LOOK YOUR BEST
I saw Geraldo have laser surgery for his wrinkles on his show. It seems so simple.

—Susan, 41, hair stylist

Who hasn’t heard about lasers? From Star Wars to the Wrinkle Wars, people everywhere are being inundated with the promise of medical magic at the end of the intense band of light the laser creates. What many may not realize is that there are many different kinds of lasers, in medicine and even in industry, not to mention the Pentagon. In medicine there are lasers to smash and vaporize kidney stones, sculpt the cornea so you won’t need glasses, seal ovarian tubes, treat dental cavities, zap brain tumors, improve wrinkles, eliminate blemishes, vanish unwanted tattoos. The list goes on, and for virtually each purpose there is a separate $100,000 machine. In industry, lasers are used to cut steel, a patient who is a steel manufacturer informed me recently. I advised him not to try it on his sun spots.

In essence, lasers represent a class of instruments that have in common the development and controlled release of intense light for a particular purpose. There is no one laser to cure all medical problems. In fact, as time goes on,
it is likely a greater variety of lasers, and variations on the current technology theme, will be introduced. This may confuse things even more for you. As we talk a bit about lasers, perhaps the most important thing to remember is that a laser is not magic, but in many cases, it is better than anything we've had before in dermatology for particular problems.

Technically, lasers are devices that generate beams of light that are directed to a particular target. In fact, the word laser is shorthand for "light amplification by the stimulated emission of radiation."

It was Einstein's work on the relationship between matter and energy that is the scientific basis of all lasers today. Lasers, simply put, are specialized light sources in which, through a variety of means, the light of a single wavelength is generated and magnified. Wavelength is really the signature mark of any laser and is a way we categorize all energy. For example, when you look at a rainbow or through a prism, the colors you see come from light that is broken up into all its visible wavelengths. That's why there is a Joseph's coat of colors. Lasers use just one wavelength of light that is then intensified. Because laser light is of one wavelength and is magnified manyfold, it is not only intense but remains highly focused as well. For example, if you shine a flashlight on a wall, the light waves splay out and form a bigger image on the wall than the circle of light that originates at the flashlight bulb. Laser light is highly focused, so it doesn't splay. This is critical to obtain the power and precision necessary for medical purposes.

Each beam of laser light contains energy, and for the laser to be effective in treating skin problems, a specific target must absorb that energy. Within the skin are several targets for laser energy. The targets most commonly used in the skin are water (we humans are about 60 percent water), hemoglobin (the molecule that gives red color to our blood), and melanin (the brown pigment that lends color to our skin). Certain wavelengths, or specific colors, of light are best absorbed by water, hemoglobin, and melanin. Lasers are designed so that they will target one of these molecules preferentially over the others. The other side of this very important coin is that with the proper selection of the correct laser, only what you don't want will be vaporized or destroyed, while surrounding skin that lacks the target color will be relatively unaffected. This specificity, called photo-selectivity because it is due to the specific "photo" or light wavelength, makes medical lasers especially valuable. Even though some lasers are not photosensitive and depend more on the generation of heat alone, lasers represent a major advance over the red hot medical irons of the Civil War and before and even the electro-surgical devices of today that use electricity rather than light to alter tissue.
Despite the new frontiers that lasers allow us to explore, it is important to understand despite the fanfare and advertising, that the laser is just another tool. And any tool, whether a sculptor's chisel or a surgeon's scalpel, is only as good as the hand that guides it. While lasers can do many amazing things, you must have realistic expectations of what they can accomplish in order to achieve the greatest satisfaction from their use.

A wide array of lasers are available to treat a number of skin conditions. Before choosing to undergo a laser procedure, you should ask your dermatologist why one particular laser will be used over another to treat a given skin problem. In fact, you should be clear about what advantages a laser offers over conventional or traditional treatment.

**WRINKLES AND LINES**

**SKIN-RESURFACING LASERS**

The hallmarks of aging skin include fine lines and wrinkles, especially those around the eyes and lips, and even on the cheeks. Liver spots, keratoses, broken blood vessels, and roughness are other marks of the ravages of time and years of sun.

