



Dynamic vs. Static Stretching

Many coaches advocate the use of static stretching prior to exercise. Static stretching involves reaching forward to a point of tension and holding the stretch. Static stretching has been used through out the years for two main reasons: injury prevention and performance enhancement. Does static stretching prior to activity achieve the goals of injury prevention and performance enhancement? Research has shown that static stretching can be detrimental to performance and does not necessarily lead to decreases in injury. Below are a few studies done on the topic of static stretching.

1. New research has shown that static stretching decreases eccentric strength for up to an hour after the stretch. Static stretching has been shown to decrease muscle strength by up to 9% for 60 minutes following the stretch and decrease eccentric strength by 7% followed by a specific hamstring stretch.
2. Rosenbaum and Hennig showed that static stretching reduced peak force by 5% and the rate of force production by 8%. This study was about Achilles tendon reflex activity which is vital in the game of soccer.
3. Three 15 second stretches of the hamstrings, quadriceps, and calf muscles reduced the peak vertical velocity of a vertical jump in the majority of subjects (Knudson et al. 2000).
4. Moscov (1993) found that there is no relationship between static flexibility and dynamic flexibility. This suggests that an increased static range of motion may not be translated into functional, sport specific flexibility, which is largely dynamic in most sporting situations.
5. Static stretching is best suited following an activity to help prevent injury.

In soccer it is vitally important to have explosive muscles that allow a player to jump higher for the winning header or to explode past an opponent to get to the ball more quickly. Almost every movement in soccer is preceded by an eccentric movement. For example, when you run you bend your legs first then explode forward. In jumping you must bend your legs first then jump. Finally, cutting in soccer requires a lot of eccentric power. Wouldn't it make sense to have optimal power, coordination and eccentric strength to succeed in soccer? If we shouldn't static stretch before a game or practice then how can we stretch to optimize performance on the field? The answer is dynamic stretching.





Many of the best strength coaches support the use of dynamic stretching. Dynamic stretching consists of functional based exercises which use sport specific movements to prepare the body for movement. Dynamic stretching involves moving parts of your body and gradually increasing reach, speed of movement, or both. Do not confuse dynamic stretching with ballistic stretching. Dynamic stretching consists of controlled leg and arm swings that take you gently to the limits of your range of motion. Ballistic stretches involve trying to force a part of the body beyond its range of motion. In dynamic stretches, there are no bounces or "jerky" movements. Several professional coaches, authors and studies have supported or shown the effectiveness of dynamic stretching. Below are a few examples of support for dynamic stretching:

1. Mike Boyle uses a dynamic warm-up with his athletes. He goes through about 26000 workouts over the course of a summer. In 2002 he did not have one major muscle pull that required medical attention.
2. Flexibility is speed specific. There are two kinds of stretch receptors, one measures magnitude and speed and the other measures magnitude only. Static flexibility improves static flexibility and dynamic flexibility improves dynamic flexibility which is why it doesn't make sense to static stretch prior to a dynamic activity.
3. There are few sports where achieving static flexibility is advantageous to success in the sport. Therefore according to the principle of specificity it would seem to be more advantageous to perform a dynamic warm up which more resembles the activity of the sport.
4. Dynamic flexibility increases core temperature, muscle temperature, elongates the muscles, stimulates the nervous system, and helps decrease the chance of injury.

As coaches, trainers and parents we all want our athletes to lower their incidence of injury and increase performance. Dynamic flexibility has been used successfully by trainers and coaches to increase flexibility and lower the frequency of injury. For such a dynamic intense sport such as soccer it is necessary for the players to be properly warmed up with the correct dynamic movements. There is a place for static stretching, but not prior to the activity. A proper training session or game performance should follow the guidelines below.

Beginning - Dynamic warm up in order to prepare muscles for the following activity.

Middle - Actual workout.

End - Cool down that brings the muscles back to rest which can include static stretching.

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