



According to the American Society of Plastic Surgeons, nearly 10 million nonsurgical cosmetic procedures were performed in 2007. Of those, microdermabrasion was one of the most popular skin rejuvenating treatments, second only to chemical peels

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and far ahead of laser skin resurfacing. How has a technology that came to this country from Europe in the mid 1990s secured a spot on the treatment menu of virtually every medical spa in the United States? The answer is adaptability, affordability and high patient satisfaction rates.

By Rada K. Tierney

Scratching the Surface

Microdermabrasion equipment has evolved, most notably, in terms of abrading options. Practitioners can now choose between conundrum crystals, water-soluble sodium bicarbonate crystals and so-called crystal-free systems that utilize abrasive handpieces in a variety of grits. These new options have helped to expand the indications for microdermabrasion and patient appeal. Sodium bicarbonate tends to appeal to eco-conscious consumers. “The baking soda also allows doctors to treat patients’ lips and the entire eye area,” says Andrew Goodwin, CEO, Advanced Microderm.

Particle-free systems that utilize laser cut, diamond or sapphire tipped wands to refine the skin without a spray of crystals “are hypoallergenic and eliminate the possibility of ingesting or inhaling loose crystals,” says Joseph Luzon, CEO, Viora. They also

allow practitioners to get more or less aggressive in different areas without resetting the parameters of the device.

New Technologies

Most discussions of these procedures revolve around what microdermabrasion takes away—dead skin cells, pore-clogging debris—but new technologies are opening a discussion on what microdermabrasion treatments can give back to the skin when combined with topical infusions.

Hydradermabrasion pairs mechanical exfoliation with the infusion of corrective and nutritive topical gels and serums containing ingredients such as peptides and antioxidants. Many of the formulations are developed for specific indications such as hyperpigmentation, antiaging or acne. Glenn Weismann, MD, a Los Angeles-based, board certified plastic surgeon, works with the HydraFacial MD microdermabrasion system from Edge Systems. “It combines particle-free microdermabrasion, alpha and beta hydroxy acids, hyaluronic acid and antioxidants. These components are key to keeping the skin cleansed, exfoliated and nourished. Regular treatments assist in the correction of almost any skin condition, including rough texture, excessive oil, acne, congested pores, fine lines and wrinkles, and hyperpigmentation.”

Board certified plastic surgeon Bruce Freedman, MD, FACS, Plastic Surgery Associates of Northern Virginia, McLean, Virginia, conducted an independent study of the histological and clinical changes associated with skin following hydradermabrasion. After treating test subjects with the HydraFacial MD for six weeks, Dr. Freedman documented his findings using digital photographs, full thickness skin biopsies, Raman Scattering Spectroscopy and patient surveys. His results showed:

- The skin retained increased antioxidant levels of 30% two weeks after the six-week series
- Epidermal thickness increased from



50 microns to 80 microns

- Papillary dermal thickness increased from 300 microns to 425 microns
- Increased fibroblast population
- Collagen hyalinization in the dermis

Other devices offering hydradermabrasion-based technologies include the Syneron Facial H₂O, a crystal-free system with multiple treatment tips that allows you to both exfoliate and hydrate skin, and the AccelaFuze from Genesis Biosystems.

“The AccelaFuze provides crystal-free microdermabrasion, along with the topical infusion of five unique solutions,” says Jim Lafferty, CEO of Genesis Biosystems. “Our latest topical is the Peptide Infusion that offers dramatic increases in epidermal and dermal thickening and an increase in the dermal density of the underlying tissue.”

Dr. Freedman notes, “These procedures are ideally suited for patients who want nonablative facial rejuvenation with minimal recovery time.”

For physicians who aren’t ready to buy a new system, Aesthetic Technologies/Parisian Peel offers the Elite Suffusion System, an ultrasound device that is used in conjunction with traditional microdermabrasion. “We chose ultrasound technology because it has known product infusion capabilities and is safe for all skin types,” says Alison Shaya, president of Parisian Peel. “The treatment is done in two steps. First we exfoliate with conundrum crystal microdermabrasion, which improves topical penetration by removing the dead skin cells, then we apply the topical serum and go over the skin with a smooth sapphire crystal handpiece that delivers the ultrasound, which takes about seven minutes.”

