

# New Life for Lips

Medical needling is a nonablative option for perioral rejuvenation

by Robert Trow, MS

Ever since the terms “aesthetic surgery” and “cosmetic surgery” became household words, the search has been on for a sustained treatment to address perioral wrinkling. Clearly, the occurrence of upper-lip wrinkles has become more prevalent in part due to the impacts on skin of increased photodamage, smoking, environmental pollution, and the thinning of the ozone layer.

The search for the perfect treatment has included deep peeling, dermabrasion, microdermabrasion, carbon dioxide lasers, a myriad of other lasers, intense pulsed light, and light-emitting diodes. The advent of injectables such as botulinum toxin Type A, hyaluronic acid, collagen, and fat have proved somewhat effective, if not as long-lasting as patients and physicians would like.

There is now another treatment modality to add to the plastic surgeon's arsenal of remedies: medical needling or, as it is also called, percutaneous collagen induction therapy.

The origin of the principles at the foundation of medical needling dates back to the mid-1990s when Orentreich and Orentreich advocated “subcision” with a needle to treat wrinkles and lip lines,<sup>1</sup> and Camirand and Doucet found that “tattoo abrasion” (piercing the skin with needles, as done by tattoo artists) had the effect of improving scars.<sup>2</sup>

These methods piqued the interest of Desmond Fernandes, MD, a South African plastic surgeon, because they left the epidermis intact. One of the essential theories behind all of his work is that we should never destroy the epidermis unnecessarily.<sup>3</sup> He states that the epidermis, a highly specialized yet thin organ (0.2 mm thick), is our main protection against the onslaught of environmental damage.

For skin to look and feel good, a sound epidermis is essential. Therefore, using deep peels and highly ablative treatments should be avoided if at all possible. Because the skin thins naturally as we age, accelerating the process with harsh treatments is not constructive.

## Skin Needling for Lip Lines

Building on the work of Orentreich and Camirand, Fernandes researched the concept of skin needling for treating lip lines as well as acne scars. He reasoned that if he could penetrate deeper than the tattoo needle, he could stimulate more elastin formation from the depth of the dermis toward the surface. He hoped that this would provide better results than more superficial needling.

Hand needling was inconsistent and very laborious. Fernandes experimented with creating a specialized instrument for the purpose of puncturing the skin at a depth that would result in the formation of new collagen and elastin by causing injury to the papillary dermis. He was also able to design the device to ensure that the needles would penetrate to the proper depth automatically.

The result of his study was the development of an instrument designed to needle the skin with a handheld drumlike instrument. His clinical work led to the creation of a roller with stainless steel surgical needles that is passed over the area to be treated. The horizontal, vertical, and oblique rolling action creates numerous holes or needle punctures.

The punctures create a wound in the papillary dermis while the epidermis remains virtually intact, with only microscopic clefts in the skin. Each of these very small holes or wounds passes through the traditional phases of wound healing: inflammation, proliferation, and tissue remodeling. Because the epidermis remains intact, needling very likely favors the release of growth factors that promote scarless healing, with the deposition of normal woven collagen instead of scar collagen.

Collagen takes time to be deposited and converted to normal adult collagen. Therefore, the results seen over time (three to six skin cycles) are smoother upper lips with greatly lessened fine lines and wrinkles. The texture of the lips is also rejuvenated.

It is helpful to repeat the needling procedure several times to obtain better

results, because each session improves on the previous one. If the tissues of the upper lip are deficient, it is essential to restore the normal thickness of the upper lip with fat injections or other injections or implants.

## Popularity Growing

The advent of medical needling as a treatment for perioral wrinkles is gaining acceptance in the United States and abroad. Many plastic surgeons are using medical needling, either alone or as an element of an upper-lip rejuvenation regime, with great success. But like most, if not all, plastic surgery procedures and instruments, it is not a magic wand.

