# An Evolving Landscape: The Return of Breast Sensation After Mastectomy Varies by Anatomic Region

Grant G. Black, BA[1], Yunchan Chen, BS[1], Marcos Lu Wang, MD[1], Hao Huang, MD[1], David M. Otterburn, MD[1]

*[1]Division of Plastic and Reconstructive Surgery, NewYork-Presbyterian-Weill Cornell Medical Center*

## Background

Loss of breast sensation after mastectomy has been well documented. Postoperative reinnervation of the breast is influenced by factors including reconstructive technique, patient comorbidities, and adjuvant treatment.[1,2] However, little attention has been paid to the differences in sensation across regions of the breast.

## Methods

Women undergoing mastectomies with immediate reconstruction via neurotized deep inferior epigastric perforator (DIEP) flaps or alloplastic reconstruction in a two-stage approach with tissue expanders were identified and followed prospectively. Neurosensory testing was performed in 9 breast regions using a pressure-specified sensory device to determine 1-point static cutaneous thresholds (g/mm^2). Data were stratified by reconstructive type and breast region, and Student's t-tests were performed between groups both preoperatively and at set intervals for five years following mastectomy to measure differences in sensation.

## Results

233 patients were included; some underwent testing at multiple timepoints, accounting for a total of 770 breasts measured. 132 patients received neurotized DIEP flap reconstruction, and 101 received tissue expander-based (TE) reconstruction.

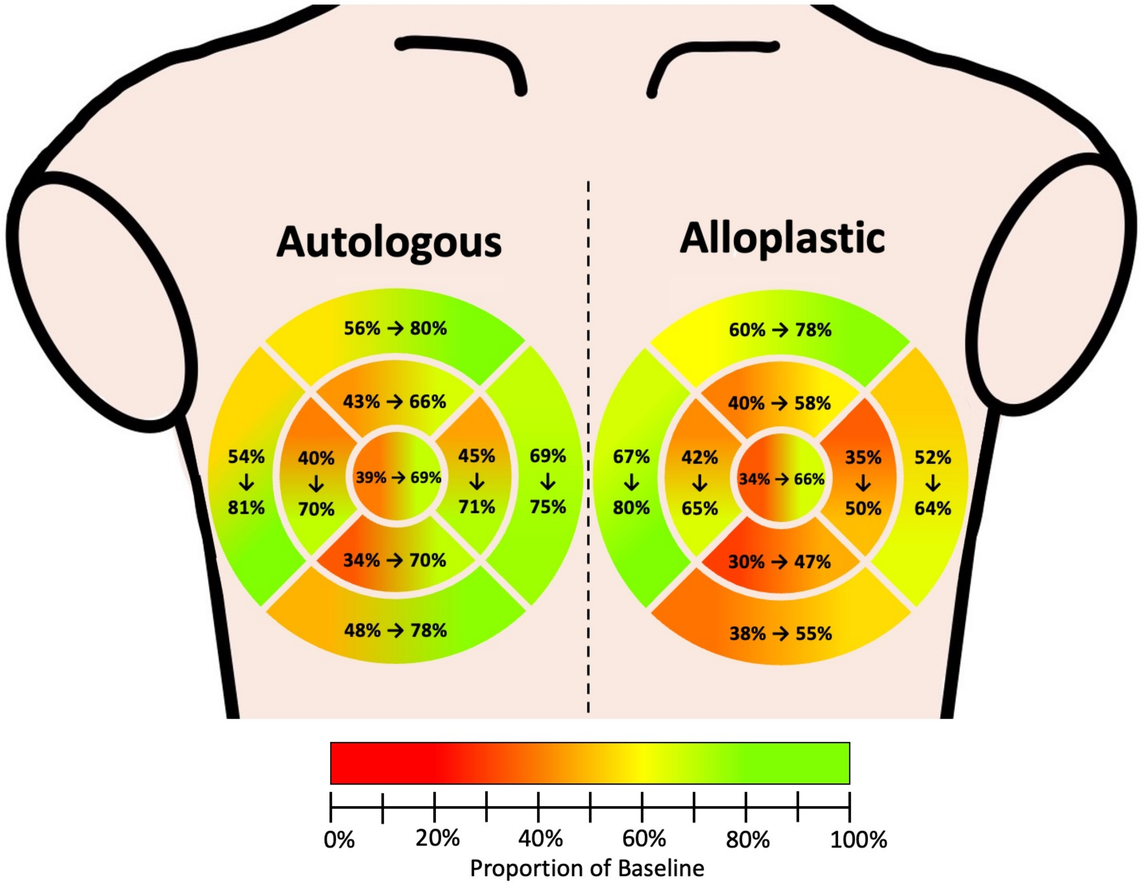


**Figure 1.** Sensation differences by breast region and reconstructive technique. All values are represented as percentages of baseline preoperative sensation thresholds. Each region displays postoperative sensation thresholds for both the 1-year and 5-year post-mastectomy timepoints.

## Results (cont'd)

In the first year after mastectomy for both reconstructive groups, the nipple-areola complex (NAC) and inner breast regions experienced a greater decrease in sensation than the outer regions compared to baseline values (27% of baseline vs. 50%, $p<0.001$). At 5 years postoperatively, inner regions recovered 61% of baseline sensation compared to 75% in the outer regions ($p<0.001$). By 5 years post-mastectomy, sensation in the DIEP cohort was comparable to that of the TE cohort in the superior and medial regions. However, the inferior and lateral quadrants only recovered 72% sensation relative to the DIEP cohort ($p<0.01$).

## Conclusion

Though patients undergoing breast reconstruction experience increased breast sensation over time, the return of sensation is influenced by type of reconstruction, operative reinnervation, and anatomic region. Regions closer to the nipple experience slower and decreased sensation return. Alloplastic reconstruction results in decreased return of sensation compared to autologous reconstruction, particularly in the inferior and lateral quadrants of the breast.

## References

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