

- 110 flaps in 55 cases over 3 years. *Plast Reconstr Surg.* 2011; 127:1093–1099.
2. Pennington DG, Nettle W. Microvascular augmentation of the blood supply of the contralateral side of the free transverse rectus abdominis musculocutaneous flap. *Ann Plast Surg.* 1993;31:123–126; discussion 126–127.
  3. Pennington DG. Acknowledgment of previous work. *J Hand Surg Am.* 1994;19:1055–1056.

## Reply: The Stacked DIEP Flap

Sir:

Dr. Pennington's referenced publication describes a transverse rectus abdominis musculocutaneous flap-based procedure that "supercharges" or "turbocharges" the distal portion of a folded abdominal soft-tissue flap to incorporate more volume into a reconstructed breast. Although there are some similar basic conceptual elements to our stacked deep inferior epigastric artery perforator (DIEP) flap, there are also many more important differences. The differences are the key points that make the stacked flap, as described in our publication, revolutionary in overall concept. This revolution is, basically, the removal of surgical limitations for handling the microvascular construct of the abdominal soft tissue by dissecting the pedicles free of surrounding muscle/fascial tissue and harvesting them in a carefully-thought-out way with attention to the individual vascular patterns and their potential for rearrangement. The "plumbing" can then be rerouted in any way the surgeon chooses to effect a soft-tissue inset, layering, and perfusion pattern that, in our experience, has produced consistently high overall success rates in terms of flap viability and resultant breast aesthetic.

The contention that these procedures are "almost identical" is akin to the claim that a transverse rectus abdominis musculocutaneous flap and a DIEP flap are almost identical. Although there are shared elements, the differences are important enough to make them separate in category and worthy of independent discussion. The overreach in claim regarding similarity is exemplified in the following ways:

The stacked DIEP flap is rarely folded and our recommendation, as published, was to avoid this as opposed to Dr. Pennington's article. The reason to avoid a fold is to take away the limits for inset of the flap or flaps that this imposes. It is better to separate the flaps to avoid the flattened shape at the fold point and to allow each flap to be placed in the reconstructive pocket in the precise location that affords the best overall combined shape and projection. Our procedure preserves the rectus muscle as opposed to including it with the flap as Dr. Pennington did. More substantially, the dissection of the pedicle and all of its branch points provides the surgeon with many options for linking the flaps to an adjacent vascular source. Dr. Pennington's article describes using only the distal extent of the primary flap's pedicle as an anastomosis point for a paraumbilical perforator on the opposing flap. If the distal artery or vein were too small, as is

frequently the case, Dr. Pennington's article provides no secondary option, as the remainder of his pedicle was encased in rectus muscle. We as often use a branch point farther down on the primary pedicle as we do the distal extent. The flexibility of the fully dissected pedicles even provides the option for anastomosis of the secondary flap in a retrograde manner to the internal mammary vessels when required or desired. With respect to the secondary flap, Dr. Pennington used a single paraumbilical perforator for its perfusion. We more often use perforators in the lateral row to place the vascular source as centric as possible in the base of the flap. The secondary flap may also be perfused by the superficial inferior epigastric artery or vein. These various pedicles may be connected to the distal endpoint of the primary flap, a branch point of its pedicle, an intercostal perforator, or a retrograde internal mammary anastomosis, and we have arranged things accordingly a number of times. This flexibility has been further demonstrated since our initial publication in an additional 146 patients with 292 flaps, for a total experience of 402 flaps in 201 patients with stacked flap reconstructions of varying arrangements. This supports the utility of this procedure and its value as a standalone concept.

Our article described a number of previous publications aimed at the same goal of increasing reconstructed breast volume when needed and reviewed the important differences of each as compared with our procedure. By oversight, we failed to include Dr. Pennington's work and missed the opportunity to point out the key differences that make the stacked DIEP flap an important advancement. We also missed the opportunity to credit him, along with the other publications cited in our article, for a portion of the platform on which the stacked DIEP flap was ultimately developed. We thank Dr. Pennington for his interest. Possibly, this additional discussion further emphasizes the value of the flexibility and reconstructive power that the stacked DIEP flap brings to the selection of methods available to the reconstructive surgeon.

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## Sprayed Fibrin Glue in Lipoabdominoplasty and Abdominoplasty

Sir:

**W**e read with great interest the article on seroma in lipoabdominoplasty and abdominoplasty by Najera et al., entitled "Comparison of Seroma Formation following Abdominoplasty with or without Liposuction," published in the January 2011 issue of the *Journal*.<sup>1</sup> We fully acknowledge the problem of seroma formation after (lipo)abdominoplasty, and every measure to prevent this complication should be considered. For the interested reader, we would like to mention a