

LASER TECHNOLOGIES ARE BEING

Cutting-Edge Laser Technology: WINNING THE WAR AGAINST AGING SKIN

By David J. Goldberg, M.D.



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The laser is a powerful, concentrated beam of light whose medical utility has launched a revolutionary and lucrative adjunct to the field of esthetics. Using this extraordinary technology, qualified physicians can rejuvenate tired and aging skin, eliminate excess wrinkles or unwanted hair, and improve the quality, tone and texture of the skin. Still more dramatic than the advent of the skin laser is the ability to soften and beautify the skin without a surgical scalpel, using a cosmetic procedure that's as instant as it is undetectable. Simple laser procedures can give people of all ages a feeling of beauty, elegance and renewed youth.

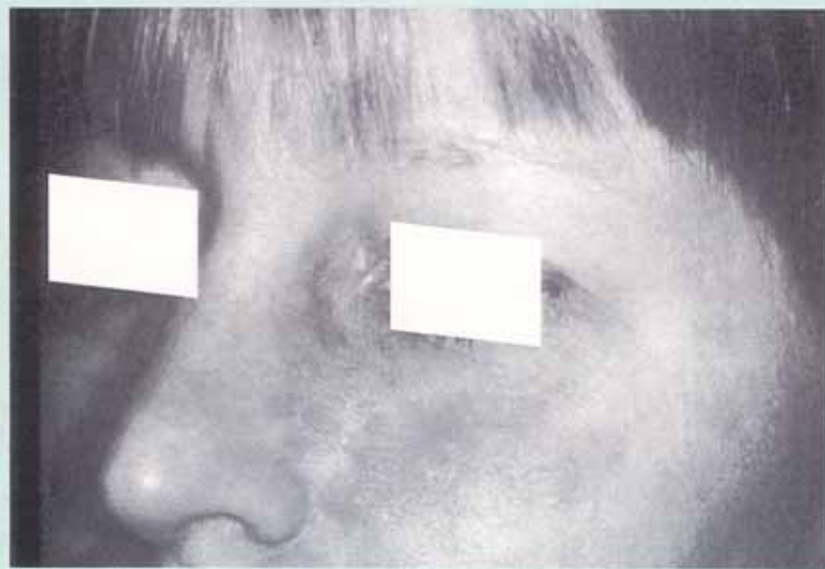
In the hands of an appropriately trained physician, laser technology has revolutionized our ability to maintain youthful skin. The laser can precisely target an undesired aspect of the skin while creating no harmful effect on the normal surrounding skin. But here is the caveat. The plethora of laser technology continues to confuse some poorly trained doctors as well as their unsuspecting clients. Having limited experience with these powerful machines, many under-trained physicians actually rent equipment from laser rental companies and treat their unaware patients as guinea pigs. In contrast, any major cosmetic laser center such as ours offers some 25 different machines that are

used for a wide variety of complexions and skin problems by highly trained, clinically experienced physicians. It is only in these specialized centers that patients receive the expertise and care that is tailored exactly to their needs and free of experimental risk. Increasingly, laser technologies are being incorporated into the spa setting. Clients can have their herbal wraps and then get their wrinkles treated. They can have a gentle massage followed by laser hair removal or removal of freckles and age spots. Although such treatments have been traditionally performed in a doctor's office, the gentleness of these procedures now makes them amenable to spa settings.

This article will address the treatment of sun-damaged, aged or tired-looking skin and explore the evolution of lasers from the early destructive wrinkle lasers to the incredible "lunch-time" wrinkle removal laser machines. Future articles will look at the elegant laser treatments for unwanted hair, liver spots and spider veins. These very refined new procedures are now as simple and routine as getting a facial.

