

STRENGTH TRAINING



Strength training

- ▶ Strength training is a type of **physical exercise** specializing in the use of **resistance to induce muscular contraction** which builds the strength, anaerobic endurance, and size of skeletal muscles. When properly performed, strength training can provide significant functional benefits and improvement in overall health and well-being, including increased bone, muscle, tendon and ligament strength and toughness, improved joint function, reduced potential for injury, increased bone density, increased metabolism, improved cardiac function, and elevated HDL cholesterol. Training commonly uses the technique of progressively increasing the force output of the muscle through incremental weight increases and uses a variety of exercises and types of equipment to target specific muscle groups. Strength training is primarily an anaerobic activity, although some proponents have adapted it to provide the benefits of aerobic exercise through circuit training.

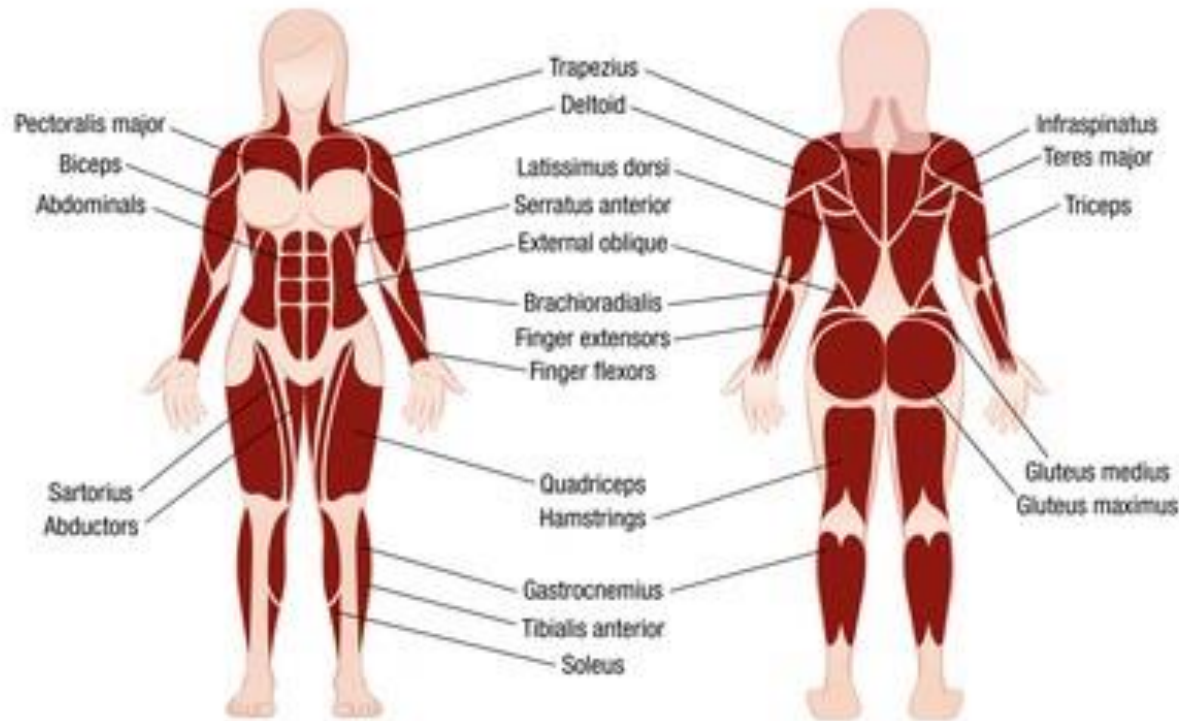
Muscle Definition

Strength training: A muscle is a group of muscle tissues which contract together to produce a force.

- ▶ There are three types of muscle in the body. Muscle which is responsible for moving extremities and external areas of the body is called "skeletal muscle." Heart muscle is called "cardiac muscle." Muscle that is in the walls of arteries and bowel is called "smooth muscle."
- ▶ Muscles play a part in every function of the body. The muscular system is made up of over **600 muscles**. These include three muscle types: smooth, skeletal, and cardiac.
- ▶ Only skeletal muscles are voluntary, meaning you can control them consciously. Smooth and cardiac muscles act involuntarily.
- ▶ Each muscle type in the muscular system has a specific purpose. You're able to walk because of your skeletal muscles. You can digest because of your smooth muscles. And your heart beats because of your cardiac muscle.
- ▶ The different muscle types also work together to make these functions possible. For instance, when you run (skeletal muscles), your heart pumps harder (cardiac muscle), and causes you to breathe heavier (smooth muscles).
- ▶ **Muscle:** Muscle is the tissue of the body which primarily functions as a source of power..
- ▶ **One of the most striking effects of age is the involuntary loss of muscle mass and strength, termed sarcopenia. Muscle mass decreases approximately 3–8% per decade after the age of 30 and this rate of decline is even higher after the age of 60.**

FUNCTION OF THE MUSCLE

- ▶ Whether it is the largest muscle in your body or the tiny muscle controlling the movement of your eye, every muscle functions in a similar manner. A signal is sent from the brain along a bundle of nerves. The electronic and chemical message is passed quickly from nerve cell to nerve cell and finally arrives at the *motor end plate*. This interface between the muscle and nerve cells releases a chemical signal, *acetylcholine*, which tells the muscle fiber to contract. This message is distributed to all the cells in the fiber connected to the nerve.



Body weight strength training

- ▶ Bodyweight strength training is a style **of exercise that uses the weight of your body as a source of resistance for various exercises.** This training approach often targets multiple muscles per exercise and focuses on building muscular strength and stability through compound movements like push-ups, sit-ups, pull-ups, and squats. Bodyweight training generally doesn't use any weights or machines.
- ▶ Bodyweight strength training is advantageous for people of every age and ability level. The lack of equipment means that exercises can be tailored to the needs and space of the individual, ranging from very basic movements to more advanced, compound exercises. For some, basic bodyweight movements are a great place to start since they are generally very safe to perform and have low rates of injury. This means that individuals who do not have a background in fitness can use light bodyweight training to build a whole-body baseline of strength before moving into more advanced styles of strength training.
- ▶ Perhaps the biggest benefit to bodyweight exercises is that they often work several muscle groups at once. Exercises like the squat, push-up, and dip activate a variety of both large muscle groups and smaller stabilizers with every repetition. This means that bodyweight exercises are fantastic for building well-rounded whole-body strength (1).

Squats

- ▶ Squats are a powerful movement for building lower-body strength and flexibility. While squats are considered a bodyweight exercise because they do not need any equipment, weights, or resistance bands can be added if desired. The main muscles worked by squats are your big leg muscles: quadriceps, gluteus maximus, hamstrings, and your hip adductors. The stabilization required also heavily works your core muscles, particularly the obliques.
- ▶ Squats are extremely beneficial when performed in the full range of motion but can also be performed isometrically. An isometric squat requires holding the “bottom” portion of the squat movement, with your thighs parallel to the ground. This works all the squat muscles to a greater degree the longer you hold it. Once you are comfortable with the basic squat and have built up enough strength and balance, you can begin doing single-leg squats. This advanced movement places your entire body weight on a single leg, which makes it excellent for developing strength and stability. If you are interested in building a strong foundation of functional strength, as well as improving your hip and lower body mobility, the squat is one of the best exercises to include in your routine.

Benefit of strength training

- ▶ For a balanced fitness program, strength training is essential. It can slow the muscle loss that comes with age, build the strength of your muscles and connective tissues, increase bone density, cut your risk of injury, and help ease arthritis pain. Muscle helps manage blood sugar, builds stamina for everyday activities, and helps with posture.

