

## Exercising the Components

By Tiffany Twardowsky, MS

The benefits of exercise for health and fitness are numerous. One of the major proven benefits is an increased protection against cardiovascular disease. Regular exercise also works synergistically to help control other risk factors to coronary heart disease such as obesity, stress, high blood pressure, cholesterol and triglycerides. It helps reinforce positive lifestyle factors including an enhanced self-image, a healthier diet and smoking cessation. Exercise helps control weight and maintains healthy bones thereby decreasing the risk of osteoporosis. Put all these benefits together, and you get a better quality of life. Improving the quality of life makes daily tasks easier to accomplish and allows life to be enjoyed to its fullest. These are just a sample of what regular exercise can do for you. So now that you are ready to begin, what do you do?

An exercise program needs to be well rounded, taking into consideration cardiovascular fitness, strength training, and flexibility. The American College of Sportsmedicine has developed guidelines for everyone interested in participating in an exercise program or physical fitness activity. It is also recommended that you check with your personal physician before starting any exercise program.

**Cardiovascular Training** is any form of exercise that involves large muscle groups, is rhythmical and aerobic, and is performed for an extended period of time. This form of exercise helps burn calories and strengthens the cardiovascular system so that your heart can function with less effort.

Frequency -- 3-5 days per week.

Intensity -- Low to moderate intensity, approximately 60-90% of maximum heart rate.

Duration -- Approximately 20-60 minutes of

continuous or intermittent (10-minute bouts) activity. It is important to increase the amount of time and intensity of your exercise gradually. When beginning an exercise program, 10 minutes of activity might be a good start depending on your fitness level.

Mode of Activity --Continuous, rhythmical and aerobic using large muscle groups such as walking, jogging, cycling, swimming, rowing, in-line skating, stair climbing, aerobic class and cross country skiing.

**Strength Training**, also called weight training and resistance training, does not require oxygen for completion of movement. This is the main difference between cardiovascular training, which uses oxygen for fuel, and strength training, which mainly uses stored muscle sugar for fuel. Strength training increases muscle strength, muscle mass and bone density. Examples include calisthenics, weight machines, and free weights.

Exercises -- A minimum of 8-10 exercises involving all major muscle groups of the body.

Frequency -- 2-3 days per week with at least one day of rest between workouts; resistance training exercises for the same muscle group should not be performed on consecutive days.

Sets -- A minimum of one set. This will provide about 85% of strength gains, which is enough to reap the benefits of resistance training.

Repetitions - 8-12 repetitions to near muscle fatigue.

Speed -- Moderate to slow; each repetition should take approximately 6-7 seconds to perform.

Range of Motion -- Exercises should be performed through a full range of motion to gain a full range of strength and should be pain free.

**Flexibility** is the maximum ability to move a joint through a range of motion. A person's level of flexibility may depend on a number of factors such as muscle temperature, muscle viscosity,

genetics, tightness and decreased elasticity in soft tissue, and age.

Flexibility exercises (stretching) should be included with every exercise session to help prevent injury and increase range of motion. Before stretching, begin with at least 5-10 minutes of light aerobic activity. This will get the blood flowing through the body to warm the muscles. Stretching exercises should include all the major muscle groups. Each stretch should be held for 15-30 seconds and be repeated 2-3 times, alternating sides. DO NOT stretch to the point of pain.

## Principles of Exercise

There are a few exercise-training principles to keep in mind when choosing the most appropriate exercise for your lifestyle. Each principle is distinct yet closely related to all the others. These principles provide guidelines for a safe and effective exercise program and help participants achieve their fitness and health goals.

The **Principle of Specificity** states that your body adapts to stress in a highly specific way. In other words, if the goal is to increase strength and/or endurance in a certain muscle or muscle group, then the exercises should focus specifically on utilizing and training that particular muscle. For example, even though running and cycling are cardiovascular activities, an avid runner will not do as well with cycling. The cardiovascular system maybe very well trained, but the muscles used in cycling are used differently when running. When interested in achieving a particular exercise goal, factors such as the individual movements, energy systems, muscles and joints involved in your specific activity need to be considered.

Related to the Principle of Specificity is the **Principle of Adaptation**, which states that the body has the ability to adjust to a certain workload or intensity level so that it becomes easier to perform while requiring less effort. An example of this is walking up the stairs. A sedentary individual will require more effort to climb up a flight of stairs than a regular exerciser. The sedentary individual's cardiovascular system is not as efficient because it has not adapted to that level of intensity. As for the regular exerciser, their cardiovascular system has adapted to this

level by training at this level of intensity or higher.

As the body becomes accustomed to a specific level, it can then adapt to a higher workload or intensity as stated in the **Principle of Progressive Overload**. This principle states that the intensity required to produce a training effect needs to be higher than what was already achieved. For example, to gain muscle strength one must lift more weight than accustom to lifting. Once the body has adapted to a certain level of intensity, further adaptation will not take place unless that intensity level is increased. If continued fitness improvements are the main goal, the exercise program must become progressively more demanding. Extending the time or increasing the workload of the exercise can increase the level of intensity.

The opposite of the Overload Principle is the **Principle of Reversibility**, which implies that you either "use it or lose it." This simply means that your muscles hypertrophy (increase) with use and atrophy (decrease) with disuse. Your cardiovascular system will increase in efficiency when used and decrease when not used. With disuse, the body will experience muscle atrophy, strength decrease, bone demineralization, loss of cardiovascular efficiency, increased body fat, increased risk of cardiovascular disease, etc. This is why a continuous exercise program is so important.

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