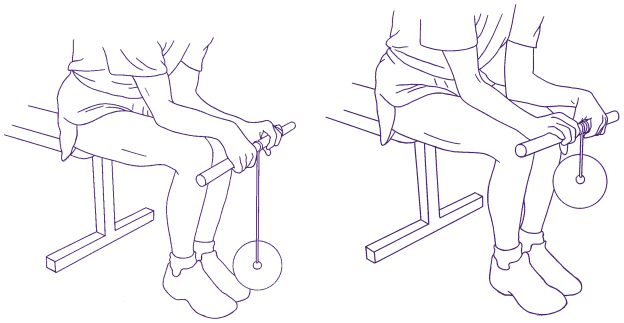
5 Triceps Overhead Extension

Holding one dumbbell overhead with both hands, bend the elbows to lower the weight behind the head then return to full arm extension.



6 Wrist Rollers

Seated, forearms resting on your thighs, grasping the bar in over handed grip. Rotate bar clockwise until the weight is raised as far as possible toward the bar. Lower the weight by rotating the bar counter-clockwise until the weight reaches the floor.



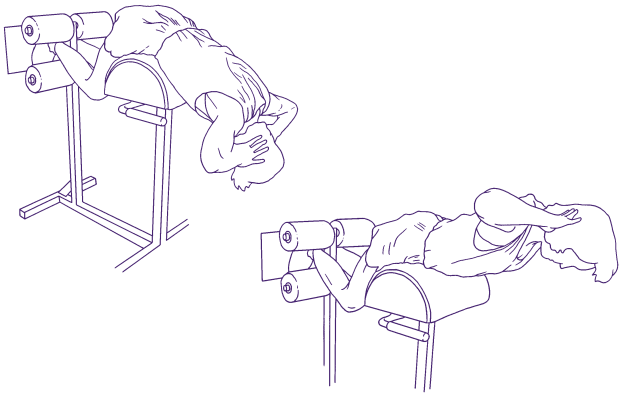
UPPER-BODY EXERCISES - BODY WEIGHT

1 Push-ups (fingers forward)

With the body held straight, push up, straightening the arms.

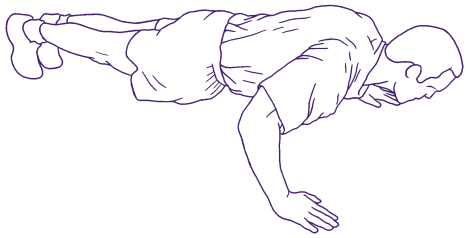
2 Back Extensions

With the feet secured, hang your upper body down over the end of a bench with the hands clasped behind the head. Raise the upper body until parallel with the floor. Do not go above parallel.



3 Push-ups (hands wide)

With the body held straight and hands out wide (more then shoulder-width apart), push up straightening the arms.

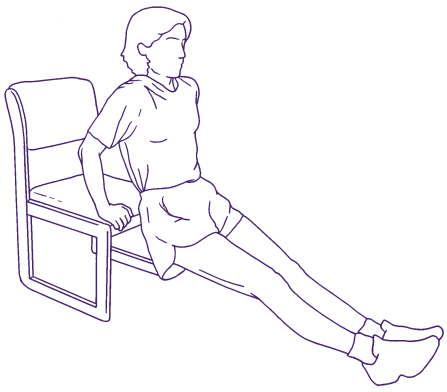


4 Chin Ups (hands under)

Hands shoulder-width apart with thumbs facing out, pull up until your chin reaches the bar. Inhale as you pull up; exhale on the way back down.

5 Triceps Dips

With the palms supported on a chair or bench behind your back, extend the arms until they are straight.



6 Ball Squeezes

Grasp a tennis ball in one hand and squeeze maximally. Hold for 20-30 seconds.

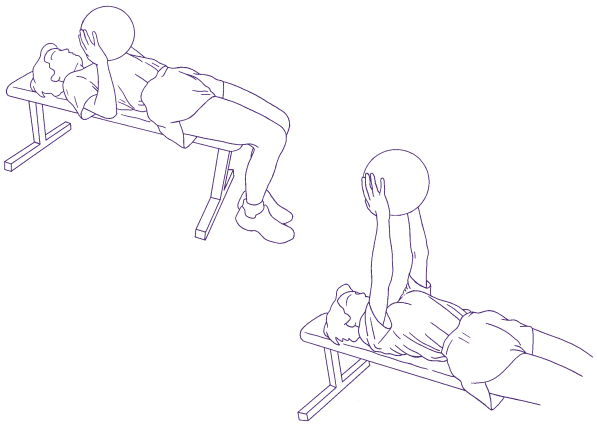
Note:

For exercise #4, if you are unable to do a single chin-up at first, perform "negatives". Use a box or chair to place your chin level with the bar, and then slowly lower yourself until your arms are straight. Try and pull yourself back up, then use the box to get back up to the bar and repeat. Alternatively, a partner can support and lift some of your weight during the pull-up phase.

UPPER-BODY EXERCISES - MEDICINE BALL

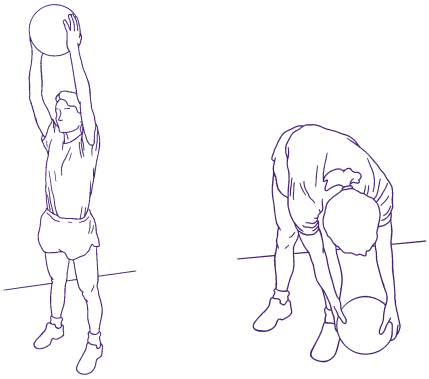
1 Chest Press (lying on back)

Lying flat on a bench, grasp the ball above your chest in a secure grip. Press the ball to arms' length above the chest by extending your arms.



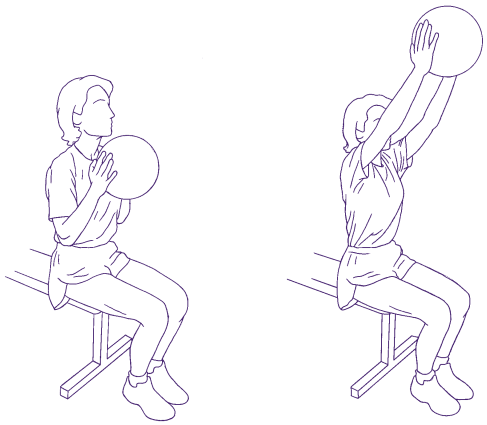
2 Deadlifts

With feet shoulder-width apart hold the medicine ball over your head with arms extended. Leaving arms extended, bend forward at the waist, touching the ball to the left ankle. Return to the starting position, repeat touching right ankle. Keep your knees slightly bent throughout.



