

Received: 13-07-2016**Revised: 13-08-2016****Accepted: 16-08-2016**

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HYPERHIDROSIS: A SOCIAL AND PHYSIOLOGICAL EMBARRASSING DISEASE

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ABSTRACT

Sweating is a physiological and vital process. Basically two types of sweating exist: thermoregulatory and emotional sweating. They are controlled by different centers like thermoregulatory sweating is regulated predominantly by hypothalamus, emotional sweating predominantly by limbic system. Palmar, plantar and axillary hyperhidrosis, though benign, may be burdensome and occupationally restrictive, even hazardous. Hyperhidrosis, a condition characterized by excessive sweating, can be generalized or focal. When generalized, it usually occurs in association with infectious, endocrine or neurological disorder. Focal hyperhidrosis is idiopathic and occurs in otherwise healthy individuals, affecting the palms, soles or axillae. Hyperhidrosis is a relatively unknown disorder to general public and healthcare professionals. The socially embarrassing disorder of hyperhidrosis and its treatment options are gaining widespread attention. In order of frequency, palmar-plantar, palmar-axillary, isolated axillary, and craniofacial hyperhidrosis are distinct disorders of sudomotor regulation. Diagnosis of these disorders is primarily from patient history and physical examination, whereas results of laboratory studies performed with indicator powder reveal distribution and severity of resting hyperhidrosis and document the integrity of thermoregulatory sweating. Treatment options lie on continuum based on severity of hyperhidrosis and the risks and benefits of therapy. In general, therapy begins with antiperspirants or anticholinergics. Iontophoresis is available for palmar-plantar and axillary hyperhidrosis. Botulinum toxin type A is effective for isolated axillary hyperhidrosis not responsive to topical antiperspirants. Endoscopic thoracic sympathectomy may be used for severe cases of palmar-plantar and palmar-axillary hyperhidrosis.

Keywords: Hyperhidrosis, anticholinergics, Iontophoresis, Botulinum toxin type A, Endoscopic thoracic sympathectomy.

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INTRODUCTION

Sweating is essential for body temperature regulation. In human beings body temperature is maintained at 37° C by thermoregulation in hypothalamus. The thermoregulatory centre sends impulses to several effectors to adjust body temperature by increasing peripheral vasodilation and sweating to loose heat. Sweating may also occur in response to other triggers i.e. spicy food, drugs, anxiety, infections, high instant concentration etc.

Hyperhidrosis (Excessive sweating) is sweating more than would be expected in the temperature of the environment. Or Hyperhidrosis is the condition characterized by abnormally increased perspiration, in excess of that required for regulation of body temperature [1].

The basic medical explanation that is given for excessive sweating is that a part of the sympathetic nervous system in your body is responsible for this condition. This is an autonomous nervous system and has two parts known as sympathetic and parasympathetic parts. However excessive sweating does not constitute the whole body parts as general sweating does but there are some limited body parts that suffer from this condition hands feet armpit and facial area are the most commonly affected parts of the body from excessive suffering. In women excessive sweating condition starts after the age of puberty though it may be present to some degree all the time. The impact of excessive sweating grows worst under stress which may be psychological or emotional.

This condition is characterized by constitutional hyperactivity of the eccrine sweat glands. The disorder may be

generalized, consisting of excessive body sweating, or localized, with sweating confined to the palms, soles, armpits, groin, and under the breasts. As a rule, this frequently begins at puberty and has no definite etiology. Patients experience a heightened reaction to sweating stimuli such as anxiety, pain, exercise, tension, caffeine, and nicotine. The sweat-prone areas may be localized or generalized. When the palms and soles are involved, the skin may appear pink or blue-white, and may even macerate, crack, or scale, particularly on the feet. Patients often experience spontaneous relief in adult life. The disease has an unpredictable course and may persist for several years. It often causes social embarrassment and a disability at work, play or study. Apart from embarrassment complications of hyperhidrosis include pompholyx and contact dermatitis [2].

