

The “Boomerang Lift”: A 3-Step Compartment Based Approach to the Youthful Cheek

Jordan Turner MD, Jillian Schreiber MD, Carrie Stern MD, Danielle Jackson MD, Evan Garfein MD, Elizabeth Jelks MD, Glenn Jelks MD, Oren Tepper MD

Disclosure/Financial Support: None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this manuscript.

Background: Autologous fat grafting (AFG) is an important tool for plastic surgeons when approaching the aging face. Malar augmentation restores the youthful facial contour and provides support to the lower lid. The existence of distinct facial fat compartments suggests a step-wise approach to facial augmentation is needed[1]. Our group recently described the unique surface response for targeted volumization of discrete fat compartments, termed “Augmentation Zone” (AZ), for the deep malar compartments using three-dimensional (3D) surface imaging in a cadaveric model[2]. The Boomerang Lift is the three-step approach to malar augmentation using the ideal combination of deep malar fat compartments in clinical patients.

Methods: Clinical patients undergoing AFG for malar augmentation were injected in the Boomerang Lift technique and photographed intra-operatively using 3D surface imaging (Canfield® VECTRA H1) (n=13). Sequential injections were performed in the following order: to the lateral sub-orbicularis oculi fat (lateral SOOF), medial SOOF, and lastly to the deep medial cheek. Intra-operative 3D images were taken at baseline and following compartmental injections. Overlay between the augmented and baseline surfaces were performed using 3D analytic software, and the AZ was defined for individual and combined fat compartments.

Results: 3D analysis of the Boomerang Lift technique resulted in a unique AZ consistent across patients. The AZ resembled a boomerang, with the short tail supporting the medial lower lid, and the long tail extending laterally along the zygomatic arch. The upper border was restricted by the level of the tear trough/lid-cheek junction, and the lower border was defined medially by the nasolabial fold and laterally by the level of the zygomatico-cutaneous ligament. Injections to the lateral and medial SOOF defined the boundaries of the boomerang shape, while the injection to the deep medial cheek provided maximum projection.

Conclusions: This is the first clinical application of the deep malar augmentation zones described in a cadaveric model. The Boomerang Lift resulted in a reproducible surface shape that respected the previously defined boundaries in a cadaveric model. 3D surface imaging was an ideal method for analyzing the surface change in response to targeted facial fat grafting. As we continue to understand the 3D architecture of the facial fat compartments, we will be able to describe a surgical algorithm for injection.

1. Rohrich RJ, Pessa JE: **The Fat Compartments of the Face: Anatomy and Clinical Implications for Cosmetic Surgery.** *Plastic and Reconstructive Surgery* 2007, **119**:2219 - 2227.
2. Stern CS, Schreiber JE, Surek CL, Garfein ES, Jelks EB, Jelks GW, Tepper OM: **3D Topographical Surface Changes in Response to Compartmental Volumization of the Medial Cheek; Defining a Malar "Augmentation Zone".** *Plast Reconstr Surg* 2016.