In the past, chemical peels and dermabrasion had been used to "resurface" the skin—remove lines and blemishes and provide a smooth, more radiant surface. Dermabrasion was highly dependent on the skill of the dermatologist and the depth of injury was hard to control. Chemical peels are still widely used, and they are my treatment of choice for many symptoms of facial aging. However, a whole new world opened up in the early 1990s when the concept of using a laser to resurface was developed by Dr. Richard Fitzpatrick of California and others. They had the idea that if you could reduce and control the energy of the carbon dioxide laser (previously used by dermatologists for years to treat skin lesions), you might be able to simply strip off the top layer of skin, permitting regrowth of fresher epidermis along with some regeneration of the collagen in the second layer of the skin. Because fine lines and wrinkles result from natural aging and chronic sun damage to the collagen and elastin tissue in the dermis, stimulation of new collagen is thought helpful in tightening up the skin.

In the years that the resurfacing carbon dioxide laser has been in use, hundreds of dermatologists and other doctors have had the chance to learn where it works, how it works, and in what situations it cannot deliver what
the patient hopes for. Another, newer laser used for resurfacing is the erbium: YAG laser.

Both the carbon dioxide and erbium lasers generate invisible light energy in the infrared spectrum. (We commonly know infrared radiation as heat.) The energy from these lasers is preferentially absorbed by the water within your skin cells. Since water makes up the majority of all our tissue, the laser light from these devices rapidly heats and vaporizes thin layers of skin. These two lasers will remove anywhere from 20 to 100 microns of skin at one pass. Keep in mind that 100 microns is approximately the thickness of one sheet of paper.

The main difference between these two lasers is that the erbium laser damages a thinner layer of skin with each pass so that more passes need to be performed to destroy the same thickness of tissue as the carbon dioxide laser. However, because the erbium laser light is more preferentially absorbed by water than even the CO₂ laser light, there is less surrounding tissue damage. These may be subtle differences, but the meaning to you is that the erbium laser results in more rapid healing time and a shorter period of redness on the face. On the other hand, it may require more

### KEY POINTS ABOUT RESURFACING LASERS

- The carbon dioxide resurfacing laser reduces fine lines and wrinkles by removing the epidermis and stimulating new collagen growth in the dermis. The erbium laser, which is gentler, also removes the epidermis, but does not have as much effect on the collagen of the dermis, essential for effective wrinkle removal.
- Fastidious wound care is critical after laser resurfacing.
- Common side effects of treatment include persistent redness in the treated areas that can last for months. This is usually easily concealed with green-tint makeup.
- Hyperpigmentation, or brownish discoloration can also occur after healing; it is also temporary. Bleaching creams may help.
- Because the healing process continues under the surface of the epidermis for many months, we see continued improvement in wrinkles even twelve months after treatment. Be patient. Repeat treatments are always possible but in general, should not be done until twelve months have elapsed since the first treatment.
- Have realistic expectations—there is no machine on earth that can make your skin look like it did when you were sixteen, but the resurfacing lasers can certainly do more for you than any previous technology in dermatology.
resurfacing treatments to achieve the same results as the carbon dioxide laser.

Other conditions that can be treated by the carbon dioxide laser include xanthelasma—the collection of yellow cholesterol deposits that typically occur on the upper and lower eyelids. Various benign tumors that arise from the hair or sweat glands can also be smoothed out with these. These often appear as clusters of white bumps or pebbles around the eyelids. Warts and precancerous spots known as actinic keratoses can be successfully treated with these lasers as well, but in many cases, these conditions can be treated with simpler techniques first. In the latter two cases, laser offers no advantage, in my opinion, over less expensive methods.

**WHO'S A GOOD CANDIDATE?**

The best candidates for resurfacing lasers are those who have realistic expectations. No doctor is going to be able to make you look as you looked at twenty. Any expectation of painless "erasing" of wrinkles is more the result of hype than reality. I take extra pains to make sure that prospective patients understand the medical information I provide rather than put stock in what they hear on talk shows or infomercials. The ideal resurfacing candidates also have fair skin and typically do not tan easily. Such people generally do well because the risk of darkening of the skin from the inflammation of healing is less in fair-skinned patients.

Although one treatment with the laser may accomplish the desired effect, sometimes multiple treatments are required. The process of new collagen production that occurs in response to the resurfacing laser continues—as most skin healing does—for at least twelve months. Touch-ups typically should not be done until that period ends. For one reason, improvement continues over this yearlong period. People who are unhappy with the immediate results on the upper lip where they would like their verticals lines to disappear completely usually feel quite differently at six months, when they observe continued improvement. As with all things cosmetic, good things take time.