Available topical and systemic treatments are found to be ineffective in most of the cases, and thoracic sympathectomy can result in serious complications.

There are some details about all these parts being involved in excessive sweating which are as follows [3].

Hand excessive sweating

Excessive hand sweating is the commonest of conditions that comes into light and it is known as palmar hyperhidrosis in medical terminology. Around 40% of the people have family history for this problem and it can have huge impact on your social emotional and functional level. Though hand excessive sweating is believed to be a psychological issue but it does increase with emotional stimuli. Excessive sweating in hands is a major problem and it has direct impact on your performance.

Foot excessive sweating

Feet suffer from excessive sweating and this is known in medical terminology as plantar hyperhidrosis. Though you may not notice this problem as it has lesser social impact on the patient but still it is a problem that needs consideration. There are not many options for the treatment of this problem but as much as 5% of the people suffering from excessive sweating suffer from these wet feet.

Armpit excessive sweating

Armpit sweating is another condition which is found in around 40% of people who are suffering from Palmer hyperhidrosis. It is known as axillary hyperhidrosis in medical terminology. The armpit of the human body has two sweat glands known as eccrine and apocrine glands. There are different treatments for these different glands but the percentage of the sure is lesser.

Facial excessive sweating

Facial sweating may appear somewhat confusing as there are many terms that are sometimes linked together though they may be different social phobia erythrophobia and rosacea. Facial excessive sweating generally appears in later teen years and it is more stimulated socially. Obviously it will have great impact on the general personality of the person and can mar his or her performance in the social sector.

Classification Hyperhidrosis can either be generalized or localized (focal) to specific parts of the body. Hands, feet, armpits, and the butt area are among the most active regions of perspiration due to the relatively high concentration of sweat glands; however, any part of the body may be affected. Hyperhidrosis can also be

classified depending on if it is a congenital or acquired trait. Many people suffer from hyperhidrosis, and there are lots of different forms:

Primary Hyperhidrosis: The most common form of hyperhidrosis is Primary focal hyperhidrosis (PFHH). This is excessive sweating that is not caused by any kind of physical activity. PFHH most commonly affects the underarms, hands and feet.

Secondary Hyperhidrosis: Secondary hyperhidrosis is where the body sweats everywhere. This is usually caused by long-term conditions such as illness or chronic infection. This type of hyperhidrosis does not respond very well to surgery.

Primary hyperhidrosis is found to start during adolescence or even before and seems to be inherited as an autosomal dominant genetic trait. Primary hyperhidrosis must be distinguished from secondary hyperhidrosis, which can start at any point in life. The latter form may be due to a disorder of the thyroid or pituitary gland, diabetes mellitus, tumors, gout, menopause, certain drugs, or mercury poisoning.

Alternatively, hyperhidrosis may be classified according to the amount of skin that is affected and its possible causes. In this approach, excessive sweating in an area that is greater than 100 cm² (up to generalized sweating of the entire body) is differentiated from sweating that affects only a small area [4].

Location site and Prevalence

People with hyperhidrosis can have excessive sweating in specific parts of the body, including prevalence [5,6].

Table 1: Most commonly affected sites

Site	Prevalence (%)
Facial	68.9
Axillary	50.8
Planter	28.7
Palmar	24.8

The prevalence of severe palmar hyperhidrosis varies geographically and has been described as endemic in Southeast Asia, where it affects up to 3% of the population. This high prevalence in Southeast Asia can be seen in the staggering group sizes (1167-9988 patients) in several outcome studies of thoracoscopic sympathectomy [7].

According to the literature, 0.5% to 1% of the population is affected by hyperhidrosis. However, a recent survey held in the U.S. places that figure at 2.8%; thus, revealing that the prevalence is underrated. Among those affected, only 38% had discussed the problem with a health professional.

Epidemiology

Primary hyperhidrosis is estimated at 2.8% of the population. It affects men and women equally, and most commonly occurs among people aged 25–64 years. About 30–50% have another family member afflicted, implying a genetic predisposition [8].

