

New Thoughts About When Not to Stretch

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They can be spotted in gyms and on ball fields, on running paths and biking trails: people reaching into the air, bending down to touch their toes or grasping their ankles behind their backs.

Stretching before exercise is routine for many recreational and professional athletes. But researchers have grown increasingly skeptical about its merits.

Now a major study is stirring renewed discussion about when stretching is and is not beneficial.

The study, a review of six decades of research by the Centers for Disease Control and Prevention, found that stretching does little to prevent injury during exercise when done outside of a warm-up. In some cases, the increased flexibility that stretching promotes may actually impede performance.

The researchers analyzed 361 scientific articles on stretching published since 1946. The findings, in the March issue of *Medicine and Science in Sports and Exercise*, suggest that athletes who devote pre-exercise time to stretching may be better served with a warm-up that prepares the body for activity and regular exercises that build strength and balance.

"The idea of loosening your joints up and muscle stretching makes sense, but the problem is that it really hasn't been shown to prevent injury," said Dr. Stephen B. Thacker, director of the epidemiology program office at the C.D.C. and an author of the study. "If you put on your sweats and simply start stretching, your muscles are not necessarily warmed up."

Warming up, which typically means raising the body temperature enough to send the blood flowing through the muscles, requires more intense activity than stretching.

"For your muscles to function at optimal capability, they should not be too loose nor too tight," said Dr. Lisa Bartoli, an attending physician in physical medicine and rehabilitation at the Beth Israel Medical Center in Manhattan. She likened warming up the body for exercise to taking modeling clay from a refrigerator. "You warm it up and work it a little bit," she said. "And then you can stretch it."

Like many sports physicians, Dr. Bartoli tells her patients that rather than stretching before physical activity, they should do the sporting activity at 50 percent of the target intensity.

"You put your muscles through the functional range of motion that you will be using at a slower pace," she said. "If you are going to go running, you start with a nice easy jog and slowly work up a sweat."

Many physicians and exercise physiologists agree that rigorous bouncing, an early incarnation of the stretching and flexibility trend that took root in the 1970's, is not the way to go. Most experts say the bouncing, or ballistic stretching, is more likely to cause injury than other forms of it.

Still, not all exercise professionals or sports doctors are ready to abandon pre-exercise static stretching. To do it, athletes hold stationary positions so muscle fibers and joints can loosen. Dr. Gloria Beim, an orthopedic surgeon in Crested Butte, Colo., who is the team doctor for the United States track cycling team, continues to recommend aerobic movement followed by aggressive stretching before sports activity.

Dr. Beim said she had found that the increased elasticity and flexibility that stretching promoted could also help athletes recovering from injuries.

"Muscle strain and injury can create chronic scarring or inflammatory problems that benefit considerably from stretching before exercise, particularly through the rehab phase," Dr. Beim said.

She noted that in her practice she had seen evidence suggesting that stretching needed to be performed daily to generate positive effects. "I tell my patients, 'Stretching right before you exercise three times a week isn't going to do it,' " Dr. Beim said. "You need to stretch every day to get its benefit."

A study too new to be included in the C.D.C. review found that daily stretching was one of the only stretching regimens that had a measurable positive effect. An article on the research has been accepted by the Clinical Journal of Sport Medicine.