



IFC Used at Our Facility

IFC stands for Interferential Current Stimulation.

Description of IFC Therapy

Interferential current (IFC) is characterized by the crossing of two electrical medium, independent frequencies that work together to effectively stimulate large impulse fibers. These frequencies interfere with the transmission of pain messages at the spinal cord level. Because of the frequency, the Interferential wave meets low impedance when crossing the skin to enter the underlying tissue. This deep tissue penetration can be adjusted to stimulate parasympathetic nerve fibers for increased blood flow. Interferential Stimulation differs from TENS because it allows a deeper penetration of the tissue with more comfort (compliance) and increased circulation.

Interferential current is essentially a deeper form of TENS. In essence, IFC modulates a high frequency (5000 Hz) carrier waveform with the same signal produced by a TENS unit. The high frequency carrier waveform penetrates the skin more deeply than a regular TENS unit, with less user discomfort for a given level of stimulation. Deep in the tissues, the carrier waveform is cancelled out, resulting in a TENS-like signal deep under the skin.

TENS and muscle stimulators use discrete electrical pulses delivered at low frequencies of 2-160 Hz per second. However, Interferential stimulators use a fixed carrier frequency of 5,000 Hz per second and also a second adjustable frequency of 5,001-5,400 Hz per second. When the fixed and adjustable frequencies combine (heterodyne), they produce the desired signal frequency (Interference frequency).

Interferential stimulation is concentrated at the point of intersection between the electrodes. This concentration occurs deep in the tissues as well as at the surface of the skin. Conventional TENS and Neuromuscular stimulators deliver most of the stimulation directly under the electrodes. Thus, with Interferential Stimulators, current reaches to greater depths and over a larger volume of tissue than other forms of electrical therapy. When current is applied to the skin, capacitive skin resistance decreases as pulse frequency increases.' For example, at a frequency of 5,000 Hz (Interferential unit) capacitive skin resistance is eighty (80) times lower than with a frequency of 50 Hz (in the TENS range). Thus, Interferential current crosses the skin with greater ease and with less stimulation of cutaneous nociceptors allowing greater patient comfort during electrical stimulation.

In addition, because medium-frequency (Interferential) current is tolerated better by the skin, the dosage can be increased, thus improving the ability of the Interferential current to permeate tissues and allowing easier access to deep structures. This explains why Interferential current may be most suitable for treating patients with deep pain, for promoting osteogenesis in delayed and nonunion fractures and in pseudarthrosis, for stimulating deep skeletal muscle to augment the muscle pump mechanism in venous insufficiency, and for depressing the activity of certain cervical and lumbosacral sympathetic ganglia in patients with increased arterial constrictor tone.

Since Interferential Therapy has been in use for many years, its effectiveness is well documented. Studies have shown that patients using Interferential Therapy after surgery develop fewer post-op complications than those relying solely on narcotics for pain relief. Interferential stimulation does not cause respiratory depression. Interferential Therapy aids in circulation, increasing the recovery time for patients. Multiple

treatments at home or work will typically speed the patient's recovery and allow earlier resumption of their normal lifestyle.

Although the thought of electrical impulses being sent into the body may seem frightening at first, all you really feel is a slight vibrating sensation. Unlike many drugs, Interferential devices have no known side effects.

Family Physiotherapy Centre Uses the Rich-Mar Dial and Button Controlled 2 Channel Stimulator



- **Stimulator** has two totally independent stimulation channels that can actually output four completely different waveforms and or treatments all at the same time. Can even use ultrasound separately while all four stimulation channels are running.
- Pulse rate options include High scan, Low scan, High-Low scan and Fixed rates.
- Can adjust pulse rates and many other parameters during the treatment.
- Microprocessor controlled 5 Stimulation Waveforms
- Waveforms available on *both channels* include:
- **Quadripolar IFC** (5,000 Hz carrier frequency with Normal Modes)
- **Pre--Mod IFC** (5000 Hz carrier frequency with Normal,

Surge, Co-Cont, and Alt Modes)

- **Hi--Volt** (High Volt Pulsed Current twin square wave, with Normal, Surge, Co-Cont, and Alt Modes)
- **Russian** (2500 Hz carrier frequency with Normal, Surge, Co-Cont, and Alt Modes)
- **Microcurrent** (.3 to 1000 Hz pulse rate in Normal Mode)
- Quad IFC has balancing feature allowing for treatment sensation focusing.
- IFC treatments have Vector massaging feature that can be turned on or off.