

# Microcurrent Update

by Nelson Thibodeaux, President Texas Beauty Institute  
The Research of Non-Invasive Cosmetic Recovery

## Iontophoresis Elastin Infusion Therapy™

Topical human proteins have been notoriously expensive to produce and traditionally results in molecules too large and misshapen to actually penetrate deeply into the skin.

In terms of product penetration, Microcurrent offers specific **Iontophoresis that allows superior penetration of water based products into the skin**. The idea that the electrical current emits from one probe and returns to the other allows specific focus on products penetration, Chi's 1999 study also proved that the redness, irritation and inflammation of surgically traumatized tissue could be decreased significantly when treated with Microcurrent.

In terms of use for professional clients of Texas Beauty Institute, it was this feature of Microcurrent that resulted in the research and subsequent protocol of **Iontophoresis Elastin Infusion Therapy™**. TBI is the exclusive source for training and certification of the professional grade product, protocol and technique. The proprietary active ingredient **"Elastatropin"®** was discovered during a regenerative study by Dr. Burt Ensley, PHD, underwritten by the US Dept. of Defense, with a goal to help wounded soldiers heal faster and promote scar-less healing. The adaptation of the discovery for cosmetic recovery resulted in the most expensive ingredient ever used in manufacturing an aesthetic professional product.

Therefore, other than the advantages of Microcurrent, TBI enhances the results of treatments with a number of topical products many emerging from new Plant Bio-Technology. The unique combination provides the most aesthetic advantages to anti-aging and skincare professionals.

While TBI continues to research products compatible with Microcurrent to increase the "uptake" during professional applications, other products have proven great adjuncts to these treatments via at home applications. For example, Clayton Shagal of Quebec, Canada discovered a wound healing process being used in a German burn hospital producing expedited healing. Studies at the University of Vienna later resulted in the only clinically documented collagen (human protein) with the molecule integrity to penetrate the skin at the deepest level of the dermis. TBI prescribes this collagen to patients in Microcurrent therapy to be used at home on an everyday basis to enhance hydration and, in turn, gaining longer lasting and more dramatic results.

Another promising product from plant bio-technology is produced in Switzerland. **Regenesis A™** is used in a cellulite therapy at TBI. While Microcurrent has proven to provide beneficial lymphatic drainage, firming and toning and assists in the eradication of the appearance of cellulite, the treatment is limited to symptom issues. **Regenesis A™** however is a non-systemic treatment for the cause of cellulite. The product has the ability to inhibit estrogen from producing the enzyme aromatase that in turn bloats the lipocytes (in women very close to the surface of the skin therefore manifesting an "orange peel" dimpling, unattractive skin surface). The 8 week therapy combined with Microcurrent provides aesthetic relief after 5 treatments in 5 weeks and the product provides long-term results with the simultaneous at-home treatment, thereafter using the product 2 to 3 times per week instead of every day.

Microcurrent Technology is the only aesthetic treatment available that can physically firm and tone the skin through muscle re-education. This process of a gentle re-education of the fine facial muscles stimulates them with very small amounts of electricity. Microcurrent is a specific amount of electricity that mirrors the body's own natural current and works in harmony with the body's electrical system.

Microcurrent impulses trigger a chemical reaction at a cellular level to increase the effectiveness of how our bodies use ATP (adenosine triphosphate), a protein that is referred to as 'the energy of life'. Microcurrent mimics the electrical signals from the brain to the message center of the muscle, which is the tendon, the Microcurrent stimulates the tendon thus aiding in strengthening the muscles by bringing more definition to the face and body. By reproducing the body's own biological current we can re-establish muscle memory naturally.

For muscles to contract they need energy coming from adenosine triphosphate (also known as ATP.) ATP is the only energy source that muscles have to power their activity and these muscle fibers store only a limited supply of ATP. So, by increasing the supply of ATP to these muscle fibers Microcurrent plays a crucial role in cell metabolism and plumping up those slack muscles. Microcurrent also enhances fibroblast activity (collagen) and protein synthesis (elastin) because of the increased activity of ATP.

#### **What are Cosmetic Microcurrent Treatments?**

The cells of our bodies can be viewed as miniature batteries with their functioning being governed by low-level (Micro Current) electrical impulses. It has been postulated that these Micro Current Electrical impulses run our entire body's Physiological processes. Two German research scientists, Dr. Sakman and Dr. Neher won the Nobel Prize for their work on the response of Micro Current on the physiology of human cellular membranes.

Micro Current's electrical impulses, depending upon the frequencies used, would cause an opening in the "voltage sensitive cellular ion channels". Their research showed that each cell contains between 20 and 44 different ion channels, each being specific for a particular nutrient: calcium, magnesium, sodium, etc. Their research further showed that Diabetes was a deficiency of ATP-controlled ion pump or ion channel which interferes with pancreatic insulin production; Cystic Fibrosis was a result from a missing or deficient Chloride ion channel. There were also applications for heart disease, epilepsy and disorders affecting the nervous and muscular systems.

