Tattoos have been part of human culture since the days of Egyptian pharaohs. However, in modern times, people with tattoos also have a propensity to eventually want them removed. While energy-based tattoo removal procedures have flooded the market for years, a new and more natural approach has been introduced, which avoids the risks of laser-based devices and improves the overall efficacy of removing all colors and traces of tattoo pigment from the skin.

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Over the past 20 years, both the popularity of tattoos and the demand for their removal have increased significantly. In North America, more than 60 million people are believed to have at least one tattoo, and the worldwide figure may be three to four times greater, according to Medical Insight’s (Aliso Viejo, Calif.) Global Aesthetic Market XIII market study published in April 2015.

In addition, according to a 2012 Harris Interactive Poll of tattoo trends in the U.S., the highest occurrence of tattoos is among the gay, lesbian and bi-sexual population (31%); Americans aged 25 to 29 years (30%) and 30 to 39 years (38%); those living in Western states (26%); and interestingly, females are more likely to have tattoos than men.

Some ingredients contained in tattoo inks, including additives and bonding agents, are not well documented. The FDA does not regulate tattoo pigments that may be comprised of several questionable ingredients. As well, issues that add to the complexity of removing tattoos include more sophisticated technology behind tattoo inks, high-density and colorfast pigments, improved delivery devices for tattoo artists and the multicolored designs that have become quite common. Until now, there has been no guaranteed method of removing all tattoo pigments without leaving evidence that something was there before.

All of that has changed with the launch of the Eclipse MicroPen TR™ from Eclipse Aesthetics, LLC (Dallas, Texas), which utilizes a minimally invasive, non-surgical approach to erase all evidence of the tattoo via a specially designed ink removal pen. The Eclipse MicroPen TR technology literally lifts the ink from the body, thus minimizing lymphatic exposure. After just a few sessions patients are free of the unwanted body art.

It is a different class of treatment, stated Jason Emer, M.D., a cosmetic dermatologist in Beverly Hills, Calif. “There’s nothing out there like it. There truly is a need for a technology that has less downtime and can treat all skin types and colors,” he said. “The MicroPen TR uses microneedles to deliver a natural solution in the dermal layers that liquefies or breaks apart the pigment without damaging the skin. You can use it on most skin types. When the skin heals, the pigment lifts out.”

In order to understand how the Eclipse MicroPen TR works, one must understand how tattoos work. First, a mechanized needle punctures the skin and injects ink into the dermis. The process disrupts the epidermis, which subsequently heals in the manner of a graze or superficial burn via re-epithelialization. The intercellular pigment remains in place, safe from further elimination by the body’s immune system.
Laser-based tattoo removal relies on selective disruption and destruction of those pigment-containing cells. Pigment fragments enter the immune system and are expelled by natural processes. There are no studies to indicate that the expulsion of ink through the lymphatic system has been proven to be safe.

The Eclipse MicroPen TR utilizes a completely different process called mechanized epidermal tattoo removal (METR), a technique based on the concept of partial thickness wound healing, according to Elizabeth B. Houshmand, M.D., a dermatologist in Dallas, Texas. “The pen is not a laser. It is a new and unique entity. It would not be fair to compare the MicroPen TR with lasers because the mechanisms are so completely different,” she expressed.

Using the METR technique, the practitioner creates circular patches of de-epithelialized skin in an array that covers the tattooed area. “The Eclipse MicroPen TR is equipped with medical-grade microneedles designed with precise and adjustable settings that directly target and release the ink,” Dr. Houshmand explained.

“The Eclipse MicroPen TR can remove all of the inks, even colors that lasers are unable to address,” Dr. Houshmand continued. “You treat a small surface area with closely spaced partial thickness injuries, leaving intervening thin bridges of intact epidermis and dermis,” she continued. “This causes a variable thickness injury. The pen removes the color, dye and ink. It removes all pigments so you don’t have to use different modalities for different colors, or switch to another device.”

As Gustavo H. Leibaschoff, M.D., a cosmetic surgeon and president of International Consultants in Aesthetic Medicine in Dallas, Texas pointed out, the task is to remove the tattoo without leaving any noticeable mark. “The technique is actually a kind of reverse tattooing method that effectively removes all pigment colors by applying a patented solution,” he stated.

During treatment, the tattooed areas of the skin are lightly abraded with the Eclipse MicroPen TR handpiece. Closely spaced microneedles target the tattooed areas, at which time the tattoo removal solution is introduced. The ink is lifted out via cutaneous exfoliation, producing a scab that contains the pigment. The body’s natural healing takes over and in a few weeks that section of the tattoo falls away, leaving clear skin underneath.

“It is a fractional de-epidermalization with the application of a special solution in select areas and bridges of normal skin between the treated areas,” Dr. Leibaschoff advised. “It is a medical technique that is far better than all existing tattoo removal methods, it is less expensive than using a laser and quicker.”
In order to eliminate all pigmented areas, the patient’s tattoo is progressively and sequentially removed in typically three to five follow-up sessions. In addition, a secondary recovery phase uses a silicone-based topical to control desired healing characteristics.

The Eclipse MicroPen TR one-ups laser-based approaches on several levels, stated Dr. Emer. “This technology can improve upon laser treatments that have plateaued. Lasers can work well, but they are lacking in how effective each device is for certain skin types. Different wavelengths are needed for different colors,” he said.

Conversely, the Eclipse MicroPen TR can be used on most skin types and any ink color pigment. “It works on all tattoos, especially smaller ones, in which fewer treatments are needed to achieve results, and there are very few side effects,” he explained. “There are no blisters or swelling after treatment, only little scabs that need proper wound care.”

