

HOT STUFF

Facts and tidbits about sweat



1. Why do I feel like a human salt lick after exercising?

That's because sweat is composed primarily of water, potassium and salt (a mix of sodium and chloride), as well as minuscule amounts of a few other things. The ratio of those components varies from person to person, and your body adjusts that ratio depending on the fluctuation of its levels of water, potassium and salt.



Sweat glands draw fluid from the bloodstream and pass the water to the surface. They normally reabsorb salts and recycle them back into the bloodstream. But during heavy sweating, they can't keep up with the flow, and large amounts of salts slip past them and escape the body.

2. How many sweat glands do we have?

The average person has 2.6 million sweat glands in their skin.

3. What are the types of sweat glands?

We have two types: eccrine, which produce volumes of the watery stuff, and apocrine, which produce tiny amounts of thick, odorless fluid.

4. Where are sweat glands found?

The glands are distributed over the entire body — except for the lips, nipples and external genital organs.

We have eccrine glands all over our bodies, including the palms of our hands, the soles of our feet and our foreheads.

We have apocrine glands under our arms and in the genital area. Breasts have a modified version of the apocrine gland.

5. What causes body odor?

When the thick, odorless fluid from our apocrine glands sits on our skin, bacteria act upon it, which is what makes us smell.

6. Why do underarm stains in clothing appear yellowish?

Apocrine glands contain proteins and fatty acids, making their secretions thicker and giving them a milky or yellowish color.

7. Why don't young children need deodorant or antiperspirant?

The apocrine glands don't develop until puberty.

8. Who's sweatier, men or women?

Men tend to produce more sweat than women.



9. What is hyperhidrosis?

That's the term for excessive sweating. It may be limited to a few problem areas, such as the armpits or the palms, or may affect your whole body. Excessive sweating starts after puberty. It may be chronic, but it's typically worse when you're under stress, such as during exams, interviews or dates. It can mysteriously strike in the coldest conditions.

10. How many people suffer from hyperhidrosis?

About 3 percent of the population.

11. How do you treat hyperhidrosis?

There is a long list of nonsurgical options that make up the first-line treatments for the problem.

Nonsurgical treatments include ointments and salves and specially formulated antiperspirants. Most over-the-counter antiperspirants are not strong enough to do the job. A prescription product called Drysol can be effective against underarm hyperhidrosis. Drysol is less effective on the palms of the hands and soles of the feet.

Some patients also find temporary relief with anticholinergic drugs — drugs that block sweat production.

An electric stimulation treatment called iontophoresis is another nonsurgical option. Patients submerge their hands in water through which a mild electric current is passed. According to the Society of Thoracic Surgeons, the current "stuns" overproductive sweat glands, decreasing their secretions for up to a week.

In 2004, the U.S. Food and Drug Administration added another treatment: injections of the botulinum toxin, better known as

Botox. This technique joins a list of nonsurgical options that make up the first-line treatments for the problem.

A surgical option is "endoscopic transthoracic sympathectomy," a minimally invasive surgery that blocks the nerve impulses that cause sweating in the hands and underarms. Complications are uncommon, and most patients can return to normal activities within a day or two. Still, there are risks, including damage to adjacent nerves or blood vessels, and not all surgeries are effective.

Treatment options should be discussed with a physician.

12. What causes prickly heat?

Prickly heat is the result of inflamed sweat glands that are blocked, trapping the sweat in the skin and causing itching. It can be treated by cooling off and wearing lighter clothing.

13. Why does it seem that hot spring days are harder to handle than hot days in the late summer?

It seems that your sweat glands need time to acclimate. A person who hasn't been in a hot climate for a while can produce about 1 liter of sweat an hour. After about six weeks of hot weather, however, he or she will be able to produce two to three times that amount. (Anecdotal evidence suggests that people who sweat a lot while exercising year-round are automatically acclimated in the spring and thus able to handle the heat better.)

14. What's the difference between deodorant and an antiperspirant?

Antimicrobials in deodorant help eliminate bacteria on your skin's surface, while fragrance helps mask odor. Antiperspirants help control sweat by forming gel plugs in some of our sweat glands. Americans spend more than \$1 billion a year on antiperspirants and deodorants.

15. Why do we sweat?

The primary function of sweat is to cool our bodies. The humidity of the air around us affects the rate at which sweat evaporates. If humidity is high, the air cannot absorb any more moisture, and our sweat won't evaporate and cool our bodies as efficiently as when the air is dry.

We also eliminate a small amount of waste from our bodies when we sweat.

16. Can you sweat too much?

Losing excessive amounts of sweat can quickly dehydrate you, leading to circulatory problems, kidney failure and heat stroke. You should never wear a plastic sweatsuit or lots of warm clothing while working out on a hot day. You won't burn any more calories, but you will lose lots of water weight, which can precipitate heat stroke.

17. How much sweat do I lose during a workout?

The Gatorade Sports Science Institute has found that in conditions of 85 degrees and 40 percent humidity, the average runner will lose 2 to 4 pounds of sweat an hour.

18. How does someone's fitness level affect their ability to withstand water loss?

People who are more fit are better able to cope with low or even moderate degrees of dehydration than those who aren't fit. Alberto Salazar finished the 1984 Olympic Marathon in two hours 14 minutes despite losing 8.1 percent of his body weight in sweat.

19. Why does my workout seem to get harder the more I sweat?

Sweat is made from fluid in your blood, which means that the more you sweat, the thicker your blood becomes and the harder your heart has to work to pump that blood.

20. What can I do to prepare before a workout?

An hour or two before exerting yourself outdoors in the heat, drink 16 ounces of water or sports drink, then take in between 5 and 12 ounces every 15 to 20 minutes while working or exercising, says Runner's World magazine.

—Fort Worth Star-Telegram

SOURCES: ST. LOUIS POST-DISPATCH; HOWSTUFFWORKS.COM; DR. SUSAN MALLORY, A PROFESSOR OF DERMATOLOGY AND PEDIATRICS AT WASHINGTON UNIVERSITY; CHICAGO TRIBUNE; RUNNER'S WORLD MAGAZINE; WWW.AOCD.ORG; HEALTHDAY NEWS



Losing water as sweat

Some people feel thirsty when they start becoming dehydrated, and some seldom do. How to determine which type you are:

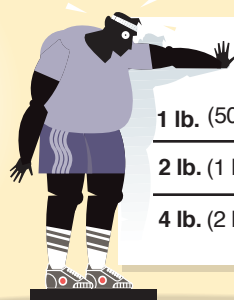


- 1 Weigh yourself on accurate scales.
- 2 Exercise for an hour or more without drinking anything, and weigh yourself wearing the same shoes and clothes as before.
- 3 Calculate how much weight you lost and what percentage of your body weight that equals.

Did you feel thirsty?

If so, at what point during the workout was it?

If not, had you lost a significant amount of water without knowing it?



Water lost (Approximate figures)

1 lb. (500 g)	2 cups (500 ml)
2 lb. (1 kg)	1 qt. (1 liter)
4 lb. (2 kg)	2 qt. (2 l)

Heavy water loss

Exercising 30 minutes in warm, humid weather or wearing heavy padding, you can lose more than 1 qt. (1 l) or 2 lb. (1 kg) of water as sweat.



Why it matters

Sweating away 2% to 3% in body weight

Sweating away 5% or more

Reduces aerobic ability by more than 10%

Creates significant risk of heat stroke

SOURCE: NICHOLAS INSTITUTE OF SPORTS MEDICINE AND ATHLETIC TRAUMA