



IF ONLY I KNEW...

How To Warm Up Properly

△ MARIE-CATHERINE BRUNO
B.Sc.P.T.; M.O.P.Q.

You see athletes warm up and stretch before a race. Do you ever do it yourself? Have you ever wondered why they ever bother going through that long ritual? And what about the cool down? Hum, so many topics you have been trying to avoid!

This one goes to all of you who still refuse to warm up properly, but still come up to me for advice on your chronic tendonitis...

The effects of warming up

Have you ever started your car below freezing point? Noticed how slow it is? Would you drive it straight to the freeway? If you answered *no* to my last question, then I will say: "If you do not do it to your car, why do you do it to your body?"

The purpose of the warm up is to prepare your body for the highly demanding activity coming up. Just like a car, you cannot expect your heart to go from resting heart rate to 180 beats per minute in 10 seconds. If you let your body slowly get into the exercising mode, when the buzzer goes off at the start, you will be ready to go, just like a race car. This will not only make your race more enjoyable (otherwise the first 20 minutes are extremely painful), but will probably help you shave a few minutes off your time.

How to warm up

The ideal is a slow jog or a fast walk (you want to go just a little faster than about half the speed you race at). If you are using a heart rate monitor, you want your heart rate to be at about 60% of your maximal capacity. It takes 15-20 minutes for your heart to get comfortable at that pace and start activating the different energy mechanisms required to sustain exercise for a long period of time. So therefore, your warm up should be at least 15 minutes (the 10 minute walk to the start is not enough okay?!).

If you are competitive and know that you will be speeding up those hills, then you also want to prepare your heart for some serious demand. The trick is to get ready without tiring yourself out and building up lactic acid! The ideal is a good 15 minute slow jog, then some stretching (see below), and then some *strides*. The *strides* consist of very short sprints, anywhere from 5 to 10 seconds. They force your heart to go up really fast, but they are so short that they do not get you into producing lactic acid (a very painful waste product). You should do about 5-7 of them, with a rest period of about a minute between each one. Give yourself about another minute and you are ready to move up to the start.

What about stretching?

The main purpose of stretching is obviously to be flexible. But what does it serve you to be flexible if you do not intend to work for the *Cirque du Soleil*? Well, a flexible person is more agile, more efficient, more powerful, and her stride is longer (for the same effort – a quick calculation shows you that if you increase your stride length by just a centimeter, you can shave 20 seconds off your 10K time, totally effortless!). A flexible person is also less prone to injuries because you might know that when a muscle gets stronger (from all the training you do), it gets bigger. But unfortunately, as the muscle grows bigger, its envelope (called the *sheath*) stays the same. Eventually, the bigger muscle uses all of the available girth of the sheath so the latter has to become shorter to compensate. It is when your muscle and its sheath have become shorter that it is easier to get injured. The tendon (see my January 2001 article for a description) then starts pulling on the bone and this constant tension creates micro tears in the tendon itself or on the bone, later resulting in tendonitis and shin splints and/or even worse, a muscle pull or a rupture.

The hows

It is recommended that you stretch both before and after exercising. They serve two different purposes, but still share a common goal: to become more flexible.

Before: stretching before exercising will help your body to get ready for the upcoming demand. Because when you run you use a longer stride than when walking, you need to slowly allow your muscles to reach that length, as opposed to all of a sudden, like when you are jumping over a log in your race.

After: a muscle is a bit like plastic, that is to say that when warm, it is much easier to stretch it. It is usually after the exercise, when your muscle is still warm, that you will gain the most length, therefore become more flexible. Also, some research shows that stretching after exercising helps reduce the DOMS (delayed onset muscle soreness), making you less stiff the following morning!

How long: your muscles contain little nerves that respond to what is called the *stretch reflex*. So, the minute you stretch a muscle, its reaction is to contract (that is what happens with the knee jerk at the doctor's). It takes about 10-15 seconds to overcome this reflex. Only after will you gain some of the stretching effect. So, it is recommended that you hold every stretch for over 30 seconds, ensuring that you have overcome the reflex and gained some length. **Do not bounce**, as you will reactivate the stretch reflex every time. You should do every muscle or muscle group 3-5 times.

You may notice that some of the muscles seem to take a

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much longer time to gain in flexibility. This can be due to some scar tissue (old injuries), or some other restrictions like fascia, nerves, ligaments. If this is the case, you may want to try the myofascial approach: do a regular stretch of 30 seconds, then follow with 2 longer stretches of 2 minutes each (it takes 90 to 120 seconds for the fascia to release). Do religiously every day for 2 weeks. If still not gaining anything, you may want to consult your physical therapist or sports doctor.

