



## LASER TATTOO REMOVAL – BACKGROUND INFORMATION

### What are Lasers and how can they remove tattoos?

A laser produces a high energy beam of light that can precisely transfer energy into certain targets within the skin. The beam of light is produced in one wavelength which will be preferentially absorbed by certain tattoo pigments in the colour spectrum.

The key requirement for a laser to remove tattoos is for it to be Q-switched. This means that the energy is delivered in a particular way, (very short pulse-durations which 'crack' the tattoo pigment particles), that is effectively absorbed by tattoo pigment. Lasers that are not Q-switched will not be effective on tattoos and Intense Pulsed Lights (IPLs) will also be ineffective, delivering energy that is not effectively absorbed by tattoo pigment and which may damage surrounding skin.

The most commonly used Q-switched lasers are Ruby (694nm) and Nd:YAG (532nm and 1064nm) lasers, although Q-switched Alexandrite (733nm) lasers are also available. Nd:YAG lasers can be made to produce two different wavelengths and so there are four potential wavelengths with which to target the entire range of tattoo pigments. Here at Phoenix Tattoo & Removal we use the Q-switched Nd:YAG laser.

Some clinics may advertise the use of IPL machines or non Q-switched lasers for tattoo removal, however clinical data so far doubts that these devices are suitable or safe for tattoo removal as they do not produce the targeted bursts of high energy required to break down the pigment particles without affecting the surrounding tissue. You should therefore be wary of any clinic offering tattoo removal who claims this can be done using an IPL device

### Do All Tattoos Respond to Treatment?

Amateur, or simple blue/black professional tattoos will respond to Ruby, Alexandrite and Nd:YAG lasers but as soon as coloured pigments are present, the question should be asked – how do I know that this laser will remove this particular pigment?

Tattoo pigments respond to laser treatment in a variable manner. Some pigments respond well to one wavelength but not to another: some colours (particularly certain green pigments) do not respond to treatment at all. Some pigments will not respond to any available wavelength and some pigments, especially modern, pastel, white or ultra-vivid pigments may respond by turning brown or black. These residues then may, or may not respond to further treatment.

### What happens during a Laser Tattoo Removal treatment?

Your first discussion with us should clearly set out your expectations. Phoenix Tattoo & Removal will then match the recommended treatment and we will tell you whether the treatment can achieve the results you require.

A medical history will be taken to make sure that there are no reasons why you shouldn't have this form of treatment. You will also be asked to read detailed information on the process and sign a consent form, this means that you have understood the potential benefits and risks associated with the removal procedure recommended. Photographs will also be taken for a "before and after" comparison at a later date.

Depending on the size of the tattoo and area of skin where the tattoo is located, a "patch test" may be recommended where the laser system is fired on three small areas of the tattoo to see how the skin and the pigment responds prior to a full treatment session. This procedure generally requires no special preparation beforehand, although you should have had no exposure to UV light (sun or sun-bed) for 4 weeks before any treatment.

You will experience a stinging sensation, often described as like an elastic band flicking sharply against the skin, when the laser is delivered to the treated area.

### Repeat procedures

Repeat treatments will most likely be required, depending upon the type and extent of tattoo pigment to be treated.

Whether a tattoo is an amateur (pen and ink) or a professional one will also affect the number of treatment sessions required to successfully remove the pigment. The colour of the inks used in the tattoo will also factor into the equation; dark blue/black tattoos tend to be much easier to remove than colours such as reds, yellows, light blues and greens.

A treatment programme could therefore be anything from 1 – 10 treatments for an amateur tattoo to 5 – 20 for a professional one. Treatment sessions will usually be 4 weeks apart; we may recommend longer depending upon the results of your medical history.

### What are the risks and potential complications from Laser Tattoo Removal?

Due to the depth of treatment required to remove tattoo inks, the treatment is generally considered to be painful, although this will vary from person to person due to different tolerances to pain. A stinging sensation will be noticed during the procedure, and the area treated may feel hot for some time after treatment. We can advise before your first session of ways to alleviate any pain and discomfort during treatment with topical anesthetics' should you wish to try them.

During treatment, most patients will experience small white dots which appear on the skin for several minutes after each firing of the laser – this is only water, vaporised by the heated tattoo pigment, and fades within a few minutes.

After the treatment, minor bleeding may occur, with skin redness, swelling and oozing, plus blistering appearing over the treated area. The treated area may also feel very tender to the touch. This will fade over a few days. Once any blistering, crusting or scabs have resolved, the area of skin over the tattoo will look shiny for a number of weeks. It is vital that the skin is well looked after immediately after treatment. The treatment site should be considered as a minor burn and should not be picked at, and blisters should not be popped. There is a risk of infection if the area is not properly looked after. If you are working in dirty or unhygienic conditions, extra care must be taken, especially where tattoos are on the hands. Once the skin has returned to normal, generally after 4 weeks, then repeat treatments can be performed.