Etiology

The cause of hyperhidrosis is still unknown. The sweat glands and their innervation do not show any histologic abnormalities. There may be dysfunctioning of the central sympathetic nervous system, possibly of hypothalamic nuclei, the prefrontal areas, or their connections. Patient shows no other signs or symptoms of autonomic dysfunction. Hyperhidrosis may occur as

an isolated manifestation of local hyperhidrosis, but it is more commonly associated with other forms of local hyperhidrosis, such as that of the axilla, palms and/or soles, cervical region, and less frequently, the back, face, and chest. Of these, it is most commonly found in association with axillary hyperhidrosis and generalized hyperhidrosis. There is no relationship with the use of drugs or with metabolic, endocrine, or other diseases [9].

Causes and Risk

The cause is unknown, although some experts/surgeons claim that it is caused by sympathetic overactivity. Anxiety can exacerbate the situation for many sufferers. Other factors can play a role; certain foods and drinks, nicotine, caffeine, and smells can trigger a response. In very rare cases, hyperhidrosis of the palms and soles is thought to be inherited as an autosomal dominant genetic trait. One must distinguish between idiopathic hyperhidrosis from excess sweating due to malfunction of the thyroid or pituitary gland, infection, diabetes mellitus, tumors, gout, and menopause. The disorder affects males and females in equal numbers. A common complaint of patients is that they get nervous because they sweat, then sweat more because they are nervous [10].

Hyperhidrosis of a relatively large area (>100 cm² or generalized)

- **Past history of spinal cord injuries :** Autonomic dysreflexia, Orthostatic,

- hypotension, Posttraumatic syringomyelia
- **Associated with peripheral neuropathies :** Familial dysautonomia (Riley-Day syndrome) , Congenital autonomic dysfunction with universal pain loss, Exposure to cold
 - **Associated with probable brain lesions :** Episodic with hypothermia (Hines and Bannick syndrome), Episodic without hypothermia, Olfactory
 - **Associated with intrathoracic neoplasms or lesions:** Pheochromocytoma, Parkinson's disease, Thyrotoxicosis, Diabetes mellitus, Congestive heart failure, Anxiety, Menopausal state, Due to drugs or poisoning, Night sweats.
- Hyperhidrosis of relatively small area (<100 cm²)**
- **Idiopathic unilateral circumscribed hyperhidrosis**
 - **Reported association with:** Blue rubber bleb nevus, Glomus tumor, POEMS syndrome, Burning feet syndrome (Goplan's), Casualgia ,Pachydermoperiostosis, Pretibial myxedema.
 - **Gustatory sweating associated with:** Encephalitis , Syringomyelia , Diabetic neuropathies , Herpes zoster (shingles), Parotitis, Parotid abscesses, Thoracic sympathectomy, Auriculotemporal or Frey's syndrome
 - **Miscellaneous:** Lacrimal sweating, Harlequin syndrome, Emotional hyperhidrosis.

Table 2: Some Causes of Excessive Sweating

Some Causes of Excessive Sweating	
Type	Examples
Hormonal (endocrine) disorders	An overactive thyroid gland (hyperthyroidism), low blood sugar levels, certain pituitary gland disorders.
Drugs	Antidepressants, aspirin and other nonsteroidal anti-inflammatory drugs, some drugs for diabetes, caffeine, theophylline. Withdrawal from opioids.
Nervous system disorders	Injuries, dysfunction of the autonomic nervous system, damage to certain nerves by cancer.
Cancer	Lymphoma, leukemia.
Infections	Tuberculosis, heart infection (endocarditis), severe fungal infections of the entire body.
Other	Carcinoid syndrome, pregnancy, menopause, anxiety.

PATHOPHYSIOLOGY

The pathophysiology of hyperhidrosis is poorly understood. There are three types of sweat glands present in the skin of normal axilla: eccrine, apocrine, and apoecrine [11]. Eccrine glands are present everywhere in human skin, including the

inguinal region. They are absent, however, in areas of modified skin that lack all cutaneous appendages, ie, the vermilion border of the lips, nail beds, labia minora, the glans of the penis, and the inner aspect of the prepuce [12]. They are made up of ducts and secretory coils deep in the skin.

