



Lights' Action

By J. Elaine Spear

“LED light therapy is one of the most exciting skincare innovations to come along in years,”

says Bella Schneider, founder of La Belle Spas and 5 Star Formulators based in Palo Alto, California. “It’s the Holy Grail of corrective skin therapies that can be used alone or in combination with other modalities to deliver genuinely dramatic results.”

“We got our first LED device several years before it really exploded in the spa market,” says An G. Hinds, owner of Catherine Hinds Institute of Esthetics in Woburn, Massachusetts. “Our first machine had a hand piece with an aperture that was so tiny it took a full hour to do a face treatment. Today, we primarily use two Silhouet-Tone Soli-Tone machines with much larger hand pieces. We use these machines to lift, tone and smooth the skin. Even though our students perform all skincare services, we still charge \$55 per treatment. Bookings of our Soli-Tone machines are skyrocketing.”

“When we first came out with our Max7 LED machine in 2003, people thought it was hocus-pocus because they didn’t understand the technology,” says Jennifer Brodeur, founder and director of market intelligence for Flip4. “‘Really, a little colored light can do all that?’ they would say doubtfully. Today, physicians and skincare therapists all over the world are talking about LED light therapy because it produces such tangible results.”

Esthetic Uses

LED machines use photomodulation (also called photopulsation or photobiostimulation) to prompt the skin's fibroblasts to produce collagen and elastin proteins deep within the dermis. "It's a natural photo-biochemical reac-

Rejuvalight primarily to stimulate normal cell function, which brings water back to the cells and improves the overall look of the skin. We sell separate treatments that take about 45 minutes each. Most clients start with a series of three treatments but they usually go on to six, with monthly maintenance treatments after that. Our clients love the results; we've never had a complaint."

In addition to skin rejuvenation, LED lights have proven useful in treating acne and improving cellulite treatments. In acne treatments, LED blue light therapy—a wavelength that penetrates only to the sebaceous glands—produces singlet oxygen, a bactericide that's deadly to *P. acnes*. In 2003, the OmniLux Blue (415nm) by Alderm

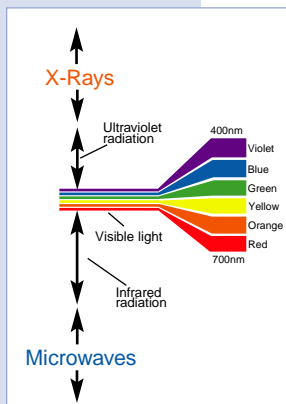


Courtesy Silhouette

LED Blue light therapy produces singlet oxygen, a bactericide that's deadly to *P. acnes*.

Measuring Emissions

All wavelengths or light colors are measured in nanometers (nm). The majority of diodes used in skincare devices emit visible light (all the colors of the rainbow) with wavelengths ranging from 400 nm to 700 nm. Some also extend into the near-infrared range. Dreamlight by Europro, for instance, includes near-infrared light therapy, a wavelength that has been measured spectroscopically to penetrate the skin to 23 centimeters!



tion that's similar to photosynthesis in plants; it works by triggering the body to convert light energy into cell energy," explains David McDaniel, M.D., dermatologist, research scientist and co-founder of Light BioScience in Virginia Beach, Virginia. In skin care, LED technology is extremely attractive because it doesn't injure the skin, calms rather than inflames tissue, is quick and painless, and can be used on all skin types and colorations.

"We bought one Rejuvalight II from Cosmopro two years ago, and the response has been so good that we purchased a second one last year," says Desiree Dosanjh, spa director at Boca West Country Club Spa in Boca Raton, Florida. "Our average client is 66 and we use the

received Food and Drug Administration clearance to make medical claims for treatment of this skin condition! (For more on acne treatments see "All Clear" in the March issue of *DAYSPA*.)

