

# LASER RESURFACING

Many techniques have been used to resurface (renew) sun-damaged (photodamaged) and ageing skin. Retinoic acid, chemical peels and dermabrasion have had their time and continue to have a place in appropriate patients. The laser and Intense Pulsed Light (IPL) are the newest technically advanced methods for achieving consistent, relatively risk free skin resurfacing. They should be regarded as another weapon in the battle against the ageing process rather than a replacement of the previously available techniques.

## What is a Laser?

The word laser is an acronym for:

**L**ight  
**A**mplification by  
**S**timulated  
**E**mission of  
**R**adiation

By stimulation of certain molecules light energy is emitted. Different molecules (and therefore different lasers) produce light of different wave lengths that are absorbed by specific tissues or pigments. This light is passed through a focusing lens to produce a beam of intense energy. Filters of different colours over the beam also modify the energy delivery to achieve results on different elements of the skin.

## How Does it Work?

For resurfacing, carbon dioxide, erbium, or a combination of both gases is used to produce light energy that is absorbed by water. Because the skin is 70% water the laser beam actually vaporises the epidermis or top layer of skin. Subsequent passes of the laser beam will vaporise deeper layers (or papillary dermis) of the skin. Continued passes can damage the pigment producing cells (melanocytes) or burn right through the skin and cause scarring. Fractionated laser beams pass through the skin leaving islands of normal skin unaffected by the energy. Conceptually, the fractionated laser beam is to the spot CO<sub>2</sub> or erbium laser as a pin cushion is to a complete disc of energy. Each technique has its appreciation with differing benefits and pitfalls which Dr Olbourne and his staff can explain.

Extremely short exposure time to a single spot of skin reduces the collateral heat or thermal damage to the remaining skin. As the depth of the laser treatment progresses, the collagen and elastin fibres that have become disorganised and stretched by photoaging undergo a reformation process with shrinkage and reorganisation, with the result that the skin can tighten and look more youthful.

By being able to control power, spotsizes and the dwell time of the laser beam, ablation of the skin can be controlled precisely, with minimal heat injury to the surrounding skin, little or no bleeding, and subsequent minimisation of the attendant risks or potential complications. Fractional laser treatment minimises risk by using many extremely small laser spots with islands of untreated skin between energy beams.

## What Conditions Can Be Treated?

Changes associated with ageing and sun exposure (photoaging) such as; fine lines, wrinkles, rough blotchy patches and deep expression lines are all suitable for treatment with the laser. These changes are not only accelerated by sun exposure, but also by smoking, alcohol and atmospheric pollution. Other conditions that can be treated include acne scars, chicken pox scars, irregular surgical scars, pigmented lesions and some moles.

The most commonly treated areas are the eyelids, mouth, forehead and cheeks. The neck is largely unsuited for laser treatment because its microscopic architecture is such that **safe** re-epithelialisation cannot be predicted. The lesser invasive treatments of fractionated laser and IPL can be of some value in areas unsuitable for laser treatment.

