PROCEDURE

Iontophoresis

Iontophoresis uses a mild electrical current to reduce sweating or move medicine through the skin.

PURPOSE
Reduce sweating or move medicine through skin

PROCEDURE TYPE
Both, bedside low-current treatment or testing

WHERE IT IS DONE
Outpatient clinic, testing centre, or home

ANAESTHESIA
None

HOW LONG IT TAKES
20-60 minutes, based on purpose and body area

PREPARATION
Clean skin, remove jewellery, report implants and pregnancy

RECOVERY
Same day; driving usually allowed

MAIN RISKS
Skin irritation, dryness, small burns, medicine reactions

RESULTS
Sweating improves over sessions; test results often same day

Overview

Iontophoresis uses a weak electrical current on the skin. It is most often used to treat excessive sweating, called hyperhidrosis, affecting the hands or feet. Special pads can also be used for the underarms.

During treatment, your hands or feet usually rest in shallow trays of tap water. Electrodes in the trays pass a controlled current through the water and the surface of your skin. The treatment temporarily reduces sweat gland activity, although exactly how it works is not fully understood.

Iontophoresis can also carry certain medicines through the skin. A related technique uses the medicine pilocarpine to stimulate sweat for a diagnostic sweat test, such as testing for cystic fibrosis. The setup, timing, and expected results are different from treatment for excessive

sweating.

No needles or incisions are normally needed.

Why the procedure is performed

For hyperhidrosis, iontophoresis may be offered when sweating interferes with daily activities and antiperspirants have not helped enough. It is particularly suited to the palms and soles because these areas can be placed in water trays.

Treatment may make it easier to handle paper, use touchscreens, hold tools, wear shoes, or take part in social and work activities. It controls sweating rather than curing its underlying tendency. Most people who benefit need ongoing maintenance sessions.

Medicated iontophoresis may be used to deliver a prescribed medicine into a small area. Its role depends on the medicine and condition being treated.

During a sweat test, iontophoresis stimulates a small patch of skin to produce enough sweat for laboratory analysis. The procedure itself does not diagnose the condition; the laboratory result and your wider medical assessment are considered together.

Who should and should not have it

Iontophoresis may be appropriate if you have excessive sweating of the hands or feet and want a non-surgical treatment. It may also be considered for underarm sweating when suitable equipment is available.

It is not right for everyone. Treatment may need to be avoided or delayed if you have:

Device restrictions are not identical. Tell the treating team about heart conditions, seizures, circulation problems, implants, pregnancy, skin disorders, and all medicines you use. For home treatment, follow the contraindications in that device's instructions.

A minor cut may sometimes be covered with petroleum jelly, but larger wounds or active skin infections usually need to heal before treatment.

- A pacemaker, implanted defibrillator, or another electronic implant
- A metal implant within the expected path of the electrical current
- Broken, infected, inflamed, or recently injured skin in the treatment area
- Reduced skin sensation that could prevent you noticing excessive heat or pain

- Pregnancy, unless the clinician responsible for your care considers it appropriate
- An allergy to a medicine being delivered by medicated iontophoresis

How to prepare

Your treating facility's own instructions take priority because preparation differs between tap-water treatment, medicated treatment, and sweat testing.

Iontophoresis does not usually require fasting or changes to blood-thinning medicines. Do not stop a prescribed medicine unless the clinician responsible for it tells you to do so.

Before the session:

You may be asked not to shave the area shortly before treatment because freshly shaved skin can sting. Small cuts or irritated areas may be protected with a thin layer of petroleum jelly.

If you will use a device at home, you should first receive instructions on positioning the electrodes, setting the current, cleaning the equipment, and recognising skin irritation.

- Wash the treatment area and remove creams, oils, and antiperspirant
- Remove rings, watches, bracelets, and other metal items
- Tell staff about cuts, rashes, implants, reduced sensation, or possible pregnancy
- Bring your prescribed medicine if the facility has specifically requested it

What happens during the procedure

For hand or foot treatment, a healthcare professional fills two shallow trays with tap water and places an electrode in each one. You place your hands or feet in the trays. A barrier prevents direct contact with the electrodes.

The current begins at a low setting and is increased gradually. You may feel tingling, prickling, or mild warmth. The current should not cause sharp pain or intense burning. Some devices reverse the direction of the current during the session.

Underarm treatment uses wet pads or shaped attachments rather than trays. These must sit evenly against the skin to reduce the chance of irritation or small burns.

A treatment session commonly lasts about 20 to 30 minutes. Initial sessions are often repeated on a planned schedule until sweating improves. Maintenance sessions are then spaced according to how quickly sweating returns.

For medicated iontophoresis, the prescribed medicine is placed under an electrode or within a

treatment pad. A second electrode completes the electrical circuit.

During a diagnostic sweat test, pilocarpine is applied to a small area, usually on an arm or leg. After brief electrical stimulation, sweat is collected and sent for measurement. The full appointment can take longer than the stimulation itself.