Eccrine sweat glands are innervated by cholinergic fibers from the sympathetic nervous system. Eccrine sweat glands produce an odorless, clear fluid, whose main function is the regulation of body temperature. Eccrine sweat glands are responsible for focal hyperhidrosis.

Apocrine glands are encountered in only a few areas: the axilla, anogenital region, and other regions of the body (eg, ceruminous glands, Moll's glands, and mammary glands). They are placed more specifically on various body parts such as Underarms, around the belly button, Ear canal, Eyelids. Occasionally a few apocrine glands are found on the face, in the scalp, and on the abdomen. Apocrine sweat glands also consist of ducts and secretory coils, but they're larger than eccrine glands. The function of apocrine sweat glands is mainly mediated through hormones.

More recently, a third type of gland, also found in the axillary and inguinal regions, has been described [13] and termed "apoeccrine," because they contain morphological features common to the other two types. The name was suggested because of the similarity to both human apocrine and eccrine glands. They are variable in size, and their ducts are similar to those of the eccrine glands on the skin surface. They apparently develop after adolescence in both sexes [14]. These glands produce copious, watery fluid and may account for 10-45% of adult axillary glands [15]. The degree to which each gland type is involved in axillary hyperhidrosis is unknown, but axillary sweat is believed to be of eccrine origin because of its profuse nature and watery consistency [16]. Mixed or apoeccrine sweat glands, are mainly found in the axillary and perianal regions. Instead, the

hyperhidrosis is thought to represent a complex dysfunction of the autonomic nervous system, involving both the sympathetic and parasympathetic pathways [17, 18].

Signs and Symptoms

Hyperhidrosis is characterized by abnormal, profuse sweating that can affect one or a combination of the following:

- *Axillary*: Excessive sweating of the armpits
- *Palmar*: Excessive sweating of the hands
- *Plantar*: Excessive sweating of the feet
- *Facial*: Excessive sweating of the face
- *General*: Overall excessive sweating

The excessive sweating often interferes with daily activities. For example, patients with palmar hyperhidrosis have wet, moist hands that sometimes interfere with grasping objects. Those with axillary hyperhidrosis sweat profusely from their underarms causing them to stain their clothes shortly after they dress. Plantar hyperhidrosis, excessive sweating of the feet, makes ones socks and shoes wet, which leads to increased foot odor.

Symptoms of hyperhidrosis often become noticeable during childhood and adolescence. In many cases sweating can be quite severe, affecting everyday life and causing social embarrassment [19].

Diagnosis

Patients with hyperhidrosis are distressed by apparently normal volumes of physiologic sweat. This also occurs with some hyperhidrosis sufferers. . Following criteria are needed for the diagnosis out of which at least one is studied for the diagnosis: i.e. Presence of intense sweating in the inguinal region, which causes evident humidity of the clothing and social embarrassment and Measurement of the quantity of sweat by gravimetry -10

mg/min on each side, at 20-25°C (68-77°F), under one or more aggravating factors. Further Hyperhidrosis is diagnosed by physical examination. In addition, how long have been experiencing excessive sweating, what areas are affected, how often it happens and other questions to get a sense of the extent of condition [20].

Exams and Tests

Visible signs of sweating may be noted during a doctor's visit. A number of tests may also be used to diagnose excessive sweating. Tests include:

- **Starch-iodine test:** An iodine solution is applied to the sweaty area. After it dries, starch is sprinkled on the area. The starch-iodine combination turns a dark blue color wherever there is excess sweat.
- **Paper test:** Special paper is placed on the affected area to absorb the sweat, and then weighed. The heavier it weights, the more sweat has accumulated.

Others details include: Location, Time pattern, Triggers, other symptoms such as Weight loss, palpitations, Cold or clammy hands, Fever, Lack of appetite etc [21].

