



FES Skin Irritation Information Sheet (Clinicians)

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Signs and Symptoms

The first sign of irritation is redness of the skin, where an electrode has been placed, which is still present in the morning. Itchiness and raised spots indicate a more severe reaction. Scratching is likely to cause trauma to the skin and therefore further increase the irritation caused by stimulation

Prevention

To maintain skin integrity and therefore the ability of the skin to act as a defence barrier, users should follow the good practices identified below:

- Make sure that the surface of the skin is clean and free from applied oils or lotions prior to application of electrodes.
- Do not place electrodes over broken skin (cuts, bites, rashes, grazes etc.)
- Do not shave the skin using a razor (especially a wet razor). Cutting the hairs with scissors can also cause nicks and cuts, so we advise the use of clippers or a beard trimmer to remove hairs, if required.
- Avoid long hot soaks in bath, which will dry out the skin and make it more vulnerable
- Wash using soap free cleansers such as Dermol wash or E45. Soap is alkaline and can irritate the skin.
- Moisturise overnight using mild fragrance free moisturisers (E45) or dermal double base moisturiser

Treatment

At the site of stimulation

- Discontinue stimulation at the electrode site until the skin has healed
- Use Eumovate cream for not more than one week. This is a topical corticosteroid, containing Clobetasone butyrate 0.05% which can be bought without a prescription at a chemist.
- Explore different electrode positions. Some patients may achieve an effective, functional motor output from multiple electrode combinations (as many as four or five different combinations might be possible). These can be rotated on a daily basis, resting areas of skin while maintaining use of FES.
- Review general skin condition and skin care with the user. Dry flaky skin, lacks protection and cracks allow low resistance channels which concentrate charge. Multiple applications of moisturiser may be required after removing electrodes.

- If alternative electrode sites are not available, when the skin has returned to normal after resting, consider reducing the time FES is used and slowly building back up to normal use over a number of days.

Electrodes

- Change to blue pads electrodes (50x50mm), if the patient is not already using them. These use a gel for extremely sensitive skin, which adheres through body hair and gives optimum conductivity and conformity.
- Review electrode care. Electrodes should be given an application of tap water following use to help maintain their hydration. Skin cells and other debris should be washed off the electrodes after use to improve conduction. After use, electrodes should be attached to the on-side of the plastic release liner and kept sealed in their plastic envelope.
- Ensure that the patient is not using electrodes which have become dry, pitted or are holding debris (e.g. skin cells). If electrodes are used daily it is normal to replace them every 4 weeks.

Device Output

- If possible change to bi-phasic symmetrical waveform. This is a charge balanced waveform, which will prevent build-up of ions, altering the skin pH level, under each electrode.
- Consider decreasing: pulse width or current strength to lower the overall stimulation intensity or frequency to lower overall exposure to the electrical charge.
- Consider reducing extension and falling ramp to the minimum to decrease skin exposure to the electrical stimulus.

Other Options

In cases of chronic skin irritation, ask the patient's GP to refer to a dermatologist. Consider the option of the implanted stimulator, STIMuSTEP, which activates the common peroneal nerve directly and does not cause skin irritation. A dermatology review helps support the case for this