A brief history of lasers and skin remodeling Laser skin resurfacing has become one of America's leading cosmetic procedures. This treatment minimizes the appearance of fine lines and wrinkles and

improves the overall texture of aging and sun-damaged skin. In many cases, laser resurfacing can delay or eliminate the need for facelift surgery. Laser surgery requires neither cutting nor stitches. Other methods of skin resurfacing include chemical peels, dermabrasion – the removal of the outer layers of the skin by "sanding" them off, and microdermabrasion – a new procedure for eliminating fine lines. While



INCORPORATED INTO THE SPA SETTING

these methods are effective in removing pigment from the skin, they are less successful at eliminating deep wrinkles.

In the early 1990's, the carbon dioxide laser was introduced in cosmetic laser resurfacing. This method soon became the standard for removing wrinkles and aging skin changes in a scientific and consistent manner. In 1996, the Erbium laser offered a gentler alternative for people seeking a non-invasive approach to wrinkle improvement. Today, the carbon dioxide and Erbium lasers are both available, allowing the surgeon to customize the procedure to the patient's needs. All laser skin-care systems function by the same principle. The laser light gets absorbed by the water in the sun-damaged skin, ablating the fine layers of the skin. This literally erases the unwanted wrinkles and remodels the old, wrinkled collagen into newer skin. As new cells form in the healing process, the skin is smoother, softer and sometimes tighter.

The carbon dioxide laser has literally been the workhorse of skin rejuvenation. This technology not only ablates the undesired tissue, it helps to remodel the collagen under the skin. As the skin regenerates, it appears smoother. Newly formed collagen further acts to fill in wrinkled lines and gives the skin a younger appearance. This makes the carbon dioxide laser ideal for deep wrinkles. But along with its reliability, the procedure has its downside. Carbon dioxide lasers often require sedation. And the treatment leaves an oozing, crusted wound that requires a healing period of 10 to 14 days—a prolonged absence from work and all social engagements. Several days after the resurfaced skin has healed, the patient can expect to peel. Once the skin

has healed, it can remain red for six months or longer, requiring the use of camouflage makeup. In spite of the negatives, the technique is extremely effective and very low risk when performed by a well-trained laser surgeon. But as the media has recently pointed out, in the hands of an inexperienced, under-trained cosmetic surgeon, this procedure can lead to a high incidence of scarring and complications.

During the past few years, the Erbium laser has revolutionized the cosmetic laser-resurfacing arena. The Erbium laser is a potentially gentler technology, eliminating some of the side effects associated with the carbon dioxide laser. The Erbium laser reduces the trauma to the skin, lowers the risk of scarring, generates less pain, and requires a shorter recovery time. The Erbium laser is successful in treating sun damage on the neck, hands, and chest. It is also well suited for patients with darker skin types. We have documented our success in using this laser on the neck and on darker Asian skin in the *Dermatologic Surgery* journal.

Healing time with an Erbium laser is shorter than with a carbon dioxide laser—only five to seven days, with redness generally lasting just two to eight weeks. The Erbium laser also creates less heat damage to the skin.

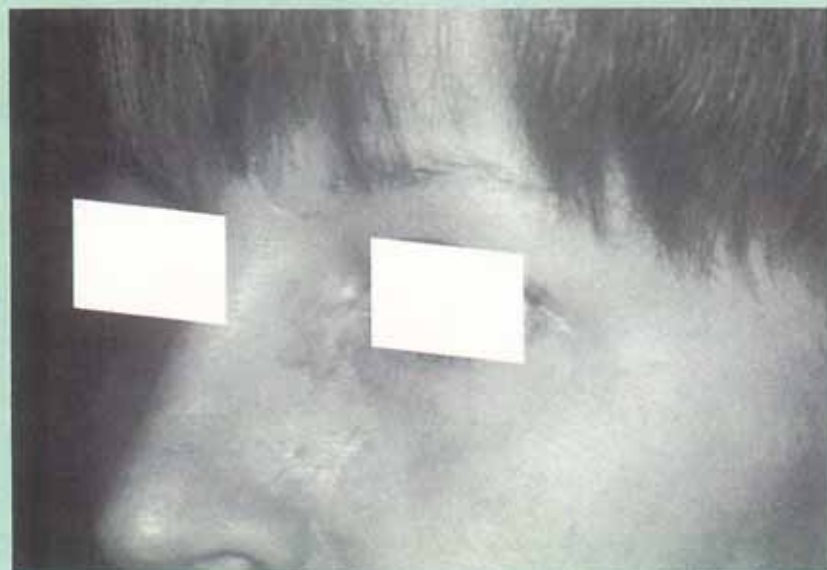
This technology is ideal for individuals with moderate acne scars, no deep lines, and for those who want to improve the overall texture of their skin.

