

Fractional lasers reduce facial acne scarring

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Fractional laser technology, often used in the removal of unwanted tattoos, can improve the appearance and texture of facial acne scars, based on data published online.

“The evolution from traditional nanosecond to picosecond lasers has been observed to produce a photomechanical effect that causes fragmentation of tattoo ink or pigment,” wrote Dr. Jeremy A. Brauer, a dermatologist in group practice in New York, and his coinvestigators. “An innovative optical attachment for the picosecond laser, a diffractive lens array, has been developed that gauges distribution of energy to the treatment area. This specialized optic affects more surface area, has a greater pattern density per pulse, and may improve the appearance of acne scars,” they reported (*JAMA Dermatol.* 2014 [doi:10.1001/jamadermatol.2014.3045]).

In a single-center, prospective study, Dr. Brauer and his associates enrolled 20 patients – 15 women and 5 men – based on screenings to ensure no history of skin cancer, keloidal scarring, localized or active infection, immunodeficiency disorders, and light hypersensitivity or use of medications with known phototoxic effects. Of that initial group, 17 completed all six treatments and presented for follow-up visits at 1 and 3 months. Patients were aged 27-66 (mean age, 44 years), and included Fitzpatrick skin types I (one patient), II (seven patients), III (six patients), and IV (three patients).

Subjects mostly had rolling-type scars, boxcar scars, and icepick lesions related to acne. Each subject underwent six treatments with a 755-nanometer

alexandrite picosecond laser with a diffractive lens array; each treatment occurred every 4-8 weeks.

Subjects also provided a subjective score for pain experienced during each treatment on a scale of 0 (no pain) to 10 (extreme pain). They used a scale of 0-4 to indicate their satisfaction with improvement of overall skin appearance and texture prior to their final treatment, at the 1-month follow-up,

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Key clinical point: Treatment of facial acne scars with a diffractive lens array and a picosecond 755-nm alexandrite laser improves the appearance and texture of skin within 3 months.

Major finding: Masked assessments by a dermatologist found a 25%-50% global improvement at the 1-month postoperation follow-up visit, which was maintained at the 3-month follow-up.

Data source: A single-center, prospective study of 20 patients.

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and at the 3-month follow-up (with 0 being total dissatisfaction and 4 total satisfaction).

At the 1-month and 3-month follow-ups, three independent dermatologists gave masked evaluations of each patient's improvement on a 4-point scale, with 0 = 0%-25%, 1 = 26%-50%, 3 = 51%-75%, and 4 = 76%-100%.

All patients were either “satisfied” or “extremely satisfied” with the appearance and texture of their facial skin after receiving the full treatment regimen, and recorded an average pain score of 2.83 out of

10. The masked assessment scores also were favorable, averaging 1.5 of 3 and 1.4 of 3 at the 1-month and 3-month follow-ups, with a score of 0 indicating 0-25% improvement and a score of 3, greater than 75% improvement, the researchers reported.

The researchers also evaluated three-dimensional volumetric data for each subject, which showed an average of 24.0% improvement in scar volume at the 1-month follow-up and 27.2% at the 3-month follow-up. Furthermore, histologic analysis revealed elongation and increased density of elastic fibers, as well as an increase in dermal collagen and mucin.

“This is the first study, to our knowledge, that demonstrates favorable clinical outcomes in acne scar management with the 755-[nm] picosecond laser and diffractive lens array,” the researchers noted. “Observed improvement in pigmentation and texture of the surrounding skin suggests that there may be benefits for indications beyond scarring,” they wrote.

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