

How should young players warm-up?

By Dev K. Mishra, M.D.

For those of us who grew up as teenage athletes in the 1970s (or earlier), we are familiar with the old "stretching" routine: we typically began a training or pregame session with a series of somewhat contorted movements such as the hurdler's stretch for the hamstrings, an Achilles stretch, butterfly, and a quadriceps stretch usually done with a partner.

With my coaches, we did these stretches and then began our practice. These types of stretches were supposed to reduce injury rates. But somewhere in the 1980s and 1990s a change in thinking took place as evidence emerged that "stretching" before any activity could worsen performance and might actually lead to an increased injury risk.

To some extent the controversy continues but we do have some good evidence now to guide us. Before we get into specifics, let me give you some definitions. The most important thing to clarify is the difference between warm-up and stretching. Let me also be clear that what we are discussing here is how to *prepare* for activity, not what we do *after* a game or practice session.

Warm-up (referred to by some authors as Movement Preparation) refers to low intensity and slow speed movements such as jogging, skipping, juggling the ball, footwork exercises with the ball, short passing drills, etc.

These exercises take the place of traditional stretching as a means of preparing the body for the movement tasks required in the training session or game. Warm-up increases muscle blood flow and muscle temperature, both of which are good things as far as improved performance and reduced injuries.

Stretching (usually called "static" stretching because it is done with minimal movement) refers to the old-fashioned exercises referred to in the first paragraph above. For example, in a quadriceps stretch we typically stood with a partner, hand on each other's shoulder, and grabbed our foot with a hand, then bent the knee back until we felt discomfort in the front of the thigh. This was usually held in place for around a count of ten, then repeated with the other leg.

Can warm up or stretching prevent injury? This was the reason we were required to do the stretches -- we were told that if we didn't stretch our chance of injury was much higher than if we did. Over the years, some scientific studies have attempted to answer this question but there aren't very many high-quality trials for us to look at.

With the best available evidence, it's reasonable for us to conclude that a low intensity warm-up reduces injury risk, but that a pre-activity stretching routine (done by itself without any movement warm up) does not help and in some studies might actually increase injury risk. This is somewhat of a grey area, in that it seems that some types of stretching done *after* a warm-up is fine, especially if the athlete is naturally inflexible.

Can warm up or stretching improve athletic performance? Again, the evidence shows a difference between pre-activity stretching (not good) and warm up (good). In studies comparing several regimens, the groups that did stretching as their only pre-activity routine consistently did worse in measures such as sprinting and jumping, and these effects lasted anywhere from 15 to 30 minutes. Conversely, a low intensity warm-up has been shown to improve strength, speed, quickness and power.

OK, now what should we actually do? My opinion based upon a combination of soccer-related performance, what I see in my orthopedic surgery practice, and the available evidence is that all age groups should absolutely do a warm-up routine but can skip the old-fashioned stretches. I like the system below, and you can modify it based upon the players' age, skill level, and time available:

* Begin with a short jog (3-5 minutes for example for U13 and up). *Do not* let the players come out and start shooting on goal from 25 yards out as their warm-up!

* Move next into ball-related low intensity movements such as dribbling, juggling, footwork, etc. Ideally, each player should have a ball. For the very youngest players this is more than enough for their warm-up, and also gets them more touches on the ball.

* Older players can then do movement preparation exercises such as walking lunges, hip rotational movements, butt-kicks, single-leg hops, etc. Very young players can skip this part.

* You can then start increasing the intensity level, to include small-sided games, specific tactical drills, or possibly light plyometrics (jumping drills).

* Stretches and massage done *after* a game or practice session as part of a cool-down regimen can be very effective in helping to lessen post-exercise soreness and can help muscles recover for the next session.

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