

ACSM Cardiorespiratory Training Guidelines

- **3 basic components** to any exercise conditioning session are warm-up, conditioning stimulus, & cool-down
- **Warm-up & cool-down** performed at approximately 50% of stimulus intensity (hold conversation without much difficulty)
- Warm-up & cool-down may take **5-15 minutes**, depending on age & fitness level
- **Accumulate 30 minutes or more of moderate-intensity physical activity on most days of the week** (intermittent activities have same health benefits as continuous activities)
- **Frequency:** 3-5 days a week
- **Intensity:** 50-85% of heart rate maximum ($220 - \text{age} \times .50$ to $.85$) or 60-80% heart rate reserve ($220 - \text{age} - \text{resting heart rate} \times .60$ to $.80 + \text{resting heart rate}$)
- **Time:** 20-60 or more minutes per session, continuous or intermittent activity
- **Type:** Aerobic (run, brisk walk, swim, cross-country ski, dance, elliptical trainer) Ask fitness expert how to operate equipment with which you are unfamiliar and follow all safety procedures for each activity
- **Enjoyment:** preferably enjoyable aerobic activities
- **3 stages of Cardiorespiratory training:** Initial, Improvement, Maintenance (See Cardiorespiratory Fitness Prescription Outline)
- **Progression of both intensity and duration in a single session is not recommended.** Increase the duration first before increasing the intensity. If you can complete an exercise session at the upper level of frequency and duration for 2 weeks without signs of excessive fatigue, progress to the next level
- **If training is discontinued, gains in fitness regress by approximately 50% within 4-12 weeks**
- For **weight management**, frequent, enjoyable exercise periods of low to moderate intensity and relatively long duration result in the largest weekly caloric expenditures
- **Stay within your heart rate range.** Monitor through a heart rate monitor or manually (carotid artery on neck or radial artery on thumb side of wrist)

Cardiovascular Exercise Prescription

Intensity of Exercise

1. Estimate your own maximal heart rate (MHR)

MHR= 220 minus age (220 - age)

MHR= 220 - _____ = _____ bpm

2. Resting Heart Rate (RHR) = _____ bpm

3. Heart Rate Reserve (HRR) = MHR - RHR

HRR = _____ - _____ = _____ beats

4. Training Intensities (TI) = HRR x TI + RHR

60% TI = _____ x .60 + _____ = _____ bpm

70% TI = _____ x .70 + _____ = _____ bpm

85% TI = _____ X .85 + _____ = _____ bpm

5. Cardiovascular Training Zone. The optimum cardiovascular training zone is found between the 70 and 85 percent training intensities. However, individuals who have been physically inactive or are in the poor or fair cardiovascular fitness categories should use a 40-50% training intensity during the first few weeks of the exercise program.

Cardiovascular Training Zone: _____ (70% TI) to _____ (85% TI)

Training Progression for the Apparently Healthy Participant

Program Stage	Week	Exercise Frequency (Sessions/wk)	Exercise Intensity (% HRR)	Exercise Duration (min)
Initial Stage	1	3	40-50	15-20
	2	3-4	40-50	20-25
	3	3-4	50-60	20-25
	4	3-4	50-60	25-30
Improvement Stage	5-7	3-4	60-70	25-30
	8-10	3-4	60-70	30-35
	11-13	3-4	65-75	30-35
	14-16	3-5	65-75	30-35
	17-20	3-5	70-85	35-40
	21-24	3-5	70-85	35-40
Maintenance Stage	24+	3-5	70-85	30-45

Rate of Progression

The recommended rate of progression in an exercise conditioning program depends on the functional capacity, medical health status, age, individual activity preferences and goals, and an individual's tolerance to the current level of training. For apparently healthy adults, the endurance aspect of the exercise prescription has three stages of progression: initial, improvement, and maintenance. Exercise professionals should recognize that recent physical activity recommendations from the ACSM/CDC and the Surgeon General include 30 minutes of *moderate* physical activity on most, if not all, days of the week. While some apparently healthy but sedentary individuals may not be able to attain this initial level of activity, they should be encouraged to progress to this goal during the first few weeks of the training program.