Complications: There are several complications that are attributed to hyperhidrosis [22, 23].

Athlete's Foot: Athlete's foot is when sweat and bacteria mix, and a fungal infection forms between your toes. This can make your skin to itch, burn and crack. Athlete's foot can also make skin peel on the soles and sides of feet.

Nail Infection: Fungal infections are common in people who sweat profusely. The most common place to get a fungal infection is under your toenail. Sometimes nail may separate, and it may be red around the skin. Slight odor may also be detected.

Jock Itch: Jock itch is a fungal infection that causes itching or burning around the groin. For many people, this is accompanied by a red rash on their inner thighs and buttocks. Jock itch is contagious, and can be spread by sharing towels.

Warts: Hyperhidrosis can cause bacterial infections, especially between your toes or around hair follicles. It can also lead to warts, which are skin growths caused by the human papillomavirus (HPV).

Heat Rash: Heat rash happens when the pores around sweat glands become blocked. As a result, sweat becomes trapped under your skin, causing fine red spots or bumps that are on your upper back, chest or arms. This happens a lot to babies and young children.

Social Embarrassment

Unfortunately, excessive sweating can cause social and psychological consequences. People with hyperhidrosis usually have excessive sweating of the soles or palms, which can result in unpleasant foot odor. Constant, excessive perspiration in the inguinal region is an embarrassing and unpleasant that makes daily activities difficult and interferes with the professional and social activities of sufferers. Excess perspiration can produce large wet stains on clothes, leaving the fabric wet. In the case of hyperhidrosis, however, the presence of such stains may be interpreted as indicating urinary incontinence or poor personal hygiene. This can cause a great deal of distress to the patient and can lead to embarrassment and social withdrawal. The resulting embarrassment is referred to by patients as being much worse than that produced by axillary hyperhidrosis. Therefore, hyperhidrosis significantly affects the social behavior of these individuals.

Patients frequently isolate themselves socially and adopt behaviors to conceal the problem [24].

Prognosis

Hyperhidrosis is difficult to treat effectively. With the newer treatment modalities now available, the patient has numerous options and is offered a better prognosis. Affected people are constantly aware of their condition and try to modify their lifestyle to accommodate this problem. This can be disabling in professional, academic and social life, causing embarrassments. Additionally, anxiety caused by self-consciousness to the sweating may aggravate the sweating [25].

Treatment

Many patients with hyperhidrosis try topical medications or herbal remedies to ease their condition, but these efforts have only temporary or no benefit. Due to the lesser attention paid to this problem there are not many comprehensive solutions for it. The research work in the medical field is limited for heavy sweating and therefore the treatments do not work on all the patients and many of them suffer from this condition even after the treatment. Overall health age and medical history is necessary to be taken into account before you opt for a treatment. Severity of the condition should also be noticed which will determine the nature of the treatment. Ability to withstand the treatment and also your tolerance of specific medications and procedures which will be there

Common measures to minimize sweat:

- Wear loose fitting garments made of fabric that does not stain.
- Try garments that are specially designed to absorb sweat and reduce odour.

- Expect to change your socks several times a day.
- Use absorbent insoles in shoes and replace them frequently.
- Don't wear same pair of shoes for multiple days in a row; leave them to dry out.
- Choose a non-soap cleanser.
- Use talcum powder or corn starch powder after bathing.
- Avoid foods and drinks that contain caffeine (coffee, tea, cola drinks, chocolate).

GENERAL/MEDICAL TREATMENT

Antiperspirants

Topical treatments are considered classic for focal hyperhidrosis. Excessive sweating may be controlled with strong anti-perspirants, which plug the sweat ducts. Antiperspirant sprays, sticks, roll-ons and paints are available. Antiperspirants should be applied when the skin is dry, after a cool shower just before bed. Wash off in the morning. They should be used for several consecutive nights then once or twice weekly. The stronger products can irritate; if so, apply hydrocortisone cream for a few days. Products containing 10% to 15% aluminum chloride hexahydrate are the first line of treatment for underarm sweating. A dusting powder containing diphenyl 2% may be useful for mild hyperhidrosis. Apply between the toes, under the breasts and other skin folds.

