



## INTENSE PULSED LIGHT

In the past, the most common methods to keep a youthful look was to use various wrinkle creams, keep out of the sun and visit beauty salons regularly for peels or dermabrasion treatments. Results are usually excellent in the short term, however as time goes by, we are looking for more, longer lasting options.

Light based treatment methods for skin rejuvenation have been around since 1991. In the past, carbon dioxide or erbium laser resurfacing were the treatments of choice, however these treatments were not without unwanted side-effects in many cases.

The most recent optical treatment is skin rejuvenation, which reduces pigmented and vascular lesions brought about by long-term sun exposure. This treatment is most effectively performed with Intense Pulsed Light (IPL) systems. IPL devices offer sophisticated, computer-driven precision and tremendous versatility. Due to the nature of the treatment, IPL therapy can be applied to the sub-surface skin layers for gentle and gradual results with reduced side effects and patient downtime.

IPL is the gold standard for photo-rejuvenation (rejuvenation of the skin through light). The technology is FDA (Federal Drug Administration) approved for a number of conditions including age spots, sun-induced freckles, rosacea, birthmarks, broken capillaries, acne scarring and other blemishes and unwanted hair.

Possibly the most remarkable aspect of this treatment option is its versatility, however an added bonus, which is important to today's busy generation, is the little or no down time from treatment.

IPL skin treatment offers a solution that will address skin conditions that are most visible, treat entire areas – not only small spots, cause little discomfort and downtime, provide a gradual, natural looking improvement and produce long lasting results

### How does IPL work?

Intense pulsed light systems harness the energy from a pulsed Xenon flash-lamp and deliver it directly to the skin. Xenon flash-lamps provide a flat, broad-spectrum light with wavelengths selected by customised filters to adapt to particular applications.

To put it simply, a different filter is applied to the flash-lamp which alters the wavelength of the light emitted. Different wavelengths have been proven to treat particular conditions effectively. By choosing the correct filter, a particular condition of the skin can be treated. Treatment areas are generally speaking larger when compared to traditional lasers which means treatment time may be reduced.

The system works through interaction between the light and the underlying tissue. The skin contains chromophores – or light sensitive cells. These chromophores include melanin (in hair, hair follicles and pigment in the epidermis), oxy-haemoglobin (in blood) and water. These chromophores absorb the light and convert it into heat. At certain temperatures chromophores are destroyed. By applying specific wavelength light you target set chromophores and cause their destruction through heat.

### Types of IPL systems:

There are a number of intense pulsed light treatment units on the market today, each performing similarly, however each having some unique differences. The first IPL machines brought onto the market were sophisticated for their time, however years of use and experience has resulted in state of the art units with high degrees of effectiveness and minimal risk of side-effects. One of the very early side effects was the problem with heating of the water content in the skin during treatment with resultant risk of burns to the skin and pigmentary changes.

Chrysalis Skin Technology offers the Scanmedics DDD Ellipse Flex, second-generation Intense Pulsed Light system with varying wavelengths and Dual Mode filtering. This unit uses only clinical relevant wavelengths therefore using lower energy levels with maximum efficiency. Dual Mode Filtering minimises the risk of adverse side effects and client discomfort by removing those wavelengths that only cause heating of the water in the skin. This means there is no need to use a cooling device during treatment.

The Ellipse Flex is the most clinically recognised system in Europe. It is a digital system and as a result, regular software updates keep the unit up with the latest advancements. This IPL unit has applications with specialised wavelengths for each of the following applications:

- Hair removal
- Photo rejuvenation
- Vascular treatment
- Pigmented lesion treatment
- Acne treatment

### Treatment guidelines

As a general rule, there are few people who are not suitable candidates for IPL, however certain conditions may affect the effectiveness of treatment.

As with most light based treatments, fairer skin clients are most suitable. If you have excess melanin (pigment) in the skin, particularly in the deeper dermis, then you are more likely to get an unsatisfactory treatment from IPL as pigment may become uneven. IPL will not penetrate the dermis layer of the skin, however it may provoke the melanin cells in that layer causing increased pigment.