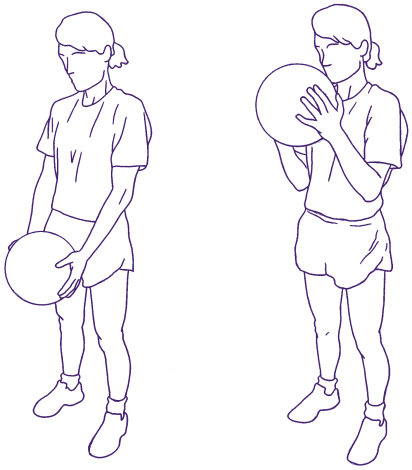
3 Seated Press

Seated, grasp ball, palms in and at neck level. Extend arms, pressing ball upward. Return to start position.



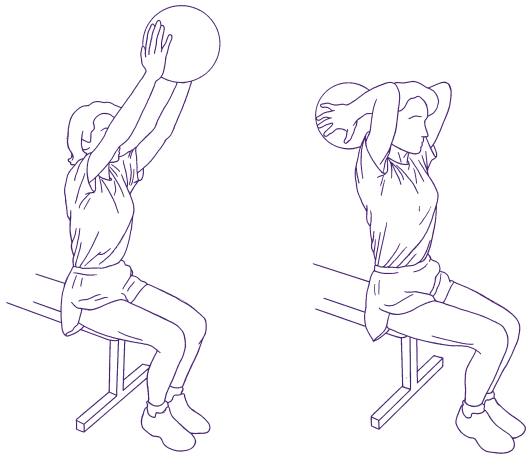
4 Bicep Curls

Standing, arms extended downward, grasp ball with palms in. Curl ball up to shoulder height, then curl back down to start position.



5 Triceps Overhead Press

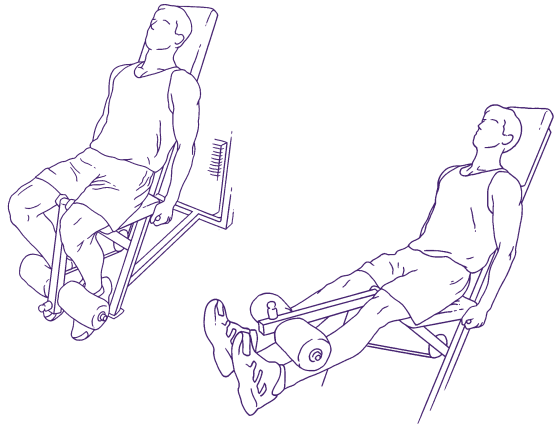
Seated, grasp ball overhead with both hands. Bend the elbows to lower the weight behind the head then return to full extension. Keep your elbows close to the side of your head throughout movement.



LOWER-BODY EXERCISES - STACK WEIGHTS

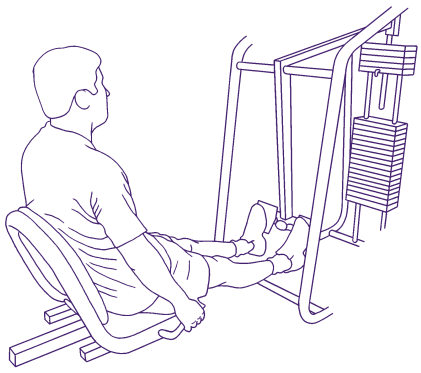
1 Knee Extensions

Seated, shins behind the padded movement bar, extend the knees to straighten the legs in front. Do not lock your knee, always maintain slight flexion.



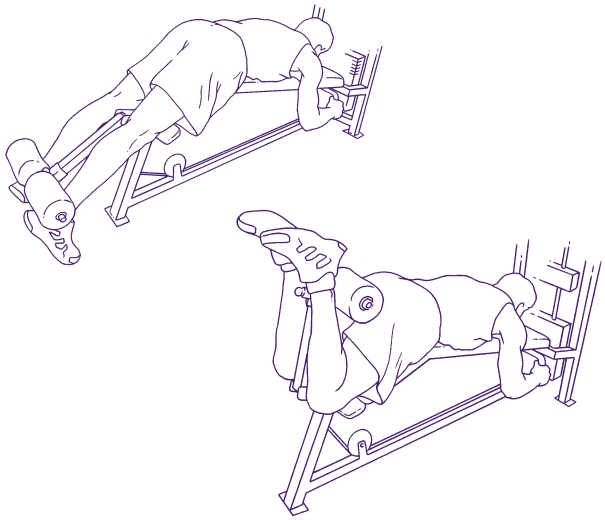
2 Leg Press

Set seat for a 90 degree bend at the knee and with the insteps on the pedals, push the pedals away extending the legs fully. (You can also do a single leg press.)



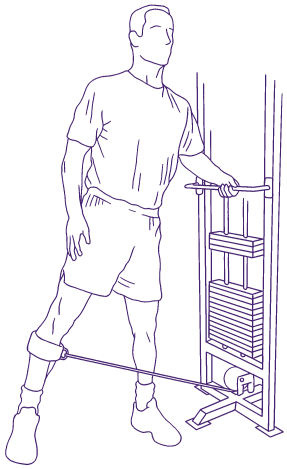
3 Hamstring Curls

With kneecaps just past the end of the bench, flex the knees, pulling the heels toward the buttocks.



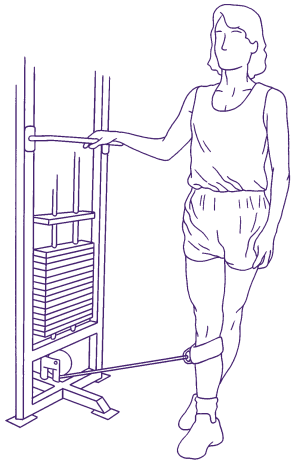
4 Hip Abduction

With the loop just below the knee on the leg farthest away from the pulley, draw that leg up and away.



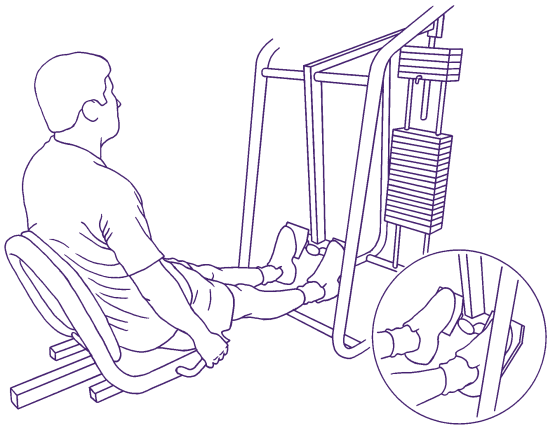
5 Hip Adduction

With a padded loop just below the knee, draw the leg closest to the pulley across in front of the other.