Later it was shown that this pulsation of the cell's membrane allowed for a process known as "Electroporation" whereby toxic material (including heavy metals) trapped inside the cell could be "electrically pulsated" out. Microcurrent became the therapy of choice in many autoimmune clinics around the world. Dr. Robert Beck of Santa Ana, California and a group at Albert Einstein College of Medicine in New York both did simultaneous research on the positive effects for treating AIDS, HIV and Hepatitis, Epstein-Barr and Herpes B. Users have experienced a negative surface anti-HIV after 30 days of treatment. The New York group showed that this minute electrical current (50 – 100 microamperes) altered the outer protein layers of the HIV virus so as to prevent its subsequent attachment to receptor sites in the blood. The group received a patent for their process of the application of Microcurrent impulses in cleansing blood.

In May 2003, Dr. Roderick MacKinnon and his research team further defined the mechanism by which Potassium and Sodium can enter the cell and create a balanced feedback loop. It is done through positive and negative ionic charges directed by nerve and muscle impulses and happens in a few milliseconds.

These electrical impulses are routinely measured by the Medical establishment and all EKG's, EMG's, EEG's and ECG's measure electrical activity within our bodies. The FDA has approved Micro Current therapy for the following conditions:

- To increase local blood flow and circulation
- To increase range of motion
- To decrease muscular spasm
- For neuro-muscular reeducation
- To prevent or retard muscular tissue atrophy
- For the treatment of calf (lower leg) venous thrombosis

Dr. Stuart W. Titus formed the Titus Research Foundation to explore and develop enhanced Micro Current technology, application procedures and to expand the areas of clinical treatment. After years of testing different electrical devices and being discouraged with the choice of Micro Current devices on the market, Dr. Stuart Titus decided to create his own line of device. His tireless dedication to the field of electro-medicine and his work on over 37,000 patients has yielded the highest quality devices.

#### **More about Cosmetic Microcurrent**

Microcurrent is a low level of electrical current that mirrors the body's own natural current, sub-sensory in most cases. It's proven and accepted properties and potential range in application; from wound healing, muscle rehabilitation, and macular degeneration of the eye to lymphodema and continue to assist medical practitioners with amazing results.

Most Microcurrent applications and results, whether they are medical or esthetic rely on the same mechanisms of actions.

Muscle re-education is most related to the term "facial toning". There are 32 different muscles of the face that are manipulated during the average Microcurrent treatment.

The 1982 Cheng study proves that ATP levels were increased by 500% on tissue that was treated utilizing less than 500 Ua. The study also indicated that ATP levels plummeted and depleted when treated with more than 500 Ua (visible muscle contractions.)

True Microcurrent uses less than 500 microamperes(Ua) and because of its low intensity cannot cause visible muscle contractions.

Bearing this study in mind, it is understandable why individuals who use EMS-type devices, such as some hand-held devices seen on TV that use as much as 5000 Ua do receive some instant tone, however, when used cumulatively, create flaccid and lifeless muscles that are completely void of ATP.

The idea that ATP can be stockpiled or stored is the reason why Microcurrent treatments results are cumulative and become better as a series of treatments progresses.

Aside from muscle re-education and massive increases in ATP levels, Microcurrent has other proven benefits for esthetic applications. Emil Y Chi, PhD, director of the University Of Washington's department of pathology, performed clinical studies using Microcurrent equipment. He notes," The fact that technology works in harmony with the body is evident. Examination of the skin tissue treated with Microcurrent showed a 45% increase in the number of elastin fibres in the dermis, and the length of the fibres on average doubled. The collagen

thickness in the connective tissues increased 10%, And the numbers of blood vessels increased by 35%. The application of Microcurrent to skin and tissue produced a firmer and tighter feeling on the skin surface.

Many of the studies detailing the massive increase in speed regarding wound healing refer to ATP as one of the attributing factors. The other attributing factor is an increase in blood circulation. Blood circulation has everything to do with the function, condition, color, and overall health of the skin, as underlying tissue.

Chi's 2003 study performed at the University of Washington further notes a 35% increase in blood circulation. Lymphatic drainage is a very overlooked treatment in esthetics, although it has been gaining momentum in recent years. Clinical studies performed using Microcurrent at Hong Kong's Tuen Muen Hospital in 1988 indicated that Lymphatic by 28% on post-cancer patients suffering from lymphodema.

Chi's 1999 study also proved that the redness, irritation, and inflammation of surgically traumatized tissue could be decreased significantly when treated with Microcurrent. Related to this, the buildup of hardened collagen that makes up scar tissue was noted to be 3 to 5 times less in tissue treated with Microcurrent. Further studies also indicated an amazing dispersion of existing scar tissue when treated with Microcurrent. This indicates that in the realm of plastic surgery, you can see the obvious place for Microcurrent technology. By administering a series of treatments before surgery, muscle and tissue condition is maximized, inclusive of an excessive storage of ATP. Microcurrent treatment of sutures and trauma post-op decreases the down time by reducing inflammation, redness and irritation, while enhancing the healing ability and minimizing scar tissue. Post-surgery treatments also are vital to maintain the results of the surgical work.

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TBI continues to research Microcurrent advances with focus on aesthetic treatments by stimulation of more pro-active production of ATP and returning to the body critical proteins creating a natural, non-invasive healing process resulting in Maximum Cosmetic Recovery.

TBI provides Microcurrent equipment (operating in the range as noted in this article), product, training and marketing assistance to professional s interested in natural aesthetic recovery. TBI is the leading source for chiropractors adding anti-aging to their practice.

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Other than references as noted additional information sources included Microcurrent.net and AltMed.com.