That is not to say that darker tanned individuals are not suitable for treatment – the output of the laser can be adjusted to take the skin type into account, however the number of treatments required may be greater than a fair skin individual. Very dark skinned individuals such as those with Fitzpatrick skin types IV and V may not be suitable candidates.

Prior to treatment, during treatment and for several months following your treatment you will be asked to keep out of the sun and use a SPF 30+ or physical block on the treated area at all times.

Immediately following treatment the area will be slightly reddened and you may experience some minor discomfort. After about 3 days, pigment in the area treated may become darker and persist as a 'dirtiness' for up to 10 days before diminishing. It can be covered with make-up.

## How IPL works for acne

Energy from the light source is set to target the oxy-haemoglobin and haemoglobin in the blood. The light energy is converted into heat energy and eliminates the smaller blood supplies to the sebaceous glands in the skin resulting in a reduced oil production.

Immediately following treatment for acne, the skin will become reddened and may be slightly swollen and tender. Mottled brownish pigmentation may appear within a day or two and will peel off after 10 – 14 days. It may be covered by make-up if required.

Prior to treatment for acne, a surface treatment to the skin is required for a period of one month. The purpose of this agent, which will be supplied by our clinic, is to thin the skin and prepare the sebaceous glands for treatment. Acne usually requires approximately 4 treatments about one month apart. You may be advised to continue the topical treatment to your skin for a period of time following your IPL therapy.

Treatment for acne usually causes some redness and swelling to the area, which may take several days to settle. It may also cause a mottling or uneven pigmentation to the skin, which spontaneously peels off after 3 – 14 days. This pigmentation is due to photo-oxidised melanin and may be covered with make-up for camouflage.

## Vascular Lesions

IPL can effectively treat a number of vascular conditions such as facial telangiectasia, port wine stains, spider angiomas, rosacea and hemangioma. The light energy emitted is set to target the oxy-haemoglobin and haemoglobin in the vessels underneath the skin. Light energy is converted to heat, which is conducted through the walls of the vessels. The vessel wall is heated up to 70 degrees for one microsecond resulting in destruction of its protein. Vessels up to 0.5mm can be treated successfully.

One to four treatments may be required based approximately one month apart.

## Pigmented lesions

Lesions such as solar lentigines and ephelides can be effectively treated with IPL. The wavelength is set to target the melanin in the lesion and destroys it through heat. Some redness can be expected immediately, and the lesion may crust, usually healing one to two weeks following treatment.

More than one treatment may be required based approximately one month apart.

## Sun damaged skin

Exposure to the sun accelerates the ageing process of the skin and can disrupt the blood supply, which in turn can lead to telangiectasia's, It can also lead to uneven pigmentation that shows as freckles or age spots and irregular pore size.

IPL works in this instance by sending well-controlled pulses of light into the upper layers of the epidermis. The light is absorbed by two of the body's own natural chemicals – melanin in the

pigmented areas and haemoglobin in the red blood. Both of these pigments convert the light energy into heat. The heat is used to destroy parts of the cells in which the melanin is stored and to damage the walls of the vessels supplying the blood to the areas where vascular damage is seen. This process is called 'selective photothermolysis'.

Treatment is best for those with fair skin who do not regularly expose their skin to direct sunlight. All patients must refrain from tanning in the form of direct or indirect sunlight, tanning salons as well as tanning creams for at least one month prior to treatment and one month following treatment.

Immediately following treatment it is usual to have some redness. Mottled pigmentation may also occur which may crust after 1 – 3 days and spontaneously peel away after 3 – 14 days. Sun damaged skin may require 1 – 4 treatments of IPL.

## **Hair Removal**

Melanin (or pigment) is found in greatest concentration in black hairs, which means there is optimal absorption of the light in darker hairs. Fair hair has less melanin and consequently there is less certainty of permanent destruction of the hair follicles through IPL. Grey, white or red hair has no pigment and therefore clients with these hair colours are not suitable candidates for treatment.

