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PLASTIC SURGEONS®

Pre-Expansion Technique Allows Successful Mega-Volume Fat Transfer to the Breasts, Reports Plastic and Reconstructive Surgery

Brava® Patients See Substantial, Long-Term Retention After Breast Augmentation or Reconstruction

Arlington Heights, Ill. (March 4, 2014) – There's growing interest in using a patient's own fat cells for breast augmentation or reconstruction, but conventional approaches are limited in the amount of fat that can be injected. A new technique of breast "pre-expansion" can greatly increase the volume of fat cells transferred to the breasts, according to a report in the March issue of [Plastic and Reconstructive Surgery®](#), the official medical journal of the [American Society of Plastic Surgeons \(ASPS\)](#).

ASPS Member Surgeon Dr. Roger K. Khouri of Miami Breast Center and colleagues outline the theory and principles of their "mega-volume" autologous fat transfer technique for [breast augmentation](#) or [breast reconstruction](#). "The application of these principles has allowed us to successfully graft mega-volumes of fat into the breasts of more than 1,000 patients with substantial long-term retention," the researchers write.

New Technique Helps Overcome Limits on Fat Transfer to Breasts

In autologous fat transfer, fat cells obtained by liposuction from one part of the patient's body—for example, the thighs—are transferred for use in enlarging and reshaping the breasts. There's growing interest in fat transfer as a less-invasive alternative to techniques using breast implants.

However, with conventional approaches, only relatively small amounts of fat can be transferred. That's because of the limited space available within the breast. Injecting larger volumes would lead to excessive pressure, causing impaired blood flow and endangering the survival of transferred fat cells.

In the technique used by Dr. Khouri and colleagues, the patient first undergoes several weeks of "pre-expansion" treatment. This is done using Dr. Khouri's invention, Brava®, a bra-like device that uses gentle negative pressure (a vacuum) to gradually expand the breast. Brava pre-expansion provides extra room in the breast, along with a "fibrovascular scaffold" that the transplanted fat cells can occupy.

The researchers also developed a "micro-ribbon" technique of injecting fat cells, distributing them in close proximity (within two millimeters) to the blood supply needed for survival. They also describe approaches to estimating the volume of fat that can be safely injected without creating excessive pressure within the breast.

With Pre-Expansion, Volume of Fat Cells Transferred May Be Tripled

Brava pre-expansion is essential to create the extra space needed for transferred fat cells. Dr. Khouri and coauthors give the example of a patient with an A-cup breast size undergoing breast augmentation. With fat transfer alone, the patient is likely to achieve a final enlargement of only about 80 milliliters. But using pre-expansion to create a "highly compliant recipient tissue bed" may triple the volume of fat cells that can be injected, permitting a final enlargement of 240 milliliters.

However, achieving good results with mega-volume fat transfer depends on the patient's commitment to using the Brava device for breast pre-expansion, for up to three weeks before the procedure. "The more she invests in Brava wear, the better she expands, the larger her resultant breast expansion," Dr. Khouri and colleagues write.

Although not painful, the Brava is somewhat cumbersome to use. The authors note that they will postpone planned fat transfer procedures if sufficient pre-expansion is not achieved.

In a previous study, Dr. Khouri and colleagues reported that, with recommended use of the Brava device before fat transfer, at least some women can expect to double their original breast size in a single, outpatient procedure with no incision (see [Plastic and Reconstructive Surgery](#), May 2012). They hope their new article will help to familiarize plastic surgeons with the theory and principles of "mega-volume" autologous fat transfer. In future papers, the authors plan to outline their experience of more than 1,000 patients treated with Brava pre-expansion followed by fat transfer, highlighting the clinical outcomes achieved in both cosmetic and reconstructive breast surgery.

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