

PICOSECOND LASERS: MEETING ADVANCED TATTOO REMOVAL AND CHANGING DEMOGRAPHICS NEEDS

Before the availability of laser tattoo removal, tattoos were surgically removed, taking away not only the tattoo, but also the surrounding skin tissue, often causing permanent scarring. Later, carbon dioxide (CO₂) and nanosecond lasers (Q-switch lasers) were introduced; and while less invasive than surgery, they offered limited results that often came with side effects like scarring, hypopigmentation, and hyperpigmentation.

Today, picosecond technology offers the most innovative laser tattoo removal technology. Compared with nanosecond technology of the past, today's ultra-fast picosecond laser removal technology offers less risk and pain, faster results, broader range of colors removed, and fewer treatment sessions.^{1,2}

And unlike earlier technologies that removed a very limited selection of ink colors and were typically restricted for use

“A lot of us are familiar with nanosecond technology, but there were limitations. My limitations were that I couldn't treat all skin types safely. I also couldn't predict what was going to happen to skin texture over time in these patients. This is the first time I am seeing skin tone improve over time as a tattoo is disappearing.”

— LESLEY CLARK-LOESER, MD

on lighter skin tones as a safety precaution, picosecond laser technology, like that of the PicoWay® system, can work across all skin tones—from fair to dark skin—and can remove a wide range of ink colors.^{3,4}

MEETING CHANGING TATTOO REMOVAL AND DEMOGRAPHIC NEEDS

Along with technology changes, tattoo

removal needs have also evolved. Now with 40 percent of millennials tattooed,⁵ treatment has advanced beyond complete tattoo elimination to removal of portions or layers of tattoos for art modification or simply to refine blurred or aging ink. Picosecond lasers, able to perform highly customized and targeted treatment and eliminate even difficult-to-target tattoo

LASER TATTOO REMOVAL TECHNOLOGY TIMELINE



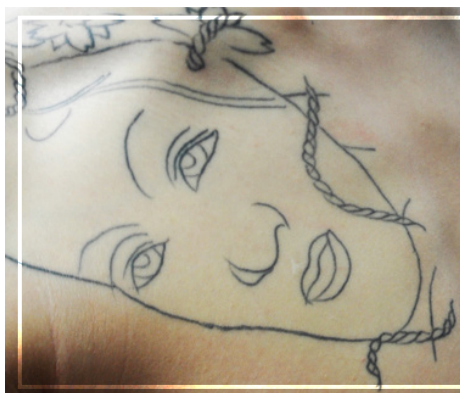
Over the decades, lasers have had challenges with skin of color | Recent laser developments have significantly minimized these risks by reducing thermal impact

Table 1. Photoacoustic and minimal photothermal impact allows treatment across Fitzpatrick skin types I-VI¹

	RED	YELLOW	ORANGE	GREEN	BLUE	BLACK	BROWN	PURPLE	SKIN TYPES ^a
532nm	✓	✓	✓						I-III
785nm				✓	✓				II-IV
1064nm				✓	✓	✓	✓	✓	I-VI

^a Fitzpatrick Skin Types

Photos courtesy of Lee Yon Min, MD, CLEAN Tattoo Clinic, Seoul, Korea.



Treated with PicoWay Zoom 1064nm and 532nm in 8-12 sessions. Photos are unretouched. Individual results may vary.

colors, have opened the door for expanded treatment options and tattoo refinement.

With 60 percent of the population expected to be skin of color by 2060, the importance of picosecond lasers, which can address darker skin without the concerns of prior generation treatments, is paramount.⁶

HOW IT WORKS

The PicoWay picosecond system delivers the shortest pulse durations of any aesthetic laser: one picosecond is equal to one trillionth of a second. These ultra-short laser pulses allow treatment across a broad range of skin types, including darker skin tones.

Less advanced lasers that offer longer nanosecond pulses create a photothermal effect, which can overheat melanin found in darker skin tones and cause scarring, hypopigmentation, and hyperpigmentation.

The PicoWay system delivers ultra-short, ultra-fast, powerful pulses of targeted energy, creating the primarily photoacoustic impact needed to fracture tattoo ink into miniscule particles. This is achieved

without the photothermal impact of other lasers, which can overheat surrounding skin tissue—a stark contrast to the slower pulse speed of nanosecond laser technology.

BROAD RANGE OF COLORS NOW REMOVEABLE

The PicoWay system uses multiple picosecond laser wavelengths and handpieces to target specific colors. Colors previously unable to be removed, can now be targeted with specialized PicoWay technology, including difficult to remove blues and greens.^{3,4}

TREATMENT OVERVIEW

Before each session, tattoo removal clients are asked to clean and shave the area to be treated. A topical anesthetic or cooling pack may be applied at the time of treatment. Treatments typically last 15-30 minutes and can require multiple sessions spaced 6-16 weeks apart, depending on the tattoo size and its complexity. After each session, clients are advised to keep the area clean and regularly apply sunblock to the area if going outdoors. Mild redness or itching may occur and typically resolves on its own after a few days.^{3,4} ■

To learn more about PicoWay Laser treatment for tattoo removal or other uses, including acne scars, wrinkles, and benign pigmented lesion treatment, visit candelamedical.com

1. Adatto MA, et al. *Curr Probl Dermatol*. 2017;52:113-123.
2. Artzi O, et al. *Lasers Med Sci*. 2018;33(4):693-697.
3. PicoWay 510(k) clearance for tattoos (K142372), October 2014.
4. PicoWay 510(k) clearance for tattoos with 785 nm handpiece (K160607), July 2016.
5. Pew Research Center. Millennials: A Portrait of Generation Next. <https://www.pewresearch.org/wp-content/uploads/sites/3/2010/10/millennials-confident-connected-open-to-change.pdf>. Published February 2010. Accessed July 9, 2019.
6. Colby SL, Orman JM. Projections of the Size and Composition of the U.S. Population: 2014 to 2060. US Census Bureau. March 2015.