



Pain relief using transcutaneous electrical nerve stimulation (TENS): information for families

Transcutaneous electrical nerve stimulation (TENS) is a safe, easy to use, drug-free method of managing pain. A very low level electrical current is applied to areas of the body using soft gel pads that stick to the skin. The low level electrical current stimulates nerves in the body that help to reduce pain. This information sheet from Great Ormond Street Hospital (GOSH) explains about the use of TENS and how it works. An Easy Read information sheet for your child is also included. If you have any questions about pain and pain relief, please contact the Pain Control Service on 020 7405 9200 ext. 5940.

There are millions of nerve cells in the body, each of which carries signals through the spinal cord and up to the brain. Some nerve cells carry pain signals others carry messages about touch and pressure.

TENS is thought to work by blocking pain signals from pain-sensing nerves by overwhelming them with gentle input from touch and pressure-sensing nerves. This causes fewer pain signals to reach the brain and the child or young person feels less pain.

Can anyone use a TENS machine?

Although TENS machines can be bought from most chemists, children should only use a TENS machine on the advice of their doctor. In addition, children should not use a TENS machine if:

- They have a pacemaker or implantable cardioverter defibrillator (ICD)
- They have epilepsy
- The source of pain is over the site of any previous surgery where internal metalwork,

such as screws, wires, implants or metal plates have been inserted.

- They have poor sensation in the area where the electrodes are to be applied

If you have any questions about the suitability of TENS for your child, please discuss this with your doctor or pain control nurse specialist.

Please note: the TENS machine has been provided for your child. It should not be used by anyone else.

Does TENS have any side effects?

The main reported side effect has been a mild reaction to the adhesive on the electrode. If skin irritation occurs, please remove the pads immediately and discuss this with the Pain Control Service as we may be able to recommend an alternative type of electrode pad.

Does TENS work for everyone?

Many children and young people using a TENS machine report that it has helped to relieve their pain, however, this varies from person to person. Unfortunately using TENS will not benefit every child.

Generally it takes a couple of hours of using TENS for the first time, before the effect is felt. You should still give your child their regular pain medicines while using the TENS machine. Over time, if the TENS machine is helpful, your child may not need pain relief as frequently as before.

Your child's TENS machine kit

The TENS equipment consists of a lightweight machine that the child or young person carries around with them, fastened to a belt or in a pocket. The machine is attached using leads connected to sticky electrode pads, which are placed on the skin. These are either positioned around the painful area or on areas on the back where the pain nerve path passes into the spinal cord, sending pain messages to the brain.

There are many different types/makes of TENS machines available from medical equipment suppliers and pharmacies.. The type of TENS machine currently used at GOSH is the Performance Health® TPN 200 plus machine. Your child's pack should contain:

- Performance Health® TENS machine
- Battery 9 volt (6F22)
- Packet of 4 adhesive electrode pads
- Two lead wires
- Instruction manual
- Performance Health® TENS therapy practical guide.

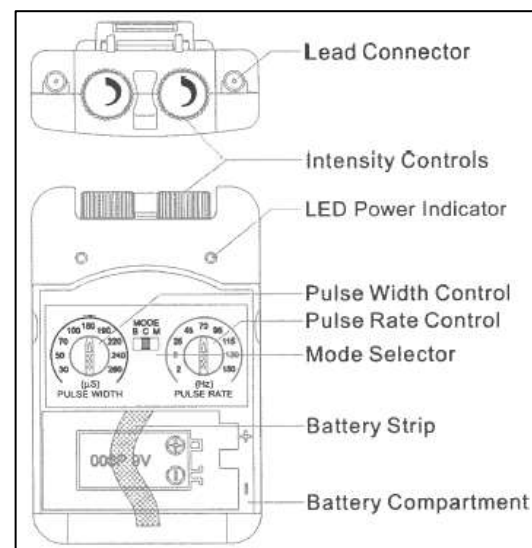
Please let us know if anything is missing.

Programming your child's TENS machine

Before you go home with the TENS machine, the nurses will explain how it is programmed. The standard settings when your child is using the TENS machine for the first time:

- Setting (Mode) = Continuous (C)
- Pulse width (duration) = 70 to 120
- Pulse rate (frequency) = 70 to 120

If your child is advised to use different settings to these, your nurse will note them on the back page of this information sheet.



The pulse width, rate and mode can be changed if your child becomes tolerant to the initial settings or prefers a different sensation. We recommend that as your child becomes used to using the TENS they try different rate and mode settings to see which ones they find most helpful. If your child experiences any unpleasant sensations they should go back to the original ones set by your nurse in clinic. If you have any problems or questions about the settings of the TENS machine you can contact your nurse to discuss this in more detail.

Setting up and attaching the machine

1. Always check that the machine is switched off before starting
2. Put the battery in the TENS machine by pulling back the lid and inserting into the battery compartment (the battery may already be inserted)
3. Plug the leads into the electrode pads and attach the leads to the machine at the lead connector on top of the machine
4. Make sure that the area of skin where the electrode pads will be placed is clean and dry
5. Remove the electrodes from the plastic sheet
6. Apply the electrode pads to the areas as you have been shown – the electrodes must not be touching, and should be at least one pad's width apart
7. Gently switch on the TENS machine, the green LED light will indicate that the machine is switched on. Ask your child to turn up the dial slowly until the sensation through the electrode pads is strong but comfortable. Your child should feel a gentle tingle or buzzing sensation.
8. Your child should feel the sensation in the area where they have pain. If it is not in the right place, switch off the machine and re-positioning the electrode pads.

