

**ELECTRO-MEDICAL THERAPIES SERIES**

*Part two of four*

**ELECTROMAGNETIC THERAPY (EMT)**

Electromagnetic therapies (EMT) are new to pain treatment. Electric currents are a stream of electrons and protons. Electromagnetic energy is quite different, as it is energy that is 50% electric, and 50% magnetic. The energy is comprised of sub-atomic particles not usually visible to the naked eye. A wave of electromagnetic energy that is generated by a powerful high wire can sometimes be seen. The human body is alive and functioning because electromagnetic energy is generated in all cells of the body.

**MEDICAL ADMINISTRATION**

Electromagnetic energy can be generated by devices that manipulate the electrical current that is found in every household electrical socket, or in a battery. The energy is condensed into a wave that can be sent into human tissue with a transmitter wand, probe, or a plate. The energy wave can be made to be administered in different frequencies and wave lengths that vary from a very slow, long wave to a very fast, short wave. Some of the electromagnetic energy waves are known to the public by the name given to the wave. Infrared is a low-frequency long wave, and the long, slow waves resemble radio waves. Laser can put out infrared, and also emit visible high energy frequencies which can cut, dissolve, or ablate tissue. In medical administration, long slow waves may penetrate several inches into the human body, while the short high frequency waves of laser and infrared will not normally penetrate human tissue by more than about an inch. Although not used medically, microwaves are another form of electromagnetic energy.

**PAIN TREATMENT**

The three major types of EMT are specifically laser, infrared, radio, or a combination of multiple energy waves. Some devices pulse the waves to get deeper tissue penetration. These devices are frequently known as "Pulsed Electromagnetic Energy Frequency," or PEMF. Lasers may be able to totally remove or dissolve a pain "trigger." For example, an experienced practitioner may be able to identify a pain trigger along the spine, or neuropathy in the face or extremity, and actually cure the condition with laser treatment. Infrared is the most effective for pain relief of a recent or active injury to the spine, or joint, or soft tissue. It is quite effective for contusions or joint swelling. Infrared will drive medication through the skin, so it is very effective if a cortisone cream is applied to the skin during infrared treatment. Radio energy waves penetrate deeply. Its best use appears to be for spinal conditions including herniated discs and other spinal inflammatory conditions, such as arachnoiditis. Deep penetrating radio waves will probably, at least in some cases, reach the interior of the spinal canal.

**WHY EMT WORKS**

Electric current therapy (EC) works primarily by anesthetizing nerves. For this reason, it gives temporary pain relief. EMT may provide some immediate relief like EC, but its main physiologic properties are suppression of inflammation, and stimulation of tissue regeneration. It reduces edema, forces out inflammatory toxins and biologic tissue waste from inflammatory/injury sites, and increases blood flow. These actions will promote tissue repair and regeneration.

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