

Excessive Sweating (hyperhidrosis)

By Dr. Sharon Giese

There are more than two and a half million eccrine sweat glands all over the body. They lie deep in the skin and are connected to the surface by coiled tubes called ducts. Sweat (perspiration) is a liquid mixture made up of 99% water and 1% salt and fat. Up to a quart of liquid a day can evaporate through the sweat glands.

As the body becomes overheated, a person sweats which evaporates and cools the body. When a person becomes frightened or nervous, the body begins to sweat on the palms and forehead, as well as the soles of the feet and in the armpits. These are the sites where sweat glands are most abundant. An unpleasant odor occurs when the sweat mixes with bacteria on the skin.

The medical condition, hyperhidrosis, is the embarrassing, inconvenient and expensive problem of excessive sweating. It is excessive sweating without a stressful trigger and resistant to deodorant. It affects about 3% of the population, generally starting at adolescence. In most cases no cause is found. However, it does seem to run in families, especially for soles and palms.

We will focus on underarm sweating, but people can also have excessive sweating of the palms of the hands and the soles of the feet. There are 4 ways to treat excessive sweating:

- 1. Topical's:** *Antiperspirants* temporarily block sweat pores, thereby decreasing sweat that reaches the skin. They are aluminum based.
Deodorants eliminate odor, not sweat and are alcohol based to make less attractive to skin bacteria.

<i>Over-the-counter</i>	Certain Dri (12% aluminum chloride)
<i>Prescription</i>	Drysol (20% aluminum chloride)

- 2. Oral Meds:** anti-cholinergics, blocking the nerve impulse to the sweat gland, such as glycopyrrolate
Carbonic anhydrase inhibitors, inhibit sweating, ex. Topiramate
Clonidine which increase nerve stimuli which decreases sweat output

- 3. Botox:** TEMPORARILY blocks nerves that trigger sweat glands. Generally lasts 4-6 months. About 20 painful injections to the underarm.

- 4. Surgery:** *Internal ultrasound* permanently stops sweating with an 85-95% reduction of sweat for most people. The heat from the ultrasound kills the glands and scars the undersurface of the skin. Some are resistant to treatment. Done in a ½ hour under local anesthesia. Results are immediate. No downtime. In the past, people have also done just

liposuction or curettage (scraping) of the glands, but these cause more scarring and are not as effective.

Endoscopic thoracic sympathectomy (ETS): Invasive procedure under general anesthesia that clips a nerve or cluster of nerve cells. Small incision, but must temporarily collapse lung. Generally more effective for palms and feet. High (up to 70%) rate of compensatory sweating, i.e., sweating somewhere else like the chest or back and gustatory sweating (sweating on face when eating) are major drawbacks. This is reserved for the most desperate cases.

FAQ's

1. Is it dangerous to decrease the sweating under the arms?

No, the treatment significantly reduces the sweat production. The axilla makes up about 1% of the body's surface area, so there are many other places on the body with sweat glands to cool it down

2. Why doesn't it work on everyone?

It appears there are more than one mechanism for why people have excessive sweating. The exact treatments can be performed on 2 people with differing results. Familial excessive sweating appears to be more resistant. Medical research has not figured this out yet.

3. Will I bruise?

Usually there is mild bruising down the upper arm and to the side of the chest. It resolves within 1 ½ weeks.

4. How much discomfort will I have?

Minimal. Most people take Tylenol for a day or two.

5. When can I resume normal activities?

In the next day or two for most people.