What Is Micro Current Therapy

Micro-Current Therapy is a breakthrough revolutionary process of supplying extremely low electrical current, similar to that found naturally in the body, to the affected pain area, where it can reach injured cells, potentially restoring and regenerating them to alleviate chronic pain.

The Human Body Is Electricity Based.
Electricity made inside the body cells, using low levels of electric currents at one-millionth of an Ampere—called a micro-current—provides power for the body. Injured cells resist the body’s natural micro-current. This causes the natural micro-current to take the path of least resistance around the area of injury rather than through it. This prevents the supply of blood, oxygen and vital nutrients to the injured cells, causing pain and retarding the healing process.

The Device Acts As An External Battery
This sends the body's natural micro-current through the area of injury. Therefore, the effectiveness of micro-current therapy stems from its ability to closely mimic the human body’s natural current. It acts at the cellular level and helps increase ATP production (the major energy currency molecule of a cell), which corrects and re-establishes proper cellular functions, thereby potentially accelerating the healing process.

Multiple Applications for Use
The properties and applications of micro-current therapy are: Pain Alleviations, Wound and Tissue healing, Reductions of swelling and Inflammation, Stimulation of soft tissue regeneration, Muscle rehabilitation, Lymphatic flow and detoxification. This also reduces reliance on drugs, some of which may have been proven to cause kidney, liver and gastro-intestinal problems.

Micro and Other Currents And The Body

The Micro Currents are finely tuned to the level of the normal electrical exchanges which take place at the body at the cellular level. These currents being more biologically compatible than any other electrical stimulation device, have the ability to penetrate the cell—as opposed to passing over the cell as other stimulation devices do. The Painmaster MCT technology is based on the ARNDT – SCHULTZ Law which states that: “Weak stimuli increases physiological activity and very strong stimuli inhibit or abolish activity.

A
(B) Painmaster patch micro-current penetrates the inflamed cells, restoring the essential blood supply, removing cell waste and bringing direct pain relief

Overall Benefits of Micro Current Therapy
(See appendix for references)

Studies have been conducted which demonstrate the efficacy of microcurrent electrical stimulation for:

- Reduction in pain improvement scores with accompanying substantial reduction in serum levels of the inflammatory cytokines IL-1, IL-6, and TNF-X, and neuropeptide substance P. Betaendorphin release and increases in serum cortisol.
- Significant pain reduction and increased range of motion in chronic back pain, fibromyalgia, cervical pain, Carpal Tunnel Syndrome, and arthritis patients
- Reduction of pain in degenerative joint disease of the temporomandibular joint
- Reduction in pain and increased mobility in peritendinitis calcarea of the shoulder
- Reduction in post-operative pain and edema,
- Reduction in healing time in soft tissue injury
- Increasing range of motion in ankle dorsiflexion in CP,
- Increase the rate of healing in injured athletes, control pain, increase the rate of fracture repair, and treat myofascial pain and dysfunction
- Reduction in pain at power-grip and lifting a weight load with pronated forearm, improvement in grip-strength in chronic lateral epicondylitis patients,
- Superiority to conventional physical therapy in number of treatments required to relieve pain, severity of side effects, total cost of treatment and patient satisfaction,
- Reduce severity of muscle damage signs and symptoms.
ATP and The Effects of Microcurrents
Adenosine triphosphate (ATP) is a nucleoside triphosphate used in cells as a coenzyme often called the “molecular unit of currency” of intracellular energy transfer. It is also referred to simply as ‘Cell Energy’. With the application of Microcurrents, ATP is replenished in injured tissues and the membrane active transport is increased, thus allowing the intra-cellular flow of nutrients and the extra-cellular flow of waste materials.

The Emergence Of Healthy Tissue
This process allows the emergence of healthy tissue. ATP also provides the energy source that tissues need to build proteins. Electrical signals initiate the healing process by replenishing ATP, increasing the membrane transport of ions, and facilitating protein synthesis. This allows the external microcurrent to run parallel with the body’s current. Therefore microcurrent electrical therapy can be viewed as a catalyst helpful in initiating and sustaining the numerous chemical and electrical reactions that occur in the healing process.

