Use of TENS guidelines

TENS is an abbreviation of **T**ranscutaneous **E**lectrical **N**erve **S**timulation.
Transcutaneous means “across the skin”. In simple terms, a TENS unit stimulates your nerves via an electrical current through your skin.

The TENS unit is powered by a 9 volt battery which produces pain relieving electrical pulses. Either two (single channel) or four (dual channel) self-adhesive electrodes are applied to the skin and attached to the TENS unit with lead wires.

Modified electrical pulses are then passed from the TENS unit, via the lead wires and electrodes, to the nerves which lie underneath the skin surface. It works on the superficial and spinal nerves traversing to the brain.

TENS is a non invasive tool to assist with pain relief. Regular application of the TENs machine can result in reduced pain for up to 4 hours following use. TENs is considered a pain relief tool and not considered curative. The degree of pain relief declines with prolonged use; vaiation of electrode placement may combat this.

Setting the Mode

Three mode settings, Normal, Burst and Modulation.

Constant Stimulation at the frequency and pulse width setting. Most commonly used or acute pain relief via a gating effect.

Modulation. The frequency varies between different settings and uses a cyclical to help reduce nerve adaptation. This is useful for acute and chronic pain relief.

Burst Mode is useful in chronic pain relief. The unit will send through a burst of pain relieving power.

Setting the Pulse Rate (Frequency)

- Pulse Rate is the number of electrical pulses you will feel in one second. Frequency is measured in Hertz (Hz). Pain relief can occur at various frequencies. Acute pain is usually most effective between 80 and 120 Hz. Chronic pain can also benefit from lower settings 2 to 10Hz that stimulates an endorphin release. A setting between 35 ar
is commonly used to stimulate muscles for strengthening or even relaxation.

The following settings are recommended:

80 to 120Hz-acute pain

35-50Hz-muscle stimulation

2 to 10Hz – chronic pain

Setting the Pulse Width

These are the ON periods of the current. Generally speaking, pain relief will occur with low to mid time periods. Muscle stimulation requires a longer pulse width to successfully reproduce a muscle contraction.

You can alter the time that each pulse lingers before resetting. The time period is extremely small. It's measured in microseconds uS (1000th's of a second). While you may not notice the difference, your nerves can.

The following setting is recommended:

175 to 200uS
You can strengthen the power of your machine by increasing the pulse width.

What Time Duration Should You Use a TENS Machine?

The following settings are recommended:

Acute pain 20 to 60min up to four times daily

Chronic pain – 20 to 30min up to five times weekly

How Often Should You Use Your TENS Machine?

You can safely use a TENS machine as often as you like. Usually for 30-60 minutes up to 4 times daily.

TENS can provide relief for up to four hours.

Application of electrodes

Positioning
The electrodes are self adhesive; discontinue treatment if the resident develops a skin irritation following treatment.
The electrodes are normally positioned over the area of pain but other more advanced applications may often prove better. Please consult with physio for initial set up of electrode

positioning.
Examples

- Central neck pain

Position each set of electrodes on either side of the neck in the area of discomfort.

- Shoulder pain

Position each set of electrodes above and below the pain site
Position one electrode pad on the neck on the same side as the painful shoulder and the other paired electrode on the painful area; position the other electrode in a similar way

- Knee pain

Position electrodes around the knee joint above and below on each side

- Lower back

Position electrodes on either side of the back at the level of pain
If pain is out to one side position one of the paired electrodes over the site of pain next to the spineand the corresponding electrode close to the spine at the same level; position second electrode near same position.
Hygiene and housekeeping considerations:

- One set of electrodes per Resident
- Keep in packet with name of Resident and date of first use written on plastic packet with permanent marker
- Ultrasonic gel can be placed on the electrodes if they appear to be dry and not in adequate contact with the Resident
- Micropore can be used to tape electrodes in place
- Place TENs unit in carry case when not in use
- The 9 volt battery will require replacement depending on level if use.

Where and when to not use TENS machines

TENS electrodes **should NEVER be placed**:

- Across your eyes (intraocular pressure) or brain
- On the front of your neck due to the risk of acute hypotension (through a vasovagal reflex) or even a laryngospasm
- Through the chest (using a front and rear of chest wall electrode positions). Either side of your spinal column is permitted.
- Across an artificial cardiac pacemaker (or other indwelling stimulator, implantable cardioverter-defibrillators (ICDs), including across its leads) due to risk of interference and failure of the implanted device. Serious accidents have been recorded in cases when this principle was not observed.
- On open wounds or broken skin areas (although it can be placed around wounds).
- Over a malignant tumour (based on experiments where electricity promotes cell growth).
- Directly over the spinal column (although it can be placed either side of your spinal column).

- Internally, except for specific applications of dental, vaginal, and anal stimulation that employ specialised TENS units.
- Epilepsy patients
- On areas of numb skin/decreased sensation TENS should be used with caution because it's likely less effective due to nerve damage. It may also cause skin irritation due to the inability to feel currents until they are too high.
- Areas of Infection. There's an unknown level of risk when placing electrodes over an infection (possible spreading due to muscle contractions). Cross contamination with the electrodes themselves is of greater concern.
- Patients who are non compliant or have dementia

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