

## Hyperhidrosis

Hyperhidrosis is a condition in which the sweat glands are over-active, causing excessive perspiration. The degree of perspiration can be so severe that the palms of the hands weep fluid, or the axillae are constantly wet. The condition most frequently affects the hands (palmar hyperhidrosis) and feet, but can also affect the axillae (armpits), face, scalp, groins, chest wall and abdomen. The condition can cause severe social distress for the individual who has the condition, preventing the sufferer from performing the most fundamental social functions, such as shaking hands, dining without a jacket, or wearing a sleeveless dress. The condition appears to be caused by over-activity of the sympathetic nervous system, which controls the amount of formation of sweat, among other functions. Hyperhidrosis is frequently familial, or inherited. It is common for parents and children both to have the condition.

### Non-surgical therapy

The treatment for hyperhidrosis depends upon the area that is primarily affected. For axillae and hands, the mainstay of conservative therapy has included topical treatments such as aluminum chloride (Drysol <sup>TM</sup>.) Because the sympathetic nervous system controls the amount of perspiration, medical therapy has included beta blockers such as inderal, or anticholinergic drugs such as Robinol, Ditropan, and Propanthelin. (These anticholinergic drugs also cause dry mouth and altered heart rate.) There is a topical form of Robinol that is available for facial hyperhidrosis.

Botox injections have come into vogue for many conditions, including axillary hyperhidrosis. Although Botox is somewhat effective in the axillae, the duration of success is short, and the therapy is expensive.

### Surgical therapy

Palmar hyperhidrosis is the most common form of hyperhidrosis, and is most effectively treated with surgery. The surgery for palmar hyperhidrosis is known as ETS, for Endoscopic Thoracic Sympathectomy. ETS is an outpatient procedure during which the surgeon inserts a tiny camera inside the chest. The camera is used to visualize the sympathetic nerves, and to direct a tiny instrument to cut the nerves at two levels. This procedure stops the sympathetic nervous impulses to the hands, and almost immediately stops the perspiration. Please see the article elsewhere in this web site on thoracic sympathectomy.

Axillary hyperhidrosis is also treated effectively by ETS, especially when done in combination for palmar hyperhidrosis. Alternative surgical procedures are available for axillary hyperhidrosis, including a liposuction technique that removes the axillary sweat glands (Dr. Pnini, [www.sweaty-armpit.com](http://www.sweaty-armpit.com)).

Plantar hyperhidrosis (excessive sweating of the feet) is most commonly associated with palmar hyperhidrosis. Many patients with plantar hyperhidrosis will improve with ETS for the palmar variety.

Facial hyperhidrosis is more difficult to treat. Although facial symptoms can be improved with ETS, the body uses the head to get rid of heat. When sweating of the head and face is reduced by ETS, the body's "thermostat" sends signals to the chest and abdomen to increase the rate of perspiration. This can result in severe compensatory hyperhidrosis of the abdomen and chest, creating patient dissatisfaction with the procedure. An alternative procedure, which clips the lower one-third of the Stellate Ganglion, has been described for facial hyperhidrosis. In one report, the authors claim that this procedure may have less risk of truncal hyperhidrosis. Surgery directly on the Stellate Ganglion carries a significant risk of Horner's Syndrome. Horner's Syndrome is a

neurological syndrome consisting of ptosis of the eyelid and dilation of the pupil on the side of the ganglion that has been treated. In one published series of 30 patients, there was *no* case of Horner's.

#### Technique of ETS

Please see the ETS article in this web site for more detail.

#### Side effects of ETS

The sympathetic nervous system affects many of the body's functions, including blood pressure, blood vessel tone, heart rate, and pain sensation. When ETS is performed for hyperhidrosis, the palm of the hand immediately stops sweating. (Over time, the hand can actually become so dry that hand lotions are required.) In addition, the palm of the hand becomes flushed, or reddish in color, because the blood vessels in the hand are now more dilated.

Bilateral sympathectomy can affect peak heart rate in some patients. Professional athletes should consult with their physician carefully before having ETS performed.

#### Educational resources

The links below give general information on the conditions described above. The physicians of Thoracic Surgery Associates, PC, do not endorse these sites, nor is there any relationship between these sites and Thoracic Surgery Associates, PC.

[www.sweaty-palms.com](http://www.sweaty-palms.com)

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