### Post-treatment risks or side effects include:

**Hyperpigmentation** – patches of darkened skin, especially on people with darker skin-types. This condition usually resolves on its own.

**Hypopigmentation** - patches of pale skin colouring or loss of natural skin colour. As the laser treatment can also target the natural skin pigment colour or melanin in your skin as well as the colour of the tattoo inks, this can leave the treated area with a somewhat 'bleached' look following treatment. This will usually recover to some extent but it can take months and even years to do so. In some cases, the skin where the tattoo was treated may never match exactly with the surrounding area. This risk is increased with darker skin colours and the number of treatment sessions required to successfully remove the tattoo pigments.

We will complete a skin typing form before treatment commences, based on the results we may not consider you suitable for treatment. This is to avoid the occurrence of the two side effects listed above.

**Scarring** - as these lasers do not heat up the surrounding tissue to a great degree, the risk of scarring following tattoo removal is considered to be very low. In the rare cases where scarring may occur, this is generally due to either a history of scarring (some people scar very easily) or poor treatment site healing, generally caused by the patient picking at scabs.

### What should you do after Laser Tattoo Removal?

It is very important that you follow the post-treatment advice that Phoenix Tattoo & Removal will provide to you carefully after any laser treatment for tattoo removal. This will help to make the procedure as successful as possible and to reduce the risk of complications.

#### Post-treatment advice will include:

- not picking at any scabs or crusting that appears on the skin of the treated area, as this can increase the potential for scarring;
- not scrubbing the area when showering or bathing;
- not exposing the area treated to the sun without a sunscreen for at least 4 weeks to reduce the risk of disturbing pigmentation in that area. A high factor sun block should be used daily to protect the skin;

- staying out of public swimming pools and/or hot-tubs while the treatment site is fresh, this will decrease the potential to contract an infection.

As a general rule – once scabs and blisters are dry, the area is safe from infection. If scabs and blisters are still wet or glistening the risk of infection is high.

When post-treatment advice is followed, the risks of infection are very low. In case of any infection, you will need to seek advice from your GP who will probably prescribe of a course of antibiotics or a topical antibiotic cream.

### Who should not have Laser Tattoo Removal?

Patients generally not suitable for any form of light treatment are those who have a history of skin sensitivity to light or scarring problems, an active herpes (cold sores) infection or other skin infections such as impetigo at the site to be treated. These conditions should be individually assessed and treatment may continue where the underlying condition is addressed.

Darker skin-types may be treated but all risks outlined above increase with the darkness of the skin. For example, it may not be helpful to remove a black tattoo from dark skin and leave in its place a light patch with the same shape. Phoenix Tattoo & Removal reserves the right to refuse treatment based on skin colour for this reason.

Recently tanned skin should not be treated. Active melanocytes (the cells which produce melanin) are readily targeted by Q-switched lasers and the damage done is likely to lead to long-term hypopigmentation (pale patches of skin). Patients who have used isotretinoin – a powerful photo-sensitiser - in the last 12 months would also not be suitable candidates.

### Who can perform Laser Tattoo Removal?

Generally light systems for the removal of tattoos are used by doctors, surgeons or nurses, although anyone who is 'appropriately trained' may legally use a laser. The key is experience. Here at Phoenix Tattoo & Removal we have undertaken courses and qualifications which are approved by the British Laser Medical Association.

### Summary of advice for Laser Tattoo Removal

The development of lasers has allowed practitioners to remove the varying different types and colours of tattoo pigments with increasing safety and effectiveness.

Lower cost equipment has encouraged more practitioners into this market, making the treatment widely available. This trend is likely to continue as more clinics adopt their use. More young people are currently getting tattoos than ever before and may ultimately regret that decision 10, 20 or 30 years down the line. Research suggests that 70% of people with tattoos eventually regret having had it done.

Although current results can be very good, they vary both with the skill of the operator and type of machine used.

There are still some problems and tattoos which have been treated - even using the most up-to-date technology may often not disappear completely, especially for some colours, although they are usually much less obvious than before treatment and many people are satisfied with this result.

Because of the variety of different types of tattoos (e.g. amateur, professional, semi-permanent micropigmentation etc.) that can be treated with these machines, we cannot stress strongly enough how important it is to find a practitioner experienced in treating a wide range of tattoos. As some of these systems are available in cosmetic clinics and specialist laser clinics - you must do your homework to make sure that they have the right equipment and training to treat you safely and effectively.

It is important to check the type of laser that a clinic is using for tattoo removal, as these should always be Q-Switched, with the commonest being Q-Switched Ruby and Q-Switched Nd:YAG lasers. Be very wary of any clinic offering laser tattoo removal using an Intense Pulsed Light (IPL) machine.

We hope that this guide and been of use to you, however should you have any further questions either prior to or during treatment, please do not hesitate to contact us at **Phoenix Tattoo & Removal**.