

Impedance Monitoring Optimizes INTRAcel RF Microneedle Treatments



Gregory Chernoff, M.D.
Plastic Surgeon
Medical Director
Chernoff Cosmetic Surgery
Indianapolis, IN and Santa Rosa, CA



Michael H. Gold, M.D.
Director
Tennessee Clinical Research Center and
Gold Skin Care Center
Nashville, TN



**R. Stephen Mulholland, M.D.,
F.R.C.S.(C)**
Medical Director
SpaMedica Cosmetic Surgery and
Laser Skin Care Spa
Toronto, Ontario, Canada

By Kevin A. Wilson, Contributing Editor

INTRAcel fractional radiofrequency (RF) microneedling offers safe, effective, minimally invasive skin therapy for a variety of potential applications. Developed and manufactured by Jeisys Medical, Inc. (Seoul, South Korea), this device uses an array of insulated RF microneedles to deliver therapy superficially as well as deeper in the skin to induce collagen remodeling for skin rejuvenation, hypotrophic and acne scar remodeling, and more. Built-in impedance monitoring allows users to maximize deeper therapeutic energy delivery safely, thereby optimizing results.

Perigee Medical (Tracy, Calif.) is the authorized U.S. distributor of Jeisys products. It is important to note that while Jeisys was awarded a U.S. Patent covering this RF microneedle technology, INTRAcel is currently pending FDA clearance so it is not yet available for sale in the U.S.

Plastic surgeon Gregory Chernoff, M.D., medical director of Chernoff Cosmetic Surgery (Indianapolis, Ind. and Santa Rosa, Calif.) has been heavily involved with INTRAcel. "We've achieved very good results applying this technology not just for anti-aging, such as fine lines and wrinkles, but for scarring, stretch marks and even as a part of our active acne management program," he said. "I also use it for enlarged pores."

"With the ability to deliver RF energy directly to tissue at depth, in a safe and minimally invasive manner, INTRAcel is great for scars," said Michael H. Gold, M.D., director of the Tennessee Clinical Research Center and Gold Skin Care Center (Nashville, Tenn.), who obtained the bulk of his experience with INTRAcel overseas. "By remodeling tissue at depth directly to underlying scar tissue, as well as on the surface, we can virtually erase many scars with a course of treatment. Using RF and bypassing the dermal-epidermal junction, INTRAcel is safe for all skin types and risk of post-inflammatory hyperpigmentation (PIH) is significantly limited, which is a key component for successful treatment of many segments of the patient population."

INTRAcel's array of 49 microneedles delivers RF energy fractionally in three distinct modes including invasive monopolar RF, invasive bipolar RF, and a non-invasive superficial treatment known as Superficial RF Rejuvenation (SRR). Depth of energy deposition may be adjusted by choosing a treatment tip with needles of the appropriate length, as well as adjusting energy deposition. The monopolar component penetrates 3 mm to 5 mm into the dermis to promote general collagen denaturation in the area, Dr. Chernoff pointed out. "What we see is a deeper, generalized heating that is especially important when treating scars and stretch marks."

The system's bipolar RF mode causes coagulative necrosis more superficially within the dermis. "This provides the controlled damage effect we go for in many skin therapies, as RF energy is passed between the needle tips, which are electrodes," Dr. Chernoff explained.

Surface skin can be addressed with SRR mode, characterized as more of a light superficial peel to remodel the epidermis. There is some ablative effect with this technique, but the needles do not penetrate the skin. "SRR mode is more of what we might call a sublative component, powerful, yet gentle and more superficial," said Dr. Gold.

INTRAcel also provides real time impedance monitoring, which helps achieve and maintain optimal therapeutic RF delivery. "INTRAcel and any other RF device



Striae before Tx



Striae after INTRAcel Tx

Photos courtesy of Gregory Chernoff, M.D.

depends on heat generated by electrical resistance within the tissue, which is impedance," said Dr. Chernoff. "The device automatically adjusts the energy level based on impedance so that we can reach targets for depth and temperature without needing to rely on epidermal temperature measurements, or worry about undue energy causing overtreatment or burning. In-house we've used infrared to monitor epidermal temperature when using INTRAcel and noticed a steady surface temperature of about 43° C during treatment, so we're delivering solid therapeutic energy levels below the surface without damaging the skin."

According to R. Stephen Mulholland, M.D., F.R.C.S.(C), medical director of SpaMedica Cosmetic Surgery and Laser Skin Care Spa (Toronto, Ontario, Canada), INTRAcel is indicated for general tightening, textural improvement, enlarged pores, acne scars and wrinkles. "When you depress the foot pedal, needles project from the handpiece through the dermal-epidermal junction into the dermis at a preselected depth (0.5 mm, 0.8 mm, 1.5 mm or 2.0 mm as determined by the user). Each needle in the 7 x 7 array has an insulated coating so RF energy can be delivered in a discreet packet for selective deposition exactly where you want the thermal experience to occur. The only stimulation of the epidermis occurs during needle insertion, which is extremely minimal. This is responsible for the reduced potential for PIH."

Dr. Chernoff's clinics feature an active acne management program, of which INTRAcel plays a key role. "The device helps limit sebaceous activity and may help kill bacteria as well, in addition to the direct beneficial effects we see for the skin. It's not fully vetted scientifically, but it's safe, and from what we've seen, effective. At the very least it helps manage the skin." The program is tailored to the individual and includes topicals and other therapies, such as IPL.

"I've been a big fan of RF microneedling for a while, and I think it's the top treatment out there for acne scars of all types," Dr. Chernoff stated. "That's what is most exciting to me. With other alternatives such as lasers you treat the scar from the surface downward, while with INTRAcel we can get right to the depth of the scar. It's minimally invasive and works for all skin types. This basic technology originated in Asia, where risk of PIH is a big factor, so you know that's covered. There are a lot of positives here."

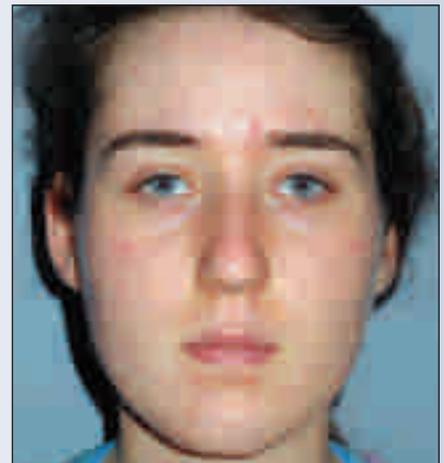
"We tell patients that a course of treatment is three sessions spaced a month apart, and the post treatment protocol is basic wound care, similar to what I use with lasers: antioxidants, growth factors and other things to promote healing," Dr. Chernoff continued. "Downtime is obviously minimal and re-establishment of barrier function is rapid, as expected with fractional therapies."

While more investigation and clinical experience will tell the tale in the U.S., the device already has an impressive track record in Europe and Asia. "INTRAcel was the first of what I call the big box microneedle devices," said Dr. Gold. "It may be new to the U.S., but it's been used successfully overseas for a while because it's very effective for a variety of indications, safe for all skin types with low risk of PIH, and recovery and downtime are minimal. Those are the three things you want – safety, efficacy and minimal hassle for the patient."

Dr. Chernoff sees it similarly. "I always tell my patients that when you put safety and efficacy each on a curve, we're looking for the highest intersecting point of the two, and that's what we have with INTRAcel. I use it with confidence."



Acne before Tx



Acne after INTRAcel Tx

Photos courtesy of Gregory Chernoff, M.D.