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# APPENDIX A - GLOSSARY

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**Absolute endurance** is the type of muscle endurance requiring all subjects to move a weight load common for all subjects to exhaustion.

**ACSM** is the American College of Sports Medicine that is a leading exercise science professional organization.

**Actin** is a major protein of muscle contraction.

**Adipose tissue** is fat tissue.

**AIDS**, Acquired Immune Deficiency Syndrome, is caused by Human Immunodeficiency Virus (HIV). AIDS is a complex of many diseases that are fatal. A person may be HIV positive, but does not have AIDS, which is the classification used for the last stages of the illness.

**Aerobic fitness** is physical working capacity or VO<sub>2</sub>max.

**Aerobic metabolism** is the primary source of energy during prolonged work.

**Aerobic training window** is an exercise intensity from 60 to 80% of VO<sub>2</sub>max.

**Anabolic steroids** are hormone-like drugs that cause the increased production of tissues, particularly muscle.

**Anaerobic threshold** is the power output or oxygen uptake, where anaerobic metabolism represents a significant permanent proportion of the required energy supply.

**Angina pectoris** is a form of heart disease. The term implies a choking or suffocative pain in the chest or neck. Angina is caused by the lack of sufficient oxygen supply to the myocardium--myocardial ischemia.

**Anorexia nervosa** is an emotional disorder characterized by an excessive need to be thin.

**Arrhythmia** is an irregular heart rate. It can vary in severity from a normal to a lethal condition. It is any deviation from the normal cardiac rhythm. This is detected with an ECG.

**Atherosclerosis** is a disease process that causes the arteries to become narrowed, stiff, and hardened.

**Blood lipids** are blood fats. There are many kinds of fats circulating in the body, but triglycerides and cholesterol are the most common.

**Body density** is density of the human body expressed as grams per cubic centimeter. The higher the proportion of the body weight that is fat-free weight, the higher body density.

**Body mass index** is the ratio of weight in kilograms and height in meters squared.

**Bulimia nervosa** is an emotional disorder characterized by extremes in eating.

**Cardiac output** is the total amount of blood pumped per minute. It is the product of stroke volume and heart rate.

**Cardiovascular disease** is the leading cause of death of Americans. The most common diseases are heart disease and strokes.

**Circuit weight training** has series of strength development exercises done at different strength training stations around a "circuit".

**Concentric muscle contractions** involve lowering a weight against gravity.

**Cooper aerobic points** is a method of quantifying aerobic exercise by awarding points.

**Cycle ergometer** is a stationary cycle used to regulate power output, which is regulated by placing more resistance on the flywheel or pedaling at a faster rate.

**Diabetes mellitus** is an abnormality of carbohydrate and fat metabolism. It is a complicated disease in which there is insufficient insulin to meet the body's requirements. This leads to elevated blood glucose.

**Duration of exercise** is the number of minutes per exercise session.

**Dynamic contractions** are muscle contractions that involve movement.

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**Eccentric muscle contractions** involve moving a weight against gravity.

**Electrocardiography** is the science of the electrical activity of the heart.

**Energy cost tables** are tables that express the typical exercise intensity of various physical activities.

**Exercise physiology** is the study of human and animal acute and chronic response to various forms of exercise.

**Exercise science** is the study of humans during exercise.

**Fast twitch fibers** are muscle fibers characterized by a relatively low capillary density and a high anaerobic capacity.

**Fat weight** is the proportion of body weight that is fat or adipose tissue.

**Fat-free weight** is the component of the body consisting of muscle, bone, blood, and other organs. It is also called lean body weight.

**Fitness evaluation** is a test designed to measure VO<sub>2</sub>max.

**Flexibility** is the ability of the muscles, tendons, and ligaments around a joint to move while providing support, and allowing the joint to move smoothly through its entire range of motion.

**Frequency of exercise** is the number of days of aerobic exercise per week.

**Health risk appraisal** is a method of assessing cardiovascular disease risk with self-report questionnaires.

**Heart rate** is the number of times the heart ejects blood per minute

**High density cholesterol (HDL-C)** are blood lipids. Increased levels seem to provide protection from cardiovascular disease. The reasons for these relations are not entirely clear.

**HIV** is Human Immunodeficiency Virus, the virus that causes Acquired Immune Deficiency Syndrome (AIDS).

**Hydrostatic or underwater weighing** is the method of determining body density by weighing the subject underwater.

**Hyperplasia** is the increase in the number of muscle cells. It is the splitting of muscle fibers leading to more fibers per muscle.

**Hypertension** is a systolic pressure of 140 mmHg or higher or a diastolic pressure of 90 mmHg or above. High blood pressure has been clearly established as a potent cardiovascular disease risk factor.