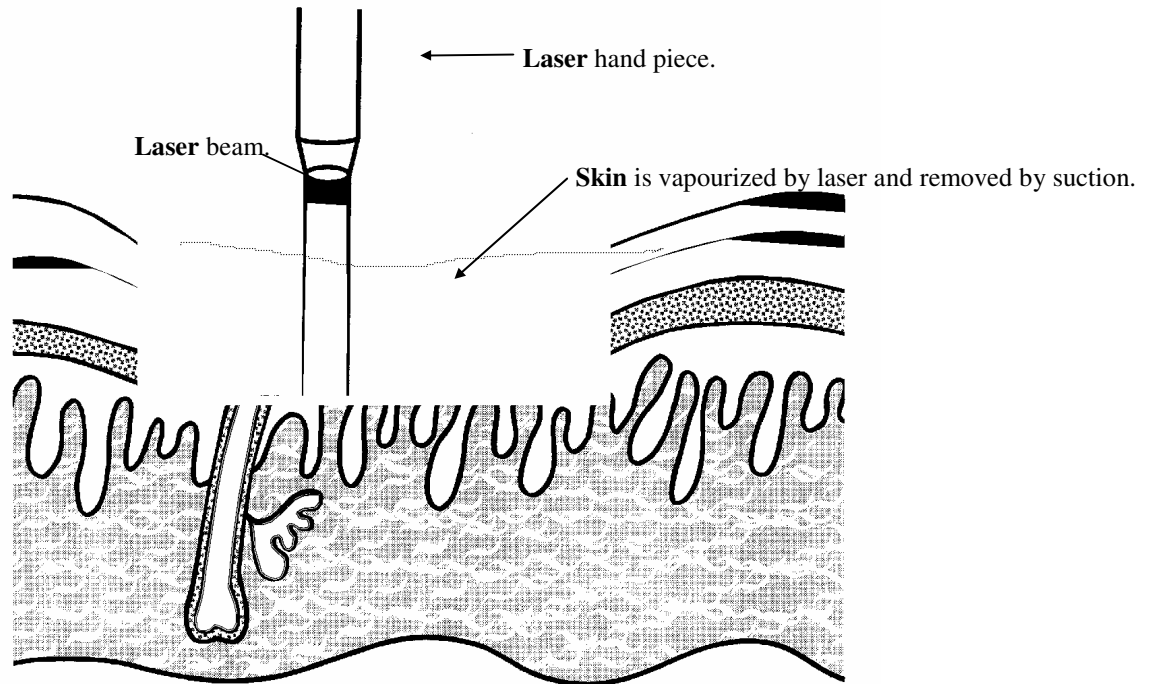
In some cases, fine lines and wrinkles can be eliminated entirely, but other lines such as the deep laugh and frown (expression) lines may only be softened. You should think of laser resurfacing as an improvement, rather than an elimination of all lines.

If you are considering laser resurfacing you must have realistic expectations of what can be achieved.

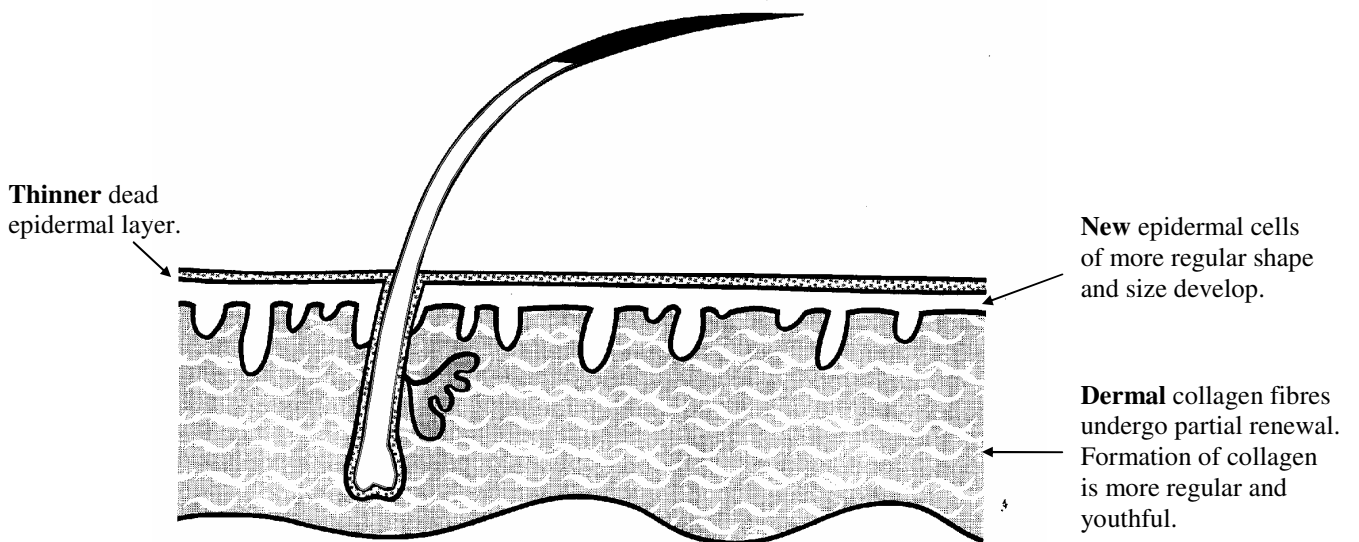
### Photoaged Skin



## Laser Resurfacing



## Skin after Laser Resurfacing



## Who Is Suitable?

Patients with the signs of photoaging previously mentioned are greatly improved by laser resurfacing. There does not appear to be any age limit to treatment. Different skin types, variability in skin thickness and the age of the patient will determine the depth of treatment and type of laser best utilised. To achieve optimum results – a single treatment episode with CO<sub>2</sub> or erbium usually suffices. With fractionated laser or IPL a series of multiple treatments is usually indicated. The inconvenience of multiple visits is offset by the more limited downtime with these less invasive treatment methods.