All colors can be eliminated, Dr. Emer reiterated. “What matters is how highly concentrated the dye was when it was placed under the skin,” he began, “whether it was professionally placed or very poorly placed and if consistent versus various skin depths were used when the ink was placed. In addition, tattoos that have been lasered in the past or covered up will require more MicroPen TR treatments to be removed.”

Dr. Houshmand who has also used energy-based tattoo removal devices concurred. “I have used lasers for tattoo removal in the past and in comparison the MicroPen TR is cost-effective, efficacious and easy for the operator to use. It is also convenient in a busy practice, as it can be easily transported from room to room.”

Having never adopted energy-based tattoo removal solutions, Laura E. Skellchock, M.D., a dermatologist in Boca Raton, Fla., was attracted to the Eclipse MicroPen TR. “Being an integrative physician and believing in doing no harm as a first priority, I never liked the idea of how laser-based tattoo removal incites the immune system and delivers toxic heavy metals to the lymph nodes. Additional caustic agents are typically creams applied to the entire tattoo, but not with the precision that this pen affords.”

It was the unit’s underlying technology and operation that appealed to Dr. Skellchock. “By implanting a mildly caustic solution into exactly the same level that the pigment was originally placed, the skin becomes irritated, heals and falls off,” she advised. “The pigment leaves the body in a gentle way as new skin cells replace the transiently damaged ones. In addition, the procedure does not treat the entire tattoo at the same time. It skips areas so that there is less chance of an intense inflammatory reaction that may predispose the development of keloids.”
The process of preparing a patient for treatment is, “very straightforward, but obviously needs to be a near sterile procedure,” Dr. Skellchock continued. “We clean the area with acetone to remove all skin oils and chlorhexidine, then apply a topical numbing agent of 20% Betacaine, 10% lidocaine and 6% tetracaine for 45 to 60 minutes.”

Dr. Houshmand added, “The treatment is similar to prior modalities for tattoo removal. Basically, after you’ve cleansed the area, depending on the patient’s pain threshold, we’ll apply topical numbing agent for around 15 to 20 minutes prior to the procedure.”

“Next you apply a template to the skin around the tattoo, and you have to mark off little circles that are approximately 5 mm in diameter each,” Dr. Emer described. “Every time the patient comes back in for a follow-up treatment, you have to do the marking using the template. The biggest treatment area size is 6 inches by 6 inches at most. While prepping for a MicroPen TR treatment is a bit more time consuming, you can delegate this easily.”

Considering the device features no downtime, minimal pain and an all-natural approach, patient satisfaction has been excellent. “My patients are incredibly pleased with the outcomes,” stated Dr. Skellchock, “because the MicroPen TR treatment is much less uncomfortable than laser tattoo removal and it takes fewer sessions.”

Dr. Leibaschoff agreed. “Patient satisfaction is very high,” he noted, “but providing the patient with a detailed explanation of the tattoo removal process and aftercare is key. The patient must follow the aftercare regimen to achieve the best results. Ice packs or cool compresses can be used to soothe the skin. Also, avoid abrasive topicals or treatments for several days and use sunscreen.”

Eclipse MicroPen TR treatments result in practically no complications, Dr. Emer added. “So far, the patients feel a bit itchy when healing,” he said. “It is important to explain to patients that the removal process is just that: a process. It takes time to see results because only part of the tattoo is treated during each session. For them, it is a journey to get the tattoo removed. After three to four treatments, they will begin seeing the results. My patients have been very satisfied.

“Post-procedure comparisons between this device and any laser-based approach are important when evaluating the technology, Dr. Emer noted. “My patients like the MicroPen TR more than lasers. Lasers have their own special side effects. Some of them, for instance, do not achieve full clearance. On some patients that have been treated using a laser you can observe a residual hue, in which you can see a ghost of the tattoo. Using the
Eclipse MicroPen TR, 100% clearance has been an achievable goal in all cases. However, I’m not sure yet of the long-term outcomes.”

Complications are minimal, according to Dr. Leibaschoff. “If one follows all of the correct steps and applies the treatment techniques correctly, there is less risk of any side effects,” he said. “The most common issue I have seen is a light, temporary hypopigmentation.”

There is risk of scarring or poor wound healing if the MicroPen TR procedure is not performed properly at the right depths or spacing in the skin, stated Dr. Emer. “Itching is the most common complaint after treatment when the skin is healing.”

Dr. Houshmand’ patients have been extremely satisfied with the comfort level of treatments, “Their pain rating is often minimal,” she reported. “Side effects include typical crusting post-procedure, and post treatment wound care is necessary.”

In Dr. Emer’s experience, for the practice’s bottom line, the Eclipse MicroPen TR’s return on investment (ROI) profile is outstanding. “If you have a busy laser practice and want to integrate tattoo removal, this device can deliver a significant ROI quickly. This is because it targets smaller tattoos,” he said. “In addition, the ROI is much higher than lasers because the MicroPen TR is far less expensive.”

According to Dr. Emer’s estimations, “Consider that treatment of a 6 inch by 6 inch tattoo will take around 45 minutes to an hour to do and we charge $500 to $1,000. That is a lot for a physician to make in one hour. The ROI is especially high if you have a lot patients that have smaller areas to be treated or have been unhappy with laser-based treatments in the past.”

“Laser-based tattoo removal has dominated the market for a long time. But the MicroPen TR is tailored to physicians looking for an all-natural, no downtime tattoo removal solution that eschews traditional laser-based or cream-based approaches. Additionally, it is especially fast and easy for both patient and practitioner.”

“The Eclipse MicroPen TR treatment is a comprehensive therapy that works on most skin types and will remove any tattoo pigment,” Dr. Emer maintained. “Additionally, it can be used as a complement to laser-based treatments, which is also a win-win for aesthetic physicians. Clearly, it will be a great asset for those seeking the highest level of success treating tattoos.”