# Training Methods

What should you work on in order to improve your soccer fitness? The articles below present the different fitness training methods and their main principles. Find out their significance on soccer performance and learn how to develop your own training routine. The different fitness training methods here are classified in categories depending on their function and significance on performance.

## Soccer Warm-up

Preparing your body for soccer is a process that is often overlooked, especially at the lower levels of the game. There are three main aspects that must be touched upon in order to achieve maximum physiological readiness.

**Circulation - Picking up the Metabolic Rate**

***Passive***
Before jumping into a competitive event, the body's cardio-vascular activity needs to be increased gradually. Up to 30 minutes before kickoff, it is recommended to drink tea (preferably with a lemon and sweetened by honey rather than sugar.) The tea contains caffeine, which will increase a player's heart rate. Tea is rich in Sodium, a mineral that regulates and balances the amount of fluids outside the cells in the body, aiding in muscle contraction and nerve function. Sodium is usually lost during endurance events like soccer in the means of sweat.

Prior to going out to the field, light massage should be applied to the poorly circulated parts of the body like the ankles, knees, lower back and shoulders. This is especially important in cold weather.

***Active***
The active warm-up must begin about 20-30 minutes before the actual event. During this process, the body has to be warmed up through active exercises such as light jogging. The intensity should be gradually picked up. Incorporating different muscle groups at this stage will uniformly warm up the body.

**Musculature - Stretching**
Stretching is misunderstood and misused by many coaches at the lower levels of the game. First off, it must never be used on "cold muscles." Unless you're body has been warmed up, stretching can only cause harm. Remember that it should never feel painful. Flexibility is influenced by genetic factors. The same result cannot be expected for two different players when it comes to stretching.

***Static***
Static stretches are done by gradually assuming a position and holding it for a period of time. The only advantage of using Static stretches before a game is that they will ease sore muscles and calm down the player. It is true that they also improve flexibility but only when used in a long-term program.

***Ballistic***
Dynamic or Ballistic stretches involve moving a specific joint in full-range from one extreme to the other. It has been shown that Ballistic stretching decreases a risk factor for injury called muscle stiffness. Muscle stiffness is the ratio between change in muscle resistance and the change in muscle length. Static stretches have no effect on muscle stiffness. Therefore, stretches, done before soccer games or practices, need to be Ballistic. Nearly all established teams address only Ballistic stretches in their pre-game routine and go right into a technical workout.

**Coordination - Technical-specific Workout**
The final step before kickoff is the technical warm-up. At this point, the body should be well warmed up. Ideally, the technical warm-up should incorporate all four major areas of skill including kicking, dribbling, ball control and tackling. In fact, many teams conduct a "compressed" technical practice just before they actually play. They start off with simple technical drills and build up to a small-sided possession game.

## Anaerobic Soccer Fitness

Anaerobic activity is more intense (70-100% of your maximum heart rate) than aerobic but shorter in duration. Due to this, it is commonly referred to as quality training. Anaerobic activity is based on performing work while running the body with energy from stored sources such as glycogen. In this process, lactic acid is formed in the muscles thus causing you to feel fatigue or discomfort. Lactic acid buildup is why anaerobic exercises cannot be long in duration and are usually segmented into intervals.

Anaerobic endurance refers to your ability to sustain intense activity and recover quicker from it. This type of endurance is generally dependent upon your lactate tolerance and removal. Weightlifters try to keep the time between their sets of repetitions as short as possible. This way they are developing both their musculature and anaerobic endurance.

**Significance for the soccer player:**

- poor anaerobic fitness reduces your muscle strength
- it impairs your top speed throughout the course of a soccer game
- it makes it more difficult to execute techniques by impairing your coordination
- fatigue makes it hard to concentrate on tactics or the task at hand

## Aerobic Soccer Fitness

In soccer or fitness training in general, aerobic exercises are designed to improve the cardiovascular system and the efficiency of the heart. Aerobic means "with air." During aerobic activity, the body supplies the muscles with all the oxygen lost during their work. The muscles require it for the oxidation of fat and carbohydrates. In order to maintain this balance and keep the muscles supplied, the rate of exercise must be between 50-85% of your maximum heart rate. Your maximum heart rate more or less equals 220 beats per minute minus your age in years.

When the exercise becomes too intense, the heart will not be able to provide the muscles with the needed oxygen so they will switch to alternative sources of energy. At this point, further activity will be considered anaerobic.

Your aerobic ability is determined by the maximum amount of oxygen, which your body can consume, or VO2 max. VO2 max is measured in milliliters per kilogram per minute or the total amount of oxygen that can be supplied to a portion of your body over a given amount of time. VO2 max is largely dependent upon the efficiency of your body's "Oxygen transport system."

