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One-STEP Technique™ for harvesting fat graft: A new technology to improve the outcome in breast reconstruction

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Objective: The authors present a new technique that provides the harvest of the fat graft and conduct its immediate grafting in the breast reconstructed, after the treatment of breast cancer. **Methodology:** A total of 42 cases were performed by the senior author from April 2019 to December 2022, in patients submitted to breast reconstruction procedures in private hospitals in Goiânia, Goiás, Brazil. All patients have been submitted to surgical treatment of breast cancer in the past, whether by conservative treatment with partial resection and radiotherapy or any kind of mastectomy and implant-based breast reconstruction. Some patients had adjuvant radiotherapy. The Selective Tissue Engineering Photostimulation Technique (One-STEP Technique™) involves using a diode laser with a wavelength of 1,210 nm applied to the subcutaneous tissue from the abdomen, hips, medial thighs, or axillary extension, before harvesting the fat grafts. The fat graft obtained by the One-STEP technique has innovative characteristics; as the laser is specific for the subcutaneous tissue, it reaches its maximum energy at the adipocytes causing them to vibrate, denaturing the connective tissue and releasing the adipocytes and stromal vascular fraction. The fat grafting was carried out immediately after the fat extraction, as an adjunct to improve the quality of the usual results, and no additional processing steps are required. The evaluation of results was performed at 40 and 90 days postoperatively. **Results:** The technique features make it easier to aspirate the graft and preserve the viability of cells. The authors observed an excellent take of the grafted fat showing great improvement in the skin quality and reduced formation of oil cysts and calcifications. Some patients showed great improvement even in radiated skin. **Conclusion:** The One-STEP Technique™ is an excellent alternative to improve the quality of the fat graft in order to achieve a more aesthetic breast reconstruction.

Keywords: tissue grafting; subcutaneous tissue; diode laser; breast reconstruction; breast cancer.