

# FITNESS BASICS



## How much physical activity should you be doing?

- At least 30 minutes of moderate-intensity physical activity (e.g. brisk walking, raking leaves) on most days of the weeks is associated with health benefits.
- Additional health benefits may be gained from a regular regimen of physical activity that is of a more rigorous intensity or longer duration.
- Engaging in a program of exercise that improves the health-related components of fitness is desirable. - American College of Sports Medicine, 2005

## The health-related components of fitness include:

- Cardiorespiratory fitness
- Muscular fitness (muscular strength and endurance)
- Flexibility
- Body composition

Other components of fitness (such as speed, agility, coordination, and balance) may be important for athletic performance, but are not necessary to maintain good health throughout life.

**Cardiorespiratory fitness** is the ability to sustain prolonged rhythmic activity.

Cardiorespiratory fitness can be improved through aerobic exercise - any activity that uses large muscle groups and can be maintained continuously. Examples include walking, jogging, cycling, and swimming.

Engaging in regular aerobic exercise helps to maintain a healthy weight by burning calories. It also increases one's resting metabolic rate (the amount of calories burned when not exercising). In addition, regular aerobic exercise lowers one's risk of developing cardiovascular disease (heart attack, stroke) by lowering resting blood pressure and improving one's cholesterol profile.

To improve cardiorespiratory fitness, the American College of Sports Medicine (ACSM) recommends engaging in aerobic exercise:

- 3-5 days per week
- for 20-60 minutes duration (Aerobic workouts can be completed in one single bout or multiple bouts of at least 10 minutes throughout the day.)
- at 65-95% of one's maximum heart rate (See below to calculate your target exercise heart rate range.)

To maintain weight over the short- and long-term, the ACSM recommends expending at least 2,000 calories through physical activity each week. *For more information, see the handout on weight management.*

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To calculate your target exercise heart rate range:

1. Estimate your maximum heart rate. Take  $220 - \text{age} = \underline{\hspace{2cm}}$  (this is your maximum).
  2. Determine your lower-limit exercise heart rate by multiplying your maximum heart rate by 0.65
  3. Determine your upper-limit exercise rate heart by multiplying your maximum heart rate by 0.95
- Your exercise heart rate range is between your upper and lower limits.

For example, a 20 year old will have maximum heart rate of about 200 beats per minute and a target exercise heart rate range of 130-190 beats per minute.

To measure your heart rate during exercise:

1. Find your artery at your neck (carotid artery) or your wrist (radial artery).
2. Count the number of beats you feel for 15 seconds.
3. Multiply this number by 4 to get your heart rate in beats per minute.

**Muscular fitness** has two components. **Muscular strength** refers to the maximum force that can be generated by muscles; it is measured by the absolute maximum weight that one can lift, push, or press in one effort. **Muscular endurance** is the ability to perform repeated muscular effort; it is measured by counting how many times one lifts, pushes, or presses a given weight.

Resistance training maintains and improves muscular strength and endurance. Free weights (e.g. dumbbells, barbells), machines, elastic bands, or one's own body weight (e.g. push ups) can be used to create resistance.

Resistance training helps with weight management by building more muscle tissue, which burns more calories than fat tissue, both during activity and at rest. Resistance training also helps to maintain muscle mass that would otherwise be lost with age and inactivity. This makes it easier to perform many daily tasks (e.g. carrying groceries, snow shoveling, etc.) throughout life. In addition, resistance training helps to build strong bones and prevent osteoporosis.

To improve or maintain muscular fitness, the American College of Sports Medicine (ACSM) recommends performing:

- at least one set (8-12 repetitions)
- of 8-10 exercises that work all the major muscle groups
- 2-3 days per week.

Resistance should be enough to enhance muscle strength and improve body composition.

*For more information, see the handout on resistance training.* A certified personal trainer can also assist in developing resistance exercise routine that is safe and effective.

**Flexibility** is the ability to move joints freely and without pain through a full range of motion. Muscles, tendons, and ligaments will shorten and become tighter if they are not used through their full range of motion on a regular basis.

The ACSM recommends stretching all the major muscles throughout the body at least 2-3 days per week and, ideally 5-7 days per week. Each stretch should be held for 10-30 seconds and repeated 2-4 times. One of the best times to stretch is after an aerobic workout.

**Body composition** refers to the relative amounts of fat and lean tissue in the body. A high percentage of body fat increases one's risk of developing heart disease, high blood pressure, stroke, diabetes, and some forms of cancer. Both aerobic and resistance exercise improve body composition by decreasing body fat and increasing muscle mass.

References:

1. Hales, Dianne. An Invitation to Health (10<sup>th</sup> ed.). Belmont, CA: Wadsworth/Thomason Learning, Inc., 2003.
2. ACSM's Guidelines for Exercise Testing and Prescription (6th ed.). New York: Lippincott, Williams, & Wilkins, 2005.

