

# Flexibility for Skill Enhancement

By Peter Twist

MPE, BPE, CSCS

**Flexibility training - stretching** - is an area that holds great potential for performance enhancement as well as accelerating recovery between games. Coaches have tried to 'sell' players on the merits of stretching with the "injury prevention" speech. This in itself does not turn players on to stretching. But let them know that a more flexible body - and balanced flexibility throughout the body - will lead to harder shots, more powerful running strides, higher jumps, quicker starts, and improved mobility and they start to listen. Players will buy into stretching if they know it will improve their athletic abilities. But then the stretching program has to produce results or they will quickly drop off!

Unfortunately, most people do not reap the benefits from stretching because their technique is counterproductive. Stretching is definitely the most finicky thing to work on. If it is not done perfectly, at best you will remain the same, and often will even decrease flexibility. More than 99 per cent of athletes do not stretch properly. They most often overstretch and stretch across a contracted muscle. This in itself can decrease flexibility and lead to injury. Coaches and trainers tend to implement the stretching they themselves learned, but they were mentored from someone who was educated 10 years ago who based their teaching on a textbook published 10 years earlier. Once you realize that book is constructed of ideas generated from research conducted yet another 10 years earlier, you begin to understand how long it takes to get new ideas into the mainstream!

Most stretching is undoubtedly archaic: forced partner stretching; PNF stretching; stretching positions that require 50 muscles to contract just to stabilize that position. Step out of the past, ahead of your competition, and into the future with micro stretching, a word you will hear more about for the next ten years.

I have been conducting research with one of my peers, Nikos Apostolopoulos, on stretching for skill improvement. We have a group of athletes participating in a regular program of 'micro stretching', with no other training what so ever (no strength training, no speed work etc.). We first measured their power, speed, quickness and agility before implementing micro stretching. The goal is to improve their flexibility in the 'speed centre' (the centre of the body, including abdominals, hips, groin and glutes), and to make sure there is a balance between the flexibility on the left and right sides of the body, and between opposing muscle groups. Then we complete post-tests. The preliminary results are very exciting because the tendency is for players to improve their performance with only flexibility training. The key is how and when they stretch. And of course the key is showing them how to actually get useful improvements from their stretching. Apostolopoulos and Steven Stark (The Stark Reality of Stretching) both tend to modify the technique of stretches so that zero muscles have to be contracted just to hold the position. You will be able to integrate the stretching guidelines listed below into your program immediately. In my dryland camps, flexibility does not take a back seat to other training. Most importantly, players are educated on how to stretch and they understand why to do it this way, so when they leave they can continue to fulfill micro stretching on their own initiative all winter.

The key to micro stretching is to avoid activating the very sensors we stimulate for explosive actions (intrafusal muscle fibers and muscle-tendon junction sensors). The bottom line is that various sensors that command the muscles to contract as a protective mechanism respond to stretching too quickly or stretching too far. Stretching across a contracted muscle produces microscopic tears and scar tissue, which is inelastic. Most traditional stretching techniques, just by their positioning, force participants to stretch with contracted muscles - they are counterproductive before they even get started!

## Stretching Guidelines

1. Use dynamic flexibility before exercise, and static flexibility after exercise.
2. The fluid, low impact dynamic method prepares your muscles and your mind for activity. It is the best way to warm and lengthen muscles while preparing them for fast movements. Stretching sitting stationary like a statue does not prepare you for explosive actions!
3. For a dynamic warm up, you gently move your body through a variety of patterns. Stay relaxed, move at a warm up pace, and involve every muscle.
4. Gentle static stretching is suitable after your workout, or post-game, when the muscles are optimally warmed and more elastic.
5. Your body is a linked system - a tight hamstring, for example, will lead to a groin or low back pull. Don't skip any muscle groups.
6. Move slowly and smoothly into a light 'micro stretch'. Do not overstretch. You should only feel a very mild sensation. Stretching too fast or too far will cause the muscle to react and contract (in an effort to protect itself from being pulled too far or fast). Stretching across a contracted muscle only leads to micro muscle injury and decreased flexibility. Hold the stretch to a sensation of very mild tension. If you feel too much tension, back the stretch off. (Nikos has now quantified this to holding the stretch to just 30 - 40 % of your existing range of motion, and coined this gentle stretching 'micro stretching' .).
7. Hold each stretch for 60 seconds. You can stretch a muscle in 30 seconds, but it takes 60 seconds to target the muscle-tendon junction. This is the site of most high speed injuries, because players have not improved the flexibility there.
8. Position your body so you are relaxed without having to contract muscles to balance yourself. You will have to modify old stretching techniques to accomplish this. The bottom line is that if you have to contract a number of muscles to balance yourself and hold your position, you are obviously not relaxed and will not achieve any stretching benefits. Your goal is to have zero muscles contracted when holding a stretch. Lying and seated stretches in which you do not have to manually hold or force limbs into position work best.
9. Compliment your muscle relaxation with deep breathing. This will help your muscles and mind relax. Each time you move into a stretch, slowly exhale and then breath normally during the 60 second stretch. Note that a workout or practice releases hormones that enhance relaxation and a sense of well-being. So the post-stretching with deep breathing is a perfect time to implement visualization, goal setting, or relaxation techniques.
10. You need to begin to adopt stretching as a separate training program in itself, just like strength training or bike conditioning or on-ice practice.