



# MAKE LIGHT WORK

LASER AND INTENSE PULSED LIGHT HAIR REMOVAL REMAIN NON-SURGICAL FAVOURITES, SAYS **SARAH WILLIAMS**

**L**aser hair removal was first discovered in the late 1960s by dermatologists who found it to be a side effect when using lasers to treat skin conditions. This discovery has led to years of extensive research and studies into the efficacy of various lasers and intense pulsed light (IPL) machines for hair removal. Many different types of lasers and IPLs have since been approved by the US Food and Drug Administration (FDA) and now laser hair removal is practiced all over the world and is one of the fastest growing non-invasive cosmetic procedures on the market. Last year alone, over one million people underwent laser treatments worldwide.

While lasers have specific wavelengths that allow the practitioner to target an individual problem, such as broken capillaries, rosacea, freckles, sunspots or pigmentation, IPL uses a broad spectrum of light with a large band of wavelengths that can target a number of problems simultaneously.

For example, if a practitioner is endeavouring to selectively target capillaries, the broad band of light wavelengths emitted by IPL will target capillaries as well as other parts of the skin. The amount of energy delivered to the intended target will also be delivered to the unintended targets, and at times, cause unnecessary skin damage. Although versatile, IPL devices are – as a rule – less effective at a given task than a laser dedicated to the purpose.

## MAKING WAVES

IPL permanent hair reduction is FDA approved. The machines can be used to treat hair almost anywhere on the body and are effective on fair skin. Pulses of light are delivered at the skin's surface and, through cut-off filters, particular wavelengths of light are used to target melanin – in the case of hair removal – which is responsible for the colour in the hair shaft, or chromophore. Within the tissue, the light is converted to heat to destroy the target cells.

Laser hair removal involves a light that uses special wavelengths to damage the end of the hair or the hair follicles. The strength of the light is adjusted so that just enough damage is done to prevent or reduce the amount of hair that grows back.



## THE LONG AND SHORT OF IT

It is important to clarify the difference between temporary and permanent hair reduction. Pretty much anyone using any laser or IPL device can get temporary results. Where the amount of light energy delivered is sufficient to destroy the hair bulb, but insufficient to destroy the stem cells, the result will be temporary hair removal. It is likely that the hair will grow back within a few years and typically it grows back thinner and finer, which is even more difficult to permanently eradicate.

To achieve long-lasting and permanent hair reduction, the stem cells need to be destroyed. To do so, the practitioner needs to use the correct IPL or laser device settings to deliver the necessary amount of heat to the stem cells that lie outside the hair shaft.

The light that is used in laser hair removal targets the highly pigmented colours of the hair so those having the procedure are advised to stay out of the sun for at least a few weeks prior to the procedure. Having a tan or dark coloured skin can make the procedure difficult or even impossible. Additionally, practitioners should understand that some medications are not safe to use when having a laser hair removal treatment.

## LOWDOWN ON LASERS AND IPL

### Intense Pulsed Light

IPL can deliver hundreds of wavelengths (or colours) in each burst of light in a gentle and non-invasive way. The lighter the skin colour and the darker the hair, the more effective the treatment.

■ Suitable for all skin types, positive result to Fitzpatrick type V

### Nd: YAG (1064nm wavelength)

YAG lasers emit an intense beam of light that passes safely through the upper skin layers to the underlying strata. Hair follicles are eliminated without causing any harm to the skin. There is not sufficient evidence that this laser can produce effective long-term hair removal.

■ Suitable for Fitzpatrick skin types I to VI

### Diode Laser (800-810nm wavelength)

The diode laser is the most effective hair removal light source and is recommended for white skin. The diode laser has a longer wavelength than other lasers used which may improve treatment results on darker skin types.

■ Suitable for Fitzpatrick skin types I, II and III and – where used with caution – possibly skin types IV, V and VI

### Alexandrite Laser (755nm wavelength)

The alexandrite laser is a shorter wavelength system with a specific light energy of 755nm and is recommended for use only on very pale skin.

It is the fastest laser for hair removal and is appropriate for quick treatments on parts of the body with large surface areas. The laser has the ability to penetrate deeply into the dermis. The resulting build up of heat in the hair shafts disables the hair follicles in the active growth phase, which enables the alexandrite to achieve very effective laser hair removal.

■ Suitable for Fitzpatrick skin type I

### Ruby Laser (694nm wavelength)

Ruby laser is the original and first system of laser hair removal. It has a longer track record than other laser hair removal options but is also an older technology. Ruby laser is highly absorbed by the skin's melanin and it is recommended for light skin and dark hairs, and is not to be used on darker or tanned skin, nor on light or white hair.

■ Suitable for Fitzpatrick skin types I and II