

WHAT IS NON-ABLATIVE RESURFACING?

Most people find the effects of time, sun-exposure and, in some, smoking, produce detrimental effects on their skin. The skin thins, lines, wrinkles, pigmentation changes and fine blood vessels or a general redness appear. Beyond make-up, there have been a number of treatments used in the past to combat this. The most commonly known are chemical peels, dermabrasion and laser resurfacing. The more aggressive peels (which are necessary to achieve any significant change), dermabrasion and the resurfacing lasers leave the skin raw and weeping requiring time off work to recover. There can be complications from infection and scarring.

In more recent times less aggressive treatments have emerged. Initially there was microdermabrasion and, more recently, non-ablative lasers and IPLs. They are known as non-ablative as they do not break down the integrity of the skin surface and people treated can normally return immediately to their daily activities. Usually they will increase the turnover of the skin and increase the deeper collagen support layer. The light based treatments also target the blood vessels and pigmentation in the face directly, although microdermabrasion will improve these quite well too. Such treatments are very safe but will not achieve as complete an effect as the ablative modalities.

LASERS IN NON-ABLATIVE RESURFACING

In the early years of this millennium, a number of lasers have shown promise in stimulating some of the deeper skin elements resulting in an improvement in skin texture and appearance as well as fine lines. Lasers work by vigorously stimulating a medium (such as a crystal or gas) to produce a very pure, intense light of very specific

colour with qualities (collimation and coherence) that allow for predictable transmission as a fine beam over long distances with near undiminished effect. Because the light is a particular colour, its effect on treated tissue can be more accurately predicted.

IPL IN NON-ABLATIVE RESURFACING

IPL or Intense Pulsed Light is a technology that some call a laser but is not at all. It is like regular light bulb light consisting of all the colours of the rainbow (and beyond) and is produced as a very bright source. It is not collimated, coherent, nor monochromatic and therefore its effects are more general and more difficult to predict. It is usually controlled to a degree by filters to eliminate unwanted colours of the spectrum (usually only the higher frequency ones). With its range of frequencies it has shown some beneficial effects on red colour, pigment changes and some skin refinement. It is very operator dependent, is quite uncomfortable to painful, and causes local burns at times even in the best hands.

DUAL-YELLOW LASER

The Dual Yellow laser is the latest development in copper bromide laser technology. Copper bromide lasers produce two colours of light – yellow and green. By the use of filters in the laser body, either or both colours can be selected for treatment depending on the effect sought. The yellow light at 578nm absorbs strongly into the red haemoglobin pigment of blood cells, while the green 511nm is more selective for the melanin (brown/black) pigment in the skin. In this visible light region penetration into the skin is limited to shallow depth, but well in the range of what our eyes can detect for visible effects. One treatment with the scanning head of this laser can result in changes seen after a number of sessions only with

other lasers and IPLs. Complete clearance is unlikely to occur with one treatment, but the degree of change is massive and visible readily.

What Responds to the Scanning Treatment?

- General redness, flushed appearance.
- Fine blood vessels.
- Brown colour changes of previous sun-exposure.
- Fine lines, such as about the mouth and eyes. These are lessened, not eliminated, with one session.
- Poikiloderma – reddish brown colour changes on the side of the neck into the “V” of the upper chest, induced by sun exposure. This can be treated by the scanning treatment and individual vessel spot treatment.

What Responds to Local Treatment?

- Superficial pigmentation changes such as freckles and lentigos (larger flat brown skin lesions). The surface ones tend to have a well-defined edge.
- Raised brown lesions such as moles, skin tags and seborrhoeic keratoses.
- Scars. Depressed scars from previous surgery and injury will improve in colour (the vascular component and some increased pigmentation in them) and texture. Raised scars will improve this way to a degree too.
- Stretch marks can also be treated in one to five sessions. Sometimes they begin to show again after a year.
- Warts on areas including the feet will respond, taking some time after treatment to separate.
- Newer techniques are being developed. These include treatments for active acne.

How Is It Done?

The scanning treatments utilise a special handpiece with a contact tip. Currently this is 5mm in diameter, but a larger one is in production.

Gel is placed on the skin, to reduce reflection of the laser light and each area is treated in turn, allowing a small degree of overlap.

For the individual lesions, either a fine contact tip, or a non-contact one with a wire space, to allow correct distance in treatment, is applied. Several shots at a time are fired. The spot size for these treatments is 0.6mm – very small each time. There is some mild discomfort associated with this, less with contact tips. Lesions, such as moles, that require the combined light usually will need some anaesthetic to allow enough energy to be used.

How Does It Work?

The laser energy is absorbed by particular pigments especially the brown melanin skin colour pigment and the red haemoglobin pigment in the red blood cells. The light energy is converted to heat energy. This causes either stimulation of nearby tissue factors for the regeneration of collagen and support tissues effect, or denaturation of the tissue for those lesions that need removing. Some smoke and associated odour will occur with the latter.

What Pre-Care is Required?

It is important that no artificial tanning creams or lotions have been applied in the week or two prior to a session. Any sun tan should have mostly faded for this laser (if healthy skin is being treated – this would not apply for areas that are being removed). In lesions that are removed at times a moist base is left. This will heal best under some vaseline to allow for moist wound healing.

What is Required at the Time of Treatment?

Make-up is removed before each session (the metallic elements included in make-up can generate unwanted effects of laser energy scattering and increased heat). This includes moisturisers with sun block. Occlusive metal-

based goggles or shields are used to protect the eyesight (the back of the eye strongly absorbs this light). If treatment close to the eyes is required internal eye shields may be fitted. To ease the fitting of these local anaesthetic drops may be applied to numb the eye surface.

What Are The After-Effects?

Pigmented flat lesions will turn a deeper brown. This is maximal on the fifth to seventh day. Some scaling or light scabbing may be noticeable then as the lesions fall off. This can be hastened by rubbing with a rough cloth or using microdermabrasion. The laser will leave the skin pink, from warming, for an hour or more after the session.

What After Care is Required?

Many of the treated problems, including freckles, have been created through sun exposure. Therefore regular use of good broad-spectrum sun blocks and good care in the sun will prevent or delay recurrence.

How Many Treatments Are Required?

Good resurfacing sessions and lesions removals normally need a single session, although at times a further tidy up could be required.

What Else Can Be Used?

Larger problem blood vessels can be treated by other modalities such as the Cool Glide laser. Deeper scar lines, folds and wrinkles will get a better response from this laser as well. They can be also treated by dermal fillers e.g. Restylane, Aquamid and Isolagen. Dysport (like Botox) can be used to reduce lines caused by muscle tension.



NON-ABLATIVE SKIN RESURFACING & LESION TREATMENT

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