As early as 2003, Victoria Stetson, a massage therapist based in Scottsdale, Arizona, reported that using LED light therapy in conjunction with lypossage, a manual body contouring technique, was producing stellar results. "When done alone, lypossage is very effective, but it can be quite painful when clients have hard cellulite that's sensitive to any sort of pressure," says Stetson. "By combining lypossage and LED therapy, I only have to do a light massage to get significantly better results. I've also found that, when using the LED therapy in conjunction with lypossage,



Combining red wavelength LED with vacuum as does the Lumicell Touch is producing excellent results on cellulite.

Courtesy Silhouet-Tone

there's less swelling in the lymph nodes, and microcirculation is significantly improved."

The newest buzz surrounding cellulite treatments is the use of specially calibrated LEDs and vacuum. The Silhouet-Tone Lumicell Touch device, for instance, is dedicated solely to the treatment of cellulite. "The Lumicell Touch emits a red wavelength and has a vacuum action that helps break up the cellulite," says Hinds. "We've had

excellent results. Like any cellulite treatment, though, you have to have motivated clients. They still need to drink plenty of water, exercise, watch their diets and be faithful to their home-care regimens. A full-body Lumicell Touch treatment takes 45 minutes to one hour when done by our students, and we recommend 12 to 18 sessions."

Multitasking

Once strictly single-purpose machines, many LED units now have multiple treatment programs with a wide array of wavelengths that penetrate the skin at different levels and treat a variety of skin conditions. The most common multi-function design involves interchangeable red (anti-aging) and blue (acne) hand pieces. LiteLift Medical LED Light Therapy by InnerAct provides both photorejuvenation and acne treatments. These two modules (red and blue) can be used alone, or mixed for a variety of results. LiteLift features a large array of LEDs that are designed as a canopy to treat the entire face at once.

The multitasking Max7 by Flip4 has a unique, hands-free robotic arm that administers computerized treatments and frees up estheticians' time. It has seven polychromatic and seven monochromatic programs that specifically treat dry, normal, combination, mature, sensitive and blemished skin. "The Max7 includes a completely customizable setting, as well as a violet LED that helps relax and calm clients," says Schneider, who owns three Max7 units. "I've found that LED therapy has value for every skin type and in nearly every skincare treatment. I think we're just discovering the potential of this technology."

According to Hinds, the Silhouet-Tone Soli-Tone LumiLift program features LED red light therapy (640 nms),

Courtesy Silhouet-Tone



Courtesy Silhouet-Tone



By combining light therapy with microcurrent and high frequency, the Soli-tone produces visible results.





Courtesy Sybaritic



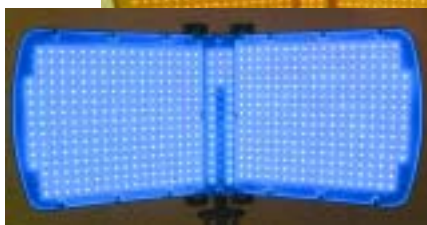
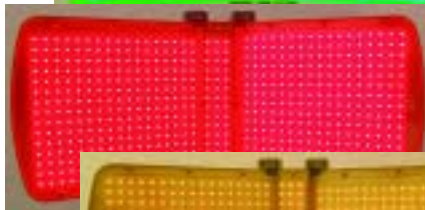
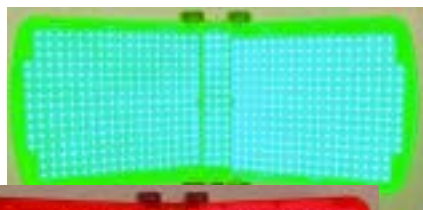
Before



After

Courtesy Sybaritic

Computerized pre-set treatment protocols let one device provide several types of services with different color wavelengths and microcurrents.



