

# Role of Fractional Technology in Skin Rejuvenation and Resurfacing

Federica Medina\*

Department of Surgery, University of Oxford, Oxford, UK

**Corresponding author:** Federica Medina, Department of Surgery, University of Oxford, Oxford, UK, E-mail: medina\_f@gmail.com

**Received date:** August 22, 2024, Manuscript No. IPARS-24-19909; **Editor assigned date:** August 26, 2024, PreQC No. IPARS-24-19909 (PQ); **Reviewed date:** September 09, 2024, QC No. IPARS-24-19909; **Revised date:** September 16, 2024, Manuscript No. IPARS-24-19909 (R); **Published date:** September 23, 2024, DOI: 10.36648/2472-1905.10.3.75

**Citation:** Medina F (2024) Role of Fractional Technology in Skin Rejuvenation and Resurfacing. J Aesthet Reconstr Surg Vol.10 No.3:75.

## Description

Skin rejuvenation and resurfacing procedures have become increasingly popular as individuals seek to maintain a youthful appearance or improve the quality of their skin. Among the various technologies available for such procedures, fractional laser technology has emerged as a revolutionary advancement, offering significant benefits for skin rejuvenation. This approach, which involves creating micro-columns of injury in the skin, leads to faster healing times and minimizes the risk of complications compared to traditional methods.

## Fractional technology

Fractional laser technology refers to the use of lasers that create thousands of tiny, controlled micro-injuries in the skin, leaving surrounding tissue intact. This technology allows for more precise treatments, faster recovery times better results compared to conventional ablative methods. The fractional nature of the treatment allows for partial treatment of the skin rather than resurfacing the entire surface, thus reducing the overall downtime and side effects while still providing effective results.

Fractional lasers can be used for a wide range of skin issues, including wrinkles, fine lines, acne scars and pigmentation sun damage. The most common types of fractional technology used in skin resurfacing are fractional CO<sub>2</sub> lasers and fractional erbium lasers. Both have their unique characteristics and are used depending on the depth and type of skin concern being addressed.

The mechanism behind fractional laser technology involves the creation of Microthermal Treatment Zones (MTZs) in the skin. When the laser light is applied to the skin, it penetrates deep into the dermis, targeting specific layers of skin to stimulate collagen production, improve skin texture promote skin regeneration. By dividing the energy into thousands of smaller beams, fractional lasers leave untouched skin between the micro-injuries, allowing for faster healing times.

This micro-injury process triggers the body's natural healing response, where the skin cells begin to repair the damaged tissue. Over time, the production of new, healthier skin cells and the remodeling of collagen and elastin fibers leads to smoother, more youthful-looking skin.

Ablation process involves removing the outer layer of the skin, allowing new, smoother skin to emerge. Ablative fractional lasers like CO<sub>2</sub> work by vaporizing tissue, which can effectively treat deeper scars and wrinkles. Non-ablative fractional lasers like erbium lasers work by heating the skin beneath the surface without damaging the outer layer. This stimulates collagen production without causing visible injury to the skin surface. Both methods stimulate collagen regeneration, but they differ in the intensity and depth of treatment, providing different outcomes based on the condition being treated.

## Types of fractional lasers

There are several types of fractional lasers available each serves a specific purpose depending on the individual's skin type, needs concerns. Fractional CO<sub>2</sub> lasers have been used for skin resurfacing for many years, but the fractional version of this laser delivers energy in a fractional pattern, allowing for improved healing. The CO<sub>2</sub> fractional laser is excellent for addressing deep wrinkles, acne scars significant sun damage. Its ablative action helps to remove the top layers of damaged skin, revealing smoother, more youthful skin underneath. Due to the deep penetration, CO<sub>2</sub> fractional lasers tend to have a longer recovery time, typically requiring a few days to a week of downtime.

Fractional erbium lasers are less invasive than CO<sub>2</sub> lasers and are generally used for treating finer lines and more superficial skin imperfections. Erbium fractional lasers work by targeting the upper layers of the skin and heating the dermis to stimulate collagen production. These lasers have less downtime compared to CO<sub>2</sub> lasers and are better suited for individuals with lighter skin tones or those seeking less aggressive treatments. They are ideal for improving skin texture, treating sun spots reducing fine lines. Fractional lasers improve skin texture by promoting collagen remodeling and skin regeneration. As the body heals from the micro-injuries created by the laser, it produces fresh, new skin cells, leading to smoother, more even-toned skin. This results in reduced fine lines, a more youthful appearance overall skin rejuvenation.

One of the most significant advantages of fractional technology is the reduced recovery time compared to traditional ablative resurfacing methods. Because only a fraction of the skin is treated at any given time, the surrounding tissue remains intact, allowing the skin to heal faster. Many patients experience

minimal redness or swelling most can return to their daily activities within a few days. Fractional technology is highly effective in treating acne scars, surgical scars other types of scarring. By stimulating collagen production beneath the surface of the skin, fractional lasers help improve the appearance of scars, reducing their visibility over time. The precision of fractional lasers allows for targeted treatment of scar tissue without affecting the surrounding skin.