ACSM Resistance Weight Training Guidelines

- Perform a minimum of 8 to 10 exercises that train the major muscle groups. Workouts should not be too long (longer than one hour are associated with higher drop out rates). Choose more multi-joint, compound exercises which involve more muscles
- Perform one set of 8 to 12 repetitions to the point of volitional fatigue
- Perform exercises at least 2 days per week. Progress is made during the recuperation between workouts
- Adhere as closely to the specific exercise techniques (proper technique, exercise both sides of body, breathe, move your joints through a full range of motion, move in a controlled manner-don't let momentum move the weight)
- Use both concentric (shortening) and eccentric (lengthening) actions
- Use both single-joint & multi-joint exercises
- Exercise sequence
 1. Large muscle before small muscle group exercises
 2. Multi-joint exercises before single-joint exercises
 3. Higher intensity before lower intensity exercises
- Training Frequency
 1. 2-3 days per week for novice & intermediate training
 2. 4-5 days per week for advanced training
- Novice training: 8-12 repetition maximum (RM)
- Intermediate to advanced training
 1. 1-12 RM in periodized fashion
 2. Eventual emphasis on heavy loading (1-6 RM)
 3. At least 3-min rest periods between sets
 4. Moderate contraction velocity
 5. 1-2 seconds concentric & 1-2 seconds eccentric
- Hypertrophy training
 1. 1-12 RM in periodized fashion
 2. Emphasis on the 6-12 RM zone
 3. Moderate contraction velocity
 4. Higher volume, multiple-set programs
- Power Training
 1. 2 general loading strategies (strength training and light loads)
 2. Light loads (30-60% of 1RM, fast contraction velocity)
 3. 2-3 min of rest between sets for multiple sets per exercise
 4. Emphasize multiple-joint exercises, especially those involving total body

- Local muscular endurance training
 1. Light to moderate loads
 2. 40-60% of 1RM
 3. High repetitions (>15)
 4. Short rest periods (<90 sec)
- SPECIFIC WARM-UP
 1. 12-15 reps performed before workout set
 2. Approximately 50% of workout weight (10 RM)
 3. 30 seconds to 3 minutes rest before workout set
- Benefits of specific warm-up
 1. Muscles & joints warmed up with exact mechanics that will be performed during workout set(s)
 2. Muscle & joint is less susceptible to injury
 3. Muscle can contract with greater intensity
 4. Motor skill & breathing can be rehearsed
- Specific warm-up can be considered more effective for weight training than General warm-up (Ex. of general warm-up: jumping jacks, aerobic warm-up etc.)
- No warm-up set is required for high repetition exercises (Ex. 20-30 or 20-50 reps on abdominal training). High rep sets are not as intense and serves as warm-up in itself

Health Benefits associated with Resistance Training

1. Modest improvements in cardiorespiratory fitness
2. Reductions in body fat
3. Modest reductions in blood pressure
4. Reduction in glucose-stimulated plasma insulin concentrations
5. Improvements in blood lipid-lipoprotein profiles

Guidelines for Proper Stretching

1. Determine posture or position to be used. Ensure proper position and alignment prior to stretch.
2. Emphasize proper breathing. Inhale through the nose and exhale through pursed lips during the stretch. One may stretch with eyes closed to increase concentration and awareness.
3. Hold end points progressively for 30-90 seconds and take another deep breath.
4. Exhale and feel the muscle being stretched, relaxed, and softened so that further ROM is achieved.
5. Discomfort may increase slightly, but continue to focus on breathing.
6. Repeat the inhale-exhale-stretch cycle until the end of the available range for the day.
7. Do not bounce or spring while stretching.
8. Do not force a stretch while holding the breath.
9. Increased stretching range during exhalation encourages full body relaxation.
10. Slowly reposition from the stretch posture and allow muscles to recover at natural resting length.