Courtesy Sybaritic

microcurrents and high-frequency polarized currents with separate programs for the face, eyes, chest and hands. The LumiFacial program emits four different wavelengths and offers a total of 12 facial treatments for several skin conditions including:

- Acne vulgaris
- Acne with irritation
- Pigmentation problems on normal to dry skin
- Pigmentation problems on combination to oily skin
- Redness on normal to dry skin
- Redness on combination to oily skin
- Photoaging on normal to dry skin
- Photoaging on combination to oily skin

FDA Clears Wrinkle Treatment

Following on the heels of FDA clearance for the Alderm Omnilux Blue Light LED system to treat moderate inflammatory acne, Light Bioscience GentleWaves LED Photomodulation System has been cleared for treatment of periorbital (eye area) wrinkles and rhytids. To date, GentleWaves is the only LED device that has received the FDA's blessing to make medical claims associated with the physical improvement of aging and sun-damaged skin.

To assess the safety and efficacy of GentleWaves, the FDA reviewed data from a multicenter clinical study of 54 patients. After eight GentleWaves treatments, more than 50% of all patients showed measurable improvement in periorbital wrinkle reduction. Furthermore, of those with more severe wrinkles, 94% exhibited visible improvement.

The Spectra Biolight I-LED, a super-intensity cell-modulation system newly introduced by Sybaritic, combines LED skin rejuvenation with microcurrent technology to treat acne, hyperpigmentation, redness and photoaging for even the most sensitive skin.

The Spectra Biolight includes a large, adjustable LCD touch screen panel with pre-set treatment protocols, making it easy to use. The wraparound facial panel of 2,596 LED lights includes red, yellow, blue and green exact wavelength light therapy. Four treatment hand pieces combine the I-

LED light therapy with microcurrent, ranging from 1 hertz to 500 hertz, for applicable protocols.

Expanding Applications

Mitchel Goldman, M.D., medical director of La Jolla Spa MD in La Jolla, California, reports that he's using LED technology in combination with many skincare therapies to achieve enhanced results. His medical spa is using the GentleWaves system to treat sun damage and erythema (redness), and to improve uneven skin tones. Goldman also instructs his therapists to use LED light therapy after chemical peels and microdermabrasion to improve results and reduce inflammation. Other physicians are using LED light therapy after Botox injections, dermal fillers and deeper chemical peels.

"From an esthetic point of view, I find that an LED treatment leaves the complexion glowing, reduces the appearance of telangiectasias (dilated superficial blood vessels), and calms and purifies the skin," says Schneider. "I've also inadvertently discovered that this light-based therapy helps clear up cold sores. In our spas, I frequently recommend combining LED with our Jet Lag Rejuvenation and Compression therapies, as well as traditional facials, for maximum results.

These treatments complement each other brilliantly, and are gentle and soothing as well."

Photodynamic therapy (PDT) goes one step beyond light therapy. It's based on the discovery that selected photosensitive biochemical agents are activated for a specific purpose by exposure to particular frequencies of light. The agent used most often in PDT research so far is the 5-aminolevulinic acid (5-ALA), but other agents are being studied. When a specific wavelength of light hits the photosensitive agent, it absorbs the energy and is activated to



Medical spas like La Jolla Spa MD are using LED technology to enhance other treatments.

Courtesy La Jolla Spa MD

Expect Results

LED light therapy elicits a gradual improvement in the skin, and should never be confused with the dramatic and immediate results of deep resurfacing procedures or surgical face-lifts. With that said, it's important to know that not all LED devices are created equal. If you're getting less than stellar results, you should consider investigating other machines on the marketplace.

In "Light-Tissue Interactions: Photothermolysis vs. Photomodulation—Laboratory and Clinical Findings," a study presented at the American Academy of Dermatology Annual

Meeting, Dr. David McDaniel, co-founder of Light BioScience in Virginia Beach, Virginia, comments, "LED light therapy is similar to pushing a button to activate an assembly line. Photomodulation can be used to either accelerate or inhibit cell activity. Success is entirely dependent on having the precise intensity, wavelength and pulse pattern to regulate specific cell activity. We've conducted many studies over the past six years that have shown that even the slightest error can render the treatment useless."

