Services

Electrotherapy

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Electrotherapy is the electrical stimulation of tissues for therapeutic purposes. The therapy uses specific waves of a certain wavelength and frequency from the electromagnetic spectrum to produce the desired physiological and chemical changes in the body. Electrotherapy is used clinically to stimulate tissue healing, reduce pain and swelling and to restore normal muscle and joint function. Electrotherapy modalities offered at Lakeside Physiotherapy include: Ultrasound, Transcutaneous Electrical Nerve Stimulation (TENS), Interferential Current (IFC) and Electrical Muscle Stimulation (EMS).

**Ultrasound:** Ultrasound is generally used for the treatment of soft tissue injuries. Sound waves are sent into the tissues through a metal sound head containing a quartz crystal. A coupling gel is applied to the skin for efficient transfer of the waves. The sound waves cause molecular vibration which then turns into heat energy. Different frequencies can be utilized depending on the amount of penetration required. Ultrasound is generally painless and is used for the treatment of tissues such as muscles, tendons, bones, ligaments and joint capsules. Effects may include:

- Increased circulation and metabolism of cells
- Breaking up and softening scar tissue
- Reducing inflammation or swelling
- Diminishing muscle spasm and relaxation of muscles
- Relieving acute and chronic pain
- Enhancement of natural healing processes

**Transcutaneous Electrical Nerve Stimulation (TENS):** Transcutaneous Electrical Nerve Stimulation (TENS) is a small, portable device that sends electrical impulses through the skin via electrodes to help with pain control. TENS works by placing electrodes over painful areas, acupuncture points, trigger points, or over nerve roots. The electrical impulses stimulate proprioceptive nerve fibres to block the transmission of competing pain signals and stimulates the release of the body’s naturally occurring painkillers such as endorphins. TENS can be applied at high or low frequency and is a non-invasive safe way to help reduce both acute and chronic pain.

**Interferential Current (IFC):** Interferential Current (IFC) is the trans-cutaneous application of two medium frequency currents that meet in the tissues, or ‘interfere’ with one another, to produce a new current of lower frequency. The medium frequency currents encounter less resistance than low frequency currents when passing through the skin thus allowing more comfortable treatment at higher intensities necessary for treatment. The current is applied to the treatment area through four electrodes and generally feels like a tingling or ‘pins and needles’. Therapeutic effects of IFC can include:

- Reducing pain by blocking transmission of pain signals or by stimulating the release of pain relieving endorphins
- Reducing swelling
- Improving circulation
- Muscle relaxation

**Electrical Muscle Stimulation (EMS):** Electrical muscle stimulation (EMS) utilizes electrical impulses to stimulate muscle contractions. The current is applied to the skin through electrodes in direct proximity of
the muscle that is to be stimulated. The stimulus is not painful and can optimize treatment with the goals of:

- Muscle strengthening (minimizing atrophy)
- Decreasing muscle spasms
- Muscle re-education
- Increasing blood circulation to the treatment area
- Maintaining or maximizing muscle flexibility and joint range of motion