6 Calf Raises

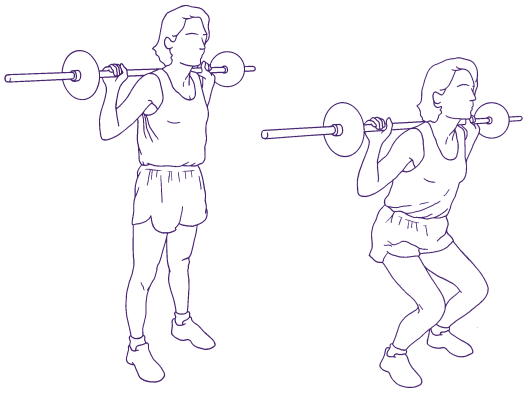
Insteps on the pedals and legs straight, push pedals away from you with your toes.



LOWER-BODY EXERCISES - FREE WEIGHTS

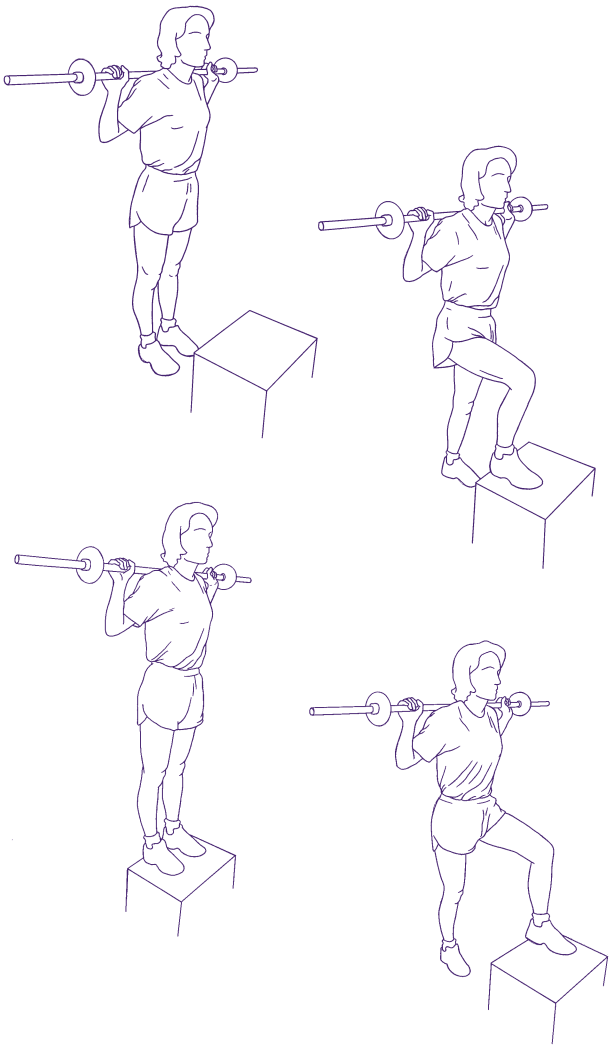
1 Squats

Standing erect, feet shoulder-width apart, toes pointing slightly outward, and barbell held on shoulders, bend legs to squat (no lower than thighs parallel with the floor) then return to full standing position.



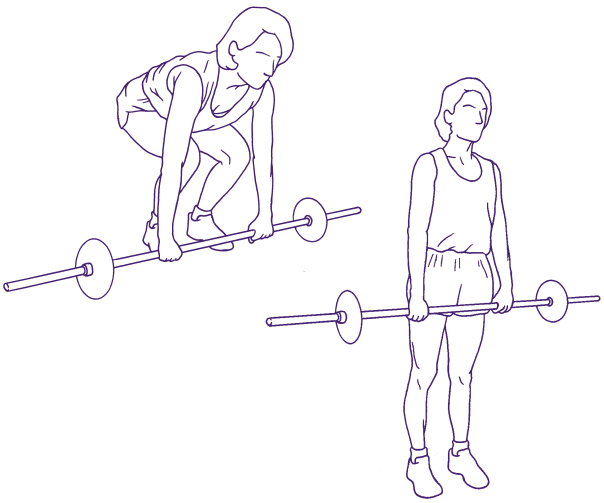
2 Step Ups

Standing erect in front of a 30-cm step, barbell held on shoulders. Place one foot on top of step, and then lift body upward until standing erect on top of step. Return to standing on floor by stepping down with trailing leg. Complete repetitions on one leg, then repeat on the other leg.



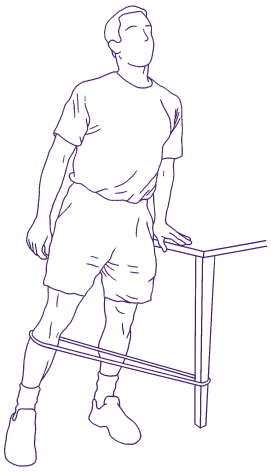
3 Dead Lift

Grasp barbell in front with arms extended and legs bent, straighten legs to assume upright standing position.



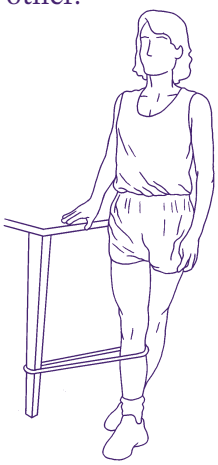
4 Hip Abduction

Standing side on to a wall or bench for balance and using an ankle weight or tubing, draw the outside leg up and away.



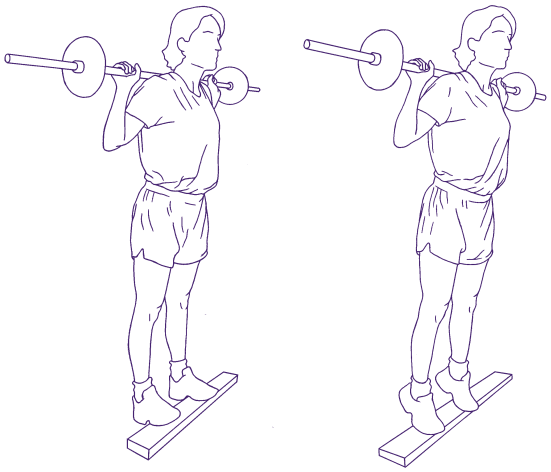
5 Hip Adduction

Standing side on to a wall or bench for balance and using an ankle weight or tubing, draw the outside leg inward and across in front of the other.



