

Keeping

Current

By Amy E. Hamaker

Electricity-based therapies can provide lasting results for clients.

ELECTRICITY—the very mention of the word evokes a host of sensory images: the crackle of lightning, the smell of ozone and the prickly feeling of static on the skin. The image that may not come to mind for most is that of the natural rhythm of the body. Truly, electricity is one of the most sensible elements that can be used during esthetic treatments because of the body's nature as a complete electrical system.

"Every single function in the human body is electrically based. Organs, glands, cells repairing themselves—all of these are electrical events," says Darren Starwynn, O.M.D., president of MicroLight Research in Phoenix. "Electricity can enhance or boost any function in the body. It has the ability to reach everywhere through the fascia, which rapidly conduct current. Cutting-edge research shows that light and electricity travel almost instantaneously throughout the body."

"Frequently taking low levels of electrical current on a regular basis is highly efficient in healing injuries," adds David Suzuki, president of Seattle-based Bio-Therapeutic. "Injured

athletes, for instance, will continuously wear a low-level electrical device to help the body recuperate; the muscles relax, the circulatory system improves and healing occurs up to five times faster. We can measure this improvement externally on ulcer wounds or burns."

Even as electricity can stimulate some systems, it can desensitize others. One example is the TENS (transcutaneous electrical nerve stimulation) device for controlling pain. "When a person experiences pain, it's really an electrical signal that alerts the brain as a defense mechanism," explains Suzuki. "This mechanism can be short-circuited when an electrical pad with the right frequency is applied to stimulate sensory nerves to mute or block pain signals."

These applications, although beyond the scope of a day spa, point to the importance of electricity to the body's systems as a whole, including the skin. With the rise of advanced machinery in the industry, it makes sense to take a closer look at the options available.

Current Events

The two most common electrical currents estheticians use are galvanic and high frequency. Galvanic current, a constant and direct current (traveling in one direction) on the miniamp scale, with two poles (one positive and one negative) is mainly used for desincrustation, to soften and emulsify oil deposits and blackheads in the hair follicles, and iontophoresis (or ionization), which uses the positive pole to introduce water-soluble products deep into the skin's layers.

"Nothing can replace galvanic current for desincrustation on really oily skin," says Annet King, director of training and development for the International Dermal Institute, Carson, California. "Its use in iontophoresis is also valuable for conditions such as hyperpigmentation; the electric current can push the active ingredients down to the basal skin layer, where the melanocytes are located."

Galvanic is also well-suited for skin stimulation, according to Christian Jurist, M.D., a dermatologist and national education director for Cosmopro in Miami. "Galvanic technologies are very beneficial for the stimulation of skin circulation with vasodilation/vasoconstriction of the blood vessels," he says.

"Galvanic is a very old technique, but there are some drawbacks," says Danielle Tsoklis, director of education and development for Silhouet-Tone,



balanced waveform alternates the current: 3.5 seconds positive, half a second neutral, 3.5 seconds negative, and then the cycle repeats. We've found this promotes 30% more product penetration and eliminates the redness and itchiness."

High frequency, a Tesla current with a high rate of oscillation, is primarily used to produce heat and kill bacteria on acne-prone skin, and after extraction and waxing. "High frequency is primarily used as a surface germicidal," says Dr. Mark Lees, esthetician and president of Mark Lees Skin Care, Pensacola, Florida. "It also works well on redness and swelling; it warms the tissue, but doesn't provide enough stimulation to cause the skin to turn red."

Microcurrent, although not a new technology, has been gaining in popularity in the esthetic field. Originally introduced in the medical industry in the 1960s, microcurrent has the ability to firm facial muscles, drain the lymphatic system, boost cellular activity and ionize product for improved absorption. It uses an extremely low amperage (in the microamp range, lower than that of galvanic or high frequency) that mirrors the body's own electrical impulses. "Microcurrent not only aids in the penetration of products, but by sending a certain amount of energy, it can really boost the cellular energy in muscles," explains Sonia Boghosian, president/CEO of Europro Equipment, Camarillo, California.

In microcurrents main benefit of facial contouring, facial muscles can be shortened or lengthened through the use of an extremely low

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Quebec, Canada. "For example, it's a direct current, so the client must hold an electrode. When you use one polarity only a concentration of ions builds directly under the electrode on the skin, preventing part of the product from penetrating. It can also create a mild redness and itchiness. A galvanic form called bipolar

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current during the course of a single treatment. Microcurrent's electricity level is far below any pain threshold, and will not visibly stimulate muscles. (Devices that cause visible muscle contractions are considered Class II medical devices by the U.S. Food and Drug Administration, and aren't meant for esthetic use.)

Suzuki believes that iontophoresis is one of the most undervalued properties of microcurrent treatments. "Galvanic absolutely aids product penetration, but where those products penetrate, and how much penetrates, can't necessarily be controlled. The current flows from positive to negative, and when a client holds a galvanic grounding pole in one hand and the esthetician applies a probe to the skin, it really isn't known exactly *how* that current goes from one point on the body to another. Since microcurrent probes are held no more than two inches apart, this can be better controlled, as well as how deeply the current travels before it returns to the other probe."

