

# A LINE ON LIFE

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## "No Sweat!" \*

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"No sweat" suggests some activity that involves little effort or emotion. Even so, sedentary people can sweat anywhere from a small amount of fluid (as suggested by the saying) to two quarts a day. With people who are much more active, the heat and exertion can increase this output to 5-10 quarts. What is sweat? What determines how much we sweat? What can we do about it?

There are two types of sweat glands. The heat-regulating function is the job of the **eccrine glands**, which are found all over the body, but concentrated in the armpits, soles and palms. They also respond to emotional stimuli like stress or sexual arousal. **Apocrine glands** – found mainly around hair follicles in armpits, groin and navel – respond only to emotional stimuli. In lower mammals, the apocrine scent might attract mates, but there is no clear evidence of this with modern humans.

Sweat consists mainly of water with small amounts of minerals called **electrolytes** – sodium chloride (table salt) and potassium. However, the concentration of these salts is less than 1/10 of that found in the blood.

People differ in how quickly they "work up a sweat." As you get in better condition and your stamina improves, sweating begins at a lower body temperature. So if you are physically fit, you tolerate heat better. Perspiring at a lower body temperature maintains a lower body temperature.

With exercise, the sweat glands increase in size and efficiency along with the muscles, so a conditioned athlete will sweat less. With the same workload, a sedentary person will sweat more than a conditioned athlete. Thus – by itself – sweating profusely is not necessarily an indication that you are getting a good workout.

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*"Don't worry if it is 100 degrees,  
if it is a dry heat."*

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It is not the sweating itself — but the **evaporation** of the sweat — that cools us. The same heat is more uncomfortable at a higher humidity, because the perspiration does not evaporate as quickly. This is why the same hot temperature is more uncomfortable in a jungle than in a desert. With the lower humidity of the desert, sweat evaporates more quickly and does a better job of cooling. Wiping yourself off with a towel won't make you feel cooler, because the sweat isn't evaporating. When you are being cooled by a fan, the air temperature is not changing. The air movement caused by the fan merely increases the evaporation rate of your sweat.

Whenever you sweat profusely – from exercise or an extremely hot summer's day – you need to replace the fluids you lose to avoid dehydration. For the average person, plain water is the best fluid for the job. Even most exercisers don't need to drink the special "sports drinks," since the normal diet will quickly replace the few minerals lost in the sweat. Be aware that the weight you lose immediately by exercising is merely water weight lost through sweating. For every pound you lose, you need to drink a pint of water to keep your water balance.

Although there are individual differences for both men and women, both tolerate heat equally well – if they are at the same level of physical conditioning. **Cardiovascular conditioning** is the main factor in heat

tolerance. Although men and women have the same density of sweat glands, the average man tends to sweat more. The menstrual cycle does not effect the heat tolerance with women. (The "*hot flashes*" of menopause are caused by hormone changes that effect body temperature.)

Our culture seems to be overly concerned about perspiration odor. The sweat from the eccrine glands is odorless. However, organic particles from the perspiration of the apocrine glands interact with bacteria to produce an odor. Some people use **antiperspirants** with aluminum salts that block the sweat glands to reduce sweat production. However, that partially blocks the body's normal cooling mechanism. In contrast, **deodorants** mask the odor of underarm sweat with a fragrance combined with antibacterial ingredients and absorbent powders. Even so, the most effective way to remove the bacteria that cause sweat odor is to **bathe frequently**.

In contrast to some ads you might see in the media, a little sweat isn't going to keep you from hugging someone you really like – unless you have a sweat phobia. I have often seen close friends hug each other immediately after a heavy session of aerobics. Some of them call it, "*swapping sweat*." So even if you do perspire, "*don't sweat it*."

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\* Adapted from "Are you a good sweater?" *University of California at Berkeley Wellness Letter*, August, 1993, page 6.