

What is Micro-Current Stimulation?

Where as ordinary, common TENS (Transcutaneous Electrical Nerve Stimulation) devices are used for pain relief by sending a milli-ampere blast of electricity to temporarily block the transmission of the pain signal to the brain (Melzack & Wall – Pain Gate Theory), micro-current, because of its close proximity to our own body's level of electrical current, is thought to work on a cellular level to aid in the activation of the body's natural self-repair processes. Micro-current is measured in millionths of an ampere; it is delivered on the same scale as the current the body produces within each cell. Restoring electrical balance after the body has been injured at a particular site, the Acuscope and Myopulse deliver transcutaneous electrical nerve and muscle stimulation that may well be called bio-identical.

Micro-current is becoming more of a common physical therapy modality because of its non-invasive nature and remarkable results. Providing bio-compatible electricity in millionths of an ampere, it has the ability to relieve pain, increase the speed of wound healing, improve protein synthesis, stimulate the regeneration of injured tissue, stimulate lymphatic flow and relieve myofascial trigger points.

Micro-current is subsensory and cannot be felt while it is being delivered because there is not enough current to stimulate the sensory receptors. Traditional electrotherapy units such as TENS, Interferential, EMS, and Galvanic deliver current in milliamps, which is a stronger, higher level of current. They can tetanize tissue, cause muscle contraction, severe tingling; whereas micro-current cannot.

Micro-current increases ATP production by 500%. ATP is the primary molecule from which our body produces energy, and it is found in every cell of all living tissue. In a study done by Ngok Cheng, M.D. entitled "*The Effects of Electric Current on ATP Generation, Protein Synthesis and Membrane Transport,*" it was demonstrated that ATP production increased five times with currents from 50 uA to 1000 uA. With currents exceeding 1000 uA, which is the milliamp range, ATP production leveled, and with 5000 uA ATP production was reduced. In this same study, micro-current was also shown to increase protein synthesis and improve ion transport through cell walls by normalizing cell membrane potentials.

Micro-current applied to injured tissue supports the natural current flow in the tissue, allowing cells in the traumatized area to regain their capacitance, or flow of electrons (the ability of cells to "hold a charge" and produce work/energy). Trauma affects the electrical potentials of damaged cells. The injured area develops a higher electrical resistance than the surrounding tissue. This eventually decreases electrical conductance through the injured area, and decreases cellular capacitance, leading to impairment of the healing process and often results in prolonged inflammation. When micro-current is applied, resistance is reduced, allowing bioelectricity to move freely once again through tissue and reestablish normal impedance values. This helps to initiate and perpetuate the many biochemical reactions that occur in tissue healing and reinstates the tissue's ability to complete the repair process.

Patient Benefits Include:

- speedier healing after injury; chronic pain relief and tissue repair;
- stress reduction;
- orthopedic injuries and post-operative recovery times shorten;
- myofascial pain relief; tendon and ligament damage returns to normal more quickly;
- reduced swelling and inflammation;
- releases muscle trigger points, knots, tightness, constriction, spasms, sprains, and strains.