

Two different fat graft techniques have similar effects on facial skin

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Two approaches to fat grafting—[injection of fat cells](#) versus [fat-derived stem cells](#)—have similar effects in reversing the cellular-level signs of aging skin, reports a study in the April issue of *Plastic and Reconstructive Surgery*.

Since the facial rejuvenation results are the same, the simpler approach using [fat cells](#) plus the "stromal vascular fraction" has advantages over the more time-consuming stem cell [fat](#) technique. Dr. Gino Rigotti of Clinica San Francesco, Verona, Italy, directed a research team consisting of Luiz Charles-de-Sá and Natale Ferreira Gontijo-de-Amorim from Clinica Performa, Rio de Janeiro; and Andrea Sbarbati, Donatella Benati, and Paolo Bernardi from the Anatomy and Histology Institute, University of Verona.

Fat Grafts vs Stem Cells for Facial Rejuvenation

The experimental study compared the two approaches to fat grafting for regeneration of the facial skin. In these procedures, a small amount of the patient's own fat is obtained by liposuction from another part of the body, such as the abdomen. After processing, the fat is grafted (transplanted) to the treated area, such as the face.

The study included six middle-aged patients who were candidates for [facelift surgery](#). All underwent fat grafting to a small area in front of the ear.

One group of patients received fat-derived [stem cells](#). Isolated and grown from the patients' fat, these specialized cells have the potential to develop into several different types of tissue. The other group underwent injection of fat cells along with the stromal vascular fraction (SVF)—a rich mix of cell types, including stem cells.

Before and three months after fat grafting, samples of skin from the treated area were obtained for in-depth examination, including electron microscopy for ultrastructural-level detail.

After injection of fat cells plus SVF, the skin samples showed reduced degeneration of the skin's elastic fiber network, or "elastosis"—a key characteristic of aging skin. These findings were confirmed by ultrastructural examination, which demonstrated the reabsorption of the elastosis and the development of relatively "young" elastic fibers.

In patients undergoing stem cell injection, the [skin](#) changes were essentially identical. "This result seems to suggest that the effect of a fat graft is, at least in part, due to its stem cell component," Dr Rigotti and coauthors write.

The researchers also found "suggestive" evidence that the rejuvenating effects of fat grafting are related to new formation of microscopic blood vessels. Further studies are needed to confirm this hypothesis, however. Dr. Rigotti comments, "In any case, this is the first study presenting clinical evidence showing [skin rejuvenation](#) after fat grafting and highlighting the anatomical and structural changes that are the basis of this rejuvenation."

Both [fat grafting](#) approaches "appear very promising for facial anti-aging surgical techniques," the researchers conclude. Given the similar results, the researchers believe that fat cells plus SVF are preferable to stem cell injection. That's because the fat processing step is less expensive and

faster—avoiding the need for stem cell expansion means the fat cells can be harvested, processed, and injected on the same day.

More information: "Antiaging Treatment of the Facial Skin by Fat Graft and Adipose-Derived Stem Cells" [DOI: 10.1097/PRS.0000000000001123](#)

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