

# Aesthetic Buyers Guide®

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## GentleWaves Establishes Role as Skin Fitness System

By Bob Kronemyer, Associate Editor

The GentleWaves® light emitting diode (LED) Photomodulation® system from Light BioScience, LLC (Virginia Beach, Va.) can be used for both anti-aging therapy and environmental protection. “New research indicates GentleWaves has the ability to suppress some of the damage that leads to photoaging of the skin,” said David McDaniel, M.D., director of the Laser Skin & Vein Center of Virginia, in Virginia Beach. “Most therapies that cosmetic surgeons use today are not anti-aging,

**“GentleWaves has the ability to suppress some of the damage that leads to photoaging of the skin.”**

but are really age-reversal. We don't have many treatments that provide beauty maintenance or healthy skin maintenance. Most therapies simply treat the damage that has already occurred from the environment or from the sun.”

In contrast, GentleWaves was originally conceived to be both anti-aging therapy and a preventive measure with an antidote for aging. “The GentleWaves Skin Fitness System™ is designed to reverse the visible signs of photoaging, while maintaining healthy skin or skin fitness,” Dr. McDaniel said. “GentleWaves also has the ability to treat and potentially neutralize, or even reverse, some of the acute injuries that cause photoaging.”

**The mechanisms for** producing chronic photoaging are triggered by acute injuries from the environment. “Environmental injuries, such as ultraviolet light from sunlight or tanning beds, injure the

skin,” Dr. McDaniel explained. “The expression of genes in the various cells are turned up or down in a pattern that reflects that injury. As free radicals are released, inflammation is produced, as well as increased stimulation of the enzymes that degrade the dermal matrix.”

A person exposed to a little bit of sun at a low level over a long period of time will develop chronic inflammation and chronic MMP upregulation (increase in the levels of collagenase-type enzymes). “This makes you look old, prematurely,” Dr. McDaniel said. There are also different degrees of acute injury. For example, “if you get an overdose of the sun and actually become burned, your skin becomes red and tender – the signs of inflammation. And if you become really burned, you blister and peel.”

**The end result** of low-level chronic inflammation and chronic upregulation of these enzymes is loss of skin elasticity, loss of skin tone, wrinkles, lines, fur-

**“If you treat the cells with GentleWaves, you might bring the gene activity back to its base-line level, thus neutralizing the damage.”**

rows, sagging skin, brown spots and broken capillaries. “These are all things we see with aging,” Dr. McDaniel noted.

At the *American Society for Laser Medicine and Surgery* meeting in April, Roy Geronemus, M.D. presented results of a solar simulation study. An established human fibroblast tissue culture

was exposed to a simulated one minimal erythema dose of UVA1 (and also mixed UVB/UVA) light. This was followed by exposure to the 590 nm GentleWaves light at a setting of 0.1 J/cm<sup>2</sup> at one and four hour intervals post UV exposure.

**“By trying to** approximate the injury one receives from a mild sunburn, we saw similar effects to what we’ve seen in studies over the past few years to reduce aging,” Dr. McDaniel said. “But the cells showed a very distinctive response to GentleWaves. By treating the cells with ultraviolet light, we saw a significant increase in the gene activity for several matrix metalloproteinase (MMP) enzymes. If, however, an hour later, the cells are treated with GentleWaves, the gene activity returned back to its baseline level, thus neutralizing the damage, depending on which one of the MMPs or markers you are evaluating. In some cases, though, the gene activity moves past the baseline and into the opposite direction, so there is an anti-aging effect.”

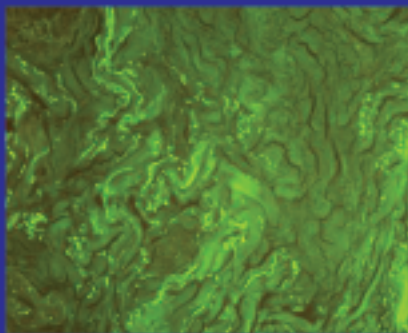
As a result, if someone receives enough UV light from the sun to cause sunburn or injury, “the cell model suggests that you can actually neutralize or even receive some added anti-aging effect, assuming you treat yourself with GentleWaves shortly after sustaining the injury,” Dr. McDaniel added.

**Dr. McDaniel and** his colleagues also assessed if pretreating with GentleWaves would be beneficial. “You do get some of the same effects as with post-treatment, but not as dramatic,” he said. “Our goal is to suppress the damage from the very beginning related to aging. The GentleWaves Skin Fitness System encourages people to plan a treatment regimen which suits their sun habits and environmental exposure in a proactive fashion. You don’t have to wait until you’re old and wrinkled for treatment. Laboratory research suggests one may use GentleWaves to delay the onset of aging signs. We’re promoting a plan to achieve and maintain a lifetime of healthy, attractive skin.”

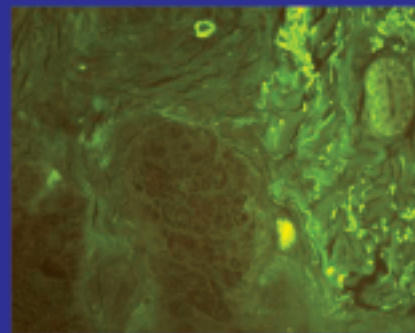
The typical patient protocol for traditional age-reversal with GentleWaves is one or two weekly treatments, for a total of six to ten sessions. “Periodic maintenance is also recommended. Our solar simulator studies provide further evidence

that maintenance is beneficial. Ideally, treatment programs will be individualized for environmental exposure patterns for each patient,” Dr. McDaniel commented. Undergoing GentleWaves immediately following some of the current non-ablative therapies can also improve skin. “You neutralize some

### MMP-9 (Collagenase) Immunofluorescence Microscopy of Skin Biopsies Pre & Post Treatments With GentleWaves® LED Photomodulation@590nm



Pre (20x)



Post (20x)

of the adverse effects that are caused by the thermal injury of these modalities. So you get the best of both worlds.”

**Tina Alster, M.D.**, director of the Washington Institute of Dermatologic and Laser Surgery, in Washington, D.C., concurs. “GentleWaves may be a useful adjunct to open wound care in the immediate postoperative period after CO<sub>2</sub> ablative laser skin resurfacing.” Dr. Alster was coinvestigator of a 12 patient, split-face study. “Mean severity scores for the variables of erythema, edema and erosion were lower on the side of the face exposed to GentleWaves in the majority of patients. Patient satisfaction surveys about GentleWaves treatment were also positive.” ■

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