Jacob Dudelzak, MD, et al, studied the effects of the Parisian Peel microdermabrasion and Elite Suffusion System on the skin. Their findings, published in the *Journal of Cosmetic Laser Therapy*

RESOURCES

Aesthetic Technologies/Parisian Peel: 800.262.4412, www.parisianpeel.com

Advanced Microderm: 877.763.4861, www.advancedmicroderm.com

DermaMed USA: 888.789.6342, www.dermamedusa.com

Dynatronics: 800.874.6251, www.dynatronics.com

Edge Systems: 800.603.4993, www.edgesystems.net

Genesis Biosystems: 888.577.7335, www.genesisbiosystems.com

Lumenis: 877.586.3647, www.aesthetic.lumenis.com

Mattioli Engineering: 877.628.8364, www.mattioliengineering.com

Raja Medical: 888.879.7478, www.rajamedical.com

Sandstone Medical Technologies: 800.565.8721, www.sandstonemedicaltechnologies.com

Syneron: 866.259.6661, www.syneron.com

Vibraderm: 800.494.7181, www.vibraderm.com

Viora: 877.384.8032, www.vioramed.com

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(December 2008) showed mild clinical improvement in the skin including increased vascularity within the papillary dermis, and increased type I and type III collagen formation in the skin following eight weekly treatments. The topical infusion used in the study was a combined hyaluronic acid, retinol and peptide complex.

Multi-modality systems are also gaining in popularity. The Delphia Del Sol by Edge Systems, for instance, combines LED light therapy with crystal or crystal-free microdermabrasion. It delivers red and infrared lights to improve skin circulation and a 420nm blue light for acne-prone skin.

In addition to its product infusion capabilities, the AccelaFuze treats skin with three LEDs—blue light for acne; red light to reduce inflammation and improve pigmentation; and yellow light for collagen stimulation.

Growing Indications

In addition to facial rejuvenation, microdermabrasion helps reduce sebum production (Gorouhi, MD, et al, *Int J Derm*, May 2008) for patients with mild to moderate acne and has become a valued adjunct therapy to chemical peels, laser- and light-based therapies, and cosmetic surgery procedures.

“Microdermabrasion prior to more aggressive treatments can improve the efficacy of these modalities,” says Lafferty. “It removes the stratum corneum barrier to improve penetration of applied topicals. It also allows for significantly better penetration of light by eliminating much of the scatter that reflects off of the stratum corneum, resulting in higher levels of absorption in skin targets during light and laser treatments.”

Dr. Weismann offers microdermabrasion in his practice both as a standalone skin rejuvenation treatment and as a preoperative and postoperative adjunct procedure to improve the condition of patients’ skin prior to surgical procedures and to help them maintain optimal results following surgery.

Bruce Katz, MD, of the Juva Skin & Laser Center, New York, has published his findings in regard to the efficacy of microdermabrasion delivered prior to photodynamic therapies (PDT). In “Efficacy of microdermabrasion preceding ALA application in reducing the incubation time

of ALA in laser PDT,” (*Jour Drugs Derm*, Feb. 2007), Dr. Katz, et al, found that two passes of microdermabrasion prior to the application of 5-aminolevulinic acid (ALA) for 10 minutes is “as effective or more so than ALA applied alone for one hour in producing erythema.”

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Low Cost, High Satisfaction

In spite of its popularity and expanding indications, microdermabrasion does compete with a variety of other forms of non-surgical skin rejuvenators such as chemical peels, and laser and light-based resurfacing treatments. How does it measure up to the

competition? Quite well, according to Dr. Weismann. "Microdermabrasion is without a doubt the most universally chosen resurfacing treatment," he says. "It's a classic aesthetic procedure that is cost effective for both the provider and the patient."

The relatively low cost of microdermabra-

sion equipment can make it a lucrative addition to a treatment menu. "Most of our customers own multiple skin resurfacing devices, and they comment that microdermabrasion consistently offers the highest return on investment of all their devices," says Lafferty.

Sofia Rubbani, MD, of Glow Aesthetics and Surgery Medi Spa in Long Island, New York, relies on microdermabrasion as a multisession, standalone treatment for blackheads and pigmentation problems, and for softening light acne scars and fine wrinkles. But she notes that her patients' comfort levels, budgets during turbulent economic times, and busy schedules are what drive the demand for these treatments in her practice. "Microdermabrasion offers very little downtime and immediately visible results," says Dr. Rubbani. "It allows me to treat a small area at a time, which is great for patients with sensitive skin who don't like to have their full face chemically peeled. Laser procedures offer more dramatic results, but they require a significant investment by both the patient and the physician, and they can be too ablative with too much downtime for many patients."

For skin rejuvenation treatments on the face, body or hands, microdermabrasion is generally offered in a series of 8 to 10 treatments spaced one to two weeks apart. Contraindications include Accutane use, and open, cystic acne. But part of the longevity of microdermabrasion in the skincare industry stems from its good safety profile and consistent results. "It's a great antiaging treatment that is pain-free, affordable and effective," says Shaya.

"Microdermabrasion is a true staple in the spa and medical sectors," says Goodwin. "It's a first line of treatment for many individuals who do not have the budget for the more expensive resurfacing treatments." ❏

Rada K. Tierney is president of public relations firm RTK Communications, and a former Emmy-winning broadcaster. Contact her at www.rtkcommunications.com.