

Cutting-Edge Laser Technology: Winning the war against aging skin (Part 1)

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 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 skincare 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.