

## Tattoo removal by laser

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Permanent tattooing is gaining popularity. It is estimated that 25% of the population under 30 is tattooed in France. The "homemade" tattoos made in black Indian ink or the ritual tattoos made in Africa have been replaced by brightly colored artistic tattoos made by professional artists. They can also be the result of abrasion or projection (tar, graphite, carbon) or medical procedure (radiotherapy).

They sometimes become undesirable because of age, change of social status, work, partner, patient's entourage, patient's preference or fashion phenomenon. It can be estimated that at least 10% of the 5 to 10 million tattooed people will want to get it removed in the next few years.

The principle of tattooing is based on the sedimentation of clusters and granules of pigments injected into the dermis that the skin is not able to resorb. In the past, dermatologists used different techniques to destroy this pigment at the cost of unsightly scars: surgical excision for small lesions, mechanical dermabrasion, and more recently laser abrasion with CO2 laser.

For the past 20 years, dermatologists have fragmented these foreign bodies into smaller particles by photo-acoustic effect thanks to nanosecond lasers (Q-switched laser), to make them digestible by the immune cells "cleaners" of the skin.

These lasers use a physical principle (selective photothermolysis), which allows the absorption of a laser light with a wavelength specific to the pigment of your tattoo. Different Q-switched lasers are available and your dermatologist will choose the most appropriate one: usually Nd: YAG 1064 nm is used to remove blue, black and brown pigments, Nd: YAG 532 nm for red pigments, Ruby 694 nm for purple, green, blue and black, and Alexandrite 755 nm for blue, green and black. Recently, new lasers using shorter pulse times (picosecond Q-switched lasers) could in some cases provide an additional advantage.

### **Progress of the treatment:**

The eyes will be protected by glasses or eye shield.

To obtain a complete tattoo removal, several sessions will be necessary, spaced at least one month in order to allow the skin to digest and eliminate the fragmented pigment and to heal.

The total number of sessions is, on average, between 2 and 10 sessions, depending on the density of the pigment, the depth at which it was deposited, and the color of the ink used. Homemade ink tattoos and ritual tattoos require few sessions. The erasure of permanent tattoos (lip, eyebrow) can also be done with these lasers but a blackening is possible during the first session.

Sometimes professional tattoos require more than 10 sessions without any guarantee to erase them completely (persistence of a shade). Some colors are known to be more resistant like green and turquoise blue and the new inks are sometimes almost indelible whatever the color.

Tattoo removal is more painful than tattooing, but the pain disappears very quickly at the end of the session. The use of an anesthetic cream is often necessary. Local anesthesia

may sometimes be considered in certain sensitive areas.

**Follow-up after tattoo removal:**

Laser impact causes immediate bleaching and slight bleeding, then a transient swelling of the treated area. Some blisters may appear more particularly with picosecond lasers. Paraffin gauze or hydrocolloid dressings, relayed by healing creams, are always recommended to reduce the formation of crusts and to promote the healing, occurring in one to two weeks. It is important to follow the instructions given by your dermatologist until complete healing.

Q-switched lasers allow tattoo removal without significant scars, which is a huge improvement over the old techniques. Nevertheless, white traces (hypochromic) may persist at the end of the sessions. They can be related to the trauma of the tattoo itself, the number and intensity of the sessions to erase a difficult tattoo, and the type of laser used (Alexandrite and Ruby). These traces fade over time. It is very important to be patient and accept gradual erasure as sessions progress to reduce this risk. Transient post-inflammatory hyperpigmentation may occur especially if the sun protection after the session is not strict, but it is always transient. It is never possible to determine a global estimate for the entire treatment because the number of sessions is variable and impossible to predict. The sessions are not covered by social security.

***This information sheet recommended by the French Laser Society can be given to you by your dermatologist. Even if it is not sufficient to have an estimate, it helps to give the patient a clear information.***

*The information consultation provides clear explanations on expected outcomes, side effects and possible complications. There are not any reimbursement from social security or medical leave for these aesthetic treatments. Prices are mainly based on the area to be treated. The total cost is to be evaluated with the patient and is the subject of a signed quote.*

*A post-operative order and an advice sheet are given to the patient with the doctor's contact information.*