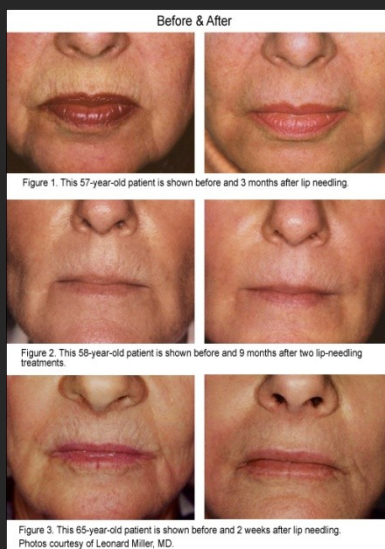


EFFECTIVE TREATMENT FOR WRINKLES, STRETCH MARKS AND ACNE SCARS

Percutaneous Collagen Induction Therapy (CIT or PCI), more informally known as "skin needling", is not obvious in the market place, but has been known about and used since the mid 1990s.

It first became known when a Swiss French dermatologist, Dr Philippe Simonin, published his results in Barn's *Cosmetic Dermatology* in 1994. At this time he called it electroridopuncture (ERP). In his study of 600 patients, he performed 10 treatments on each. He found that in the patient group with skin aging, 40% showed significant improvement, 22% showed moderate improvement, and 13% had some improvement. In patients with old scars 60% improved with 5-6 treatments. He found that that best results were obtained for old fibrous and depressed scars.



Another pioneer of skin needling was Dr Andre Cameron, a Canadian plastic surgeon, who made a chance observation of improvement in the texture and depression of scars of some of his facelift patients who had undergone tattooing for scar camouflage. He noted that skin needling caused flattening of hypertrophic scars.

Dr Camirand postulated that hypochromic (depigmented) skin repigmented through the transplantation of melanocytes (pigment producing cells) from normal skin into the hypochromic (depigmented) skin during the needling procedure. He also reported flattening of hypertrophic (overgrown) scars. He performed his needling procedures using a high speed tattoo gun, under local anaesthesia and treated each scar to pinpoint bleeding. He repeated the procedure every 2 to 8 weeks and no side effects or complications were reported. Dr. Camirand published an article on his results in *JACPS* in 1992.

In 2006, histological findings in a double-blind study on 10 patients by Dr. M. Schwarz, MD, Plastic surgeon, Freiburg-Germany confirmed effectiveness of skin needling. Photographs below show biopsies taken with 20 times magnification. The photograph on the left shows skin immediately before collagen induction therapy. The photograph on the right shows skin six weeks after the procedure. A dramatic increase in new collagen and elastin fibers (stained violet) is clearly visible. They reach into a depth of 0.6 mm. The increase in new fibers can reach 1000% with 1 procedure.

More recently, prominent South African plastic surgeon Dr. Des Fernandes delivered a paper about his results with skin needling, which showed improved collagen production, scarring, texture and ageing. The paper "Percutaneous collagen induction therapy: an alternative treatment for scars, wrinkles, and skin laxity." was published in the *Journal of Plastic Reconstructive Surgery* in 2008 and, in a study of 480 patients, showed significant effectiveness of "skin needling" in treating wrinkles and scars without the tissue damage and scarring frequently observed with laser treatments and chemical peels.

Safe and Effective Procedure

"Skin Needling", as its name implies, involves rolling specially designed tool studded with a large number of tiny needles across anaesthetized skin. The procedure is performed for 30 minutes and results in increased collagen and elastin production for up to a year afterwards.

Additional procedures are recommended for to achieve significant improvement to lines and scars. Treatment effects are cumulative and will usually be seen within 6-8 weeks of each treatment. Treatments can be safely repeated every 6-10 weeks.

Typically, the skin is red and swollen for one to two days with a light abrasion over the treated area appearing on day two. Most patients are able to return to work within 48 hours of treatment. In comparison to prolonged recovery time from laser resurfacing and chemical peels, a few days healing time makes Skin Needling a more desirable alternative.

Skin Needling can be safely performed on all skin colors and types. There is no risk of postinflammatory hyperpigmentation (pigmentation of the skin as a result of skin trauma) as the melanocytes remain, like the dermis, intact during Skin Needling. This is the major distinguishing safety feature when comparing Skin Needling and other invasive procedures that are used to treat deep lines and depressed scars, ie laser resurfacing, deep chemical peels and dermabrasion.



SKIN NEEDLING



When gardeners want to regenerate an aging lawn, they'll aerate it using a spiked wheel to draw out small plugs of dirt, which allows oxygen, water, and other nutrients to reach the roots of the grass. Skin needling uses the same premise: A handheld tool embedded with tiny steel tines is run over the face (or body) to spur collagen formation and increase penetration of topical serums.

In 1997, South African plastic surgeon Des Fernandes, MD, began to explore the idea of increasing collagen production by inducing bleeding in the skin via hundreds of tiny pricks. Using devices with needles one to three millimeters long, physicians could pierce the dermis (which generates collagen and elastin) while leaving the epidermal layer relatively intact. "Unlike with ablative lasers, there's no risk of scarring," says Matthias Aust, MD, a plastic surgeon in Hannover, Germany. "And in addition to stimulating fibroblasts to make collagen and elastin, needling also releases growth factors, which nonablative lasers don't do."

Aust authored one recent study, published in the journal *Plastic and Reconstructive Surgery*, that found a considerable deposit of collagen and elastin in the skin six months post-treatment, as well as a 40 percent increase in the thickness of the epidermis. And while trauma to the skin can often induce pigmentary changes, a second study by Aust, soon to be published in the same journal, demonstrated that percutaneous collagen induction (as the treatment is also called) doesn't activate the melanocytes responsible for hyper-pigmentation. "One advantage is that, unlike lasers or chemical peels, skin needling can be applied to any skin type—even sensitive," says New York City plastic surgeon Philip Miller, MD, who frequently lectures on PCI at meetings of the American Academy of Facial Plastic and Reconstructive Surgery. According to Aust, since a single dose of PCI thickens skin, it may actually make treated areas less sensitive, including to UV light.

The treatment has also been shown to help reduce the appearance of certain scars. "Needling can create collagen to fill depressions or smooth out scars that are raised," Miller says.

However, the procedure isn't without its downsides. While usually only one session is necessary to produce new collagen that will last up to seven years, a patient needs to be fully sedated when three-millimeter needles are used and topically numbed before treatment with one-millimeter needles. She may require up to a week to recover from a session with three-millimeter spikes; swelling and discoloration could last one day after treatment with one-millimeter needles.

For those who are turned off by the idea of spending even a couple of days indoors recuperating, there are at-home needling options that also produce skin improvements, albeit ones that aren't as dramatic. Los Angeles plastic surgeon Norman Leaf, MD, sells the TX Roller, with needles only 0.13 millimeters long. "They're too short to draw blood or cause

pain," Leaf says. Since they don't touch the dermis, the spikes don't stimulate fibroblasts directly, but "they create tiny channels in the epidermis, which allow any antiaging topical you apply prior to rolling to penetrate more deeply, amp up collagen production, and decrease the appearance of wrinkles," he says.

Although human studies on skin needling have thus far been performed only on the face, Leaf has had patients use the device on their cleavage and "found immense improvement in fine lines in that area." One enterprising woman applied an anticellulite cream once a day to both thighs, but rolled it in on only one leg. "Within a month, the needled thigh was one inch smaller than the control," he says.

CLINICAL STUDIES

Skin tone has improved and wrinkles significantly reduced



Dramtic reduction in acne scarring



Stretch Mark Reduction



Cellulite Reduction

