

# MUSCLES FOR LIFE



The muscular system is responsible for movement. It is obvious that muscles are responsible for movements like walking, jumping and throwing, but muscles also assist in breathing, digestion and the pumping of the heart. Building a strong muscular system provides long-term health benefits, enhances performance in activities, and provides improvements in appearance. Understanding the location and the function of the muscles allows a person to design a strengthening plan to meet his/her goals for health, performance and appearance. To support the development of the muscular system, resistance training and a healthy diet must be included in a person's fitness plan.

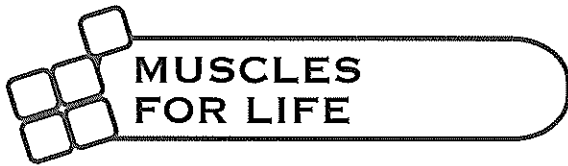
The function of muscles is to produce movement. There are 650 muscles all shortening and pulling from many attachment points and angles to produce every movement possible. Movements in the joints have specific names that help to describe actions. Bending a joint, or reducing the joint angle, is referred to as flexion while straightening a joint or increasing the joint angle is referred to as extension. For example, bending the elbow while doing a bicep curl would be flexion and straightening the arm would be extension. Many times, muscles work in opposition and/or cooperation. One example would include the biceps and triceps. The biceps, located on the front of the upper arm, are responsible for bending (flexing) the arm at the elbow joint. The triceps, located on the back of the upper arm, are responsible for straightening (extending) the elbow joint. As the biceps relax, the triceps pull from the opposite direction to straighten the elbow joint. Muscles work together to produce all movements.

Building a strong muscular system provides long-term health benefits for everyone, including allowing a person to perform daily activities with greater ease. Additional strength and muscular endurance will provide an enhanced quality of life, allowing a person to accomplish more. When a muscle contracts it pulls on the bone causing stress to that bone which in turn increases bone density. Increased bone density decreases the risk of osteoporosis. A strong, balanced muscular system will also improve posture and alignment to reduce low back problems. A well developed muscular system can help decrease the risk of injury caused by everyday mishaps such as stepping off of a curb or slipping and falling. With a stronger muscular system, people are more likely to catch themselves or find their balance before they are injured.

Performance is enhanced through a well developed and balanced muscular system. Muscles get stronger according to the amount of stress or work that is placed on them. Through the building of muscle, the nervous system has better ability to coordinate and refine movements involved in activities. For example, squats develop muscular strength in the leg muscles. This added strength to the muscular system increases a person's ability to run faster and jump higher. Training the muscular system translates to a higher level of performance for any activity a person chooses.

A well developed muscular system improves body composition, which, in turn, enhances self-esteem. Body composition is maintained or improved through the development of the muscular system. Muscle tissue acts as a furnace which burns calories. As muscle mass is increased, the number of calories used per day is also increased, which helps control body fat. Increasing muscle mass lowers fat percentage and increases fat-free mass. The safest and most rewarding way to improve appearance is to build a balanced muscular system.

When developing a balanced muscular system, it is important to consider the types of activities being performed. An activity that should be incorporated into a fitness plan is resistance training that stresses or works the muscles. Resistance training provides the muscular system with the tools it needs to develop strength to function at its best.



Following are the muscles covered in this unit, as well as a description of where they are located, their function and how to strengthen them.

### **Abdominals**

Location: Cover the stomach

Function: Bend forward at the waist

Strengthening Exercises: Crunch, Curl-ups

Importance: Prevent injury to the back and internal organs

### **Biceps**

Location: Front, top half of the arm

Function: Bend the elbow

Strengthening Exercises: Bicep Curls, Chin-ups

Importance: To carry a load of wood or groceries, to water ski or wakeboard

### **Deltoids**

Location: Shoulder

Function: Moves upper arm

Strengthening Exercises: Shoulder Press, Lateral Raise

Importance: To throw a ball, do a cartwheel, paint the house, or hang a picture

### **Gastrocnemius**

Location: Back of lower leg

Function: Point the toes

Strengthening Exercises: Calf Raise

Importance: To walk, climb stairs or jump

### **Gluteals**

Location: Buttocks

Function: Moves thigh backwards

Strengthening Exercises: Squat, Lunge

Importance: Jump, climb stairs or walk up hills, do lunges

### **Hamstrings**

Location: Back of the upper leg

Function: Bend the knee

Strengthening Exercises: Squat, Lunge

Importance: To walk and run

### **Latissimus dorsi**

Location: On the back

Function: Allows a person to pull

Strengthening Exercised: Seated Row

Importance: To water ski, climb a tree or do a pull-up

### **Pectorals**

Location: Chest

Function: Help a person to push

Strengthening Exercises: Push-ups, Chest Press

Importance: To push a lawn mower or shopping cart, play tennis



# MUSCLES FOR LIFE



## **Quadriceps**

Location: Front part of upper leg

Function: Straighten the knee

Strengthening Exercises: Squat, Lunge

Importance: To walk, run and kick

## **Trapezius**

Location: Upper and mid back

Function: Pulls arms in and raises the shoulders

Strengthening Exercises: Shoulder Shrug, Seated Row

Importance: To lift an object and pull something close to the body

## **Triceps**

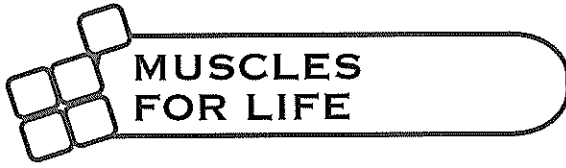
Location: Back of the upper arm

Function: Straighten the elbow

Strengthening Exercises: Push-ups, Tricep Extensions

Importance: To throw a ball, push away from the table

A strong muscular system is necessary for living a healthy lifestyle.



**Key vocabulary words that will be introduced during this unit are:**

- **Abdominals** – Muscles located on the stomach; they allow bending forward at the waist
- **Biceps** – Muscles located on the front, top half of the arm; they allow the elbow to bend
- **Deltoids** – Muscles located on the shoulder; they move the upper arm
- **Gastrocnemius** – Muscle located on the back of lower leg; they allow a person to jump
- **Gluteals** – Muscles located on the buttocks; they allow a person to stand up
- **Hamstrings** – Muscles located on the back of the upper leg; they bend the knee
- **Latissimus Dorsi** – Muscle located on the back; it allows a person to pull
- **Muscles** – Parts of the body that produce movement
- **Pectorals** – Muscles located on the chest; they help a person to push
- **Quadriceps** – Muscles located on the front part of the upper leg; they straighten the knee
- **Trapezius** – Muscle located on the upper and mid back; it allows a person to pull arms in and raise the shoulders
- **Triceps** – Muscles located on the back of the upper arm; they allow the elbow to straighten