Warming Up and Stretching

Check out the starting area at your local 5K this weekend and you will see runners engaged in many warm-up routines. Focus on the race favorites and you're likely to see some odd-looking running drills, the kind known as dynamic stretches.

Static and Dynamic Stretching

There are basically two types of stretching: static and dynamic. Static stretching is the common form everyone is familiar with (butterflies, hurdler's stretch, pulling your arm across your chest, and others); they can be done with a partner as well (passive/active resistance stretching, or PNF stretching). Dynamic stretching involves movement of the joints and muscles (arm circles, leg swings, skipping, high knees—other examples are given below). Dynamic stretching should not be confused with ballistic stretching, which involves getting into a static stretch position and rocking or bouncing the body in this position, as in flapping your legs during butterflies. Many recent studies have concluded that dynamic stretching is superior to static stretching as a warm-up prior to exercise. They indicate that static stretching reduces strength, power, sprint speed, and muscular endurance, while dynamic stretching can have the opposite effect, often improving performance.

The purpose of a warm-up is to warm up the muscles and increase the temperature of the body by increasing blood flow to the working muscles. It is the increased blood flow that warms you up. Static stretching, since it involves little or no movement, cannot do this. Static stretching has often been shown to reduce strength, power, speed, and endurance because it reduces the stiffness of the contractile units in the muscle (less tension produces less force), and the prolonged state of the muscle contractions fatigues the muscle fibers.

The take-home message is that the muscle fibers you use during an easy jog are different from those you use when running at much faster paces, so you need to do a specific warm-up for the muscle fibers used during your higher-intensity efforts. Your easy distance runs don't require much of a warm-up since the muscles will not go through a great range of motion and the intensity is low. Before you head out the door for a long, slow run you could simply do a few warm-up laps (or sets of jumping jacks), followed by leg swings (using a fence or wall), arm circles, trunk twists, and neck and shoulder rolls to rid tension from the upper body. However, once you start the harder workouts, you should add additional drills to target specific muscle groups. Here is a condensed list of drills and a suggested order in which to perform them, given that a dynamic warm-up should progress from general to specific, and from slow to fast:

Dynamic Warm-Ups (m=meters)

- Side shuffling (keeping a tall posture) = 30m each side
- Carioca (sideways crossover; big steps) = 30m each side
- Easy skipping (no emphasis on height or knee drive) = 20m x 2
- Walking lunges (both legs at right angles) = 4 per leg x 2
- Power skips (driving off ground for maximum height) = 10m x 2
- Backward running (lower hips and lean forward for balance) = 30m x 2
- Butt kicks/ heel flicks (fast turnover, fast arms) = 10m x 2
- High knees (fast turnover, fast arms) = 10m x 2
- Striders = 50-100m x 2-4

You should hit the start line with your heart rate slightly elevated.

For video demonstrations of some of these warm-ups, I recommend the following link featuring Gilbert Tuhabonye, a renowned runner and coach (Gilbert's Gazelles) based in Austin, Texas: http://www.youtube.com/user/crazyfastproductions.

Please note that static stretching should not be avoided altogether. It is a reliable way to improve the range of motion of a joint and muscle group, thus aiding performance. You can do a few static stretches if you like (if muscle tightness is more than usual), but ideally the static stretching should be done 30-45 minutes or more before the activity (and before the dynamic stretching). A general recommendation is to stretch after a workout (at least four times a week) and target each muscle group. You only need to hold the stretch for 10 seconds, since there is no additional benefit in holding a stretch longer.

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