

Author presenting: Oren Tepper, MD

Co-authors:

Institution: Institute of Reconstructive Plastic Surgery, NYU Medical Center

Title: ***Defining ‘Bottoming-Out’ From a Three-Dimensional Perspective***

## Introduction

Bottoming out, or pseudoptosis, is a well-known phenomenon that has been described with all types of reduction mammoplasty (RM). Despite its clinical relevance, the evaluation of post-operative bottoming out remains an imprecise science. The following study is the first to report the application of three-dimensional (3D) photography to objectively investigate changes in breast morphology associated with bottoming out.

## Methods:

Patients undergoing medial pedicle RM had 3D photographs (Konica Minolta V910) taken during the early and late post-operative period (early = 60-120 days; late = 400-500 days). 3D images were compared using a boolean operation based on a standardized chest wall. Bottoming out was assessed with various 3D parameters and vectors, including total breast volume, volumetric tissue distribution above and below an inframammary fold (IMF) plane, distance of the IMF-plane to the lowest point of the breast, and maximum anterior-posterior projection from the chest wall.

## Results:

Post-operative 3D images were obtained from 15 consecutive RM patients with an average volume of  $556 \pm 144 \text{cm}^3$  (early) and  $441 \pm 183 \text{cm}^3$  (late). The percent of tissue in the upper pole of the breast changed from the early to late post-operative period (76% vs 69%, respectively;  $p < 0.01$ ). The distance from a fixed IMF-plane to the inferior pole significantly increased ( $42 \pm 15 \text{mm}$  early vs  $51 \pm 18 \text{mm}$  late;  $p < 0.01$ ). Redistribution of the breast was associated with a decrease in AP projection by an average of 6.23mm ( $p < 0.01$ ). The position of the lateral border of the IMF was also noted to significantly drop by 6.27 mm.

## Conclusion

This study provides quantifiable data to support the occurrence of bottoming out, which to date has been limited to clinical observation and descriptive studies. We demonstrate that bottoming out occurs during the initial 18-month post-operative period, and encompasses significant changes in volumetric distribution, surface topography and breast projection. With the advent of 3D photography, it is now possible for plastic surgeons to perform an objective evaluation of breast transformation over time, which ultimately may help to better predict surgical outcomes.