**PREPARING FOR THE PROCEDURE**

Before undergoing laser resurfacing, preparation is critical. While the particular program will vary from doctor to doctor, preparation clearly improves final results. I use a regimen that includes pretreatment
with Retin-A (tretinoin), which seems to stimulate regrowth of the epidermis. A depigmenting cream containing the active ingredient hydroquinone may also be used to help prevent darkening of the skin after healing occurs.

Even if you don't have a history of cold sores or previous skin outbreaks of the herpes simplex virus, disruption of the epidermis caused by the laser light may reactivate a cold sore. It's best to take antiviral medication before and after surgery to be on the safe side. An antibiotic is also prescribed to be taken before and after the procedure in order to prevent bacterial infection.

**THE PROCEDURE**

Laser resurfacing is an office procedure and does not require hospitalization. Laser resurfacing is in essence a controlled burn so it cannot be done without anesthesia. When limited areas are treated, such as the lip region, or lines around the eyes or cheeks, local anesthesia with lidocaine is effective and intravenous sedation is usually not required. If full-face resurfacing is planned, intravenous sedation, under the direction of a qualified physician, is necessary. Some doctors prefer to treat the whole face even if just a few areas have lines and wrinkles, believing that an effective result might otherwise leave a patchy appearance. That has not been my experience, but you should follow the advice of the doctor who is going to do the procedure. My goal is always to perform the simplest procedure that will achieve the desired result.

If undergoing laser resurfacing in the office setting with local anesthetic, eat a normal breakfast on the day of the procedure, and take your routine medications. If you have been on aspirin or similar medications such as Advil or Motrin your doctor will likely ask you to stop taking them a week to ten days prior to surgery.

When I perform laser resurfacing, I first review the procedure with the patient emphasizing what can and cannot be accomplished. With the patient holding the mirror in the upright sitting position (your face looks different when you are lying flat) I ask her to note the areas she would like treated. I then mark these with a marker, and we then anesthetize the skin with lidocaine injections.

The patient then lies down on the procedure table and goggles are placed over the eyes for protection. Wet towels are draped around the areas to be treated to prevent tissue damage to skin that will not be treated.
HOW DO I KNOW WHICH LASERS WILL WORK FOR MY PROBLEM?

With so many lasers available and the media hype about them, it is hard to know where to turn. Don’t worry about the particular lasers listed here—your doctor will select what is best for you, since several different lasers may be available to accomplish the same goals. Here’s a simple guide to give a broad idea of the range of lasers in use. I’ve marked (in parentheses) how effective I think laser treatment is in each case.

**Wrinkles**
*Carbon dioxide resurfacing laser, erbium laser, pulsed neodymium: YAG (very effective)*

**Red Spots**
Broken blood vessels, rosacea, hemangiomas including port wine stains, cherry angiomas, red noses, starburst vessels, spider veins on the face
*Vascular lesion lasers including the pulsed-dye laser (very effective); KTP laser (effective buy may require more treatments than the pulsed-dye laser)*

**Brown Spots**
Liver spots, freckles, nevus of Ota, café-au-lait spots, melasma
*Ruby laser, neodymium: YAG laser, alexandrite (effective for liver spots, freckles, nevus of Ota; less effective for melasma)*

**Tattoos**
Removal of tattoos can be effective, but different lasers are required for certain colors. In general:
*Ruby laser, alexandrite laser (effective for most colors)*
*Neodymium: YAG laser (effective for yellow and orange)*

After confirming by touch that all areas to be treated are numb, I proceed with laser treatment. One nurse holds the vacuum suction which takes away the vaporized particles. This makes a fair amount of noise so you should know to expect sound. Another assistant stands ready to provide the wet gauze that is used to wipe away the surface skin that has been treated. During the firing of the laser you will hear a rapid, relatively high-pitched buzz. How deep I go—that is, how many additional passes I make—depends largely on experience, the nature of the lines and wrinkles, the person’s own skin qualities, and the risk I am willing to take to get...
the best result. In elective cosmetic cases, the rule of thumb is to be conservative. I believe we can always touch up an area that needs additional treatment; however, if you wind up with scars because the injury caused by the laser was too deep, neither you nor the doctor will be satisfied.