Please note: your child should be the only person turning the dial to increase the signals

Positioning the electrode pads

Generally, we will ask you to position the electrode pads at the site of the pain, but sometimes we will ask you to place them over the nerve pathway supplying the painful area.

Positioning the electrode pads at the site of the pain:

The most common way to position the electrodes is by placing them directly at the site of the pain.

The pain control nurse specialist or doctor will discuss with you where to position the pads and this can then be marked on the body diagram on the back page of this information sheet.

If at any stage you feel that the sensation is not in the right place then switch off the machine and reposition the pads.

Positioning the electrode pads on a nerve pathway supplying the painful area:

In this technique, the TENS electrode pads are placed on the back over the main nerve supply areas of the body (dermatomes). In this way pain messages from specific areas of the body can be blocked. This method of using TENS is very useful if your child finds it too uncomfortable to have the TENS pads applied to the skin in the painful area of their body. The pain control nurse specialist can show you how to correctly position the pads when using this technique and will then mark this on the body diagram on the back page of this information sheet.

Please note that the electrode pads must not be placed over the front of the neck (carotid sinus) or over broken or infected skin.

We recommend that your child uses the TENS machine for at least one hour and up to a few hours at a time. They can move around as usual while using the TENS machine. It is important to keep to normal daily routines wherever possible.

Your child should not use the TENS machine while having a shower or bath. The electrode pads should be removed before going to bed, as they may fall off or move during the night. If your child needs the TENS machine to get to sleep, you must switch it off once they have fallen asleep.

If your child is using the TENS machine for several hours a day, we suggest changing the position of the electrode pads from time to time to stop the skin under the pads becoming sore. The electrode

pads will last for around 30 uses before they need to be replaced.

Turning off the machine

1. Switch off the machine by turning the dial on the top of the machine to the OFF position.
2. Remove the electrode pads from the skin and place them back on the plastic sheet
3. Unplug the leads and store them with the electrode pads in the bag provided
4. Store the TENS machine in the bag provided
5. If needed, wash the area where the electrode pads were placed with soap and water

Trouble shooting

There is no or low sensation under the electrodes

- Try replacing the battery – it may be worn out

The electrode pads do not seem sticky any more (if stored correctly on the plastic sheet between uses, each set of pads should remain sticky for up to 30 applications)

- Switch off the machine
- Try moistening the pads with a well rung out lint-free damp cloth, such as a cotton cloth. Ensure there is no visible moisture on the pads before reapplying to the skin

My child feels burning under the electrode pads

- Check the area of skin under the pads for redness and sensitivity. If red do not reapply
- The electrode pads may have lost their stickiness and may be only partially attached to your child's skin. Wipe the pads with a well rung out lint-free damp cloth such as a cotton cloth. Ensure there is no visible moisture on the pads before reapplying to the skin
- The electrode pads may be worn out so replace them with new ones
- The TENS intensity may be too high so try reducing it until your child feels a mild tingling sensation

One of the plugs or leads is loose or broken

- Switch off the machine immediately and replace the lead with spare if available. Do not re-use broken lead.
- Contact the Pain Control Service for a replacement lead

My child seems to be allergic to the electrode pads and has developed a rash in that area

- Remove the pads
- Certain skin types can be sensitive to the adhesive on the electrode pads, most of the pads we recommend are 'hypoallergenic' so less likely to cause a reaction.
- If skin irritation continues, please contact the Pain Control Service as we might be able to recommend alternative pads or skin barrier.

TENS machine settings for your child

(If different from those specified above)

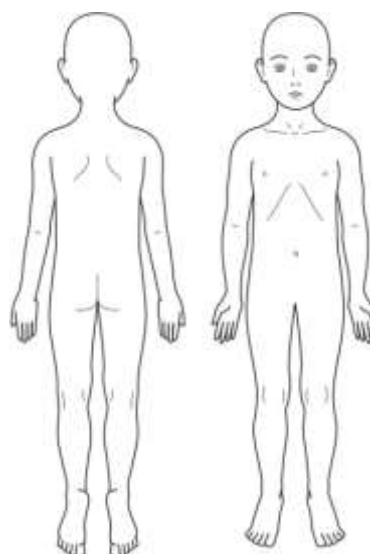
Setting =

Pulse width =

Pulse rate =

Mode =

Positioning of electrode pads



Having TENS for pain relief



You have nerves all through your body. They send messages to your brain about pain. Having TENS can help take your pain away. A tiny amount of power goes through your skin to your nerves. This helps to stop pain signals.



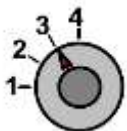
Some people cannot use TENS. It is not good for people with epilepsy. It is also not good for people who have numb skin. People with metal inside their body from an operation need to be more careful using TENS.



When you have TENS, you put sticky pads on your skin over the pain. They might also go over your back. We will tell you where to put them. The pads are joined to the TENS machine with wires.



Do not put the pads on areas of the skin that are cut or broken.



You should switch the TENS machine on and turn the dial until you feel a buzzing feeling. You can use the TENS machine for a few hours and then turn it off. We will tell you how long to use the TENS machine.



At the end, you should peel off the sticky pads and put them back on the plastic sheet. Unplug the wires and put them carefully with the TENS machine.



If the pads made your skin feel sticky, wash the area with soap and water.



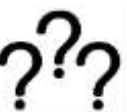
Tell us if you get a rash from the sticky pads.



You can carry on having medicine to take away your pain as well as using the TENS machine.



As the TENS machine starts to take away your pain, you might not need so much medicine.



Please ask us if you have any questions.