

## **How to Stretch for Speed & Endurance**

Stretching, when implemented correctly is an actual preventive tool – it reduces the risk of injury by increasing the circulation to your muscles & joints, relaxing your muscles and allowing for greater range of motion.

## **Soft Tissue Maintenance**

Soft tissue can go by many names depending who you are speaking with: physical therapists use the term soft tissue mobilization; chiropractors use the term Active Release Technique and massage therapists call it deep tissue work. Regardless of what you want to call soft tissue, the common factor is the goal of optimizing the range of motion within the muscle and surrounding joint(s). Soft tissue manipulation is actually an irritating stimulus manually created which produces a chemical response within the soft tissue. The chemicals produced are what actually begins the healing processes on a cellular level. This is why soft tissue work is often painful during treatment and can leave you sore and achy for a couple days following treatment.

## **Stretch Reflex**

Your body is equipped with a stretch reflex known as the **myotonic stretch reflex** which prevents a muscle from stretching too far and/or too fast. This mechanism protects the surrounding joint from becoming injured. This stretch reflex is mediated through the muscle spindle cells and is constantly evaluating both the speed and length that muscle is going through. When a muscle lengthens either too far or quickly, the spindle cell is stimulated and reflexively causes the muscle to contract, resisting the lengthening and preventing overstretching of the joint.

An additional component to the stretch reflex is a concept known as the **Inverse Stretch Reflex**. This reflex engages the Golgi tendon organ which monitors the amount of stress being placed on the tendon at the attachment. It is the combination of the myotonic stretch reflex and the inverse stretch reflex that causes the muscle to relax, lengthen and ultimately increase your range of motion.

## **Trigger Points**

When you picture a muscle, small dense areas develop within the muscle tissue creating small “knots”; visualize a rope with small knots in it, if you pull on each end hard, then knots get tighter – this is exactly what happens when you try to stretch without untying the knots – you only make the trigger points “tighter” which results in a reduced range of motion (i.e. flexibility).

## **Pain-Spasm-Pain Cycle**

When a muscle develops a “knot”, it falls into a Pain-Spasm-Pain cycle. The muscle begins to get tight, the tightness creates pain (usually at the attachments) and because of repetitive use,

becomes progressively tighter which eventually resulting in a limited range of motion or ultimately a locked position where it hurts to move at all (and keeps you from maintaining optimum biomechanics and efficiency).

## **Proper Warm Up**

Step 1: roll your major muscle groups using a foam roller if available.

Step 2: sport specific activity at a low heart rate (until the body is sweating and the muscle temperature is optimized)

Step 3: isolate and stretch your primary and secondary muscles.

Step 4: implement dynamic movements to optimize your range of motion before adding the velocity of the bike

Step 5: begin your sport specific workouts to improve your strength, endurance and/or lactate tolerance.

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