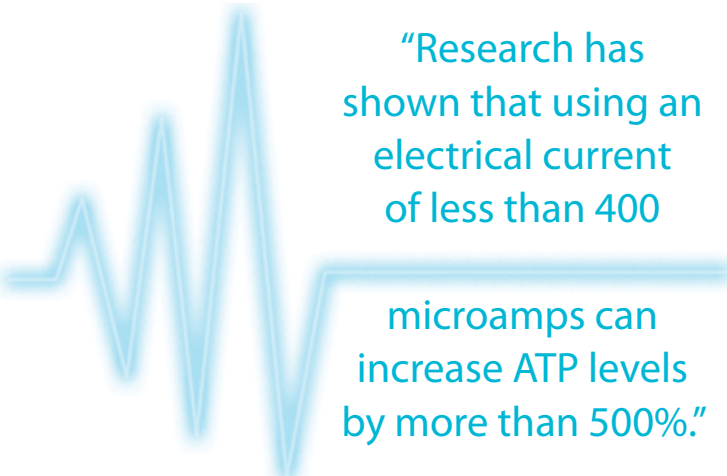
Like all forms of electrical therapy, microcurrent increases circulation, thereby increasing oxygen flow; it also stimulates fibroblasts, which produce collagen. One of microcirculation's biggest benefits, however, is the boosting of adenosine triphosphate (ATP), an energy carrier molecule that transfers energy from chemical bonds to endergonic (energy absorbing) reactions within the cell for building proteins, contracting muscles and other biological functions (Source: University of Bristol Department of Chemistry). "The more ATP you have, the better your body functions on a cellular level," says Suzuki. "Research has shown that using an electrical current of less than 400 microamps can

Electrical stimulation isn't just being used for pain reduction on a medical level. According to Darren Starwynn, O.M.D., president, MicroLight Research, Phoenix, current can also be used to affect systems in the body in much the same way as reflexology or acupuncture points. "The face is a microsystem—the map points corresponding to other body systems are located there, just as they are in other microsystems, like the feet," he says. "By treating areas on the face, we can connect indirectly with the different systems in the body. We've measured problems through acupuncture trigger points, such as sluggishness or weakness in the liver, which shows up as a resistance at that point. We've placed extremely low-level microcurrent probes (esthetic microcurrent actually is three to four times more intense) on those points for approximately 20 seconds, and if the points have been well-chosen, the resistance on that trigger point is lessened. It really makes us rethink the notion that electrical stimulation is simply a local stimulation."

increase ATP levels by more than 500%. Once you've crossed the 400 microamp border, however, not only will the body not synthesize ATP, levels will actually drop."


Alterations of the basic microcurrent form can make the technology more targeted. Bio-Therapeutic's new Suzuki Sequencing allows for more customized treatments based on an individual's tolerance for the current. "The Sequencing technology begins with a targeted response level of electrical current (for muscle re-education, for instance)," says Suzuki. "The target is a norm for the majority of the population, but genetically we're all different, so the technology creates a 25% to 50% variation on either side of the target to allow for individual results. The computer is fed information on the percentage of skin conductivity, the percentage of skin resistance and how much current the tissue is absorbing, and the computer adjusts the current flow up to 1,024 times per second."

Silhouet-Tone's microcurrent equipment uses impulse, or pulsated, microcurrent. The technology is based on the Nobel Prize-winning work of Drs. Bert Sakmann and Erwin Neher, who in 1991



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discovered how ion channels allow electrically charged particles to pass through human cellular membranes. “By modulating the current’s polarity slightly to match the cellular frequency, you open the ionic membrane of the cells for a greater acceptance of the microcurrent,” explains Tsoklis. “A small pause between the negative state and positive state allows for skin cells to relax, to avoid exhaustion. For esthetic purposes, this gives better, faster results.”



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“The things I believe really seem to drive effectiveness are microcurrent plus LED, as well as having a variety of waveforms and frequencies that allow the microcurrent to be tailored to different effects,” adds Starwynn. “For instance, a wave form called a modified square wave, which produces a spike, then a square-shaped wave in the microcurrent range, is more aggressive in lifting the facial muscles; for collagen production, a sloped wave form works best.”

Shocking Results

Although electricity can arguably benefit clients of all skin types thanks to the benefits of improved circulation, there are those who stand to benefit more than others. “The amount of help a client can receive from these treatments has a lot to do with the client’s own electrical polarity,” says Boghosian. “Age has a great deal to do with it as well. The older we get, the more electricity channels we have in the body, creating problems with low circulation.”

Suzuki agrees: “The most reactive individuals are the younger ones. It’s like working out—the

younger you are, the less you need it, but the faster you’ll see results. Electricity technology is relative to the mindset of the younger generation as well, who grew up with the Blackberry and cellular phones. They love the science of skin care.”

Contraindications must be taken into account before offering electrical treatments, including pregnancy, those who wear a pacemaker or who have metal bone pins, epilepsy, thrombosis, phlebitis and cancer. “If I feel I have questions about a health condition, I won’t use electricity, but it’s really more for liability issues,” says Lees. “We screen for all of these conditions when we first take on a client.”

The one thing everyone agrees upon is the usefulness of electricity-based services. “The three machines I can’t work without would be the steamer, high frequency and galvanic,” says Lees. “I’ve been using electrical current since I got out of school in 1979, and I started using microcurrent in the early 1990s.” “I think they’re phenomenal tools that produce amazing results,” adds King. “You must be able to offer solution-oriented treatments—the days of frou frou facials are completely over.”

The biggest problem experts see in offering electrical therapies is a lack of understanding and in-depth training. “Electrical therapy is the biggest area of weakness in the training of most estheticians; most have never really learned it properly at the state board level, and they end up being frightened of the technology,” says King.

Jurist agrees: “Unless skincare professionals re-educate themselves in these basic and useful technologies,” he says, “I think we’ll see some unwanted stagnation, losing the advantage of an inexpensive, easy and safe road to beauty.”

Thanks to the boom in the medical spa industry, however, interest in electricity-based therapies is growing from consumers and the spa industry alike. “I believe what you’ll see in the future is more intelligence and sophistication in the use of technology across the board, including electrical current,” Suzuki says. “There are some scientists who are predicting low levels of electrical frequency, stem cell research and more natural supplements for the future of skin care, and I think that’s right on target.” ●

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