The upper skin layer contains melanin and as darker skinned individuals have more melanin in their skin than those with lighter skin, it is necessary to treat the darker skinned individuals with less energy to avoid generation of excess heat and damage to pigment cells within the skin causing side effects such as loss of pigmentation. The ideal client for IPL hair removal has lighter skin with darker shades of hair.

You are asked to shave prior to treatment, unless otherwise advised by your therapist. The area will be marked out with a red pen and a thin layer of gel is applied to the area so that the light can be more easily transmitted into the skin via the handpiece of the unit. The gel is wiped off following completion of treatment. Some pain is felt during treatment however this is usually compared to an elastic band hitting the skin and is only transient. Redness can persist for 12 to 24 hours after treatment and in some cases crusting of some areas may occur temporarily.

No one can guarantee permanent removal of hairs. It is possible to remove the hairs but not the reason that they grow. As with laser treatment, only hairs in their growth stage can be treated and as the growth cycle of the hair is approximately 3 – 4 months, more than one treatment is required to affect a majority of the hairs in the area. Usually 3 – 6 treatments are required based 1 – 3 months apart.

Unlike laser treatment, hairs are not evaporated during IPL treatments. Hair follicles are destroyed, but the hairs remain in the follicles and are often attached to the epidermis. They will fall out 1 – 3 weeks following treatment as the epidermis is renewed. During this time, it may seem that the hairs are actually growing. It is important that you realise this important fact and not be alarmed by the lack of instantaneous results.

## **Side Effects and contra-indications:**

IPL therapy causes redness or erythema in most individuals immediately following treatment. This may persist for several days. Commonly, mottled pigmentation occurs following treatment,

particularly for treatment for acne, sun-damaged skin or pigmented lesions. This pigment may crust and will spontaneously peel off 3 – 14 days following treatment.

Discomfort from treatment varies from person to person, however most clients complain of minimal discomfort. The client and technician wear protective eyewear for the duration of treatment for safety reasons.

As IPL treats the cells through heat, there is a risk of heating of water elements in the skin, which may result in superficial burns to the skin. Second-generation IPL units substantially minimize this risk, however cannot completely eliminate it.

As a general rule, those individuals with very dark skin are not suitable for IPL and those with moderately tanned skin can expect to require a larger number of treatments for their condition as energy levels need to be low during each treatment so as to avoid excessive damage to surrounding pigment producing cells.

Persons with white, grey or red hair are not suitable candidates for hair removal, and those with blonde hair may also have reduced effectiveness of treatment. Clients who have waxed or used any depilatory treatments for hair removal must wait at least three months following this treatment before commencing IPL.

All clients must avoid the sun prior to and for at least one month following treatment for any condition.

All clients undergoing treatments with IPL should avoid any strenuous activity for at least 24 hours following the treatment. This includes any exercise, sport etc.

Individuals who have taken ro-accutane for acne are required to wait at least three months following completion of this substance before commencing any IPL therapy. Those who are taking anti-coagulants of any kind are not suitable for any form of IPL treatment.

A thorough medical history including a historical skin analysis will be undertaken by our trained Technicians prior to considering suitability for treatment with IPL. An informed consent document detailing all aspects of IPL treatment including specific risks and complications will be supplied prior to proceeding with treatment.

This document is not a substitute for a consultation with a technician; it is merely supplied to give general information. It is important that you understand all aspects of your treatment and for that reason we encourage you to ask questions and investigate your treatment completely. A web site for our particular Intense Pulsed Light unit is available at [HYPERLINK "http://www.ellipse.org" www.ellipse.org](http://www.ellipse.org)

### **In summary**

Intense Pulsed Light therapy has been with us for some time now and as technology for treatment is becoming more refined, it is becoming increasingly popular as a non-surgical alternative to treatment for cosmetic blemishes. Down time is minimal, and in many cases results are overtly evident in a short period of time.

Chrysalis Skin Technology offers second generation IPL performed by fully trained technicians, resulting in precise treatment with reduced risk of side-effects.

Please call 07 47714344 and ask for Krystal, Lesleigh or Chelsy if you would like to find out more about IPL. A free consultation is available by appointment for your benefit.