6 Calf Raises

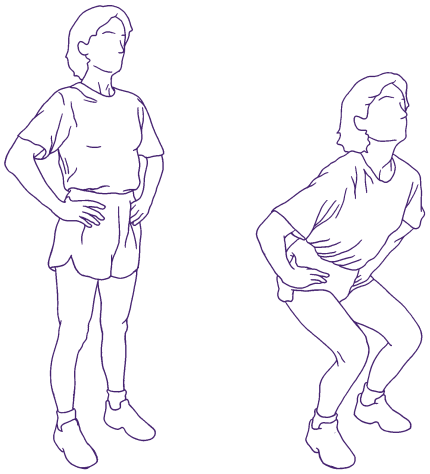
Forefeet supported on a low board and barbell held securely on the shoulders, raise up on the toes then slowly lower heels to the floor.



LOWER-BODY EXERCISES - BODY WEIGHT

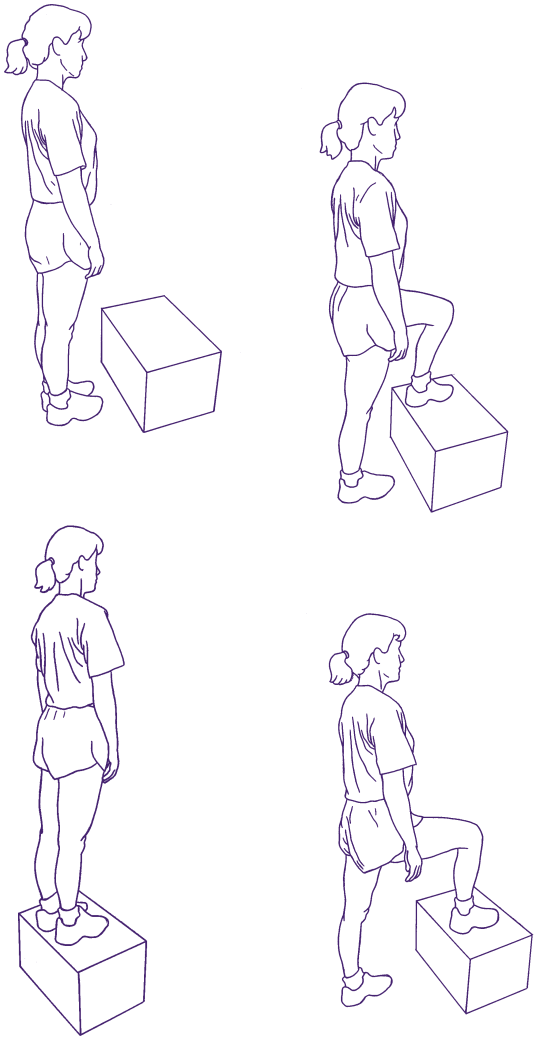
1 Squats

With hands on hips, bend the legs squatting (no lower than thighs parallel to floor) then return to full standing position.



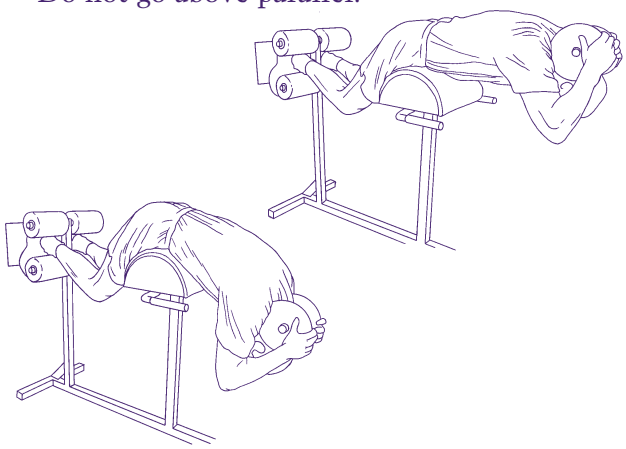
2 Step Ups

Standing erect in front of a 30-cm step. Place one foot on top of step, and then lift body upward until standing erect on top of step. Return to standing on floor by stepping down with trailing leg. Complete repetitions on one leg, repeat on other leg.



3 Back Extensions (on machine)

With the feet secured, hang your upper body down over the end of a bench with the hands clasped behind the head. Raise the upper body until parallel with the floor. Do not go above parallel.

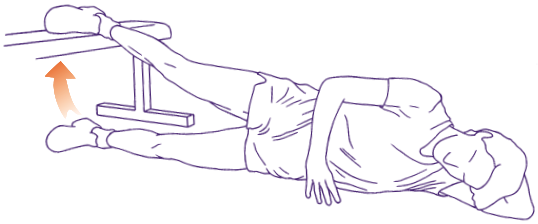


4 Hip Abduction

Lying on your side, raise both legs 10-15 cm while keeping the legs together. Switch sides and repeat.

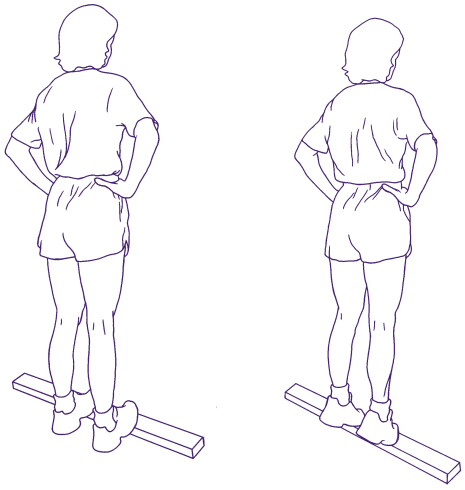
5 Hip Adduction

Lying on your side, rest the foot of the top leg on a bench about 30 cm high then pull the bottom leg up to the top one. Switch sides and repeat.



6 Calf Raises

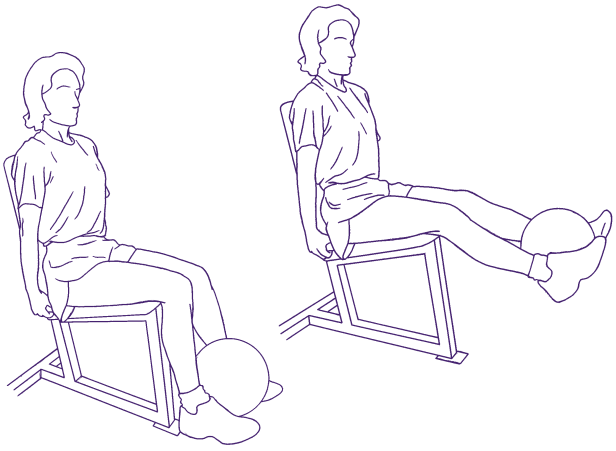
Forefeet supported on a low board, raise up on the toes then slowly lower heels to the floor.



