The stronger your lower body, the better able you will be to perform anaerobic activities. A weight-training program can help develop both muscular strength and muscular endurance. It will take about 8-12 weeks to see a visual change once you start a weight program. When you are lifting weights you should always breathe and relax. You will want to work both sides of the body equally. Technique is important. Weight belts are used to support the back anytime you lift weights above your head. Always use a spotter when using free weights. Exhale as you lift the weight. Muscular fitness can improve your posture, reduce fatigue, and change body composition. Remember that the heart is a muscle and needs to be worked out just like the other muscles. That’s where aerobic activity comes into play.

**ANAEROBIC** exercise involves short bursts of exertion followed by periods of rest. It develops muscle mass. Anaerobic activity uses explosive amounts of energy in a short period of time. Therefore anaerobic exercises are those that involve short bursts of energy with more resistance. Examples include weight lifting, sprinting, plyometrics, and resistance training.

Muscles will sometimes get cramps. This occurs when the muscle contracts on its’ own. This happens when the muscle lacks minerals and/or when the muscle gets tired. You should drink plenty of water when you exercise.

Muscles are made up of bundles of fibers. Two main types of fibers are fast-twitch and slow-twitch muscle fibers. A fast-twitch fiber develops force rapidly and has a short twitch time. It is easily fatigued, has low aerobic power, rapid force development, and high anaerobic power. A slow-twitch muscle fiber develops force rather slowly and has a long twitch time. They are generally fatigue resistant, have a high aerobic capacity for energy supply, but limited potential for rapid force development and low anaerobic power.

**MUSCULAR STRENGTH** involves short bursts of explosive movement. It is characterized by more exertion to lift a lot of weight or by using quick bursts of speed. How much force a muscle can exert over a short period of time is known as muscular strength. Fast twitch muscle fibers are made up of white fibers that are shorter and more explosive and are the muscle fibers involved in muscular strength. Muscular strength increases the size and strength of a muscle. Muscular strength training consists of using heavier weights and fewer repetitions. The overload principle says that when you subject a muscle to a larger workload, it will increase in size and strength. The factors involved in the overload principle are frequency (number of times you exercise per week), intensity (how hard you workout), and time (how long you workout).

For **MUSCULAR ENDURANCE**, on the other hand, you must workout for a longer period of time. It uses less force over a longer period of time. How long a muscle can exert a force without getting tired is known as muscular endurance. Slow twitch muscle fibers are red fibers that are responsible for endurance. Muscular endurance training will tone muscles and allow them to work for longer amounts of time. This type of training should use less weight and more repetitions. The difference then, between muscular strength and muscular endurance, is time and force.

There are many training principles that will be utilized when working on developing both muscular strength and muscular endurance. A few are listed below.

1. **SPECIFICITY** - Targeting a certain muscle group for training.
2. **PROGRESSION** - Start slowly and increase the amount of work gradually.
3. **OVERLOAD** - Increasing the demand on the muscle and working it until it is fatigued.
4. **ISOMETRIC** - Exercises that are done when the muscle remains static.
5. **ISOTONIC** - Exercises that involve the lengthening and shortening of a muscle as it moves.
6. **ISOKINETIC** - Exercises in which a muscle moves through a full range of motion against a resistance or weight.
MUSCLE BALANCE PRINCIPLES

Muscle balance is the relationship of a muscle or group of muscles to another muscle or group of muscles. In a workout that emphasizes Total Body Conditioning, it is important to understand muscle balance. A well-designed program includes exercises for all of the major muscle groups. Muscles work in pairs. It is important to strengthen the muscles on both sides of a bone so that they pull evenly across the joints and maintain body alignment.

Examples of Opposing Muscle Groups:

- Gastrocnemius - Anterior Tibialis
- Quadriceps - Hamstrings
- Inner Thigh Adductors - Outer Thigh Abductors
- Abdominals - Spinal Extensors
- Pectorals - Rhomboids/Trapezius
- Biceps - Triceps
- Deltoids - Latissimus Dorsi
- Flexor Pollicis Longus - Extensor Pollicis Brevis

In a workout that emphasizes fitness for health/functional training, it is important to understand which muscles we use more throughout the day. Use strengthens the muscles that we use a lot. Muscles we use a lot, we need to stretch and muscles we use a little, and we need to strengthen. Weak areas need priority (done 1st in a workout) and more sets and exercises, whereas stronger areas require maintenance.

Muscles to Strengthen:  
  - Anterior Tibialis  
  - Hamstrings  
  - Rhomboids  
  - Trapezius  
  - Triceps  
  - Latissimus Dorsi  
  - Gluteals  
  - Deltoids (anterior)  
  - Deltoids (posterior)

Muscles to Stretch:  
  - Gastrocnemius  
  - Quadriceps/Ilio Psoas  
  - Upper Trapezius  
  - Pectorals  
  - Biceps  
  - Sternocleidomastoid

Stabilizers:  
  - Erector Spinae  
  - Abductors  
  - Adductors  
  - Abdominals