

Physical Fitness and Exercise

Objectives:

1. Each learner will understand the meaning of **physical fitness** and the **5 fitness indicators**.
2. Students will gain a general knowledge of **FITT** safety.
3. All individuals will develop an understanding of other health indicators and have hands on experience measuring several of their own individual results: **resting heart rate, muscular strength, muscular endurance, and cardio-respiratory endurance**.

The Presidents Council on Physical Fitness and Sports describes fitness as “The ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure-time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well-being.”

It is difficult to pinpoint the exactness of fitness because every individual’s level of fitness is different. Athletes have higher levels of fitness than say someone who is just interested in recreational activities. Training for athletes is much more intense and focused than someone who is just interested in maintaining stamina for recreational activities. The fact remains there are 5 components of fitness and every individual can gain and benefit from the improvements of each. By focusing on improving body composition, muscular strength, muscular endurance, cardio-respiratory endurance, and flexibility you are opening up opportunities for improved quality of life. These 5 components are called **fitness indicators** because they can be measured and improved upon. Regular exercise which includes the 5 mentioned components gives you more energy, a healthier body composition and reducing health related risks, improved sleep, and a longer life expectancy. It also prevents the onset of high blood pressure, strengthens your heart, and lowers cholesterol.

The 5 fitness indicators are as follows:

- **Cardiorespiratory (CR) endurance-** the efficiency with which the body delivers oxygen and nutrients needed for muscular activity. The wellness of your our heart and lungs. This is the primary fitness concentration and all work-outs should be centered on CR endurance.
- **Muscular strength-** the greatest amount of force a muscle or muscle group can exert in a single effort.
- **Muscular endurance-** the ability of a muscle or muscle group to perform repeated movements with a sub-maximal force for extended periods of time.
- **Flexibility-** the ability to move the joints through an entire, normal range of motion.
- **Body Composition-** the amount of body fat a person has in comparison to his total body mass (muscle and bone).

A person must integrate several factors into any successful fitness training program to improve his or her fitness levels. These factors are summarized by the following acronym **FITT**: Frequency, Intensity, Time, and Type.

Frequency refers to how often a person would exercise. This is accomplished by three adequately intense workouts per week to a maximum of five or six days per week depending on the exercise. Keep in mind that a recovery time is important and a gradual building process should take place to exercise five or more days a week. Overtraining increases injury.

Intensity is related to how hard an individual exercises, i.e. jogging, lifting weights, sit-ups, stretching. It represents the degree of effort that an individual would train at; how much weight is lifted or how fast an individual runs. Positive changes in CR fitness are directly related to how hard an aerobic exercise is performed. The more energy expended per unit of time, the greater the intensity of the exercise. Younger people often train at higher levels, 85% maximum. Formula: $220 (\text{maximum heart rate}) - \text{age} \times 85\% = \text{THR}$ (training heart rate maximum). The watches in class are set for students of 11-13 year of age at 150-180 beats per minute.

Time or duration refers to how long an individual should exercise. An excellent average of time would be 30 minutes or longer to improve upon CR training.

The type of exercises which are aerobic in nature, require large amounts of oxygen exchange, use the large muscles of the body, and are rhythmic by design i.e. running, walking, bicycling, stair climbing, rope skipping, swimming are all cardiovascular. Anaerobic are those exercises with a short duration of time, explosive, stop go exercises, i.e. lifting weights, sprinting, sport activities, etc.

During class workouts, the 45 minute exercise time involves both aerobic and anaerobic exercises; cardio training and sport training. The most effective total training method is to combine aerobic and anaerobic exercises such as weight training and jogging together to create a fitness exercise that sustains the THR for 30 minutes or longer and therefore meets the demands of a total workout centered around CR fitness.