LOWER-BODY EXERCISES - MEDICINE BALLS

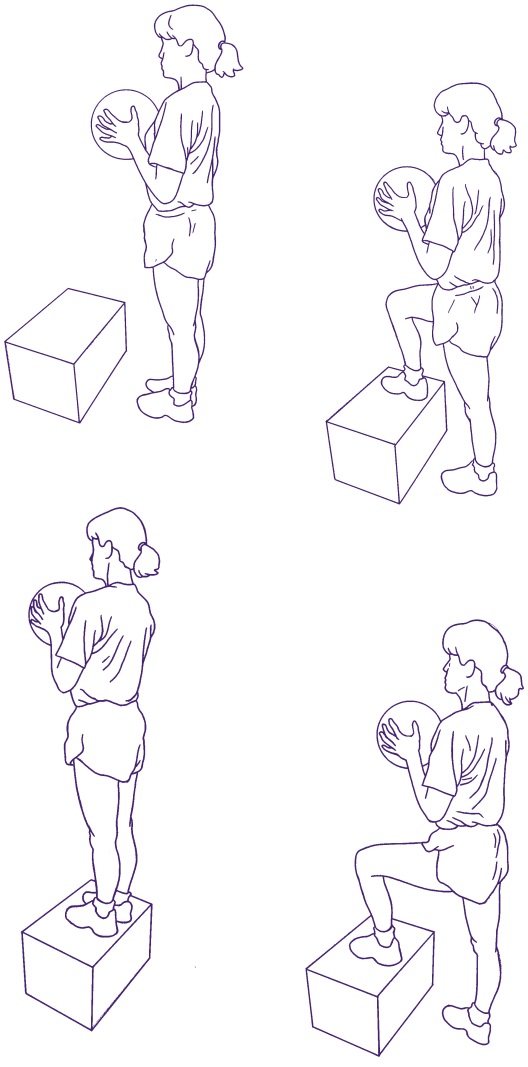
1 Knee Extensions

Seated on the edge of a bench, grasp ball between ankles. Extend knees to straighten legs in front. Do not lock the knees. Always maintain slight bend in the knees.



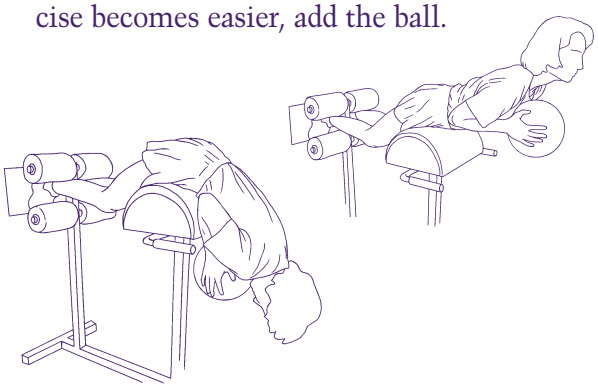
2 Step Ups

Standing erect in front of a 30-cm step, ball held into chest. Place one foot on top of step, and then lift body upward until standing erect on top of step. Return to standing on floor by stepping down with trailing leg. Complete repetitions on one leg, then repeat on the other leg.



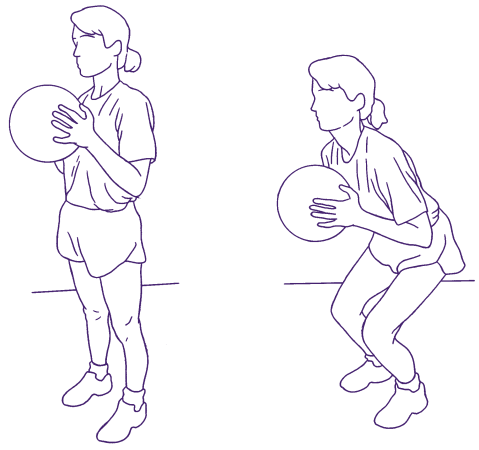
3 Back Extensions (machine)

With feet secured, hang your upper body down over the end of the bench. Hold ball into chest. Raise the upper body until parallel with the floor. Do not go above parallel. Note: At first it may be necessary to perform this exercise without the ball. As the exercise becomes easier, add the ball.



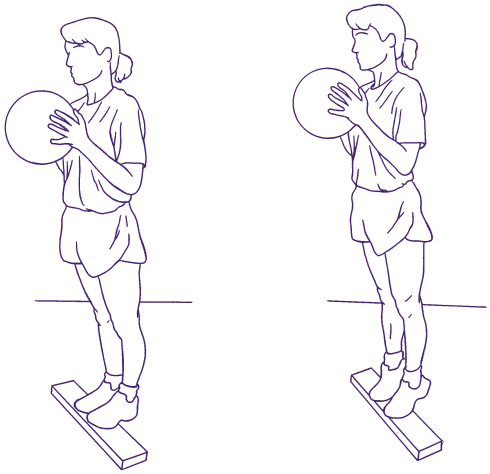
4 Squats

Holding ball into chest, bend the legs to squatting (no lower than thighs parallel to floor) then return to full standing position.



5 Calf Raises

Forefeet supported on a low board and ball held into chest, raise up on the toes then slowly lower heels to the floor.



The Maintenance Program

If you have successfully completed the test circuit, or you just finished the three-month conditioning improvement program, the following maintenance program will be of interest to you. While the *intensity* of training must be at least the same as it was in your conditioning program, you can decrease the total *volume* of work per week. You need only to complete two continuous aerobic sessions and two strength training sessions each week. Sunday is still a total rest day.

It is your choice which days you work out. Just remember **you need a minimum of one day between strength training sessions to allow for adequate recovery**. Add variety to your program to keep it interesting.

It is a good idea to complete the Fitness Checks periodically. You can continue to do them at the start of each four-week cycle or you could do them every other month.
Below is a sample one-week maintenance program. Use it as a guide for your own routine.

DAY 1 MONDAY	DAY 2 TUESDAY	DAY 3 WEDNESDAY	DAY 4 THURSDAY	DAY 5 FRIDAY	DAY 6 SATURDAY	DAY 7 SUNDAY
Continuous Aerobic 30-60 min. "JT" **AbCore** 1 Circuit	**REST**	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps	**Continuous Aerobic** 30-60 min. "JT" **AbCore** 1 Circuit	**Strength** 1 UB Circuit 1 LB Circuit 2 sets x 6-8 reps	**ACTIVE REST**	**REST**

Environmental Factors Affecting Exercise

The environment can affect your workout. Exercising in extremely hot or cold weather requires caution and care.

