



Name of Article: Does Flexibility Enhance Performance?

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You might have caught news articles about a recent study arguing that stretching doesn't prevent injuries. In a report published in the March 2004 issue of the "American College of Sports Medicine Journal, Medicine and Science in Sports and Exercise," researchers looked at studies that compared stretching along with other strategies to prevent training injuries.

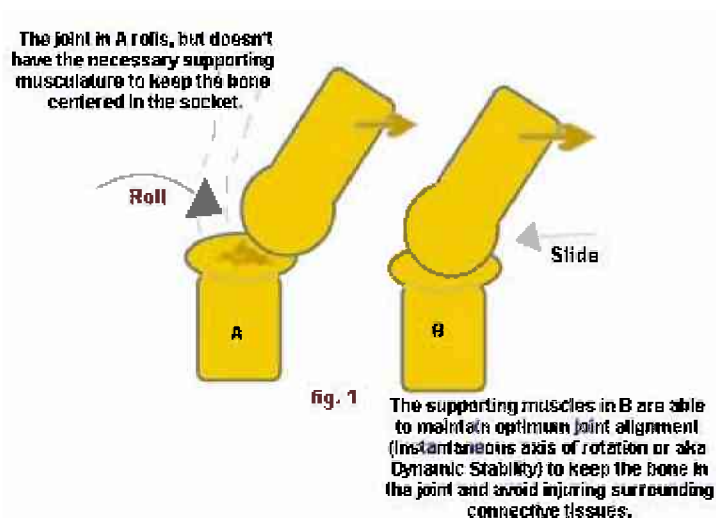
"We could not find a benefit," said Stephen B. Thacker, director of the epidemiology program office at the Centers for Disease Control and Prevention said in a recent interview. "Athletes who stretch might feel more limber, but they shouldn't count on stretching to keep them healthy." He said.

I think these researchers must have been in the forest looking at the individual trees. The fact is that you need adequate flexibility to balance your body and move into correct postures, particularly those required by cycling. If you have tight hamstrings when you move low into an aero position, your back will be the looser. It will have to compensate with excessive flexion putting your discs at risk. So stretching tight hamstrings would directly help avoid injury.

As an athlete, you need to consider your body as a system, not individual parts. Let's look at what happens in the body and why stretching is important.

Joint Motion Inside the Body

Arthrokinematics is a basic term in kinesiology that describes how the motion occurs on the articulating surfaces of joints. In short, your bones need to move around in their sockets in a certain way. In figure one, joint A has poor dynamic stability. When the upper bone moves, it merely rolls across the surface of the joint and winds up at an extreme end range.



Joint B shows good dynamic stability. As the upper bone moves, muscles around the joint pull and cause it to slide across the bottom part *as* it rotates. This sliding movement maintains optimum alignment by keeping the bones in the center of the joint. Keep in mind that something like your shoulder or hips allow 360° of movement, meaning that all around the joint there are muscles and other connective tissues that aid in this control. This is one reason it is important to train in more than one plane of movement. Most injuries happen to people in the frontal (side to side) or transverse (rotation) plane. Yet, how do most people train? In the sagittal plane (forward).

Muscle Length and Tension Relationships

If during a normal static posture moment the muscles of one side of a joint are shorter and tighter than what should be their normal range, there has most likely been compensation on the other side of the joint. This means that the joint is continuously being pulled out of its normal range and muscles are not working in their optimal range.

An example of this is the common posture you see in people who do a lot of bench press without antagonistic scapular adduction work (such as bent over rows) is having shoulders rounded forward. The pectoral (chest) muscles are actually pulling the shoulders forward and tugging the shoulder girdle out of place. During movements, it also means one side of the joint is stronger than the other. Muscle imbalances such as this easily lead to injury when during sports you move into the weak range with force or power.

Tonic & Phasic Muscles and Posture

In your body you have muscles primarily designed to fight gravity (posture) and muscles to help you move; respectively called tonic and phasic. Tonic muscles respond to faulty loading (over-use, under-use, disuse and abuse) by getting short and tight. On the other hand, phasic muscles respond to faulty loading by tending toward getting long and weak (actually they're still strong, just strong in the wrong place).

Tonic muscles also have a lower threshold for stimulation than phasic muscles. Meaning they'll do work for their opposing synergistic (stabilizing) muscles because they actually steal the neural signal before it arrives at the correct muscles. This is why many people have a dysfunctional abdominal wall and instead overuse their lumbar extensor muscles making them short and tight.

So you see, to answer the question "does flexibility enhance performance?" The answer is yes, *if* that flexibility is required to maintain correct posture for both static (standing/sitting typical of sitting on a bike for hours) and dynamic (moving) postures. However, stretching a muscle beyond a normal range of motion can reduce stability. So, you need to know what to stretch and what not to stretch and sometimes how much.

How do you Fix all this?

If you have one tight hamstring and one loose one and you merely stretch both, this will only maintain the existing muscle length tension imbalance. The first step would be to do a proper range of motion assessment. Paul Chek's "[Golf Biomechanic's Manual](#)" has an excellent chapter that you can follow yourself. You might check with your gym and see if the trainers there can do

perform this assessment for you. [C.H.E.K. Practitioners and Certified Golf Biomechanics](#) are highly qualified to do this.

Figuring out which muscles are short and tight and which are loose will direct you toward the next step; stretch the muscles that are tight. Applying corrective stretching to *these areas only* will begin to restore the imbalances and work to realign the body (often done along with corrective exercises). This stretching is best done at night after a warm bath. Your body goes through a repair cycle from about 10PM to 2AM, so lengthening tight muscles just prior to bed will greatly aid in the correction.

Once you've managed to restore normal ranges, you should switch to maintenance stretching. This is stretching that focuses on the muscles in your body that typically get tight often from the heavy use in your activities. Cyclists frequently battle tight hamstrings, but everyone is different.

In conclusion, stretching the whole body with long holds will not prepare you for correcting muscle length tension imbalances or prepare you for an event or workout. Stretches, like exercises, need to be applied with precision. Take time to assess your body, apply corrective stretches to the muscles that are tight and you'll be improving your posture, increasing your efficiency and reducing your chance of injury.

- Marlon Familton *is certified as a Strength and Conditioning Specialist (CSCS) through the NSCA and a USA Cycling Expert Level Coach.*

Additional Reading:

1. ["Intelligent Stretching for Pain Reduction, Improved Performance and Posture."](#) By Paul Chek. Mercola.com online.
2. ["How to Eat, Move and Be Healthy"](#) by Paul Chek, A C.H.E.K. Institute Publication, 2004.
3. ["Stretching Doesn't Prevent Injuries."](#) Associated Press. Online at MSNBC.
4. ["The Golf Biomechanic's Manual"](#) by Paul Chek, A C.H.E.K. Institute Publication, 2001

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