Finding Lights

Want more information on LED devices? Try these sources:

AAA Spa Depot, Thera-Light, Sherman Oaks, CA, 800/900-0987,
www.aaspadepot.com

Alderm, OmniLux Blue, Irvine, CA, 949/250-8955, www.alderm.com

BioScience, GentleWaves, Virginia Beach, VA, 888/647-6219,
www.lightbioscience.com

Cosmopro, Rejuvalight II, Daytona Beach, FL, 866/698-6580, www.cosmopro.com

DermaVista, The Cold Light, Birmingham, AL, 800/767-6765,
www.dermavista.com

Europro, Dreamlight, Camarillo, CA, 800/272-1716, www.biojouvance.com

Flip4, Max7, Saint-Julie, Quebec, Canada, 450/446-2188, www.flip4.ca

InnerAct, LiteLift and Acnelift, Reno, NV, 888/212-6342,
www.inneractproducts.com

Revitalight Skincare Systems, Chicago, IL, 888/807-7546, www.revitalight.com

Silhouet-Tone, Lumicell Touch and Soli-Tone Lumilift, St. Albans, VT,
800/552-0418, www.silhouet-tone.com

Sybaritic, Spectra Biolight I-LED, 800/445-8418, www.sybaritic.com

SynergieLT, 800/875-6251

produce the desired benefit. Alderm recommends using its OmniLux Revive LED machine in conjunction with 5-ALA to treat non-melanoma skin cancers in just one to two visits!

regimen for at least four weeks. This is followed by four to six targeted skincare treatments at our salon. If erythema is present due to sun damage or rosacea, we then recommend a series of six Revitalight LED therapies—one every two weeks—followed by a monthly LED treatment to maintain the results. We also use the Revitalight blue LED to help treat acne-prone skin.”

Light Ahead

While LED devices have been around for decades, it has only been since NASA's first studies in the late 1980s that LED technology seriously got underway. When Light BioScience introduced GentleWaves LED Photo-modulation in 2003, there was no stopping this impressive science. “Use of this technology has significantly expanded over the past two to three years,” says Dr. Goldman. “I believe that future growth of LED light therapies will be partly fueled by combining this technology with many other treatment modalities.”

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“LED light therapy is great for specific conditions, and I certainly look at it as an important piece of the entire skincare puzzle,” says Mark Lees, Ph.D., esthetician and president of Mark Lees Skin Care in Pensacola, Florida, who uses the Revitalight. “It doesn't replace microcurrent, AHAs or a good extraction facial, but it does give us better treatment options for certain skin conditions. When clients come to us with photoaged skin, for instance, we put them on a home-care

Purdue University researchers, for instance, are experimenting with vertical strips of LEDs to light rows of food crops that may one day sustain human colonists on Mars. Physicians are successfully treating vitiligo by using a combination of LED light therapy and superoxide dismutase compound (SOD) to re-pigment the skin and even halt the progression of this disorder. Children with cancer are being treated with LED photomodulation at the Medical College of Wisconsin to quickly.

halt the progression of this disorder. Children with cancer are being treated with LED photomodulation at the Medical College of Wisconsin to quickly heal painful mouth ulcers that are caused by certain forms of chemotherapy. Notes one researcher, “Without LED therapy, many of these children would have to endure feeding tubes.”

LED therapy is expected to play a key role in hair loss treatments.

LED light therapy is also expected to play a key role in hair loss treatments. It may become standard in the treatment of herpes simplex, as well as the varicella-zoster virus (shingles and chicken pox). Europro has conducted a promising study on LED light and hyperbaric oxygen to accelerate wound healing. Many physicians believe that LED light will play an important role postoperatively, beginning immediately following surgery.

Based on ongoing studies, Dr. Goldman predicts, “By the year 2015 or so, we’ll be able to drink 5-ALA and then step inside a cocoon-like laser machine where our entire body will be treated with an IPL—the result: obliteration of precancerous lesions wherever they’ve developed and even skin pigmentation from head to toe. I’m referring to IPL for now, but in a few more years, LED technology could very well be involved.” ♦

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