Other conditions may require special precautions or may even preclude a patient from consideration for laser resurfacing. These include:

1. Past treatment by dermabrasion, laser resurfacing or chemical peel.
2. Certain drugs used at present or in the past such as (a) Roaccutane for treatment of acne, (b) contraceptive pill, (c) certain antibiotics.
3. Previous removal of facial hair by electrolysis.
4. Darker skin types.
5. A history of keloid scars.
6. A history of oral herpes.
7. Previous facelifts.

It is important that you advise Dr Olbourne of these or any other conditions or treatments of your face that may impact upon the ideal choice of treatment.

Much has been made of the different types of lasers available for skin resurfacing. Carbon dioxide, erbium and Sciton™ are but a few of the names one hears banded about. It is important that you appreciate that all lasers act in the same way (as do other modalities, such as chemical peel or dermabrasion). That is, they progressively abrade the skin from the surface downwards and rely upon re-epithelialisation to achieve healing and produce the desired result.

What is vital, is not so much the treatment or laser used, but the skill of the operator and the correct assessment of your skin type and your requirements. All treatment modalities can achieve great results in experienced hands, just as they can all result in complications if used inappropriately or on the wrong patients. New treatments and machines are being introduced all the time. That does not mean that they are necessarily better than existing techniques. Be sure to discuss these issues with Dr Olbourne during the preoperative assessment of your condition.

## Does It Hurt?

The use of anaesthetics (either local anaesthetic with sedation or general anaesthetic) should eliminate pain or discomfort during the procedure. In some instances, you may experience a slight tingling from the laser. The laser pulse may feel like a rubber band snapping against your skin.

After the anaesthesia wears off, there is usually a slight burning or stinging of the skin. Only mild analgesics are usually required to make you feel comfortable.

## How Will It Heal?

With CO<sub>2</sub> or erbium you skin will start to swell immediately after treatment. Dr Olbourne will advise whether it will be better to use a closed dressing or an ointment applied to the treated area and then left open. In the first 24-48 hours the area will weep like any burn and if an adhesive dressing has been used, this may need to be replaced after the first 24 hour period. Subsequent dressing changes may be necessary until the area heals.

If ointments only have been applied to the treated area, you will have to clean and reinforce this film frequently (each 3-4 hours) to prevent scab and crust formation.

With either post-operative treatment method it usually takes some 10 days for the skin to heal. This period may vary from 5 to 14 days depending on the depth of treatment and the healing response of the patient.

With IPL or fractioned laser – there is minimal post treatment discomfort or peeling. Almost always, patients can return to work or social activities without interruption. To achieve the potential of these treatments, multiple attendances should be necessary and the ultimate improvement may not always be as great as when the more aggressive treatment modalities are used.

Anything that slows the healing process such as infection or other damage of the new skin will increase the possible risks of treatment. You may be asked to take oral antibiotics and oral antiviral tablets (to help prevent oral herpes) as a precaution against infection.

## How Long Will It Take To Settle?

After healing is complete, the skin is pink to red and often quite dry. Dr Olbourne will prescribe ointments and moisturisers to use during this period that will hasten the resolution of the post inflammatory pinkness. However, on average this takes 6-8 weeks to settle, but occasionally with some patients the pinkness can last for many months. There is no reason why makeup cannot be used to camouflage this pink colour whilst resolution proceeds.

Altered blotchy pigmentation can also be a problem during this time and a good sun block is advised to protect the skin. The most suitable sun blocks are those containing Titanium Dioxide, but must be at least SPF15+.

If pinkness of the skin persists and is a problem, then “anti-red” or camouflage makeup can be used once the area is healed. This camouflage is green in colour and neutralises the pink of the skin. It is applied beneath your normal makeup and it is our experience that when needed, it is most effective in its camouflage role.

In summary, your postoperative care will involve the use of a moisturiser, a makeup with a strong block out additive (SPF15+ or more), occasionally a “green” camouflage (which our office can supply) and rarely an application to counter hyperpigmentation of the skin, should it occur.

