

Molecular Changes Studied for Fractional CO₂ Laser Therapy

Molecular changes in skin found similar to those with fully ablative CO₂ laser resurfacing

Publish date: Sep 23, 2010



THURSDAY, Sept. 23 (HealthDay News) -- Fractional carbon dioxide (CO₂) laser skin resurfacing results in the same post-treatment molecular changes as fully ablative CO₂ laser treatments, according to a study in the September/October issue of the *Archives of Facial Plastic Surgery*.

Michael J. Reilly, M.D., of the University of California Los Angeles Medical Center, and colleagues took 2-mm punch biopsies of neck skin from nine subjects prior to their undergoing laser resurfacing of photodamaged face and neck skin at a minimal dose (30 W for 0.1 second) with the Pixel Perfect fractional CO₂ laser. After the procedure, and seven, 14, and 21 days post-procedure, additional biopsies were taken. The researchers extracted RNA from the specimens, and analyzed and compared protein expression at the different time points.

The researchers found statistically significant alterations in gene expression for several matrix metalloproteinases (MMPs), indicating a consistent up-regulation of MMPs 1, 3, 9, and 13, which also have been reported for fully ablative CO₂ laser resurfacing. There were also statistically significant increases observed in MMP-10 and MMP-11 levels.

"While comparisons cannot be drawn from this study about the degree of collagen reorganization in fractional versus fully ablative CO₂ laser resurfacing, the data from our experiment demonstrate that the molecular pathways are very similar. Given these findings, fractional CO₂ laser resurfacing appears to be a promising technique for limiting recovery and potential adverse effects, while still providing effective rejuvenation of aging facial skin," the authors write.

One study author reported receiving travel funding from, and another serves as a consultant on, the medical advisory board for Alma Lasers, which funded the study.