Oral Medication:

Anticholinergics drugs, such as glycopyrrolate, oral propantheline and oxybutymin help to prevent the stimulation of sweat glands but unfortunately can cause blurred vision, dry mouth, constipation, dizziness and palpitations. Although effective for some

patients, these drugs have not been studied as well as other treatments. Beta blockers or benzodiazepines may also be helpful to reduce stress-related sweating. but are unsuitable for those with asthma or peripheral vascular disease. Calcium channel blockers, nonsteroidal anti-inflammatory drugs and anxiolytics may also be useful for some subjects.

Iontophoresis:

Iontophoresis was introduced over 50 years ago as a treatment for excessive sweating. This FDA-approved procedure uses electricity to temporarily turn off the sweat gland. Its exact mechanism of action is still unclear. It is most effective for sweating of the hands and feet. The procedure uses water to conduct an electric current to the skin which combats production of sweat. The hands or feet are placed into water, and then a gentle current of electricity is passed through it. The electricity is gradually increased until the patient feels a light tingling sensation. The therapy lasts about 10-20 minutes and requires several sessions. Side effects include skin cracking and blisters, although rare. Iontophoresis treatments sound painful but in fact are not.

Botox:

Botulinum toxin (Botox), a muscle poison much in the news as a cosmetic treatment for wrinkles, has actually been used in many areas of medicine for some time, such as in the treatment of muscle spasms and certain types of headaches. Its latest medical use is for treating excessive underarm sweating. Botulinum A toxin (Botox) is FDA approved for the treatment of severe underarm sweating, a condition called primary axillary hyperhidrosis. Small doses of purified botulinum toxin injected into the underarm temporarily block the nerves that stimulate sweating.

Currently, the FDA has not approved Botox for treating sweating of the palms and soles of the feet, though some physicians are administering it as an off-label use, with some success. Fifty (50) units of Botox are injected into roughly 20 spots in each armpit. This may produce approximately six months of relief from sweating. The injections are uncomfortable, but use of a very small injection needle minimizes discomfort. Side effects include injection-site pain and flu-like symptoms. Botox used for sweating of the palms can cause mild, but temporary weakness and intense pain. None of the patients experienced compensatory hyperhidrosis in another part of their body. No systemic or allergic side effects were observed or expressed.

Surgical care/ Sympathectomy

Surgery to cut out the sweat gland-bearing skin of the armpits may be performed using local anesthetic. Overactive sweat glands in the armpits may be removed by tumescent liposuction (sucking them out), subcutaneous curettage (scraping them out) or a combination of these procedures. Using local anesthetic, a small incision is made through which the instruments are inserted.

Sympathectomy has been used as a permanent effective treatment since 1920. Usually, it is reserved for the final treatment option. Sympathectomy involves the surgical destruction of the ganglia responsible for hyperhidrosis. The sympathetic nervous system controls only sweating and does not affect touching or muscle function. Thus, clamping the sympathetic nervous system does not lead to numbness or paralysis.

There are two surgical approaches available:

- an open approach and

- a newer thoracoscopic/ (ETS (endoscopic thoracic sympathectomy / VATS (video assisted thoracic surgery) approach. (All three names are for the same procedure).

The techniques of open surgical access to the upper thoracic sympathetic chain are multiple, but they all share the drawbacks of being major surgical procedures with considerable risk of complications and sizable scars. There has therefore been an understandable reluctance of both doctors and patients to adopt this method in the treatment of hyperhidrosis.