**Significance for the soccer player:**

- poor aerobic fitness reduces your muscle strength
- it impairs your coordination and reflexes
- it makes it more difficult to concentrate

## Strength Training for Soccer

There is a common misconception about strength training and soccer. Traditionally, soccer players did not employ it, due to the fear of getting too big and thus losing their agility. The opposite has been proven and nowadays nearly all top soccer players (both male and female) incorporate strength training in their fitness routine. It must also must be emphasized that building up your muscles is a long process that will not produce drastic results. Possessing a well-developed body can improve performance in many ways. For example, 50-50 battles are usually won by the stronger or more aggressive player. Another advantage is that strength training can help with muscle imbalance. Muscle imbalance causes alterations in your running technique that can potentially lead to injury.

Muscle strength is developed through the use of heavy weights, which allow only a low number of repetitions. To achieve optimal gain, try to keep the period between repetition short. When working with lighter weights and doing a higher number of

repetitions, one can improve the tone of his/her muscles. If you are just starting a weight-training program, it is recommended to tone up your muscles before trying to build up muscle mass.

The use of training equipment such as exercising machines and free weights is helpful but is not imperative. It is possible to improve your muscle strength by using the weight of your own body for resistance. The most important factors for a successful training regiment are the effort and dedication you put in.

**Significance for the soccer player:**

- having a poorly developed body causes injuries
- it usually makes you less effective in 50-50 battles
- it degrades your muscle endurance

## Plyometrics for Soccer

*While striving for World sports domination, during the Cold War, Soviet physiologists designed the plyometric training method. Yuri Verhoshansky is the most noted researcher on plyometrics and eventually played a huge part in the popularization of this training form.*

*Plyometric training produced evident results in sports that required jumping and agility. The USSR and Eastern Bloc have been employing plyometric exercises since the 1960's, it wasn't until 15-20 years later that the Western World would even hear of them. That was partially due to the discrete attitude of the Eastern Bloc towards their training methods. Some athletes were even required not to discuss training with anyone else, almost as if they were working on a classified military project.*

**Principles**
From a mechanical point of view, there are two types of muscle motion: ***Concentric*** and ***Eccentric***.

- The process of shortening or tightening the muscle is known as ***Concentric contraction***. A classic example is jumping - the legs are propelled upward because their muscles spasm and release force on the floor. The concentric contraction of muscles depends solely on neuroreceptors, called muscle spindle that run parallel to the muscle fibers. During physical activity, neuroreceptors get activated when the muscles are stretched with enough force and cause muscles to contract (muscle stretch reflex) by sending a message through a reflex arc in the Central Nervous System.

- ***Eccentric muscle contraction*** occurs as the body, or a particular part of it, decelerates. When an athlete's leg contacts the ground during running, his leg's muscles contract eccentrically, shortening and absorbing the force generated by the inertia of his entire body. This type of adaptation is extremely hard on the body, particularly the joints. The natural elasticity and need of returning to their resting position contributes to the eccentric contraction of the muscles.

Plyometrics exercises allow your muscles to respond more quickly and fully by stimulating the neuromuscular system. In order to make the most efficient use of the stretch reflex and elasticity, concentric and eccentric contractions must be loaded on a muscle in a rapid consecutive manner. What that means is that more power will be produced when tightening the muscles, right after lengthening them.

**Training drills**
Most plyometric drills are made up of series of jumps. When executing them, one should strive for maximum "air time" and minimum ground contact. Plyometric exercises improve agility as well as explosive power by incorporating elements from both weight and speed training. Plyometric training is very dangerous. It should not be practiced on hard surfaces because of the strain it has on joints, especially the knees.

***Double hop***
Standing with both feet together, jump up as high as you can. While leaping, try to bring your knees up to the chest. Re-launch yourself as soon as you contact the ground.

***Agility***
Stand beside a soccer ball or cone and leap over it from one side to the other. Try to propel yourself as high as you can. Remember not to spread your feet apart and to leap momentarily each time you touch the ground.

***Forward leap***
Set up a line of cones, spaced according to your leaping ability. Start from one end, jumping from cone to cone with your feet together. Try landing near each cone while getting as much height as possible.

## Speed and Soccer Training

Throughout his development, a player's sprinting ability is acquired mostly during early puberty (between 12 to 14 years of age.) If you already are a grown player (over 16 years old) and your timing on 100 meters is 15.0 seconds, it is not going to improve very easily. However, it is possible to significantly enhance one's speed on the field through a number of methods, which do not involve sprinting.

There are many factors that influence the speed at which one performs on the field. Some of these include reflexes, tactical anticipation, agility and so on. An effective speed training program must incorporate realistic aspects from the game. Speed is not confined to sprinting alone. Soccer players rarely sprint for over 20 meters. It would be more appropriate to concentrate on rapid change of direction, acceleration and most importantly, speed with the ball. Keep in mind these ideas when designing your speed training program.

Fatigue renders speed training useless in terms of gaining additional pace. A well-designed workout should be spilt into intervals so that you can recover and exercise at maximum effort.

**Significance for the soccer player:**

- playing at high speed is increasingly important at the more competitive levels of the game
- if you don't have the adequate pace, you will have trouble getting the ball