Augmenting Healing & Repair (Ref:1)
Microcurrent is a current in millionths of an ampere (micro amperage range). Bioelectric currents in the body are generally found to be in the micro ampere range. Microcurrent therapy is a low-volt pulsed micro amperage stimulation delivered to the body. Microcurrent therapy is based on the evidence that micro amperage currents closely approximate the naturally occurring bioelectric currents in the body and therefore effectively augment the body’s tissue healing and repair. Microcurrent therapy produces electrical signals like those naturally occurring when the body is repairing damaged tissues.

Tissue Trauma Or Dysfunction
Whenever there is tissue trauma or dysfunction, there is a decrease in ATP and disruption of the sodium pump. The cells increase their electrical resistance and the injured area will have a higher electrical resistance than the surrounding tissue. This decreases electrical conductance through the injured area and decreases cellular capacitance, leading to impairment of the healing process and inflammation. The cells become less able to receive nutritional input, water, minerals etc. nor are they as able to remove toxins.

All of these events are perceived by an individual as pain. This is not an environment that supports healing and tissue repair. Damaged tissue cells produce an electrical current through the loss of intra-cellular ions and the disruption of the sodium pump mechanism. This phenomenon is termed the current of injury. The current then changes the normal electrical potential patterns. The uninjured cells attempt to restore normal function to the damaged tissues by restoring the normal electrical potential. Correct application of microcurrent to injured tissue augments the endogenous current flow, allowing cells in the traumatized area to regain their capacitance.

Horizontal or vertical placements show. Each pad is placed on either side of the centre of pain.
Microcurrent Levels Critical To Results
The work of Cheng (Ref:2) has shown that under the influence of microcurrent electrical stimulation ATP concentrations increase when the applied electrical flow is in the 25 to less than 1000 micro amp range. What this means is that nerve cell membrane potentials, which normally are about -85 mV in healthy tissue, are re-established by microcurrent stimulation. Levels of intracellular metabolic waste (i.e. lactic Acid) are reduced and fresh concentrations of usable cellular metabolites are introduced unto the exhausted cell. At this point, the cell can enter its regenerative phase, pain levels are noticeably reduced and tissue regenerative functions can be re-established.

History of Micro Current Therapy (Ref:2)
Electricity was first used to treat surface wounds over 300 years ago when charged gold leaf was found to prevent smallpox scars (Robinson, 1925). There are several recent studies supporting the beneficial effects of treating wounds with an artificial current (Goldin, 1981; Jeran, 1987; Ieran, 1990; Mulder, 1991). Experimental animal wound models in the 1960's demonstrated that electrical intervention results in accelerated healing with skin wounds resurfacing faster, and with stronger scar tissue formation (Carey & Lepley, 1962; Assimacopoulos, 1968). Assimacopoulos (1968a) published the first human study using direct current for wound healing. He documented complete healing in three patients with chronic leg ulcers due to venous stasis after six weeks of electrical therapy. One year later Wolcott and Wheeler (1969) published the most frequently cited work in the history of electrical wound healing.

They used direct currents of 200-1,000 microamperes on 67 patients. Gault and Gatesn (1976) repeated the Wolcott and Wheeler protocol on 76 additional patients with 106 ischemic skin ulcers. Rowley et al. (1974) studied a group of patients having 250 ischemic ulcers of various types. These included 14 symmetrical control ulcers. The electrically stimulated ulcers had a fourfold acceleration in healing response compared to the controls. Carley and Wainapel (1985) performed one of the only studies on this subject published with equal and randomized active and control groups. All of these studies documented significant accelerated healing from electrical stimulation.
References:
1. PHYSIOLOGICAL EFFECTS OF MICROCURRENT ON THE BODY. PETER H. LATHROP, Ph.D

Appendix:

Micro Current Therapy is available for consumers without prescription in Australia through Painmaster
(Earthed Choice P/L trading as Painmaster)
Painmaster Micro Current Therapy is TGA, CE, FDA listed. It is a Class II Medical Device. ARTG ID: 220278