

Sweating It Out

Next time you end up dripping after a workout, think about this: All that perspiration is crucial to healthy physical functioning! As your body's primary mechanism for eliminating heat, sweating keeps your internal (core) temperature as constant as possible.

Sweat consists primarily of water, which comes from your blood, and other trace substances, including sodium chloride, potassium, lactic acid and ammonia. These minerals (known as electrolytes) help regulate blood pressure and water balance.

How Much Sweat Is "Normal"?

Physical conditioning, age, ethnicity, gender and climate all affect the amount you sweat. Sedentary people may sweat anywhere from practically nothing to two quarts a day, while heat and/or exertion can increase daily sweat output to as much as five to eight quarts! In general, sweat gland activity decreases with age—one reason why older people tolerate heat less well and should be careful in hotter weather. While women usually sweat less and store more heat than men, research shows that women and men in equivalent physical condition tolerate heat equally well. In fact, cardiovascular fitness is one of the most important factors in heat tolerance.

Eau de Sweat

How come sweat sometimes smells and sometimes doesn't? There are two types of sweat glands: the eccrine glands and the apocrine glands. The eccrines respond primarily to heat stimuli and physical stress. The apocrines respond mainly to emotional stimuli, especially fear or sexual arousal. While sweat from the eccrine glands is essentially odorless, perspiration from the apocrines—nervous or emotional sweat—produces an odor because of the interaction of organic sweat particles with bacteria already present on the skin.

The most effective ways to reduce odor are to remove the bacteria by bathing frequently with soap and water, and to use a deodorant or antiperspirant if desired.

Working Up a Sweat

Is sweating a good measure of your athletic performance? Well, yes and no. Research shows that when you increase stamina and conditioning, you begin to sweat "more efficiently," i.e.,



earlier, or at a lower internal temperature, than previously. Sweating earlier helps the body better regulate core temperature in all climates and at all activity levels—one more benefit to chalk up to the power of cardiovascular exercise!

Don't look at *total amount* of sweat as your measure of performance: A sedentary person with the same workload as a conditioned athlete will get hotter faster and therefore sweat more—so "sweating buckets" is not in itself an adequate sign you're exercising intensely enough to obtain cardiovascular benefits.

Hydration and Dehydration

When you're exercising, your thirst mechanism doesn't keep up with your need for fluid. By the time you're thirsty, you've already lost a substantial amount of fluid through sweat and increased breathing. If you don't replace the lost water, dehydration can occur because your blood volume has decreased. This leads to fatigue and adversely affects physical performance. If ignored, dehydration may result in heat exhaustion or heat stroke.

Be especially careful in hot, humid climates. In a humid climate, sweat evaporates more slowly than it normally does, thus slowing the release of body heat. When you exercise on a humid day, you may be less aware of sweating and just feel sticky, but it is very important to drink fluids and take it easier than usual to avoid becoming dehydrated.

Regardless of temperature, always drink before, during (about three to four ounces every 10 to 15 minutes) and after exercising. To estimate how much fluid you lose, you can weigh yourself immediately before and after working out. Drink a pint of water for every pound lost. (Don't think what you've lost is fat—immediate weight loss is almost entirely attributable to sweating!) Water and a normal diet will replace the fluid and minerals lost in sweat. So go ahead and sweat it out—it's healthy! ■

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This handout is a service of IDEA, the international association of fitness professionals, the leading organization serving personal trainers, exercise instructors and business operators.