

TENS – a complement to wound healing

Is it possible that the traditional TENS (Transcutaneous Electrical Nerve Stimulation) pain relief method also has positive effects on the wound healing process?

The results of a preliminary project in Eksjö, Sweden indicate that this may be the case. When 46 chronic leg ulcers had been treated with TENS, an amazing 75% healed on average in 3.5 months.

TENS treatment on wounds gives:

• Pain Relief

A painful wound heals more slowly since the body produces adrenalin, which prevents the transportation of oxygen and nutrients to the tissue.

• Increased blood flow

The electrical impulses during TENS treatment also stimulate blood circulation, which probably accelerates the wound healing process. Circulation also increases because the patient becomes more mobile when the pain is reduced.

• Antibacterial effect

One study indicates that TENS increases the amount of leucocytes and phagocytes.

• Effects on a cellular level

The same study indicates that TENS increases protein production.

Treatment options

1. Two or four small electrodes are placed on both sides of the wound - see picture. Note! It is important that the patient has normal sensory of touch. Set the stimulator to high-frequency stimulation (Program 1 in CEFAR PRIMO). Turn on the stimulation and slowly increase the current strength until the patient feels a pleasant tingling sensation. A common treatment time is 30 minutes, 2 times/day.
2. TENS treatment on the acupuncture points of the hand has proven to give a general increase of circulation. Two small electrodes are placed on acupuncture points LI4 and SI3 - see picture. Set the stimulator to low-frequency stimulation (Program 2 in CEFAR PRIMO). The stimulation should give light muscle vibrations in the hand without being painful. A common treatment time is 30 minutes, 2 times/day.



Things to consider about TENS treatment

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- TENS does not replace surgical procedures if needed, or any other relevant wound healing treatment.
- Place the electrodes as close to the wound as possible, but on healthy skin. Leave the bandage closest to the wound in place during treatment, so as not to disturb the healing process.
- Draw a sketch of the wound once a month.
- The wound normally becomes bigger and fluid-filled in the first couple of weeks. This is normally a result of the cleaning phase.
- Treatment with antibiotics or the presence of other infections does not prevent TENS treatment. Contact a physiotherapist if the skin is red and infected so that the electrodes can't be placed properly. The therapist will suggest a new electrode placement, or advise you to temporarily discontinue the TENS treatment.

References:

1. TENS team, Municipality of Eksjö.
2. Wikström, S. O., et al. *Effect of transcutaneous nerve stimulation on microcirculation in intact skin and blister wounds in healthy volunteers*. Scand J Plast Reconstr Surg Hand Surg, 1999 Jun; 33(2): 195-201.
3. Gentzkow, G. D., Miller, K. H. *Electrical Stimulation for Dermal Wound Healing*. Clinics in Podiatric Medicine and Surgery, 1991 (vol. 8); 4: 827-841.
4. Kaada, B. *Promoted healing of chronic ulceration by transcutaneous nerve stimulation (TNS)*. VASA, Band 12, 1983; Heft 3: 262-269.



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