

Client Handout - Volume 3

Fitness Guidelines



There are five fitness components: cardiorespiratory endurance, muscular endurance, muscular strength, flexibility, and body composition. All five should be included in a well-designed exercise program. Each fitness component has specific training guidelines to follow to achieve improvements in current fitness levels.

Cardiorespiratory Endurance (CRE) is defined as the ability of the heart and lungs to deliver oxygen to the working muscles for sustained activity, and to carry away carbon dioxide and other waste products. CRE workouts should be designed to keep participants within their individualized training zone in order to achieve optimal cardiorespiratory fitness results. The American College Sports Medicine (ACSM) recommends that individuals workout at 55 to 90 percent of their maximal heart rate. This range can be divided into smaller segments to help determine appropriate and safe levels for more specific exercise populations. For example: improvements in CRE for the beginner can be easily achieved by working at fairly low levels of

intensity (55% - 65%); intermediate level participants can achieve CRE improvement by working at moderate intensity levels (65% - 80%); however, improving athletic performance requires a much higher level of exercise intensity (75% - 90%) to produce significant increases in CRE.

Fitness professionals can employ the F.I.T.T Principle (frequency, intensity, time and type of exercise activity) to design appropriate exercise programs for participants with varying fitness levels.

F = Frequency: Exercise frequency refers to how often a person works out, usually described in days per week.

I = Intensity: Exercise intensity refers to the amount of stress in the exercise. Intensity is measured in percent of maximum heart rate. Maximum heart rate = 220 - age. When recommending specific exercise intensity, fitness professionals should consider a participant's present level of fitness, health problems, and medical conditions.

T = Time: Exercise duration will vary depending on the exercising population and activity.

T = Type of Activity: CRE Exercise mode is defined as rhythmical, sustained activities that use the large muscle groups in whole-body activities like stepping, swimming, running, or bicycling. The same training results may not occur from activities using small muscle groups or restrictive exercises because the heart rate does not usually increase to the same level as in aerobic exercise.

ACSM CRE Guidelines	
Frequency:	3 - 5 days / week
Intensity:	55 - 90% of maximum heart rate
Time	20 - 60 minutes of continuous or accumulated bouts (at least 10 minutes for each bout)
Type / Mode of activity	Rhythmic, sustained activities that use the large muscle groups in whole-body activities like stepping, swimming, running, or bicycling.

Muscular endurance and muscular strength can be combined into one general term:

Muscular Fitness. Muscular endurance is defined as the capacity of a muscle or muscle group to perform repeated contractions or to maintain an isometric contraction for an extended period and is achieved by performing a high number of repetitions, using low levels of resistance. Muscular strength is defined as the capacity of a muscle or muscle group to perform maximal work in one effort and is developed using high levels of resistance and low numbers of repetitions. Using heavy weights that represent near maximal levels of resistance raises some serious concerns about potential injury. Muscular fitness is a term describes combination of strength and endurance benefits offering the best of both worlds.

ACSM Muscular Fitness Guidelines	
Frequency:	2 - 3 days / week
Intensity:	40 - 60% 1 rep max
Repetitions	8 - 12 / exercise
Sets	2 - 3 / exercise
Type / Mode of activity	8 - 12 muscle groups

Flexibility is defined as the ability to move joints through the normal, full range of motion. Range of motion is specific to the structure of the joint, ligaments, and elasticity of the muscles and tendons that cross the joint. The joint's range of motion is called joint mobility. Flexibility is maintained or improved through a well-designed stretching program for all major muscles. Stretching techniques such as static, dynamic and PNF can be successfully used to improve flexibility.

ACSM Flexibility Guidelines	
Frequency:	A minimum of 2 - 3 days / week
Intensity:	To a position of mild discomfort
Repetitions	3 - 4 / stretch
Time	10 - 30 seconds for each stretch
Type / Mode of activity	A general stretching routine that exercises each major muscle group using static or PNF techniques

Body composition refers to the ratio of lean body mass to body fat. Lean body mass is comprised of muscles, bones, ligaments, tendons, and internal organs. Body fat or adipose tissue consists of essential fat and stored fat. The primary role of stored fat is to

reserve energy for later use. Body composition can be improved by increasing the amount of lean muscle mass through resistance training and decreasing body fat through diet and CRE exercise. Body composition can be measured using such tests as anthropomorphic (skinfold) measurements, bioelectrical impedance, near infrared interactance, dual energy x-ray absorptiometry and hydrostatic underwater weighing. Most of these require sophisticated equipment and specific training to perform the testing protocols. Although norms will vary based on the protocol used to determine body fat here are some general body fat classifications:

	Body Fat Classifications	
	Men	Women
Unhealthy Low	<5%	<12%
Elite Athlete	5-7%	12-14%
Excellent	7-10%	14-18%
Good	10-16%	18-22%
Acceptable	16-19%	22-26%
Borderline	19-24%	26-31%
Unhealthy High	>24%	>32%

Estimates of body composition can be determined more readily by measuring waist-to-hip ratio and / or calculating body mass index (BMI) = Weight (kg) divided by Height (m) squared.

ACSM - BMI (kg/m ²)	
Underweight	<18.5
Normal	18.5 - 24.9
Overweight	25.0 - 29.9
Obese Class I	30.0 - 34.9
Obese Class II	35.0 - 39.9
Obese Class III	> or equal to 40

Keep in mind that all five fitness components should be addressed in a well-designed exercise program. Aerobic activity promotes improved CRE and body composition. Resistance training facilitates improvements in muscular fitness (strength and endurance) and body composition. A stretching program is essential in attaining and maintaining functional levels of flexibility to remain active and healthy.

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