In my experience a cautious approach to laser resurfacing is best. Unfortunately, as this procedure explodes in popularity, a small number of doctors are not exercising good judgment and are combining it with other elective cosmetic procedures. In one case I consulted on, the surgeon had combined laser resurfacing with a neck lift. Scars resulted. When resurfacing your face, remember that you are asking a lot of your skin. Don’t overdo it and don’t rush the changes. When pursuing aesthetic elegance it is best to be conservative and cautious and realize that it took your mother nine months to make your face, and it probably took you an additional forty years of sun to get it where it is today. Take your time nudging it back to a fresher-looking state.

After the laser treatment is finished, a dressing will be placed on top of the treated areas. Some of my colleagues prefer a self-stick thin foam dressing that stays on for several days. I prefer a dressing that is changed daily. There is no right or perfect wound care regimen. The only thing that is important is for you to follow your doctor's instructions to the letter.

Burns and cuts heal best in moist environments. The key is to keep the skin that has been treated by laser moist and prevent any buildup of a crust or scab. This will help to achieve healing more rapidly.

Immediately after the procedure, the treated areas will look quite red and may be somewhat swollen from the anesthetic. Swelling will diminish

**WHAT’S NEW IN SKIN RESURFACING**

In 1999, colleagues at the University of California at San Francisco, University of Minnesota, and I studied a new technique for removing facial wrinkles. Based on the principle that removing the epidermis may stimulate new collagen in the dermis that will tighten up the skin surface, the method uses sophisticated electrical current rather than laser light to take off the top layer of skin. Early results are very promising with the method, known as *coblation*. For more information about this new therapy as it develops, check wwwtotalskinmd.com.

© Copyright 2000, David J. Leffell. MD. All rights reserved.
within a day or two. The redness may last for weeks or several months, depending on the type of laser used and the number of laser passes that were made over the skin.

You just experienced a controlled burn so there will be some discomfort. Pain medication is rarely needed for more than a day or two, and ice packs help a great deal.

Keep in mind as well that a resurfacing laser is used to surgically create a controlled scar. The skin responds to the laser injury by healing and new collagen is formed and remodeled. This takes many months, even though your surface skin or epidermis will be completely healed in about a week. So a key word for you is to be patient. The time it takes to heal completely and appreciate the full benefits of the surgery may be up to a year.

**COMPLICATIONS**

Potential complications of laser resurfacing procedures include scar-ring, increased pigmentation, and prolonged redness. You may need multiple treatments. You should not be afraid to ask your doctor how he or she plans to avoid or minimize these potential complications. If you are concerned about any changes that don’t seem right, contact your doctor right away. As a physician, I can be of help only if I know what's going on.

**• AGE SPOTS, BIRTHMARKS, AND TATTOOS**

Lasers are now available that will treat dark spots on your skin. A whole range of lesions can be treated, including those with the colors brown, black, dark blue, and dark green in them. These lasers go by the names of Q-switched ruby (also known simply as “ruby”), Q-switched neodymium:YAG, and alexandrite. Each variety can generate a color of light that is preferentially absorbed by the melanin pigment in your skin or by the dye of the tattoo.

These lasers do not alone destroy the pigment. Rather, they fire bursts of light that are incredibly short, lasting a tiny fraction of a second. When the pigment absorbs the light energy, a shock wave is created and the pigment actually fragments into minute particles. Unlike the carbon dioxide laser, where the residue is scrubbed away with gauze, the body’s own waste disposal system comes along and digests the miniscule fragments of pigment. Even though the laser has reduced the pigment to bite-sized pieces, at least for your body’s cells, it still takes a couple of months for this

© Copyright 2000, David J. Leffell, MD. All rights reserved.
process to reach maximal effect. So don’t expect to see your tattoo disappear instantly.

The pigmented lesion lasers work well on the brown spots that develop on the backs of the hands and on the face after years of sun exposure. Many people call these age spots or liver spots. In fact, medically they are known as solar lentigines. Typically, one treatment can remove these lesions, but I always tell patients to expect a second treatment or more for complete removal.

Other kinds of pigmented lesions often require multiple treatments before they vanish. These include café-au-lait spots, which are light brown flat patches that are present from birth, and nevi of Ota, congenital dark blue or gray patches on the sides of the face which are common in Asian people.

Great caution should be exercised before treating other pigmented conditions, especially moles, with lasers. Although the vast majority of moles are benign, lasers cannot provide tissue for analysis in the process of removing the mole so there is always the very small chance that a malignant or premalignant mole may be removed partially without knowing it.