### **When Can I Return to Work?**

Approximately two weeks is the usual length of time off work for most facial laser treatments, but some makeup will be necessary when returning to work.

### **What Are The Alternatives?**

Any procedure that will improve the texture of the skin may be an alternative to laser resurfacing. This can range from long term use of creams containing Glycolic Acid or Retinoic Acid (Retin A) to chemical peels and dermabrasions.

The use of creams is a long term treatment and is often advocated before and after initial laser treatment. It is only suitable for very fine lines. However creams can improve the overall texture of the skin and maintain its smooth appearance. Retinoic-acid creams are often used in the prelaser preparation of the skin, although one must be careful in patients of child bearing age. Rejuvenating creams should be regarded as an essential component of the postoperative maintenance programme that all laser patients should embrace.

Chemical peeling is also used for quite fine lines and may be used in combination with laser resurfacing to “blend in” areas with the deeper lines best treated by the laser. Chemical peel will not be effective for the deeper lines often improved by laser resurfacing. A good practitioner will utilise either or both treatment techniques in appropriate patients.

Dermabrasion can successfully treat deeper lines, but the risk-benefit ratio is quite high compared to laser resurfacing. Pigmentary changes are frequent, scarring (especially of the upper lip) is not infrequent and results are very operator dependent. The textural flattening achieved by dermabrasion may cause difficulties in applying and maintaining makeup. Unlike dermabrasion that causes some bleeding, laser resurfacing is by comparison, virtually bloodless. With the advent of laser

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technology, it would be fair to say that dermabrasion has much less application in the field of skin resurfacing.

## What are the Dangers?

Before you make a decision to undergo cosmetic surgery, it is important that you be informed of the potential risks, complications and side effects. Despite Dr Olbourne's experience, it is recognised that complications may occur even with the best surgical care. For this reason, and in order that you may be truly informed prior to making your decision about surgery, it is important that you carefully read and understand the risk factors.

The following is a list of **side effects** which accompany laser resurfacing on a relatively common basis. **Complications**, although rare and unexpected, may occur despite any surgeon's best efforts. Whilst reading and carefully considering this list, please understand that thousands of successful cosmetic procedures have been performed and the occasional occurrence of these limited side effects may be a part of what is considered a successful cosmetic operation. Likewise, although much less likely, the complications listed herein do occasionally occur, despite optimal care and patient co-operation.

## Possible Side Effects

1. **Residual lines** - deeper lines or wrinkles cannot be entirely eliminated by laser resurfacing. These will merely be softened and thus improved. A further laser resurfacing procedure can be performed after some months to further reduce any residual lines.

Expression lines (such as the smile lines around the eyes) will slowly return over time because of the underlying dynamic muscle activity on the overlying skin. The differentiation between static creases (improved by laser) and dynamic creases (muscle induced) must be appreciated.

2. **Severe itching** - of the skin has been reported by some patients during the healing process. This does not seem to be an allergy and usually does not decrease by changing the method of dressing. Antihistamine tablets can be prescribed and are of benefit to some patients. Itching may continue whenever the post inflammatory pink colour persists in the skin.
3. **Prolonged redness** - some degree of skin redness will accompany all laser treatment. This may vary between pale pink to bright red depending on your healing and skin type. Redness may last from four weeks to six months, the average time to settle being six to eight weeks. Dr Olbourne may prescribe cortisone ointment to use for two weeks after healing has occurred followed by a moisturiser cream to expedite resolution of the redness.

4. **Milia** - “white heads” or blocked oil glands in the skin can arise infrequently during the healing period. The milia are of a temporary nature and usually disappear as soon as the skin settles. If they are problematical, exfoliative creams usually are effective.
5. **Recurrence of acne** - if you have suffered from acne in the past, particularly cystic acne, then laser resurfacing may cause the acne to recur. The problem is usually short lived and settles again with appropriate medication.
6. **Prominent pores** - skin pores, especially on the nose, can appear more noticeable after laser resurfacing. The pores may appear wider, but are usually shallower. The reason that this occurs is because the normal skin between the pores contracts after laser treatment pulling open the depressions of individual pores. Dr Olbourne will discuss with you which depressions in the skin can be improved with this technique and which may look more noticeable.

