

Microneedling: The secret to flawless skin through cosmetic resurfacing.

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Introduction

Microneedling, a minimally invasive cosmetic procedure, has gained significant popularity in dermatology and aesthetic medicine. This technique involves the use of fine needles to create micro-injuries in the skin, stimulating the body's natural healing process and promoting collagen and elastin production. Originally introduced for scar treatment, microneedling is now widely used for skin rejuvenation, reducing fine lines, wrinkles, acne scars, and hyperpigmentation. This article explores the benefits, mechanism, risks, and effectiveness of microneedling, supported by scientific research and expert opinions [1].

Microneedling, also known as collagen induction therapy, involves a device equipped with fine needles that puncture the skin at controlled depths. The procedure initiates the skin's wound healing response, which includes inflammation, proliferation, and remodeling phases. The formation of new collagen and elastin results in firmer, smoother, and more youthful skin [2].

Studies have demonstrated that microneedling significantly increases collagen synthesis, improving skin texture and elasticity. The procedure reduces the appearance of aging signs by promoting skin tightening and structural integrity [3].

Microneedling creates microchannels that enhance the penetration and efficacy of skincare products like vitamin C, hyaluronic acid, and retinoids. Research indicates that microneedling improves atrophic acne scars by enhancing dermal remodeling. It is effective in treating melasma and post-inflammatory hyperpigmentation by promoting even skin tone [4].

Devices such as derma rollers or automated pens with adjustable needle depths (0.25 mm to 3 mm) are used. Post-treatment, patients may experience mild redness and swelling, which subside within 24–48 hours [5].

Common side effects include mild erythema, swelling, and sensitivity. Improper aftercare can lead to bacterial infections; thus, strict hygiene measures should be followed. In individuals with darker skin tones, post-inflammatory hyperpigmentation may occur if proper sun protection is not maintained [6].

Patients with active acne, eczema, or skin infections should avoid microneedling to prevent complications. Microneedling is often compared to laser resurfacing, chemical peels, and microdermabrasion. Unlike laser treatments, which use heat,

microneedling is mechanical, making it safer for darker skin tones [7].

It also has fewer side effects than chemical peels and microdermabrasion, which can sometimes cause excessive peeling and irritation. Scientific Evidence Supporting Microneedling Multiple studies confirm microneedling's efficacy [8].

A study showed that microneedling increased collagen deposition by 400% over six months. Reported a 75% improvement in acne scars after three microneedling sessions. Demonstrated enhanced skin elasticity and reduced wrinkles in 90% of participants [9].

Unlike laser treatments, microneedling requires little to no downtime, making it an attractive option for many patients. The procedure typically takes 30–60 minutes, depending on the treatment area. A numbing cream is applied to reduce discomfort [10].

Conclusion

Microneedling is a revolutionary skin rejuvenation technique that offers numerous benefits, from collagen stimulation to scar reduction. Its minimal invasiveness, cost-effectiveness, and proven results make it an attractive option for those seeking youthful, radiant skin. However, proper technique, professional guidance, and post-procedure care are essential for optimal results. As research continues, microneedling is expected to remain a cornerstone in aesthetic dermatology.

References

1. Bohn T, Desmarchelier C, Dragsted L.O, et al. Host-related factors explaining interindividual variability of carotenoid bioavailability and tissue concentrations in humans. *Mol Nutr Food Res*. 2017;61.
2. Massenti R, Perrone A, Livrea M.A, et al. Regular consumption of fresh orange juice increases human skin carotenoid content. *Int J Food Sci Nutr*. 2015;66:718–21.
3. Jahns L, Johnson L.K, Mayne S.T, et al. Skin and plasma carotenoid response to a provided intervention diet high in vegetables and fruit: Uptake and depletion kinetics. *Am J Clin Nutr*. 2014;100:930–937.
4. Aguilar S.S, Wengreen H.J, Dew J. Skin carotenoid response to a high-carotenoid juice in children: A randomized clinical trial. *J Acad Nutr Diet*. 2015;115:1771–78.

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5. Freeman EE. A seat at the big table: expanding the role of dermatology at the World Health Organization and beyond. *J Invest Dermatol*. 2014;134(11):2663-5.
6. Engelman D, Fuller LC, Solomon AW, et al. Opportunities for integrated control of neglected tropical diseases that affect the skin. *Trends Parasitol*. 2016;32(11):843-54.
7. Tschachler E, Bergstresser PR, Stingl G. HIV-related skin diseases. *The Lancet*. 1996;348(9028):659-63.
8. Boyers LN, Karimkhani C, Naghavi M, et al. Global mortality from conditions with skin manifestations. *J Am Acad Dermatol*. 2014;71(6):1137-43.
9. Jobanputra R, Bachmann M. The effect of skin diseases on quality of life in patients from different social and ethnic groups in Cape Town, South Africa. *Int J Dermatol*. 2000;39(11):826-31.
10. Verhoeven EW, Kraaimaat FW, van Weel C, et al. Skin diseases in family medicine: prevalence and health care use. *Ann Fam Med*. 2008;6:349-54.

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