



EUROPEAN
ACADEMY OF
DERMATOLOGY &
VENEREOLOGY

Information Leaflet
for Patients

Laser-assisted tattoo removal

The aim of this leaflet

This leaflet is designed to help you understand more about tattoo removal using lasers and other similar procedures. It tells you what can be expected with these procedures and includes answers to frequently-asked questions.

Laser-assisted tattoo removal

What is laser-assisted tattoo removal?

Laser-assisted tattoo removal is a commonly-performed procedure aimed at “fragmenting” tattoo ink particles to progressively remove them from their original skin sites. This procedure can effectively clear most professional, amateurial, post-traumatic, and medical tattoos.

Tattoos involve the placement of exogenous pigments within the dermis. These pigments are partially drained by the lymphatic system through regional lymph nodes, while most will be stored by specific cells stationed within the site of the tattoo. Allergic reactions to isolated pigments are possible and have been reported. Laser-assisted tattoo removal must be considered very carefully when facing such complications.

Tattoo inks can be successfully removed by lasers. Only extremely short-pulse, nanosecond and *pico-second* Q-Switched lasers are able to selectively destroy tattoo ink particles with only a minimal collateral thermal effect on the surrounding tissue. Different tattoo colours absorb different laser lights, therefore multi-coloured tattoos usually require more laser wavelengths to be eliminated (usually one for each colour). Multiple treatment sessions are needed to progressively clear tattoo inks. Healing time and between-session intervals depend on where tattoos are located on the body. Tattoo sites on lower body regions require longer healing times as they drain tattoo inks more slowly. Recently, consecutive combinations of ablative fractional lasers and Q-Switched lasers have been introduced to reduce the total number of sessions and optimize clinical results.

Are there any other techniques I should consider?

Q-Switched laser-assisted tattoo removal with nano- or picosecond domain lasers should be considered the treatment of choice when unwanted tattoos are to be eliminated. Surgical excision (removal of skin

containing tattoo pigment and subsequent surgical repair), *dermabrasion* and topical *urea* formulations (temporary elimination of skin overlying tattoos and subsequent absorption of exposed tattoo inks by urea formulations), *ablative fractional (CO2/Er:YAG)* laser skin remodeling (drilling of microscopically small columns within the skin areas containing tattoo ink) can be used. However, their clinical results do not match those obtained by nano- and pico-second Q-Switched lasers.

How is a typical procedure performed?

Laser-assisted tattoo removal can be painful. Local (infiltration) or topical (creams, gels, or peel masks) anaesthesia is usually performed before laser procedures. Laser radiations are dangerous to the eyes, therefore, you will be asked to wear protective eyewear (goggles, eye-shields, or corneal shields) during the entire procedure.

Q-Switched and picosecond lasers generate a typical, high-pitch, short acoustic noise each time their pulse hits the skin. However, try not to be scared, because this is absolutely normal and to be expected. It is due to an abrupt transfer of intense laser energy in a very short amount of time.

The skin reacts to these specific types of lasers, forming red/white superficial discolorations, some oozing, and minimal capillary bleeding.

What should I do for post-treatment skin care?

At the end of the procedure, a dressing will be placed on the treated area(s), and you will be asked to change it autonomously at home once or twice a day until it has completely healed. One

or two follow-up visits will usually be scheduled to monitor the healing process. You will be instructed to apply moisturizers and high SPF (sun protection factor 50+) sunscreens between sessions. In case you received leg treatments, you will be prescribed compression stockings to facilitate lymphatic drainage of the fragmented tattoo ink.

What results can I expect after treatment?

Tattoo colours will fade progressively after each treatment session. Some of them will fade more rapidly than others, and black pigments usually respond better. It is preferable to not rush your dermatologist to shorten the time between treatment sessions. Your dermatologist knows the best and safest treatment strategy to remove your tattoos.

Is there any risk?

This is typically a safe and effective procedure, provided that proper laser devices, technique, and post-treatment skin care are used. For example, insisting too much on a high concentration of tattoo ink may generate scars. Eliminating tattoos strictly following their outlines may generate hypo-pigmented discolorations, resembling a "ghost" of the original design when a high number of sessions are performed. Also, dark-skinned individuals cannot tolerate high laser energies because a great amount of laser radiation is absorbed in the superficial skin layers. Lower energies and more treatment sessions should be anticipated in these cases.

What are frequently-asked questions about these procedures?

Can I shower during the days following the procedure?

Yes, and change the dressing immediately after; always follow the dressing protocol given by your dermatologist.

Can I go to the pool during the days following the procedure?

No, swimming in chlorinated water is not safe until it has completely healed.

Can I practice sports in the days following the procedure?

Usually no, since sweating and possible, unexpected, localised trauma could potentially interfere with the delicate healing process.

Can I sunbathe once the skin is healed?

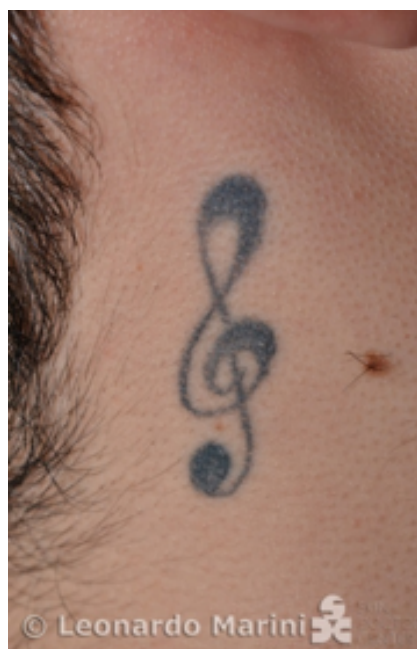
Yes, and you need to apply high SPF (50+) sunscreens thirty minutes before sun exposure and every two hours afterwards.

Can I use any topical products on treated area(s) without consulting the dermatologist who performed the procedure?

Yes, application of any topical product should first be discussed with your dermatologist to avoid potential irritant/allergic reactions. They may negatively interfere with your healing process.

Can I undergo laser-assisted tattoo removal when I'm pregnant or breastfeeding?

Theoretically yes, because we are talking about a very superficial light-based treatment and there is no need to worry if you have been treated while you have been pregnant and did not know about it yet. However, in practice, no light and energy-based treatments should be performed during these special periods. No data supporting the safety of these procedures during pregnancy and breast-feeding has been published. Should any problem arise with the foetus immediately after treatment or delivery, it would be an extremely difficult legal matter.



Pre-treatment



Post-treatment

While every effort has been made to ensure that the information given in this leaflet is accurate, not every treatment will be suitable or effective for every person. Your own clinician will be able to advise in greater detail.