Leonard Miller, MD, a Boston-based plastic surgeon, has been one of the pioneers in the application of medical needling in the United States. He has found that it is very effective in patients with early fine lines and wrinkles and moderate deep lines around the mouth and lips.

Miller does not find it effective for improving deep lines (rhyades) and well-defined marionette lines. The results obtained from needling become progressively better with subsequent treatments spaced from 3 to 6 months apart.

A significant aspect of his treatment protocol is to make sure that his patients apply high doses of vitamins A and C 6 weeks before treatment. This preparation provides healthier skin upon which to perform the procedure. Miller has achieved quite dramatic results with his perioral rejuvenation program (Figures 1 through 3, page 32).

Immediately postprocedure, he also applies—as does Fernandes—an oil enriched with vitamins A and C that is specially designed to help stimulate the production of collagen and elastin. He continues patient use at home for 6 weeks thereafter. The efficacious benefits derived from the application of vitamins A and C are greatly enhanced because they can penetrate deeper through the channels created by the needling.

There are no hypopigmentation or demarcation lines, enabling small areas or

### Before & After



Figure 1. This 57-year-old patient is shown before and 3 months after lip needling.

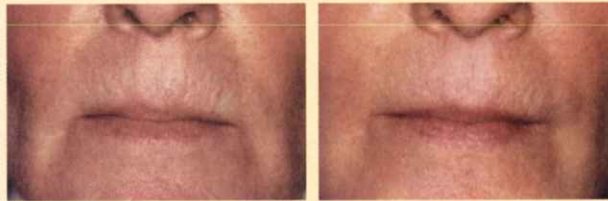


Figure 2. This 58-year-old patient is shown before and 9 months after two lip-needling treatments.



Figure 3. This 65-year-old patient is shown before and 2 weeks after lip needling. Photos courtesy of Leonard Miller, MD.

areas not suitable for lasers to be treated. Unquestionably, medical needling is also a significant procedure for use in combination with other treatments. The results of several treatment modalities yield outcomes superior to the sum of each individual treatment.

The procedure is easily performed under topical anesthesia or perioral nerve block and direct local infiltration. Some physicians prefer to use a cocktail of benzocaine, lidocaine, and tetracaine. Still others, when they needle larger areas, use conscious sedation. If a patient has a history of cold sores, antiviral medication should be prescribed.

### Large and Small Needles

Currently, two types of surgical needles are used in this procedure: a 1-mm model and a deeper-penetrating 3-mm version. Each also comes in various gauges to better address the area to be treated.

The advantages of using a 1-mm roller are that the procedure is easily performed with topical anesthesia and there is virtually no downtime. The skin bleeds only to a minor degree and looks flushed immediately after the treatment. After 1 day, the skin looks as though the patient has a modest sunburn. When treating lips with a 1-mm needle, the procedure should be repeated every 2 to 3 weeks for a total of at least six treatments.

For 3-mm medical needling to be at its most effective, Miller believes that the needling must be aggressive with repeated passes beyond the vermilion margin and the nasolabial-labiomental creases. The procedural endpoint is when there is diffuse bleeding and purpura—the lack of normal skin color.

The roller should be passed over the skin repeatedly to obtain the greatest possible concentration of holes per square centimeter, at which point the needles fall back into the holes they have made. It is critical not to drag the roller, but lift it at the end of each pass so as not to create any tears.

When the patient has healed completely, there are no demarcation margins and the white roll and vermilion junction of the upper lip have not been destroyed.

Because vigorous 3-mm medical needling causes bruising and 5 to 8 days of downtime, many plastic surgeons use it as an adjunct to other procedures, such as facelifts and blepharoplasties (Figure 4). Patients can, however, go out after several days, but they may want to apply a mineral makeup. It is important to note that the bruising, while substantial immediately after the procedure, is dramatically reduced after 3 days.

It is important to carefully prepare patients for what they can realistically expect to look like after medical needling: the healing progression and the time required for the amelioration of lip lines. As stated earlier, the procedure's best results come after several treatments. In this case, more is better.