### **Possible Complications**

1. **Infection** - this can lead to delayed healing which in turn increases the chances of scarring. Infection can be caused either by bacteria or viruses and has the effect of damaging the skin to a deeper level. All patients are therefore required to take a course of prophylactic antiviral tablets. Although this is designed to prevent infection and stop the break out of the oral herpes, infection can always potentially occur and strict hygiene rules should be observed when handling the treated area. It is vital that you advise the practice if at any time in the past you have had a cold sore. This will determine what dose of anti-herpes medication you will need to take during your treatment.
2. **Scarring** - this is usually the result of delayed healing (as with infection). The modern laser is so precise in the depth of vapourisation of the skin surface that the possibility of scarring is reduced. In spite of the precision of the laser and the care taken by Dr Olbourne, scarring may still occur on very infrequent occasions, even when skin healing has been normal.

Post -Laser scarring can be either flat and smooth or raised and lumpy. The area involved should be very small and superficial. It will usually resolve with time and pressure. Resolution can be hastened by cortisone creams and injections of steroids. The occurrence of scarring is troublesome to both patient and surgeon, but usually resolves satisfactorily with time and patience.

3. **Skin contracture** - skin contracture is a beneficial result of laser resurfacing in most instances and is one of the objects of treatment. It is thought that the laser energy causes between 10-20% shortening of collagen fibres in the skin. However, in one particular area especially (i.e., the eyelids) contracture of the skin can be detrimental. This occurrence could cause the lower eyelid to be pulled down and even make it impossible to close the eyes if the upper eyelid

skin has been shortened. This problem may be exacerbated if you have had eyelid surgery in the past. You should indicate to Dr Olbourne if you have had previous eyelid surgery.

4. **Hyperpigmentation** - dark pigmentation of the skin is more common with some skin types and is almost a normal part of healing. It is less common in paler skinned patients (25-30%), but more common (100%) with darker skinned patients.

It is vital to avoid ultraviolet sun exposure whilst the skin is still pink/red and a complete sun blackout (preferably containing Titanium Dioxide) should be used when there is any chance of sun exposure.

We are all subject to a high degree of reflected sun exposure e.g., sitting in a car. Consequently *extreme care* should be taken. If the overpigmentation is slow to settle, skin bleach creams containing hydroquinone or kojic acid can be prescribed and this usually hastens the resolution of this problem.

Because of this potential problem, treatment is usually directed to an entire cosmetic area (i.e. the entire cheek or entire upper lip) of the face so that if a degree of change does occur it does not appear as a focus, but is more diffuse.

6. **Hypopigmentation or depigmentation** - loss of skin colour is due to damage to the pigment producing cells or melanocytes. The deeper the treatment, the more likely it is that areas of depigmentation will result. Laser resurfacing is less likely to cause this problem than other methods of skin resurfacing such as dermabrasion or certain chemical peel agents, but no resurfacing therapy can be regarded as free from this potential problem. Hypopigmentation may be delayed for months or years in its onset.

## Expectations

Remember that with any cosmetic plastic surgery there are risks and although these are infrequent, they can occur, even in the most experienced hands.

It is also important that you have realistic expectations about what can be achieved and what is not possible to achieve.



**CALL DOCTOR OLBOURNE IF YOU EXPERIENCE THE FOLLOWING:**

- ☞ Excessive pain or bleeding
  
- ☞ Abnormal swelling
  - ☞ Fever during the first 24 hours or especially during the first 7 days

**How Much Will The Procedure Cost?**

Costs of laser resurfacing relate to:

- a) surgeon and assistant surgeon
- b) anaesthetist
- c) hospital
- d) ancillary charge (pharmacy etc.)

Dr Olbourne can tell you his fee and give you some indication of the costs of the other people involved in your care.

You must appreciate that the ultimate cost to you will depend on where you choose to go for your procedure and what rebates you will receive from your medical fund and Medicare. This in turn depends on whom you may be insured with and what level of insurance you have chosen. Please advise Dr Olbourne if your insurance has a front-end deductible cost or "excess". With all the relevant information the doctor's office should be able to give you a very close approximation of what your final costs might be.



## Further Information

For further information on this or any other cosmetic procedure, feel free to contact our office. Our staff are dedicated to assisting you and will do all they can to make your surgical experience as comfortable as possible.

You can also assist us by advising us of any aspect of your experience that has not been adequately covered in this brochure. We are always seeking to improve the information we give to patients. Your input will help us achieve that goal.

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