Precautions for Flexibility Training

1. Stretch a joint through limits of normal Range of Motion (ROM).
2. Do not stretch at healed fracture sites for about 8-12 weeks post fracture, after which gentle stretching may be initiated.
3. In individuals with known or suspected osteoporosis, stretch with particular caution (e.g., men older than 80 years and women older than 65 years, older persons with spinal cord injury).
4. Avoid aggressive stretching of tissues that have been immobilized (e.g., cast or splinted). Tissues become dehydrated and lose tensile strength during immobilization.
5. Mild soreness should take no longer than 24 hours to resolve after stretching. If more recovery time is necessary, the stretching force was excessive.
6. Use active comfortable ROM to stretch edematous joints or soft tissue.
7. Do not overstretch weak muscles. Shortening in these muscles may contribute to joint support that muscles can no longer actively provide. Combine strength and stretching exercise so that gains in mobility coincide with gains in strength and stability.
8. Be aware that physical performance may vary from day to day.
9. Set individual goals.

ACSM Nutrition Guidelines

The foods we eat affect our health throughout our life. In addition to providing essential nutrients for growth and development, foods can supply substances that either contribute to or protect against chronic disease. Such diseases such as cancer, osteoporosis, diabetes, hypertension, heart disease, and obesity can be profoundly affected by diet.

Recommended Intake as Percent of Total Calories

<u>NUTRIENT</u>	<u>STEP I DIET</u>	<u>STEP II DIET</u>
Total fat	30% or Less	30% or Less
Saturated Fatty Acids	8-10%	7%
Polyunsaturated Fatty Acids	Up to 10%	Up to 10%
Monounsaturated Fatty Acids	Up to 15%	Up to 15%
Carbohydrate	55% or more	55% or more
Protein	Approximately 15%	Approximately 15%
Cholesterol	Less than 300 mg per day	Less than 200 mg per day
Total Calories	To achieve and maintain desired weight	

Beware of fad diets or diet pills that promise immediate results quickly. Just because certain products may be sold in a nutrition store does not always guarantee they are FDA approved.

Weight loss and/or management are a process that requires healthy decision-making skills. Both require the incorporation of a balance in food choices. Weight loss requires the restriction of calories and maintenance of exercise or incorporation of exercise. Weight maintenance requires the equality of energy consumed versus the energy expended. Weight gain includes consuming more energy (healthy choices, not fatty foods) than expending. Remember that energy is what fuels your body. Do not restrict yourself to lower than 1200 calories/day, especially when exercising. Research food label ingredients. Make sure you understand what each ingredient is and how it affects your body. This may take time, but is well worth the effort.

Dietary Recommendations

1. Body mass index should be maintained between 18.5 and 25. Weight gain during adulthood should remain less than 11 pounds.
2. Consume year-round a variety of vegetables and fruits, other than roots, tubers, legumes, and grains (see next item), providing 7% or more of calories or totaling 15-30 oz, or five portions, per day.
3. Consume 20-30 oz, or seven servings per day, of other plant foods, minimally processed (including roots, tubers, legumes, and grains), providing 45-60% of total calories. Refined sugars should be limited to less than 10% of total calories.
4. Alcohol consumption is not recommended. If consumed, alcohol should be limited to 1 serving for women and 2 servings for men. A serving is 3 oz of wine, 1 oz distilled spirits, or 8 oz beer.
5. Limit red meat to less than 3 oz/day. Fish, poultry, and nondomesticated meats are preferable.
6. Limit total fat to 15-30% of calories.
7. Limit intake of fatty foods.
8. Salt from all sources should amount to less than 6 g/day or 2400 mg/day.
9. Perishable foods should be safely stored or refrigerated to minimize fungal contaminants and mycotoxins.
10. When levels of food additives, contaminants, or other residues are properly regulated in food and drinks, their presence is not known to be harmful. In economically developing countries, where there may be insufficient regulation, these may be a health hazard.
11. Cook meat and fish at low temperatures. Do not eat charred food or burned meat juices. Consume only occasionally meat or fish that has been grilled over direct flame.