According to Fernandes, during the procedure the skin bleeds for up to 5 minutes. He recommends the use of wet gauze for 2 hours postneedling to soak up any serous fluid ooze. The patient is encouraged to shower the same day.<sup>4</sup>

### Clinical Experience

In a presentation at the fall 1995 meeting of the American Academy of Facial Plastic and Reconstructive Surgery,

Philip Miller, MD, a facial plastic surgeon practicing in New York City and no relation to Leonard Miller, said about medical needling, "It is straightforward, simple, and easy to do. Patients are highly satisfied with the results."<sup>5</sup>

At the time of his presentation, Miller had performed medical needling on 11 patients, nine of whom said they experienced a 70% to 79% improvement from baseline. The two others rated their improvement 50% to 59%. He found no evidence of pigmentary changes on any treated skin, even Fitzpatrick types V and VI.

Jonathan Jacobs, MD, a plastic surgeon in Virginia Beach, Va, has been performing medical needling for 18 months and has found the results very promising. When treating patients, Jacobs also has found no significant epidermal injury, no alteration in pigmentation, and no reported patient discomfort. Whereas there is postoperative ecchymosis and erythema, they resolve over a period of 4 to 5 days.

Like other plastic surgeons, Jacobs has found that repeating the procedure results in greatly reduced perioral lines and wrinkles (Figure 5, page 34). In his opinion, the procedure represents a promising surgical attempt at the correction of fine, moderate, and deep rhagades. Because he has only 18 months of results, he is not sure how long the results will be sustained.

Andres Bustillo, MD, has been working with medical needling, both during his plastic surgery residency and as a practicing facial plastic surgeon. His Miami office is fast becoming one of the "epi-centers" for this procedure. Bustillo has achieved impressive results with his patients, who report that they see improvements from 60% and 70% after one treatment. He has completed a large study on medical needling that will soon be published.

Needling has become Bustillo's treatment of choice for patients who long for a more permanent solution to perioral lines and wrinkles in the upper lip. Recovery is less painful and faster than with dermabrasion, without any side effects. He



Figure 4. The medical-needling treatment of the lips. Courtesy of Desmond Fernandes, MD.

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### Before & After



Figure 5. This 61-year-old patient is shown before and 3 months after lip needling. Courtesy of Jonathan Jacobs, MD.

has had no complications for Fitzpatrick skin types II through VI.

Treating the area preprocedure and postprocedure with topical retinoids is important in achieving the results both he and his patients demand. Bustillo uses mild oral sedation (2 mg lorazepam and 5 mg

oxycodone HCl/325 mg acetaminophen) and bilateral V2 blocks coupled with local infiltration. He also treats patients with acyclovir for herpes prophylaxis preoperatively and postoperatively. None of Bustillo's patients required postoperative narcotic medication and were able to return to full activity 5 days after the procedure.

All physicians who have used medical needling have found it to be an effective means of treating fine and moderate upper-lip lines and wrinkles. Results improve with repeated treatments. It is also a procedure that combines extraordinarily well with other modalities to create effective and lasting results.

Medical needling is also attractive financially, because no capital expenditures are required. The instrument costs between \$225 and \$300 for a handle, bracket, and patient-specific roller head. Whereas the head can be reused several times, it is patient-specific. Many physicians treat the head as a disposable because it costs less than \$100 for the typical six-row size. Once a patient is prepared, the procedure takes less than 20 minutes. **PSP**

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### Disclosures

No physician quoted in this article has any financial interest in any medical-needling device except its inventor, Desmond Fernandes. The author has a financial interest in the distribution of medical-needling products.

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### On The Web

See also "Skin Tightening" by Dierdre S. Leake, MD, and Janine L. Ellenberger, MD, in the March 2006 **PSP**. Go to [PlasticSurgeryProductsOnline.com](http://PlasticSurgeryProductsOnline.com) and click on "Archives."