Important key factors when weight training to maintain a safe workout is as follows:

- Train with a partner. It helps to increase motivation.
- Always breathe when lifting. Exhale during exertion, lifting the stack of weights away from the floor and inhale during the relaxed phase of the lift, bringing the weights back to the stack.
- Accelerate the weights through the exertion phase and resist against the weight when returning the weights to the stack. Count 1, 1000. Return count 1, 1000, 2, 1000.
- Never rest the weight on the stack during repetitions of **10-12 lifts per 30 seconds** of lift time.
- Perform all exercises at their full range of motion.
- Always use strict form. Keep good posture. Do not twist, lurch, lunge, or arch the back or body. This takes away the focus of that muscle group.
- Rest intervals between sets, 30-180 seconds.
- Progress slowly. Increase resistance by 10% at a time.
- Allow for recovery time, 24-48 hours of rest time.
- Alternate pulling and pushing exercises.

Health Assessments

Body composition is only one indicator of an individual's health and stepping on the scale tells you nothing. It is not a true measurement of your health. Sure you get a measurement of your weight, but this measurement is relatively useless unless you receive further input from additional measurements. Obesity is not determined by measuring your body weight it is discovered by measuring the percentage of your weight that is fat, **body mass index, BMI**. As your BMI increases so does your risk for many diseases (heart disease, cancer, diabetes, strokes, high blood pressure). The best two ways for measuring body fat is hydrostatic weighting (under water) and the Body Fat Analyzer Scale.

If you have discovered that you have extra fat to shed, you are not alone. As a group, Americans are fatter than their counterparts a generation ago. The process of becoming fat or losing weight is really very simple. That which goes in must be used up or you will get fat. Research indicates that a combination of diet and exercise is best for maintaining proper weight. The combination of diet and exercise will not only reduce your body fat, but it will also tone the muscles and increase lean body tissue.

Your body weight can roughly divide into two categories---lean body weight as bone and muscle, and fat body weight. Men should ideally carry only 16% body fat and women should carry 20% body fat. If you carry 30% or more fat body weight you are obese and asking for serious health related problems. Thirty minutes of aerobic exercise at the recommended THR combined with weight resistant exercises will improve upon the health status of all individuals.

Blood pressure refers to the pressure created as blood passes through the heart and arteries of the circulatory system. It is another tool by which an individual can measure health. A high reading of blood pressure would indicate a propensity for poor health related illnesses; kidney disease, sleep apnea, heart attack, stroke. The more blood your heart pumps and the narrower your arteries, the higher your blood pressure. A blood pressure reading consists of two numbers. The top number indicates systolic pressure. The pressure of the heart as it pumps blood through out the body. The second number indicates diastolic pressure and measures the pressure in your arteries when your heart is at rest, between beats. Normal blood pressure is 120/80 and anything higher would be a red flag for hypertension (high blood pressure).

Many influences like physical activity, medications, and illness can elevate blood pressure. If your blood pressure reads high, take it several times to get an accurate reading. If it reads high more often than not report this to your doctor.

Resting heart rate is another measurement of health and the lower the resting heart rate of an individual the better condition of the heart. It refers to a person's heart rate at rest. Each time your heart beats, a heart rate can be calculated. The best time to determine a true resting heart rate is in the morning before getting out of bed and after a good nights rest. Take your resting HR for 10 seconds and multiply that number by 6, i.e. $11 \times 6 = 66$. A Resting HR will usually change with age and with the cardiorespiratory fitness of the individual. Athletes will have a much lower resting HR but 70 beats per minute or lower is considered good and a true resting HR above 85 should be considered questionable.

How does an individual reduce the work load of the heart and reduce resting HR, by actively engaging in cardiorespiratory exercise 3-5 days a week.

Workout Regimen

Your exercise program should include something from each of the following fitness indicators. Each workout should begin with a 5-10 minute warm-up and end with a 5-10 minute cool down. The warm-up/cool-down phase involves slower exercises of walking or jogging and stretching exercises without a bouncing motion. As a general rule, space your workouts throughout the week and avoid consecutive days of hard exercise. Weight lifting should receive between work-outs a 24 to 48 hour rest.