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Truths & Myths Regarding Stretching Exercises Preventing Injury

There are well-established opinions regarding stretching exercises. Some of the opinions regarding stretching exercises have assumed mythical status. Mythical in the sense that the opinion is based more on legend rather than evidence. Mythical in the sense that the gods have said that if you want to prevent injury you must do stretching exercises. As one who enjoys the Socratic method of learning I believe we should ask what the evidence that stretching prevents injury is.

A search of the scientific literature provides little evidence that stretching exercises prevent injury. Actually there is some evidence that stretching exercises can increase one's risk of developing an injury.

A retrospective study by SD Walter (1989) surveyed 1,680 runners who participated in 2 road races. This study was one of the first studies looking at running injuries that had a control group, that is, a group of runner who had never been injured. One of the conclusions was that runners who do stretching exercises are at a higher risk for developing an injury than those runners who never stretch.

RP Pope (1998 & 2000) examined Army Recruits and compared a group who stretched calf muscles against a group who did not stretch. The frequency of lower leg injuries was 4.2% in the stretch group and 4.6% in the non stretch group. This difference was not statistically significant. The researchers concluded muscle stretching protocol performed during pre-exercise warm-ups does not produce clinically meaningful reductions in risk of exercise related injury. The recruits exercise involved running, obstacle courses, and combat drills.

David Lally surveyed 1543 runners in the Honolulu Marathon and presented his findings at the 1994 ACSM Annual meeting. He found that 47% of the males who stretched regularly had suffered injury, while only 33% of the males who did not stretch regularly suffered an injury. The difference was statistically significant. Interestingly this relationship did not hold true for female marathoners.

One could argue that if a muscle/tendon unit was too short/tight it is more susceptible to injury. However, it is important to recognize the converse. If a muscle is too long/lax it is more susceptible to injury.

Until the Mythical Gods provide evidence that stretching exercises prevent injury my recommendation is stretch what is short/tight, do not stretch what is long/lax. Of course

the challenge is to determine what is short/tight and what is long/lax. In humans we can not measure the length of a muscle/tendon unit directly, we measure degrees of motion that a joint or joints can move. There is some consensus among health-care professional about what is normal range of motion of joints; however it is important to remember there needs to be sport specific and individual variation. What is normal length of muscles and tendons would expect to be different for long distance running verses a ballet dancer.

There are other reasons to do stretching exercises besides preventing injury, including alleviating delayed muscle soreness, improving performance, and facilitating the rehabilitation process when recovering from an injury. The Socratic way demands we also ask the question what the evidence to support these beliefs is. These questions will be addressed in future articles. In the meantime, stretch what is short/tight, do not stretch what is long/lax.