**Hypertrophy** is an increase in the size of the muscle and a major training effect of strength development programs.

**Intensity of exercise** refers to the difficulty of exercise. It is usually represented by a percentage of maximum.

**Interval training** is the form of aerobic exercise that varies intensity. An example would be jogging for a distance followed by walking.

**Intima** is the inner surface of the vessels.

**Isokinetic strength** involves exerting maximal force at a constant velocity through a muscle's full range of motion.

**Isometric contractions** are muscle contractions that do not involve movement.

**Isotonic strength** involves moving a weight load through a joint's range of motion. The maximum weight one can lift (1-RM) is used to evaluate isotonic strength.

**Kilocalorie** is the scientific term used to define energy expenditure and represents the heat required to raise the temperature of 1 kilogram of water 1° C.

**Lean body weight** is the component of the body consisting of muscle, bone, blood, and other organs. The more appropriate term is fat-free weight.

**Low density cholesterol (LDL-C)** is a blood lipid. High levels of LDL-C are associated with increased cardiovascular disease risk.

**Lumen** is the opening of a blood vessel.

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**Maximal oxygen uptake (VO<sub>2</sub>max)** is the maximum volume of oxygen a person can use during exercise.

**MET-I** is a method of expressing exercise intensity in METs.

**METs** is a method of quantifying oxygen uptake. The amount of oxygen used during rest is 3.5 ml/kg/min that is 1 MET.

**Mode of exercise** is the type of exercise, e.g., walking, jogging, cycling, playing sports, dancing.

**Motor driven treadmill** is equipment that is used to regulate power output during walking or jogging. Power output is changed by altering treadmill speed or the elevation of percent grade.

**Muscle atrophy** is the loss of strength and muscle size.

**Muscular endurance** is the ability to persist in physical activity or to resist fatigue.

**Muscular strength** is the maximum amount of force that a muscle group can exert.

**Myocardial infarction (MI)** is a heart attack.

**Myocardial ischemia or angina** is when the maximum blood supply to the myocardium is reduced from normal and when the myocardial oxygen demand is greater than the available supply.

**Myocardium** is cardiac or heart muscle.

**Myoglobin** is an oxygen-retaining molecule found in muscle. It helps in unloading oxygen from the blood.

**Myosin** is a major protein of muscle contraction.

**Noninsulin-dependent diabetes** is a disease of the obese, characterized by insufficient active insulin; consequently, blood sugar rises.

**Nutrition** is the science of nourishing the body properly; that is providing adequately for its growth, maintenance, and repair.

**Obesity** is the excessive accumulation of body fat. Common accepted levels are: men 25% and women, 32%.

**Osteoporosis** is a decrease in bone-mineral content and an increase in bone porosity.

**Overweight** is a weight that exceeds the "ideal" weight norms defined for individuals of given height and gender.

**Percent body fat** is the percentage of an individual's body weight that is fat tissue.

**Percentage of VO<sub>2</sub>max (% VO<sub>2</sub>max)** is a form of determining exercise intensity by the percentage of maximum.

**Physical working capacity** is the maximum level of aerobic exercise, i.e., VO<sub>2</sub>max.

**Progression of exercise** is the systematic increase in exercise to account for changes in aerobic fitness.

**Rating of perceived exertion (RPE)** is a psychophysical method of rating exercise intensity.

**Relative endurance** involves moving a weight load that varies among individuals. It is often a percentage of maximum strength, but also can be moving the body weight. Pull-ups and sit-ups are relative endurance tests.

**Sarcomere** is the smallest unit of a myofibril or muscle cell.

**Slow twitch fibers** are muscle fibers characterized by a high aerobic capacity.

**Standard weight training** is a form of weight training consisting of progressive resistance exercises of 3 sets at 8-10 RM or approximately 60% of 1-RM.

**Static contractions** are muscle contractions that do not involve movement.

**Stress test** is a medical diagnostic procedure for identifying patients who may have heart disease.

**Stroke volume** is the volume of blood pumped per beat.

**Systolic blood pressure** is the pressure in the arteries created by the heart ejecting blood from the ventricles. High blood pressure or hypertension is represented by a systolic pressure of 140 mmHg or higher.

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**Total Work** is a model used to quantify the energy expenditure during walking and jogging. The model assumes that a constant amount of energy is used to travel one mile—75 METs for walking and 100 METs for jogging.

**Training Heart Rate Zone (THRZ)** is the heart rate zone corresponding to the aerobic training window or 65 to 80% of  $\text{VO}_2\text{max}$ .

**Valsalva phenomenon** is losing consciousness while holding your breath during muscle straining. This can occur because during the straining, blood return to the heart is markedly reduced causing cardiac output to fall.

**Waist-hip ratio** is the waist circumference divided by hip circumference. A high waist-hip ratio increases the risk of adult-onset diabetes mellitus.