Injectable dermal fillers don't just fill—they also lift, new study suggests

April 28 2021

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Injectable dermal fillers provide a minimally invasive approach to reduce facial lines and wrinkles while restoring volume and fullness in the face. More than 2.7 million dermal filler procedures were performed

in 2019, according to the most recent statistics from the American Society of Plastic Surgeons (ASPS).

Even as the popularity of dermal fillers continues to skyrocket, plastic surgeons are still working out how to maximize their benefits for patients seeking nonsurgical facial rejuvenation. Most studies have used subjective rating systems, with little objective evidence on the outcomes achieved.

One recent study suggested that in addition to their "volumizing" effects, dermal fillers may also have variable "lifting" effects. Sebastian Cotofana, MD, Ph.D., of the Mayo Clinic, Rochester, Minn., and colleagues designed a study to measure the true lifting effect of soft tissue fillers in different areas of the face. Their study appears in the May issue of *Plastic and Reconstructive Surgery*, the official medical journal of the ASPS.

In the experimental study, the researchers performed standardized dermal filler injections in specially prepared facial cadaver specimens. Injections were made in areas commonly targeted in minimally invasive facial rejuvenation procedures: the forehead and temple; the midface region, including both the medial (central) and the lateral (sides) areas; and the perioral area (mouth and chin) and jawline.

To measure the effects of the injections, Dr. Cotofana and colleagues performed before-and-after scans of the facial surface using an advanced three-dimensional scanning technology (Vectra 3-D imaging system). The same type of 3-D digital imaging system is now commonly used to assess and even simulate the results of plastic and reconstructive surgery procedures.

Scans taken after dermal filler injections showed significant increases in local soft tissue volume in central areas of the face. That was consistent

with the well-established clinical effects of 'injectable' treatment in the medial forehead, midface, and mouth and chin areas.

Central facial injections also showed local lifting effects, including up to one millimeter of vertical "lift" in the forehead area. However, there was no accompanying regional lifting effect—for example, forehead injection produced no lifting effect in the central areas of the middle or lower face.

Injections in lateral facial areas like the temple, midface, and jawline also produced local volumizing and lifting effects. In addition, the lateral facial injections created "additional regional lifting effects" in neighboring areas of the face. For example, injection in the temple had a small but significant lifting effect on the lateral midface and jawline.

Combined injection techniques provided even larger benefits. Added to deep filler injection, a superficial temple injection technique produced an additional 17.5 percent increase in the lifting effect of the temple, plus a 100 percent increase in the jawline lifting effect.

"These results indicate that lateral face injections co-influence adjacent lateral facial regions and can thus induce regional lifting effects," Dr. Cotofana and coauthors write. The results are consistent with previous knowledge of the in-depth anatomy of the face: filler injections may lead to a change in tension of the connective tissue (fascia) under the skin, resulting in "re-positioning" of the upper skin layers.

In this way, filler injections can provide a small but significant lifting effect in a minimally invasive, repeatable procedure. Of course, the gravity-defying lifting effects don't approach the impact of facelift surgery. In addition to confirming previous findings on the lifting effects of facial injectables, the study also "broadens their applicability to the total lateral face...to achieve local and regional lifting effects."

More information: Rami Haidar et al. Quantitative Analysis of the Lifting Effect of Facial Soft-Tissue Filler Injections, *Plastic & Reconstructive Surgery* (2021). DOI: 10.1097/PRS.0000000000007857