Exercising in the Heat

When the temperature or humidity is too high, it is difficult to cool the body so outdoor exercise should be minimized. The better your fitness level, though, the easier it is for you to tolerate the heat.

Individuals at risk for heat illnesses include those who are:

- poorly acclimatized to heat
- not well-conditioned
- heavily muscled
- already dehydrated or suffering a heat injury
- sleep deprived
- feeling ill with a fever or stomach illness
- under the influence of alcohol and/or substances such as amphetamines, cocaine, hallucinogens, laxatives or narcotics
- taking medications, including antihistamines, beta-blockers, and diuretics for blood pressure control.

Here are some ways to avoid problems while exercising in hot weather.

Acclimatization

Exercising moderately in hot weather can result in the body making changes that actually improve performance and heat tolerance. Acclimatization is one of the most effective ways to prevent heat stress. It takes about 10 days to acclimatize to a hot, humid environment, so it's important to go slowly at first.

Heat acclimatization is also lost very rapidly. One day of heat acclimatization is lost over two to three days without heat exposure, so full acclimatization is lost after about three weeks. Individuals carrying excess body weight will require a longer period of time to acclimatize and will need to drink more water during their workouts.

Clothing

Choose light coloured, lightweight, and breathable clothing. Heavy sweat suits and rubberized plastic suits reduce heat loss and increase sweating. **This is a potentially hazardous situation, so avoid heavy, nylon or rubber garments.**

Hydration

Thirst is a poor indicator of your body's need for water. Regardless of your thirst, drink at least 250 ml (1 cup) of water 20-30 minutes prior to exercise, take regular fluid breaks during training and drink more water after. For every half kilogram (1 lb) of water lost in sweat, 500 ml (2 cups) of water must be consumed.

Time of day

When it is hot and humid, schedule your workouts for early morning or evening to avoid the hottest part of the day.

Exercising in the Cold

It is more difficult to adjust to exercise in the cold than in the heat. In general, cold does not impair exercise capacity, but the numbing of exposed flesh and the bulk of extra clothing can be a problem. Clothing must allow for the evaporation of sweat, but at the same time provide protection from the wind and cold.

Common causes of cold related injuries are:

- restrictive clothing or clothing with inadequate insulation
- poor diet
- pre-existing fatigue or general weakness
- smoking
- use of alcohol or other substance abuse
- poor circulation in the legs and arms
- age (very young or old).

Reducing The Risk of Cold Injuries

- Check weather conditions and take appropriate precautions. If it is very cold outside look for alternative indoor activities.
- Dress in several light layers. Good fabrics are wool, wool/synthetic blends, polypropylene, and treated polyesters.
- Wear wind-proof, well-insulated and breathable garments (including mitts, gloves, a hat and a scarf) that allow water vapour to escape. Cotton has poor insulating ability and it's insulation decreases when saturated with sweat.
- Avoid dehydration by drinking water (alcohol will dehydrate you).
- Do not stand in one position for an extended period. Keep wriggling your toes to bring warm blood to the area.
- Breathe through the nose.
- Be alert to signs of frostbite.

Nutrition and Performance

Nutrition is important for optimal fitness. *Canada's Food Guide to Healthy Eating* is an excellent prescription to follow. The major concepts in the *Guide* are summarized below and special advice follows. The Guide is available on the Internet at http://www.hc-sc.gc.ca/hppb/nutrition/pube/foodguid/foodguide.html. You can get a printed copy from a member of the Base physical fitness staff.

Key Concepts from *Canada's Food Guide to Healthy Eating*

Following are recommended servings per day from each food group. Generally, somewhere in the middle of the range is good for an active person. Those wanting to decrease weight will need the lower number of servings in each range (and less in some cases).

Grain Products: 5-12 servings per day

Examples of one serving: 1/2 bagel or bun, 30 g of cold cereal or 125 ml (1/2 cup) of pasta. Choose whole grain and enriched products more often to get added fibre, vitamins and minerals.

Vegetables and Fruits: 5-10 servings per day

Examples of one serving: medium-size fruit or vegetable, 250 ml (1 cup) salad or 125 ml (1/2 cup) of juice. Choose dark green and orange vegetables and orange fruit more often as they are higher in key nutrients.

Milk and Milk Products: 2-4 servings per day

Examples of one serving: 250 ml (1 cup) milk, 50 g (1 1/2 ounces) cheese, 175 ml (3/4 cup) of yogurt. Choose lower-fat milk products such as skim or 1% milk and low-fat yogurt. They are still high in protein and calcium, but have less fat.

Meat and Alternates: 2-3 servings per day

Examples of one serving: 50-100g (2-3 ounces) meat, poultry, or fish, 1-2 eggs or 2 Tbsp of peanut butter. Choose leaner cuts, and meats that are baked, broiled, roasted or microwaved instead of fried. **Note:** three ounces is about the size of a deck of cards.

Daily Nutrient Composition

Of your total daily calories, the composition (which is easy to achieve if you follow the above guidelines) should be:

55-60% carbohydrates (limit simple sugars such as table sugar)
30% fat (limit saturated fat such as butter)
15% protein

Healthy Eating Tips

- Enjoy a variety of foods.
- Emphasize cereals, breads, other grain products, vegetables and fruit.
- Limit salt, alcohol and caffeine.

You don't have to eliminate *all* "bad" foods. Treats every once-in-a-while are fine.

Breakfast

Breakfast is the most important meal of the day. A nutritious breakfast prevents a drop in blood sugar, fuels you for the day ahead, and helps stabilize cravings for higher-calorie, fat-laden foods later in the day. An excellent breakfast is a bowl of whole grain cereal with low-fat milk. Top this with some fruit for extra fibre.

Ways to Reduce Fat in your Diet

- Choose more grains, fruits and vegetables.
- Use mustard instead of mayonnaise or butter on sandwiches.
- Instead of butter and sauces, try spices, herbs, or low-sugar jams.
- Put less dressing on your salads – or use a lower-fat dressing.
- Substitute coffee cream with skim or partly skimmed milk.
- Bake, broil, roast or microwave your food rather than frying it or use non-stick pans for "frying" foods rather than cooking in oil.
- Choose lower-calorie snacks such as pretzels or fruit.