Any number of tattoo types may be treated with pigmented lesion lasers. Some colors—especially black and blue-black—respond better than others. Other colors can be treated, though a series of lasers with different wavelengths may be needed to get all the red (or yellow) out.

WHO IS THE BEST CANDIDATE?

The best candidates for treatment with pigmented lesion lasers are people with lighter skin. Unfortunately, the pigmented lesion lasers are not very bright instruments. They can’t tell the difference between pigment that is from your own skin versus pigment that is in an unwanted lesion. Therefore, if you have a dark complexion, you will unfortunately be at higher risk here for an overlightening of the skin. Recently there has been some progress in developing new lasers that address this technical problem, so if you are dark skinned and would like to be treated, ask your dermatologist about it.

For most dark lesions, you should expect to need multiple treatments. To remove 90 percent of the color of a tattoo or a nevus of Ota, it may require eight to ten treatments.
THE PROCEDURE

If the area being treated is close to the lips, your physician may ask you to use an antiviral medication before your procedure to prevent cold sores. You may also be given a prescription for an anesthetic cream, such as EMLA or ELA-Max, that you apply at home about one hour prior to the procedure to decrease the discomfort associated with the laser treatment. Many people tolerate the laser surgery quite well without anesthesia, comparing the pain sensation to that of the snap of a rubber band or a mild grease splatter.

Prior to the procedure you will be given goggles to protect your eyes from any stray laser light. You may feel a slight buildup of heat in the treated area, and this sensation may linger for several hours afterward. For up to an hour immediately after the procedure, the area treated may appear white or grayish. Then, there is typically some redness at and around the site of treatment.

When the procedure is over, you will be given a dressing along with some antibiotic ointment to apply to help soothe the area. You should continue to dress the wound with an ointment for at least a week or so after surgery, or as your doctor advises.

Occasionally, areas of intense pigmentation, or areas that were treated with high levels of laser energy, will blister. The blisters will heal in approximately one to two weeks.

COMPLICATIONS

Potential complications of pigmented lesion lasers include lightening (or darkening) of the skin beyond that which is desired and scarring, which is relatively uncommon but still possible.

- GETTING THE RED OUT

A number of lasers are now available that can treat the often unsightly red broken blood vessels that we acquire with age and sun exposure. These so-called vascular lesion lasers can also be used to treat childhood birthmarks called hemangiomas. Types of vascular lesion lasers are the pulsed dye laser, the KTP laser, and the neodymium: YAG laser. Each of these lasers emit a color of light that is absorbed better by the hemoglobin in red blood cells than by the tissue in surrounding skin. The laser light comes out as a circle as
EASY ON, NOT SO EASY OFF

The ruby laser and others like it have provided great relief to many who would like to reverse previous indiscretions or have just had a change of heart about their tattoos. While these lasers are quite effective at removing most of the tattoo, it does require multiple treatments. In dark-skinned people, there is a risk of loss of pigment, resulting in small white spots. Have reasonable expectations and remember that it's unlikely a tattoo will vanish 100 percent. Individual variation in ink color, depth of pigment in skin, and location can all affect the final results.

small as a lead pencil eraser or as large as a dime. The larger the spot size, as it's called, the bigger the area covered, and the faster the treatment.

Numerous other conditions can be treated successfully with these lasers, including port wine stains, which appear as a deep red or violet areas on one portion of one side of the face; cherry angiomas, small red spots that develop with age, and usually appear on the trunk; and red scars. A new generation of these lasers is available that can be used to treat varicose veins, especially the smaller ones.

WHO IS THE BEST CANDIDATE?

As is par for the course in most laser therapies, the best candidates to undergo procedures with vascular lesion lasers are those with average to fair skin. While the wavelengths of light in these lasers do their best to avoid any damage to other skin pigment, they may not entirely leave the melanin in your skin alone. In fact, results are so much better on lighter skin that we typically tell patients not to come in for treatment if they have a tan. Broken blood vessels (spontaneously or as part of rosacea) typically respond after one or two treatments, while a port wine stain may require dozens of treatments to significantly lighten. People with such birthmarks may reach a point at which further treatment provides no additional benefit. (I assure them that, the way things are going, in a few years there are likely to be new lasers that might eliminate the balance of the growth.)

