

## A Case-Controlled Study of the Oncologic Safety of Fat Grafting

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### Abstract

**Background:** Currently, there is no clinical evidence of oncologic risk associated with fat grafting, although its safety has been questioned. The authors investigated the risk of relapse associated with fat grafting in women with a history of breast cancer.

**Methods:** Of 328 women with previously treated malignant breast disease who underwent fat grafting at the Nottingham Breast Institute, complete data were available for 211 (invasive carcinoma,  $n = 184$ ; ductal carcinoma in situ,  $n = 27$ ). Mean follow-up was 88 months after primary cancer surgery and 32 months after fat grafting. Control subjects were matched 2:1 for date of primary cancer operation (within 2 years), age (within 5 years), type of surgery, tumor histology, estrogen receptor status, and disease-free status by time equivalent to that of fat grafting. Final endpoints were tumor recurrence and death. Outcome results were compared with a systematic review of all patients undergoing fat grafting with adequate follow-up reported in the literature.

**Results:** No significant excess oncologic events were observed in patients who had fat grafting compared to controls with regard to local (0.95 percent versus 1.90 percent;  $p = 0.33$ ), regional (0.95 percent versus 0 percent;  $p = 0.16$ ), and distant recurrences (3.32 percent versus 2.61 percent;  $p = 0.65$ ). A systematic review identified case series with a total of 1573 women who had fat grafting after primary oncologic breast surgery. The locoregional relapse rate for these patients was 2.92 percent (0.95 percent per year).

**Conclusion:** This study has found no evidence of increased oncologic risk associated with fat grafting in women previously treated for breast cancer.

**CLINICAL QUESTION/LEVEL OF EVIDENCE:** Risk, II.