Recently, the endoscopic approach has become favored because of its improvements in terms of complications, surgical scars, and surgical times. Endoscopic thoracic sympathectomy (ETS) refers to surgical interruption of the sympathetic nerves responsible for sweating. Thoracoscopy was first performed in 1910, and the first report describing this method of performing sympathectomy appeared in 1942. In Europe several hundreds of thoracoscopic sympathectomies were performed during the 1940s. For unknown reasons this method fell into oblivion and was not adopted on a larger scale until the late 1980s. Sympathectomy is an operation intended to destroy part of the nerve supply to the sweat glands in the skin. The surgeon inserts a special endoscopic instrument into the chest between two ribs just below the armpit. The lung is briefly deflated to better visualize and destroy the nerves. Sympathectomy is both effective and risky. Even with newer endoscopic techniques, complications of the procedure can include excessive sweating in other parts of the body as well as lung and nerve problems. As many of these complications are serious and not reversible, this option

is rarely used, and then only as a last resort. Lumbar Sympathectomy is done when you have excessive sweating in one specific area, especially your palms, lumbar sympathectomy may be an option. It's performed on your back, and it takes about an hour to perform. The success rate for this surgery is about 90%.

Non-Pharmacological treatment:

Bath Often

People with hyperhidrosis need to bathe or shower often, sometimes 2-3 times a day. After each bath, make sure and dry thoroughly before getting dressed.

Take Care of Your Feet

If your feet are the source of your sweating, there are several things that you can do to help. Here are some options: Wash and dry your feet daily, Use foot powders and/or sprays, Wear socks made of natural fibers, and change them often, Wear shoes made of 100% leather.

Airy Clothing

The type of clothing you wear can greatly help with excessive sweating. Light and easily breathable shirts and pants will reduce sweating and odor.

Relaxation

If your excessive sweating comes from stress and nervousness, you may find relief through relaxation techniques. These techniques can help with things like shyness and anxiety.

Drink Water

If you have hyperhidrosis, it's very important to drink plenty of water. It can be very easy to dehydrate, so familiarize yourself with dehydration symptoms, so that you can act fast if you need to.

Cautions

Very rarely, excessive sweating can be dangerous. Call your doctor if any of the following occur along with the sweating

Fever, Weight loss, Chest pain, Shortness of breath, Rapid pounding heartbeat.

Table 3: Therapeutic process proposed for the treatment of localized (focal) Hyperhidrosis

Level	Site	Treatment
1	Armpits Groin Forehead	Over-the-counter antiperspirants containing aluminum salts 6.25% AlCl ₃ 6H ₂ O/in absolute ethanol: Drysol mild (Xerac AC) 12.5% AlCl ₃ 6H ₂ O/water based: CertainDri®
2	Armpits Groin Hands, Feet	20% AlCl ₃ 6H ₂ O/in absolute ethanol: Drysol® 10%-30% AlCl ₃ 6H ₂ O/in a gel with or without 4% salicylic acid
3	Hands, Feet	40%-50% AlCl ₃ 6H ₂ O/in a 4%-6% salicylic acid gel base
4	Armpits, Hands, Feet	Iontophoresis Drionic Fischer
5	Armpits, Hands, Feet	Botox® injections
6	Armpits, Hands, Feet?	Surgical excision of eccrine axillary glands Endoscopic transthoracic sympathectomy

Alternative therapy to treat Hyperhidrosis

Medication

There are a couple of different medications that help with hyperhidrosis. These may include Robinul, Ditropan, Probanthine.

Alternative Medicine

Many patients seek alternative ways to treat their hyperhidrosis. These treatments include:

- Homoeopathy
- Massage
- Acupuncture
- Phytotherapeutic drugs

Hypnosis

A few people have found success in using hypnosis for helping hyperhidrosis. This hasn't been very effective for most people, though.

Psychotherapy

Psychotherapy is another treatment that people sometimes seek out to help their excessive sweating. It doesn't see a lot of success with most patients; however, it can

help with accepting and living with hyperhidrosis.

Acupuncture

Acupuncture, as mentioned earlier, is an alternative form of medicine that is used to treat many conditions. Many acupuncturists have specific treatments for people with hyperhidrosis, and have seen success.

