



**Lifespan Cardiovascular Institute**

Rhode Island Hospital • The Miriam Hospital  
Newport Hospital

*Delivering health with care.®*

**The Center For Cardiac Fitness  
Cardiac Rehab Program  
The Miriam Hospital**

## **Benefits of Resistance Training**

- 1.To improve functional strength and flexibility. This is important because it can help keep you safe in your daily activities and make you less vulnerable to falls or other injuries.
- 2.To increase bone mass and density. Weight-bearing and resistance exercises can help protect against osteoporosis, a disease in which bones become fragile and more likely to break.
- 3.To build muscle strength. Adults lose between five and seven pounds of muscle every decade after age 20. Only strength training prevents muscle loss.
- 4.To lower body fat. Research in strength training has demonstrated a four-pound fat loss after three months of training, even though study participants increased their daily caloric intake by 15 percent, according to the American Fitness Professionals Association.
- 5.To reduce resting blood pressure. Strength training reduces resting blood pressure.
- 6.To reduce low back pain. Research has shown that strength training can increase low back strength and alleviate low back pain.
- 7.To reduce the pain of osteoarthritis and rheumatoid arthritis. Tufts University Diet and Nutrition Letter (1994) published a study on sensible strength training that reduced the pain of osteoarthritis and rheumatoid arthritis.
- 8.To reduce symptoms of other chronic diseases. Strength training can help to reduce the symptoms of depression, heart disease, type 2 diabetes, osteoporosis and sleep disorders.

9.To enhance your personal appearance. Improving your strength and your physique can also be a plus for your self-confidence and self-esteem.

10.Seniors can decrease their fat weight. Like the younger program participants, the senior subjects lost more than four pounds of fat weight during the eight week training period.

## **Resistance Training Principles**

In order to achieve results or produce a change in muscle strength, a set of guidelines for resistance training helps to ensure progress. These principles form the basic strategies that are used to achieve your goals, and apply to any resistance training program.

### **Stress/Rest**

To gain muscle strength, the muscles need to be stressed, then they must be given sufficient time to recover and adapt. Between 48-72 hours rest between workouts (of the same muscle group) is recommended.

### **Progressive Overload**

Once the body adapts to a particular training stress (by getting stronger), a new stress must be introduced.

There are 2 general methods for overloading a muscle:

increase the resistance used for a certain # of reps

increase the volume of training (sets, reps, exercises)

### **Specificity**

Muscles will adapt to a particular training strategy. *To train for muscular endurance, moderate loads* with higher reps (10-15) are employed.

### **F.I.T.T.**

The F.I.T.T. principle includes the following 4 variables:

Frequency; 3-4 times per week; one day rest between workouts

Intensity: determined by # of sets, reps, exercises, and rest between sets

Time: duration of the workout is dependent upon the amount of rest between sets and exercises and the # of sets, reps, and exercises performed.

Training for general strength gains: 1-2 min. rest between sets & exercises

Training for muscular endurance: 0-60 sec. rest b/t sets & exercises

Type: machine or free weights

### **Symmetry**

This principle refers to the balanced development of the body. The most important consideration in applying this principle is balance between agonist and antagonist muscle groups (push vs. pull muscle groups). For example, if the muscles on one side of the joint are overdeveloped, there is an increased risk for injury.

### **Principle of Maintenance**

Once an individual's goals have been reached, it is possible to maintain the results gained through a reduction in training frequency (up to one third). However, the intensity and duration must remain the same.

### **Principle of Reversibility**

In order to maintain a desired level of muscular fitness, an exercise stress must be present, otherwise the benefits will deteriorate. In other words, "if you don't use it, you lose it." The level of detraining will be dependent upon the gains made during training.