

LumiPhase-R Represents Second Generation LED Technology

By Bob Kronemyer, Associate Editor

A proprietary sequential pulsing mode, optical positioning, and the highest power density of any light emitting diode (LED) device in the market are three hallmarks of the LumiPhase-R LED system from OPUSMED (Montreal, Canada).

“We have designed special features that are very unique to our platform,” said Daniel Barolet, M.D., a dermatologist who is the chief scientific officer at OPUSMED. “These features offer greater clinical efficacy than previous devices on the market. For example, the optical positioning system ensures that the proper amount of photons are delivered to the treated skin. If

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insufficient photons reach the target, there will be no cell response. No other LED device offers optical positioning. We’re also able to stimulate the skin more than other LED systems. I believe we are currently the only company that has a second generation LED system available. These optimized parameters are really changing the way we view LED technology. By providing more energy to the fibroblast, you achieve better clinical results and more satisfied patients.”

According to Dr. Barolet, “the power density of the LumiPhase-R is 150 J/cm². This higher power density of the LumiPhase-R is very important because we want to reach a specific threshold of activation within the fibroblast. We want to maximize procollagen production. In order to do that, you need very high energy for a short period of time. This is the only way to essentially bring back the fibroblast to its original basal level of production of procollagen in the dermis.”

Likewise, a sequential pulsing mode is highly desirable. “By using the same light in a continuous wave mode, you are not inducing as much collagen as if you pulse the energy,” Dr. Barolet said. “We’ve tested liter-

ally hundreds of pulsing modes, from which 18 were selected for further evaluation with patients. These 18 modes were then reduced to three that we considered the most effective. We finally ended up with the best possible proprietary pulsed mode. It was a long and tedious process.”

This pulsed optical energy has been shown to stimulate more collagen production than a continuous mode. “Pulsed optical energy reduces cellular exhaustion and provides optimal dermal fibroblast stimulation, as well as collagenase inhibition,” Dr. Barolet noted. “We want to decrease collagenase, collagen’s degrading enzymes.



LumiPhase-R OPS (Optical Positioning System) aiming beams.

Collagenase tends to increase over time in aging skin.” **The LumiPhase-R** seeks to restore dermal extracellular matrix (ECM) equilibrium by creating an optimal ratio of collagen to collagenase. “Our LED treatment seems to trigger positively the fibroblasts to promote more collagen,” Dr. Barolet reported. “In other

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words, treatment induces a sort of regeneration of the ECM. Similarly, the LumiPhase-R regenerates cellular integrity of aged and photoaged fibroblasts, thus enabling them to regain their full potential and basal metabolic collagen secretion level. The goal is to reverse the constantly declining collagen production level over the years and bring it back to basal level by using a predetermined number of treatment sessions over a short period of time.”

An LED session with the LumiPhase-R lasts two minutes and 40 seconds. “With our device, you can

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easily see five patients per hour," Dr. Barolet said. Patients typically schedule 12 sessions (two per week). "But you've got to maintain the effects with continued treatments, perhaps every two or six months, depending on the patient."

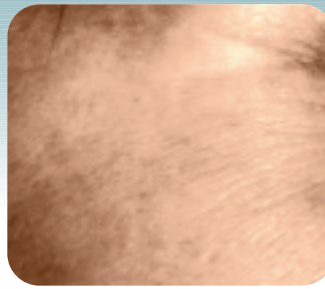
The 660 nm light of the LumiPhase-R is also powerful enough to be used as the light source for cosmetic photodynamic therapy (PDT). "Ongoing clinical studies are investigating the added skin improvement that might result from PDT performed with the LumiPhase-R. We refer to this process as Photo-regulation," Dr. Barolet reported. "The LumiPhase-R

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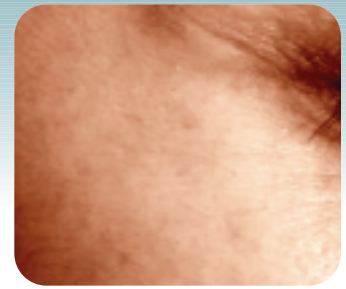
offers a dual effect. The first effect is the activation of 5-ALA (Levulan, DUSA Pharmaceuticals) in the epidermis. The 660 nm wavelength is well absorbed by 5-ALA. The second activation involves the fibroblasts within the dermis for secreting more collagen. Such activity leads to enhanced clinical results with reduced post treatment downtime. Overall, this turbo cosmetic PDT becomes a powerful, multi-level skin rejuvenation strategy."

The LumiPhase-R also appears to have photoprotective effects. "This application is still investigational for us," Dr. Barolet said. "Nonetheless, it seems that if you treat a patient prior to sun exposure, you protect against damage from UVB rays." For instance, a person may be vacationing during the winter and desire skin protection from intense sun before departing. "It has been proven in the medical literature that near-infrared wavelengths provide a protective effect."

Although most physicians use LED devices as a supplement to other treatments, such as non-ablative thermal technologies, "the LumiPhase-R can be used alone," Dr. Barolet stated. "You can really achieve



Before Tx



After Tx

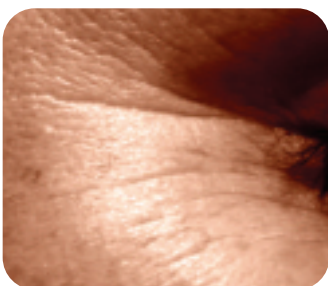
great results. Besides high power density and sequential pulsing, our LED system offers a deeply penetrating wavelength." On the other hand, one combination regimen that Dr. Barolet is excited about is the LumiPhase-R and radiofrequency (RF) tissue tightening treatment (ThermaCool, Thermage) as part of a two-level, anti-aging approach that reduces RF remodeling time. "Often, the results of RF treatment alone are not noticeable for several months. But by scheduling the LumiPhase-R immediately after RF treatment, results will be faster and patient satisfaction is increased greatly."

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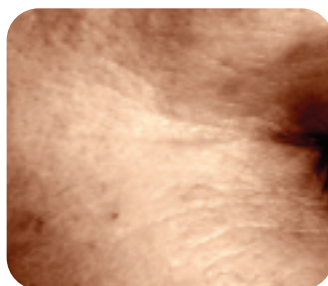
Among the many testimonials of the LumiPhase-R is one from Dr. Deschênes, a physician/patient in his fifties. "He is very enthusiastic about the treatment," Dr. Barolet said. "I noticed an improvement not only in my fine lines, but in diffuse redness due to rosacea. After ten sessions, the clinical results were amazing," Dr. Deschênes added.

According to Dr. Mamode, a dermatologist in private practice in Montreal, "The LumiPhase-R fights the manifestations of aging leading to a significant improvement in fine lines and skin tone, with no downtime. Clinical results are really noticeable."

By February 2005, OPUSMED plans on having four U.S. based clinical research sites and one European site for skin rejuvenation with the LumiPhase-R. "And later this year, we expect to introduce other treatment heads with different wavelengths for other applications," Dr. Barolet said. The LumiPhase-B with blue light (405 nm) and a unit with dual wavelengths (most likely blue and red) are two pending systems. "There are tremendous possibilities with our LED platform," he added. ■



Before Tx



After Tx