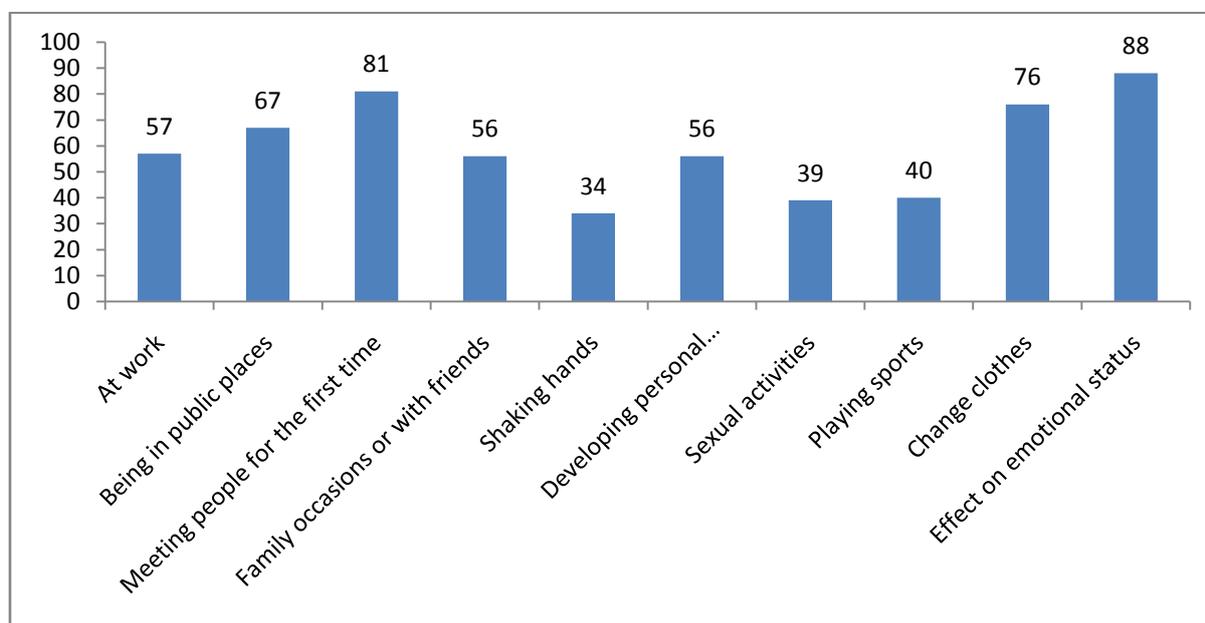
Impression of on Hyperhidrosis quality of life

Hyperhidrosis is known to be a socially embarrassing and occupationally disabling disorder. Many patients suffer in silence. Figure 1 shows the impression of hyperhidrosis has on quality of life. Those with axillary hyperhidrosis often have to change clothing several times a day and throw out clothing because of the damage caused to fabric and leather. Patients who suffer from palmar hyperhidrosis are embarrassed to shake hands. Sweat can stain books and papers, make fingers slippery on computer keyboards, and even prevent the enjoyment of sports. Manual

labour becomes difficult and workers are prone to injury due to dropped objects. Besides affecting quality of life, Hyperhidrosis predisposes its victims to a host of dermatologic disorders. The

control of hyperhidrosis would also control the associated disease condition, as has been recently reported with the treatment of dyshidrotic hand dermatitis with intradermal botulinum toxin.

Figure 1: Quality of life measures in patients with Hyperhidrosis excessive axillary sweating



CONCLUSION

Hyperhidrosis affects millions of people around the world-nearly 3% of the population according to some studies. In simple terms hyperhidrosis is a medical disorder characterized by excessive sweating. For those who have never had to suffer from it, it is difficult to imagine the social awkwardness and embarrassment that this condition can cause. The person who experiences excessive underarm

sweating (medically described as axillary hyperhidrosis) may find it difficult to negotiate everyday social situations that require them to mingle closely with others. For most sufferers the constant anxiety regarding too much underarm sweat can affect not only their personal and social lives but their professional lives as well. Typically these people tend to possess low self-esteem and prefer to remain isolated from their peers.

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