

# **Risk Factors and Complications Associated With Need for Perioperative Blood Transfusions in Deep Inferior Epigastric Perforator Free Flap Breast Reconstruction**

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**Background:** The deep inferior epigastric perforator (DIEP) flap has become the gold standard in autologous breast reconstruction. Prior studies have shown that prolonged operative time and large flaps increase the risk of surgical blood loss and need for perioperative blood transfusions. However, existing literature on this topic is highly variable. The purpose of this study was to assess risk factors for the need for peri-operative blood transfusion and complications associated with the need for peri-operative blood transfusion in patients undergoing autologous breast reconstruction with DIEP free flaps.

**Methods:** A retrospective cohort study was conducted of all patients who underwent DIEP flap breast reconstruction at a large academic institution from years 2015-2023. Cohort groups were divided into patients who required perioperative blood transfusions and patients who did not. Demographics, clinical characteristics, and post-operative complications in these cohorts were examined through chart review. Post-operative outcomes were identified within 90 days of surgery and categorized into donor site, recipient site, and general complications. Standard statistical analyses and software were utilized to assess significant differences in risk factors and outcomes between the two groups.

**Results:** Of the 591 patients who met inclusion criteria, 145 (25%) required a post-operative blood transfusion. The average number of units transfused was 1.8. There were no significant differences between the groups as it pertained to BMI, ASA score, or Caprini score. Patient risk factors associated with the need for post-operative blood transfusion include diabetes (OR 2.2,  $p=0.009$ ), bleeding disorder (OR 3.6,  $p=0.006$ ), coronary artery disease (OR 3.9,  $p=0.046$ ), congestive heart failure (OR 9.3,  $p=0.049$ ), and lower pre-operative hemoglobin levels ( $13.9 \pm 1.1$  vs  $13.2 \pm 1.6$ ,  $p<0.001$ ). Operative characteristics associated with the need for post-operative blood transfusion includes bilateral breast reconstruction (OR 2.0,  $p=0.001$ ). Post-operative blood transfusions were significantly associated with donor site dehiscence (OR 1.8,  $p=0.013$ ), and any recipient site complication (OR 1.65,  $p=.009$ ), but not with any other surgical or medical complications such as post-operative systemic infection.

**Conclusion:** Our study identified modifiable and non-modifiable patient risk factors that may contribute to the risk of needing peri-operative blood transfusions following DIEP flap breast reconstruction. Blood transfusions are not benign interventions and were found to be associated with donor site dehiscence in this study.