Recovery and what to expect afterward

Pain is usually minimal. Mild tingling or tenderness can continue briefly after the current stops. Dryness, redness, or itching may occur, especially when treatment is first started. A plain moisturiser can usually be applied afterward unless you were given different instructions.

You can eat and drink normally. Iontophoresis does not require sedation, so there are usually no dietary restrictions afterward.

Normal activity can generally resume immediately. Protect irritated skin from friction, harsh soaps, and very hot water until it settles.

You can usually drive home because the procedure does not affect alertness. Do not drive if you feel faint, have painful hand or foot irritation that affects control of the vehicle, or received another medicine that limits driving.

Most people can return to work or school the same day. If your job involves wet work, chemicals, tight gloves, or heavy use of treated skin, temporary protection may be helpful.

Risks and possible complications

The main risks involve the skin. These include dryness, redness, itching, discomfort, and small blisters. Minor cuts can sting during treatment.

A current that is too strong, unevenly placed equipment, or direct electrode contact can cause a small electrical or heat-related burn. Stop the session if you feel sharp pain or intense burning.

With medicated iontophoresis, side effects can also come from the medicine. These may include a local rash or, less often, effects elsewhere in the body if some medicine is absorbed. The specific risks should be explained before treatment.

Electrical current may interfere with implanted electronic devices. This is why pacemakers, defibrillators, and similar implants must be disclosed before treatment.

Results and follow up

Improvement in excessive sweating is not always immediate. It is usually assessed over a course of sessions. Keeping a simple record of sweating, skin irritation, and session settings can help show whether treatment is working.

If sweating improves, you may be given a maintenance schedule. The effect is temporary, so sweating often returns when treatment stops. If there is little improvement, the healthcare team may review your technique, equipment, current setting, schedule, and diagnosis before discussing another option.

After a diagnostic sweat test, the sample is analysed according to the test requested. Results may be available the same day or after several days. A clinician should explain what the measurement means and whether another sample or different test is needed.

Routine follow-up is appropriate for reviewing progress, adjusting the treatment schedule, or managing mild ongoing dryness.

Alternatives

For excessive sweating, alternatives include:

For medicated iontophoresis, alternatives may include applying the medicine directly, taking it by mouth, or receiving an injection. These options may be simpler, but they can deliver less medicine to the target area or expose more of the body to side effects.

A properly performed sweat chloride test has a specific role in assessing cystic fibrosis. Genetic testing and other investigations may add information, but they are not automatically interchangeable with a sweat test.

- Strong antiperspirants: Easier and less time-consuming, but they can irritate skin and may not control heavy sweating
- Prescription skin treatments: Useful for some areas, especially the underarms, but effects are temporary and side effects depend on the medicine
- Tablets that reduce sweating: Can help several body areas at once, but may cause dry mouth, blurred vision, constipation, or difficulty passing urine
- Botulinum toxin injections: Can reduce sweating for months, but require multiple injections and repeat treatment
- Energy-based underarm treatment: May provide longer-lasting reduction, but is mainly used for underarms and can cause swelling or altered sensation

- Surgery: May provide lasting control in selected severe cases, but carries surgical risks and can cause increased sweating elsewhere

When to call your healthcare team

Stop treatment and contact your healthcare team promptly if you develop a persistent burn, blistering, worsening rash, increasing pain, or signs of skin infection such as spreading redness, warmth, swelling, or drainage.

Contact the team routinely if irritation keeps returning, sweating is not improving after the planned course, or you are unsure how to use home equipment safely.

Seek urgent medical care for fainting, a new irregular heartbeat, or severe dizziness during or after treatment.

Call emergency services for trouble breathing, swelling of the face or throat, or widespread hives after medicated iontophoresis. These can be signs of a serious allergic reaction.

Common questions

Will I be asleep?

No. Iontophoresis does not normally require anaesthesia or sedation. You remain awake throughout the session.

Can I drive home?

Usually, yes. The current does not impair alertness. Do not drive if discomfort affects your ability to control the vehicle or another treatment included a sedating medicine.

How painful is it?

Most people feel tingling, prickling, or mild warmth. Sharp pain or strong burning is not expected and should be reported immediately.

When will I know if it worked?

For excessive sweating, improvement is judged over several sessions rather than after one treatment. Diagnostic sweat-test timing is usually the same day or within several days.

Is the effect permanent?

Usually not. People treated for hyperhidrosis commonly need maintenance sessions to keep sweating under control.

Can I use iontophoresis at home?

Home devices are available for hyperhidrosis. You should be shown how to use the specific device safely and follow its instructions about settings, cleaning, treatment schedules, and exclusions.

Sources

- American Academy of Dermatology Association. Hyperhidrosis: Diagnosis and treatment
- International Hyperhidrosis Society. Iontophoresis
- NHS. Excessive sweating (hyperhidrosis)
- Wade R, Jones-Diette J, Wright K, Layton AM, Woolacott N. "Interventions for hyperhidrosis." Cochrane Database of Systematic Reviews . 2019;12:CD008657
- Cystic Fibrosis Foundation. Sweat test