Vitamin and Mineral Supplements

Vitamins and minerals do not provide energy, but they do help regulate the energy processes of the body. Deficiencies in North America are rare and supplements are not generally needed, even for those who exercise regularly.

Supplements (especially iron and folic acid) may be needed by pregnant (or breast feeding) women. Women should be sure they are taking in adequate calcium and iron as they are most likely to be deficient in these areas. Strict vegetarians may need iron, zinc and/or B12 supplements. Consult a dietician for an accurate assessment. Getting your daily requirement of vitamins and minerals is better done through food than supplements, as nature provides balanced nutrition in food. With supplements, it is easy to miss out on many nutrients.

Supplements should never replace proper eating habits.

Gaining and Losing Weight

Weight gain or loss is governed by a simple equation: Calories in versus calories out. If you consume fewer calories than you expend in your daily activities, you will lose weight. Consume more calories than you expend, and weight gain results. Whether you want to lose or gain weight, an aerobic and strength training program can play a part.

A rough estimate of the number of calories needed per day for basic *metabolic functions* can be determined by multiplying your weight (kg) by 24 hours then by .9 for females or 1 for males. For example, a 70-kg male: 70 kg x 24 hrs x 1 = 1680 calories

This 70-kg individual needs a minimum of 1680 calories just for basic daily living. Caloric requirement increases depending on your activity level and must be adjusted accordingly. If you burn 300-500 calories (recommended) in your exercise session this must be added to the basic caloric requirement. You also must add the amount of calories that you burn through your daily activities. If you are sedentary throughout the day you will burn far fewer calories than if you are moderately active.

Losing Weight

To lose weight you must expend (burn) more calories than you consume. The healthiest way to do this is through a combination of **decreased food intake and increased physical activity.** Decreasing your food intake without a corresponding increase in physical activity will not work in the long run. Much of the weight loss is in the form of water and other fat-free tissues (e.g., muscle), with minimal amounts of fat loss. When you do this, your metabolism slows, you can feel fatigued and irritable, and over time you have to consume fewer and fewer calories to see continued weight loss. As soon as a normal diet is resumed, you tend to gain back all weight lost and often more.

Aerobic activity helps to maintain fat-free tissue (including muscle mass and bone density), and assists in weight loss. Exercise combined with caloric restriction counters the drop in metabolism seen on diet-only weight-loss methods, and weight loss is primarily in the form of fat weight. You want to create a daily deficit of 800-1000 kcal; 500 by reducing food intake and 300-500 from exercise. The rate of sustained weight loss should not exceed 1kg per week.

For best weight-loss results, go for:

- mild caloric restriction (800-1000 calories)
- an increase in aerobic activity
- strength training to preserve or increase muscle
- improvement in your current eating habits (food selection, portion sizes).

Gaining Weight

To gain weight sensibly, you need to continue to eat healthful foods, but more of them. A weekly increase of a maximum of one-half to one kilogram in body weight is recommended, but should be primarily muscle tissue – not body fat.

The average person requires .8 grams of protein per kilogram body weight per day. Those who are doing heavy strength training with the goal of gaining bulk may want to increase this to 1-2 grams of protein per kilogram of body weight. Supplementation with expensive protein powders and amino acids is not necessary. A slight increase in the amount of foods eaten from the milk and meat groups of *Canada's Food Guide* can help achieve the desired weight gain. Dietary protein in excess of need will be converted to fat unless your resistance training is sufficient to stimulate muscle growth.

To gain fat-free weight:

- increase calories consumed
- consume a *moderate* amount of protein
- maintain a strength training program to promote muscle development
- get adequate rest and sleep.

The "All Essential" Staple: WATER

Hydration promotes health and optimal physical performance. Even at rest you lose 1.5 litres (6 cups) of water per day. Exercise increases this loss. Adequate fluids need to be consumed before, during, and after exercise.

If you do not remain hydrated, thermal stress can result, including dehydration, heat cramps, and possibly heat exhaustion or heat stroke in hot weather. Even mild dehydration can impair exercise performance. In fire fighting, emergencies can arise at any time, so it is wise to be prepared and always remain hydrated.

Sport drinks or sugar/electrolyte drinks are not necessary unless performing continuous aerobic activity for longer then 90 minutes at a time.

Ergogenic Aids

An ergogenic aid is a nutritional and/or pharmaceutical substance (collectively referred to as neutraceuticals) that improves physical work capacity and performance. While many substances are sold as ergogenic aids, few have been proven scientifically to be beneficial. Here is some brief information on the most common ergogenic aids and their effects.

Melatonin is a synthesized hormone that induces sleep. It has no effect on performance.

Vitamins, Ginseng and Minerals. It is rare to find deficiencies in the North American diet. Any amount consumed greater than needed by the body is excreted.

Protein Drinks, Branched Chain Amino Acids, Amino Acid Mixtures. These bring no changes in performance of any type from one-week dosage. However, if you want to increase muscle mass over time, an increase in protein is important (e.g., double *Canada's Food Guide* recommendation for competitive athletes.)

Carbohydrate Loading (including energy bars and carbohydrate drinks). Carbohydrates are helpful when consumed in the week prior to exercise at high intensity. They markedly increase endurance time for activities of more than one hour duration.

Caffeine is a potent ergogenic aid for endurance performance. Those who are accustomed to caffeine experience less of an effect.

Chromium is an essential trace mineral. Most studies show no effect on muscle mass. Chromium can accumulate and cause chromosomal and kidney damage.

Epedhdra (Ma Huang). There is limited evidence of improved performance (i.e., faster run times), but heart rate during exercise significantly increases. It can be harmful if taken on a regular basis.

Creatine. Creatine supplementation works in 70 percent of people, but there is a ceiling for the amount of creatine that can be stored. Creatine is purported to increase short-term, repetitive, high-intensity exercise such as sprinting and strength training – it may allow an additional five-to-six seconds of maximal muscle contraction. Creatine does not directly increase muscle size but it lets you train harder, which in turn can help you develop muscle more quickly. Currently, creatine supplementation is considered safe, although there have been no studies examining the long-term effects or risks. One possible side effect may be decreased kidney function.

Smoking Cessation

Each year, more than 80,000 Canadians die of heart attack, stroke and related disorders. Smoking is a factor in some 30,000 of these deaths. All forms of tobacco increase the risk of disease and early death, including pipes, cigars and smokeless tobacco.
The main components of tobacco smoke are nicotine, tar, and carbon monoxide.

Nicotine...

- increases heart rate forcing the heart to work harder
- can cause blood pressure to increase due a narrowing of blood vessels, making your heart work harder to push the blood through the arteries
- results in a build-up of deposits that can lead to blood clots. (This is the major cause of stroke and heart attack.)

