

## Laser Resurfacing

Laser resurfacing is a skin rejuvenation treatment that's used to reduce wrinkles, reverse sun damage, tighten the skin, improve texture, correct some pigmentation problems and help reduce scarring.

Resurfacing lasers deliver brief pulses of high-energy light to the skin to create a controlled injury of various depths that stimulates a natural healing process. This process manufactures new collagen to regenerate skin that is smoother in texture, more evenly toned and more youthful in appearance.

Resurfacing lasers are categorised according to the degree of thermal damage they deliver, efficacy, recovery times and risks.

### Full Ablative Resurfacing:

Traditional full ablative resurfacing using carbon dioxide (CO<sub>2</sub>) or erbium YAG lasers is a relatively deep treatment that removes the entire outer skin layer (epidermis) to reach the desired depth in the inner skin layer (dermis) where the collagen resides.

Carbon dioxide laser resurfacing is ideal for severely sun damaged deeply wrinkled or significantly scarred skin. This treatment has the potential to deliver dramatic and long lasting improvements in skin tightness, smoothness and colour with a single treatment, and it is considered by many practitioners to be the "gold standard" in skin rejuvenation.

In general, carbon dioxide laser resurfacing is performed on an outpatient basis, using local anaesthesia in combination with sedative medications given by mouth or through a vein. Recovery involves up to two weeks under dressings or ointment and up to several months of redness as the skin lays down new collagen and settles back to normal.

### Risks

Risks of carbon dioxide resurfacing include potentially permanent pigmentation changes, infection and scarring.



Fully ablative resurfacing is not suitable for off-face treatments or for dark skin types.

Over recent years, the popularity of full ablative resurfacing has been somewhat limited by the advent of newer, less invasive technologies that offer significantly reduced risk and recovery times.

### Fractional Laser Resurfacing

Newer "fractional" lasers split, or fractionate, the laser beam into many tiny columns of energy that can penetrate through the epidermis into the dermis beneath. Rather than treating 100% of the skin, fractional lasers typically treat less than 50% of the skin at any one treatment. They either remove microscopic columns of skin tissue (Ablative Fractional Resurfacing) or heat microscopic columns of skin tissue (Non-Ablative Fractional Resurfacing) while leaving normal uninjured skin in between.

While exhibiting results that fall short of the ideal outcomes of fully ablative treatments, fractional lasers have become an increasingly attractive resurfacing alternative because they create less skin damage and therefore enjoy a more favourable side effect profile and reduced recovery times. Because only a "fraction" of the skin is treated at any one session, more than one treatment is usually required to achieve desired outcomes. In general, the number of treatments needed increases as the degree of thermal injury decreases.

As a generalisation, the more aggressive the treatment, the longer the downtime, and greater the risk, but also the better the results.

For many, fractional laser resurfacing provides a very acceptable balance between recovery times, risks, and results.

Ablative fractional resurfacing treatments deliver more dramatic results, albeit with longer downtime, than non-ablative resurfacing. Depth of treatment can be adjusted from subtle to significant. Recovery times are directly related to the extent of the injury induced. These range from one to seven days; redness may last a few weeks.



Candidates for fractional resurfacing are those with mild to moderate sun damaged skin, pigmentation, sun spots, mild textural changes, fine lines and wrinkles.

A substantial benefit of fractional resurfacing is its ability to treat the neck, hands, and chest, areas where the skin is so thin that fully ablative treatments could not be performed due to the high risk of scarring. Fractional resurfacing is also suitable for darker skin types.

Non-ablative fractional resurfacing treatments spare the epidermis but heat the dermal layer to various depths in order to stimulate new collagen production and ultimately to improve the skin's colour, tone and texture. Fraxel™ is the original and best known of the many brands of non-ablative fractional resurfacing devices now available.

#### Risks of fractional laser resurfacing

Risks of fractional laser resurfacing are much reduced relative to full ablative resurfacing but include pigment changes, infection and scarring.

Some newer non-ablative fractional devices use energy sources such as radiofrequency, plasma and infra-red as alternatives to laser light.