How much: a stretch should never hurt. You should stretch to the point where you feel some tension, and then stop there. If you are thinking *no pain no gain*, you are wrong this time. Creating muscle pain when stretching will force your muscle to go into protective mode, resulting in a muscle

contraction, or even worse, a spasm. No need to say that you are not gaining any flexibility by doing that.

The cool down

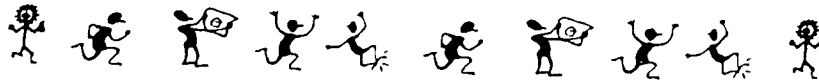
The cool down is part of the after race protocol. It allows your heart to go back to a lower, more normal rate quicker, but also helps your body to flush out toxins faster; during effort, your body produces a lot of waste product from combusting sugars and fat, and those products make you sore the following day. So, bottom line is that if you want to perform again tomorrow, you should cool down today.

How?

Just like the warm up, a very easy jog or a fast walk for about 10-20 minutes (the shorter the race, the longer the cool down – because the faster you go (like in short distance

events), the more sugar your muscles consume and therefore more waste products in your blood. Also, in longer events, you go so slow that your body has a chance to eliminate even during the event). After that, sit down and stretch.

So, now that you know all of the magic behind it, I hope you will warm up, stretch, and cool down when racing and training. For the warm up part, you will need to get started 30-40 minutes before race time in order to do it properly. It is also a good moment to focus on your race plan and calm down before the race. For the cool down, may I recommend that the minute you cross the finish line, you move away from the crowd, drink some water, and start your cool down right away? Because I can tell you from personal experience that if you head straight to the result board, cool down is now history!



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body has inner water that gets released during exercise—about 3 grams water become available per gram of muscle glycogen used during exercise—but at least you'll have a baseline fluid target. By experimenting during training, you can learn how much fluid you can actually tolerate during exercise in different temperatures.

- A survey of almost 250 collegiate athletes at U Mass-Amherst indicates that prior to exercise, 13% of the athletes were considered underhydrated (based on the concentration of their urine). Sixty-nine percent were acceptably hydrated, and only 17% were well hydrated. Men were more likely than women to be underhydrated. The bottom line: Be responsible, consume enough fluids.

- Exercise scientists have validated that an accurate way to tell if you have had enough fluids is to simply monitor the color of your urine. The darker the color, the greater the level of dehydration. In a 30 mile mountain bike race (completed with no fluids other than "tanking up" beforehand), the athletes ended with a small volume of dark-colored urine that was indicative of 5% dehydration.

- Overhydration also deserves mention. Among "slow athletes" (such as participants in >5-hour fund-raising marathons), medics are noticing more and more disoriented participants with a vacant stare. The problem: overhydration. These slow athletes take the advice "drink often" to the extreme. Hints: 1. Do not add water to a sloshing stomach. 2. Consume sodium-containing sports drinks and foods (as compared to consuming only water).

- As for what's acceptable to drink during exercise, a study with ever-popular Coca Cola validated what athletes have been doing for years. Cyclists traded sports drink for Coke after 1.5-2 hours of hard biking and again during the final 30-minute sprint. They enjoyed a stronger performance than when they had no caffeine. The combination of caffeine + sugary fluid (be it Coke or a sports drink + caffeine) yielded a stronger finish.

BODY FAT / WEIGHT

Weight is forever a concern of athletes, and overweight/obesity is a national public health concern. Researchers are particularly interested in the effect of exercise on weight management. Overweight people commonly believe they have to exercise vigorously to achieve weight loss. In a 16 week study with overweight people assigned to one of 3 pro-

grams (diet plus vigorous exercise OR intermittent 10-minute bouts of vigorous exercise OR simply increased activity in their daily lifestyle), the subjects averaged 1 lb. weight loss / week and all experienced similar health benefits (reduced blood pressure, blood lipids). The bottom line: Simple daily activity has a positive impact on weight and health. Not everyone wants to exercise vigorously (nor needs to exercise vigorously). But most of us can park the car further away, take more stairs and fewer elevators, and sweep the kitchen floor with more effort. Small bouts of activity count; they burn calories and improve health.

- Take heed: Doing regular exercise does not always equate to weight loss. In a 16 month study, overweight women who exercised 5 days/week for 45 minutes did not lose weight (but they did improve fitness). The women failed to create the calorie deficit needed to lose body fat. Apparently they were less active during other parts of the day.

Nancy Clark, MS, RD specializes in nutrition for sports and exercise. She counsels both competitive and casual exercisers at SportsMedicine Associates in Brookline MA. Her popular book, Nancy Clark's Sports Nutrition Guidebook, Second Edition, is available via www.nancyclarkrd.com