Both the carbon dioxide and Erbium lasers dramatically reverse the symptoms of aging by removing and destroying unwanted wrinkles and aged collagen. The ablative procedures, however, always include the seven to fourteen-day oozing and bleeding wound, time away from work, and skin redness that can last for months.

The new "lunch-time" laser treatments Newer non-ablative laser skin remodeling represents the true "afternoon" procedure, offering patients a softening of lines and wrinkles with no down time.

These revolutionary systems, including the Cool Touch™ laser, offer the slow, gradual, woundless

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SPA GUESTS GET THEIR WRINKLES TREATED

laser method for skin rejuvenation. Remarkably, patients can now receive a series of treatments without any discernible outer skin wound. No anesthesia is required and the treatment feels as painless as a rubber band snapping on the skin. A full-face treatment can often be performed in less than 20 minutes and the minimal post-laser pink color is easy to cover with minimal makeup. Optimal results are usually achieved from three to six sessions every two to four weeks, with improvement continuing for up to six months after the final treatment.

What is so unique about this procedure is its invisibility. The requisite new collagen-forming wound occurs much the same as with the previously described laser systems. But in this case, the wound occurs below the skin where no one can see it.

There is no visible disruption in the outer layer of skin. And the results of these new procedures have in some ways surpassed those of the earlier destructive treatments. We recently examined the newly formed collagen from this skin remodeling procedure and found some exciting results. The study published in the March 1999 edition of the *Journal of Cutaneous Laser Therapy* documents significant new collagen formation six months after treatment. This is promising news in the arena of skincare, both for the client and the esthetics industry, with tremendous implications for the reversal of aging skin. While some patients see less improvement from this kinder treatment than from the older laser procedures, a growing number of patients prefer a system that works gradually to soften wrinkles and allows them to return to work immediately after treatment. Some patients come in for treatment and then go out to dinner right after their laser rejuvenation. The limitation of this system is that it does not remove the outer layer of skin, which means it cannot remove age spots and freckles. However, there are other simple lasers that can gently remove liver spots and freckles that will be the subject of a future report.

Laser treatment also does not remove the deep facial lines of expression such as frown lines and crow's feet. Botox, an organic substance that is injected into the facial muscles, can allow these lines to relax, diminish and sometimes disappear. Collagen replacement therapy can also be used to fill deep facial lines and scars, without the telltale signs of cosmetic surgery. (Collagen therapy is also used for enhancing the fullness of the lips.)

It is hard to imagine the early laser procedures being performed in a spa setting, since they often require sedation and always leave a bleeding wound.

But the newer gentler systems, with their ease of administration and invisible action, are the ideal addition to the spa type of environment. Lunch-time laser treatments are already being performed in spa settings by experienced physicians with excellent results. Laser treatments add an exciting new option for your clients and a substantial profit center to any skincare practice. Again, make sure the physician has notable experience in laser surgery and you feel confident about his qualifications.

Don't be shy. Ask for specifics, such as the following: Where were you trained? Did you learn laser procedures in an evening workshop?

Do you rent or own your own lasers?

How many different lasers do you use? Two or three? Twenty to twenty-five?

Have you published or lectured on lasers?

Can you provide names and photos of satisfied patients, as well as professional referrals?

In the wrong hands, laser surgery can lead to scarring, pigmentary changes and a host of unhappy complications. In the right hands, it can help us maintain an elegant and youthful appearance.

In future articles I will address achieving hairless legs without the hassles of electrolysis, spider vein treatment without painful injections, and turning back the clock on liver spots after one simple laser treatment.

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