Pulsed dye lasers will cause black-and-blue marks at the site of the broken blood vessels or hemangiomas, and that is a drawback to their use. On
the other hand, this kind of laser has been in use the longest, so we have the most experience with it. This purplish bruise will last five to ten days. It's important to be aware of this time lag before treatment so you can plan your activities. You may not wish to venture outside much until it clears up. Newer versions of this laser cause less bruising.

The KTP lasers, on the other hand, do not cause bruising, especially if they are used with a cooling tip but may require more treatments for a particular area.

THE PROCEDURE

In preparation for treatment with any vascular lesion lasers, avoid aspirin for about ten days beforehand.

During the procedure itself, your eyes will be shielded with eye goggles. As the laser is fired you will feel a rubber band-type snap at the site. One of the new pulsed dye lasers actually fires a burst of cold air so discomfort is significantly reduced. Some physicians may give you a prescription for a topical anesthetic cream to apply at home beforehand to lessen any discomfort. The procedure will probably last several minutes, unless you have an exceptionally large area to be treated.

COMPLICATIONS

Potential complications of the vascular laser vary by laser type. The pulsed dye laser is exceptionally safe. It has a very low risk of skin pigment changes or scarring, but it generally requires multiple treatments. The KTP laser can cause a hive-type reaction around the treated area, with itching, redness, and swelling; this will slowly disappear over the next day. KTP lasers may also leave marks somewhat like cat scratches, which typically heal without problems. Both types of vascular lesion lasers have the risk of temporary skin darkening that can last three to six months.

- HAIR REMOVAL LASERS

As lasers seem to be helping us in so many other areas of life, people have eagerly awaited the laser that would permanently get rid of unwanted hair. Now there are several lasers available to remove hair: the alexandrite, ruby, and diode lasers. There is even a “non-laser” laser
called the PhotoDerm, which uses intense waves of multiple wavelengths of light. All these lasers emit a light color that is absorbed by dark pigment in the roots of the hair.

At present, it appears that two or three treatments spaced a couple of months apart will achieve a significant thinning of hairs in an area. The hairs that remain will not grow as quickly. When these hairs do grow back, they are typically smaller and of lighter color than they were before.

These new lasers haven’t been out long enough for us to ascertain whether hair removal is permanent, so right now, permanence is defined somewhat arbitrarily as two years without hair growth after treatment.

Multiple treatments are required because of the natural way that hair grows. Every hair on your body goes through growing and resting phases (see chapter 14, “Hair”). The hair that is most susceptible to damage from laser treatment (in other words, removal) is growing hair. Unfortunately, the hair in places where people often want no hair, such as the lip, the ears, and on the legs, is in the resting phase. As a result, at its very best, laser therapy can remove half the hairs permanently in these areas with a single treatment.

WHO IS THE BEST CANDIDATE?

The best results with these lasers can be expected in people with light skin and enough pigment in the targeted hair to absorb the laser energy, but little pigment in the surrounding skin to absorb energy that shouldn’t be absorbed.

THE PROCEDURE

Before treatment, I ask people to shave the hair in the targeted area and to avoid any additional tanning.

I provide a prescription for topical anesthetic cream to apply to minimize discomfort. In my experience, hair removal lasers are less painful than any of those that are used to remove pigment. Many of these lasers now emit a cool blast of air or have a cool tip that is in contact with the skin. These cooling devices prevent damage to the epidermis and prevent blistering.

You will don your protective eye apparel and be placed in a comfortable, reclining position. The length of treatment will be based on the size of the area and the diameter of the light beam that the laser emits. Some
DERMATOLOGISTS AND LIGHT

More than any other specialty, dermatologists have a deep respect for light. We tell patients to avoid it (sun), we use it to treat psoriasis (ultraviolet booths), and we harness it in lasers. The first medical laser, a ruby laser, was developed in the early 1960s by a dermatologist named Leon Goldman.

of these lasers now have two- to three-inch-wide attachments, in which case a large area such as the back can be treated in ten to fifteen minutes.

COMPLICATIONS

Potential side effects and complications of this treatment include changes in your normal skin pigmentation, blistering, and prolonged redness. There is also a small risk of scarring.

Because of adjustments in the wavelength of light, the duration of each light burst, and various cooling devices, damage to the pigment that is part of normal skin occurs less frequently these days. As the development of hair-removal lasers has progressed, darker-skinned patients can now be treated successfully with a corresponding reduction in the potential side effects or damage.