

**STRENGTH TRAINING**  
**and**  
**ITS MANY BENEFITS**  
by  
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Usually when one thinks of strength training, a picture comes to mind of someone straining to lift a very heavy weight such as in power lifting or olympic lifting. In reality, strength training is a versatile tool which can be used by almost anyone. From a homemaker who wants to lose a few pounds to a senior citizen with arthritis who wants to reduce pain and increase joint mobility.

To appreciate the concept of strength training, we need to define it. Strength training is a way to increase or improve the strength of muscles, tendons, and ligaments in order to perform a certain feat or task. A feat can be an act of endurance or strength such as performing a series of difficult gymnastic movements or bench pressing a very heavy weight. A task would be an everyday need such as twisting the lid off a jar or climbing stairs. Improved performance can be accomplished by using free weights, machines, cables, spring, elastic, pneumatic, and hydraulic exercise devices, and free hand exercises also referred to as calisthenics.

The following list of benefits is meant to encourage everyone to take advantage of strength training.

### **FAT BURNING**

Many people try to burn off excess fat from their bodies by engaging in a lot of aerobic activity. While it is true that prolonged and frequent aerobic activity does burn fat, it is not the most efficient way. In fact, excessive aerobic activity which causes muscle loss, can slow down your metabolism.

By the time most people are in their forties they may have lost between 5 and 10 pounds of muscle due to physical inactivity. As they age further, they continue to lose muscle. This loss of muscle will result in a substantial reduction in their body's ability to burn calories. As a result, these unused calories are then stored as fat throughout the body. The only way to reverse this situation is to restore this lost muscle simply by engaging in a properly designed strength training program a minimum of 45 minutes three days a week. On the days that you don't strength train you can do some form of aerobic activity for no more than 1 hour at 55 to 60% of your heart rate max for your age. Any higher than this will force your body to burn more sugar and less fat.

### **BODY SHAPING AND MUSCLE TONING**

Strength training combined with the right amount of aerobics and a healthy diet is the safest and most efficient way to tighten up those loose and flabby muscles. The muscles are designed to be used, so use them and keep your body trim and healthy inside and out.

### **IMPROVED MAX VO2 UPTAKE (OXYGEN ABSORPTION)**

Dr. Mike Stone, head research scientist at Appalachian State University in North Carolina, discovered that increases in max VO2 uptake averaging up to three milliliters of oxygen per kilogram of bodyweight per minute could be attained with Olympic style strength training in just five weeks.

### **INJURY PREVENTION AND REHABILITATION**

Strength training can be used to strengthen the muscles, tendons, and ligaments so the joints can withstand the stresses of the various activities or sports we engage in. On the other hand, if you do get an injury, it can be used to speed recovery.

One area that really needs to be covered in this section is back problems. Treatment of back pain in this country costs billions of dollars. One of the main reasons why people suffer back pain is from lack of proper exercise. Even those who do engage in some form of exercise neglect the all important back muscles as well as the abdominal area. A well designed strength training program can help to prevent and reverse this national malady.

## **IMPROVED CARDIOVASCULAR FUNCTION**

### **Stroke Volume**

A properly designed strength training program contributes to a more efficient stroke volume. This is the ability of the heart muscle to be more efficient at pumping oxygen rich blood out of its left ventricle into the body with each beat.

### **Ejection Fraction**

Whenever the heart contracts, not all of the blood in the ventricles is ejected. The portion of blood that is pumped out is called the ejection fraction. In a healthy person the amount of blood ejected is 50% or more. Strength training can improve this percentage which increases the overall function of the heart pump.

### **Heart Rate**

Since a properly designed strength training program improves the stroke volume and ejection fraction, carbon dioxide can be eliminated more efficiently and oxygen rich blood can be pumped to the body with fewer contractions per minute. This results in less stress to the heart.

## **REDUCES RISK OF CORONARY HEART DISEASE**

### **Lowers Cholesterol and Triglycerides**

Recent studies have shown that strength training can reduce the bad LDLs, low density lipoproteins, and increase the good HDLs, or high density lipoproteins. Lipoproteins transport cholesterol in the blood. The HDLs carries cholesterol from the body cells to the liver reducing plaque build up on the arterial wall, while the LDLs carries cholesterol from the liver to the cells increasing plaque on the arterial walls, resulting in heart attack or stroke.

Participants have shown a reduction of cholesterol of 10-15%, and a lowering of triglycerides of up to 30%, with three 45-60 minute strength training sessions per week.

### **Lowers High Blood Pressure**

The 1994 Journal Of Pediatrics reports that three teenagers suffering from hypertension were able to lower their blood pressure slightly by the use of endurance training. When put on a strength training program three times a week their blood pressure went down even further. The program consisted of six exercises for three sets of 5-8 repetitions.

One reason stated for this effect is that strength training involves most of the muscles, not just the ones used for running. The peripheral circulation becomes more efficient because of the improved muscle tone and elasticity of the arteries.

## **PREVENTION AND REVERSAL OF OSTEOPOROSIS**

In order for your bones to be healthy they must have continual stress or resistance placed upon them. If not, as we grow older, our skeletal structure becomes thinner and weaker. Strength training is of paramount importance for proper bone health as demonstrated by Dr. Chow and his colleagues at Queen Elizabeth Hospital in Toronto, Canada.

Dr. Chow put several healthy postmenopausal women on a strength training program combined with aerobics. In one year the women increased their bone mass by about 8%. This was accomplished without estrogen therapy and no calcium supplementation!

In order to continue to derive this kind of result, a strength training program must be incorporated into our lifestyle for life. If this is not done, then the bone tissue begins to deteriorate all over again.

## **STRESS REDUCTION**

Life today can be very stressful. This increased stress can be quite damaging to the body causing tension headaches, indigestion, high blood pressure, impaired thinking abilities, excess hormone secretions, spastic colon, depression, irregular heart rate, high anxiety, and mood swings. Research has shown that a regular program of strength training can reduce stress allowing us to cope with everyday life more effectively.

## **REDUCES THE RISK OF BOWEL AND BREAST CANCER**

Researchers have found that people who strength train on a regular basis have lower rates of colon and breast cancer.

## **MAINTAINING STRENGTH FOR EVERYDAY LIFE**

If we don't maintain a good program of strength training throughout our life we may have problems later on. For example, you could lose as much as 30-40% of your strength by age 65. Today in America more than one-fourth of the men and two-thirds of the women age 74, can't lift an object greater than 10 pounds. Besides having difficulty lifting an object such as a sack of groceries, it would also become more difficult to climb stairs and rise from a chair. Needless to say, this can make everyday life very uncomfortable.

All of this can be prevented with the regular use of a strength training program. Even those who have become advanced in years and have neglected this aspect of their life can get make improvements and overcome their present weakened condition.

Note one study done in 1990. Ten very frail test subjects, 86 to 96-years old, with one or more combinations of coronary artery disease, high blood pressure, osteoporotic fractures, and osteoarthritis, were involved in an 8-week progressive resistance strength training program while under close medical supervision. Only one muscle group was involved - the knee extensors. They performed three sets of knee extensions at 80% of their one max repetition. Average increase in strength on the right leg was 174% and 180% on the left leg. Strength gains continued during the 8-week period and had not reached a plateau by the end of the program. The 90 and older subjects improved their gait speed by 48%. Two other subjects were able to eliminate thier walking canes and another was able to rise from a chair without the use of their arms.

As can be seen from this one study, it is never too late to start a strength training program.

So strength training is indeed a very valuable and versatile tool. It can be used not only to improve our degree of fitness, as well as make us stronger physically, but it can help us to have happier and healthier lives.

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