

Cool Down Importance

OFF AND IN SEASON COOL-DOWN

Why cool down?

When you finish a hard workout or race, your muscles' energy needs fall quickly, but other aspects of your physiology return to normal much more slowly. The purpose of the cool-down is to help return your body to pre-exercise conditions. This includes reducing your heart rate, breathing rate, and core body temperature. A thorough cool-down provides the following 4 benefits: 1) prevents blood pooling in your legs; 2) removes lactate from your muscles and blood more quickly; 3) reduces levels of adrenaline in your blood; and 4) reduces muscle stiffness and decreases your likelihood of future injury. Let's take a look at these benefits and how to cool down optimally.

1. Prevents blood pooling

When you run, the contraction of your muscles pumps blood back up to your heart, which prevents blood pooling in your legs. When you finish a race or a hard workout and just stand around, blood pools in your legs so less blood is able to return to your heart. This can lead to reduced blood pressure and dizziness. Cooling down by running slowly or walking activates the "muscle pump" to keep blood circulating back to your heart.

2. Removes lactate more quickly

After hard intervals or races of 10 km or shorter, an important role of the cool-down is to remove the lactate that has accumulated in your muscles and blood. Let's say that at the end of a track workout Clyde's blood lactate increased to 11 mmol. After 20 minutes of cooling down by easy running, Clyde's blood lactate would likely be back down to about 3 mmol, whereas if he just sat around for 20 minutes his blood lactate would still be about 7 mmol. Blood lactate decreases much more quickly when you do a cool-down run because blood flow is maintained at a higher level, which increases both movement of lactate out of your muscles and the rate at which your muscles utilize lactate.

3. Reduces adrenaline levels

Adrenaline and noradrenaline are hormones released by your adrenal glands that increase the rate and force at which your heart contracts, increase blood pressure, increase your rate and depth of breathing, increase the rate at which your muscles breakdown glycogen, etc. Adrenaline and noradrenaline levels in your blood increase rapidly when you run at greater than 70% of your VO2 max. The harder you run, the more of these hormones that gets dumped into your bloodstream. Adrenaline levels typically decrease to resting levels in less than an hour, but noradrenaline levels can take several hours to return to resting levels. An active cool-down helps get these hormones out of your system, which helps your body recover more quickly.

4. Reduces muscle stiffness

Although it is still not scientifically proven, anecdotal evidence indicates that cooling down reduces muscle stiffness. By reducing muscle stiffness, you are then able to do another hard training session sooner. Your risk of injury in the first few days following a race or hard workout also decreases because the cool-down helps make your muscles more resilient.

The Optimal Cool-down Routine

Before starting your cool-down, you should have a drink containing carbohydrates. Hard running and carbohydrate depletion have both been shown to depress your immune system. By taking in a carbohydrate drink soon after your intervals or race, you will maintain your blood sugar level and may help reduce this temporary immune system suppression.

Your cool-down should start with easy running for 1 to 3 miles (if you're too tired to run, then walk for an equivalent amount of time). The optimal clearance of lactate, adrenaline, etc. occurs if you start your cool-down run at 65 to 75% of your maximum heart rate (approx. 55-70% of heart rate reserve) and slow down to a slow jog or walk for the last 5 minutes. As with warming up, the marathon is the exception to the rule. Even the best runners in the world don't do cool-down jogs after a marathon. Still, you should try to keep moving after you finish.

Stretching is the other important part of your cool-down routine. After running, your muscles are warm and have good blood flow, which increases their ability to stretch without injury. Without consistent stretching, your muscles will tend to progressively tighten over time leading to reduced stride length and increased risk of injury. Stretches should be held for 15 to 30 seconds. In 15 minutes, you can complete 25 to 30 stretches of 30 seconds duration, which will allow you to stretch each of the major muscle groups in your legs, buttocks, and back two to three times.

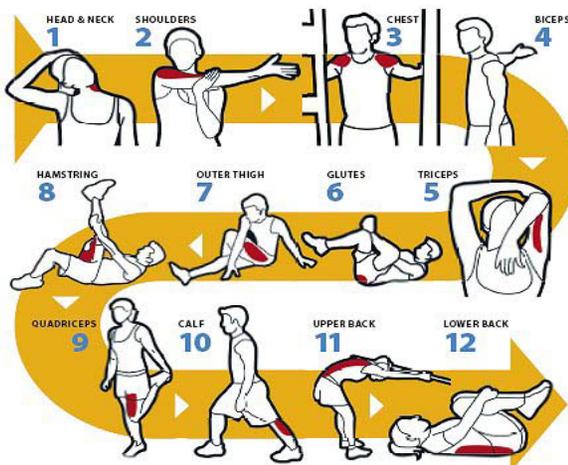
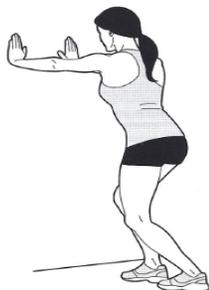
The next time you finish a race or hard workout, avoid the temptation to sit down and relax-your job is not quite complete. Take the time for a cool-down run and stretching, and your body will recover more quickly.

Credits: Text copyright © 2004 by Pete Pfitzinger

Pete Pfitzinger is an exercise physiologist with over 20 years of coaching experience, Pete adheres to the principle that every runner is unique and that training programs must be tailored to the athlete's individual strengths and weaknesses.

BENT-LEG CALF STRETCH

Like the straight-leg calf stretch, only you move your back foot forward so the toes of that foot are even with the heel of your front foot. Keeping your heels down, bend both knees until you feel a stretch just above the ankle of your back leg. Hold for 30 seconds on each side, then repeat twice. Perform this routine daily, and up to 3 times a day if you're really tight.



STRAIGHT-LEG CALF STRETCH

Stand about 2ft (60cm) in front of a wall in a staggered stance, right foot in front of your left. Place your hands on the wall and lean against it. Shift your weight to your back foot until you feel a stretch in your calf. Hold this stretch for 30 seconds on each side, then repeat twice for a total of three sets. Perform this routine daily, and up to 3 times a day if you're really tight.