Tar...

- is made up of hundreds of chemicals, many of which cause cancer.

Carbon Monoxide...

- is a gas formed when tobacco is burned, the same gas found in your car exhaust
- limits the amount of oxygen carried by the blood and can result in chest pain.

Smoking ...

- is the main cause of lung cancer
- increases the risk of cancers of the colon, mouth, throat, pancreas, bladder and cervix
- causes most cases of chronic bronchitis and emphysema
- greatly increases the risk of stroke in females who also take birth control pills
- is a major risk factor in heart attacks. (Smokers who also have high blood pressure and/or high levels of fat (cholesterol) in the blood are at even greater risk.)

Smokers who have a heart attack have less chance of surviving it than those who do not smoke. If smoking is continued after a heart attack, there is a greater risk of a second heart attack.

The Good News: If you quit, the health benefits begin immediately.

- Within 24 hours, your blood pressure and pulse rate begin returning to normal and the carbon monoxide level in your blood decreases.
- As more time passes, the better your health gets. Within one year of quitting, your risk of heart attack is cut in half. Within 10 years, the risk of heart disease, stroke, lung cancer and respiratory diseases is almost the same as someone who has never smoked.
- Your blood circulation will improve as will your sense of taste and smell.

Things You Should Know About Quitting

- Self-knowledge is a good place to begin. By recognizing why you smoke, you can learn to replace "reaching for a cigarette" with other activities.
- Perseverance is the key. If at first you don't succeed, keep trying. Only one in five people make it the first time they try to quit. Each time you try it gets a little easier. Withdrawal symptoms such as nervousness, irritability and hunger are common. You may also experience headaches, sleeplessness and have trouble concentrating. These symptoms will disappear within a few days to a few weeks.
- Cutting down instead of quitting is one option, but for many people it's not a good idea. They may just change the way they smoke – taking more puffs or longer puffs to get the same effect from fewer cigarettes.
- Switching to lighter cigarettes can also backfire if you smoke more or inhale more deeply to get the same effect. You are also exposed to more of the other harmful substances in smoke that may increase the risk of disease.
- If weight gain is a concern, remember that only about one-third of people who quit gain weight. Eating nutritionally and getting sufficient exercise will combat this.

If you are having problems quitting on your own, seek help. You may need to try several different techniques before you are able to quit. Not all methods work for everyone.

Finally, *you* must decide you want to quit, for you. Quitting is a personal decision and once made, it *can* be accomplished.

Methods of Quitting

Cold Turkey

If you are a habitual smoker or one who craves the "feeling", cold turkey is probably the best way to go. On "quit day" you don't smoke a single cigarette and you carry on with no smoking in the days to follow.

Tapering Off Slowly

This involves reducing the number of cigarettes you smoke each day -- little by little -- until quit day when you quit altogether. Begin tapering off two weeks prior to quit day.

The Nicotine Patch and Nicotine Chewing Gum

Many individuals find the Nicotine Patch or Nicotine chewing gum effective. While there is a cost involved, it is minimal in relation to the cost of smoking *and* the health benefits achieved when you finally quit.

Hints for "Quitting Day" and Beyond

- Don't empty your ashtrays from the days leading up to quit day. Let them remind you of how many cigarettes you smoke and the awful smell of stale butts.
- On quitting day toss out all unsmoked cigarettes and matches. Hide lighters and unused ashtrays.
- Spend lots of time in places where smoking is prohibited.
- Increase your physical activity.
- Add up the money you're saving and buy something special with it.
- List reasons for wanting to quit. Carry the list with you and refer to it when you need the reminder/support.
- Ask a partner or friend to quit with you.

After You Quit

- The first three to four days are often the most difficult. This is the time it takes for nicotine to leave the system.
- As your body begins to repair itself, you may feel worse rather than better for a short time.
- Temporary weight gain, sore gums and tongue, and a short temper are not uncommon but are only temporary.
- Your body starts getting healthier within hours after quitting.
- After a few days, you will be able to do more exercise.

Rewards

- Greater energy to do physical activity.
- Fresher breath and healthier gums.
- Less chance of developing cancer (of the lung, mouth, and throat), or heart or lung disease.
- More money.

If you don't smoke, don't start. If you smoke, quit now.

Training Log Instructions

Keeping a personal training log will help you adhere to your routine and ensure you make the proper progression for a safe and effective training program.

Follow these directions to get the most out of this recording system:

- Do not write on the Training Log forms in this manual.
- Make photocopies of the Training Log form on the next page. Use these pages to record your progress.
- Put the sheets together in a covered booklet to protect them. Write your name, address and telephone number in the booklet so it can be returned if lost.
- Follow the "Completing Your Training Log" instructions to keep your records accurate and up to date.

Completing Your Training Log

- There are three Training Logs per sheet. **Use <u>one</u> for each training session.**
- A - Indicate the **program** you are following (improvement or maintenance). Include the **week** (1-12), **day** (1-7) and **date**.
- B - Indicate the activity (continuous aerobic, sport activity, etc.). Include the **Load (L), Time (T), Distance (D) and Repetitions (R)** as appropriate.
- C - Indicate the **type of equipment** used (machine, free weights, body weight or medicine ball) in the top row. In succeeding rows, list the **exercises** performed along with the **Load (L)** and **Repetitions (R)** for each set completed.

Personal Training Log

A PROGRAM______________________
Week____Day________Date___________

B AEROBIC	L		T		D		R	

C STRENGTH	Set1		Set2		Set3		Set4	
	L	R	L	R	L	R	L	R

A PROGRAM______________________
Week____Day________Date___________

B AEROBIC	L		T		D		R	

C STRENGTH	Set1		Set2		Set3		Set4	
	L	R	L	R	L	R	L	R

A PROGRAM______________________
Week____Day________Date___________

B AEROBIC	L		T		D		R	

C STRENGTH	Set1		Set2		Set3		Set4	
	L	R	L	R	L	R	L	R

Personal Training Log

A PROGRAM________________________
Week_____Day________Date____________

B AEROBIC	L		T		D		R	

C STRENGTH	Set1		Set2		Set3		Set4	
	L	R	L	R	L	R	L	R

A PROGRAM________________________
Week_____Day________Date____________

B AEROBIC	L		T		D		R	

C STRENGTH	Set1		Set2		Set3		Set4	
	L	R	L	R	L	R	L	R

A PROGRAM________________________
Week_____Day________Date____________

B AEROBIC	L		T		D		R	

C STRENGTH	Set1		Set2		Set3		Set4	
	L	R	L	R	L	R	L	R