

## **Stem cell enrichment does not warrant a higher graft survival in lipofilling of the breast: a prospective comparative study.**

[Peltoniemi HH<sup>1</sup>](#), [Salmi A](#), [Miettinen S](#), [Mannerström B](#), [Saariniemi K](#), [Mikkonen R](#), [Kuokkanen H](#), [Herold C](#).

### **ABSTRACT**

#### **BACKGROUND:**

Stem cell enrichment is generally believed to be of crucial importance for success in lipofilling for cosmetic breast augmentation. No comparative clinical studies have been reported to support this.

#### **METHODS:**

A total of 18 women underwent breast augmentation with water-assisted lipotransfer (WAL). In 10 of the cases, transferred lipoaspirate was enriched with stromal stem cells using the Celution(®) system (Cytori Therapeutics Inc., San Diego, Ca, USA). Magnetic resonance imaging (MRI)-based volumetric analysis was done preoperatively and 6 months after the procedure. To verify scientifically that stem cells were transplanted, samples of the transplanted tissues were processed in the laboratory to isolate the adipose stem cells (ASCs).

#### **RESULTS:**

MRI volumetry revealed a volume survival of the whole (watery) graft of mean 54% (SD 7) in the WAL only and of 50% (SD 10) in the WAL with stem cell-enrichment patients. As centrifugation of the WAL grafts demonstrated an average adipose tissue of 68%, the average volume survival of adipose tissue itself was 79% (SD 13) in the WAL only and 74% (SD 14) in the WAL with stem cell-enrichment patients. This difference (4.5%) was not statistically significant (independent samples t test,  $p = 0.330$ , 95% confidence interval of difference, 4.8, 13.9%).

#### **CONCLUSIONS:**

Breast augmentation by lipofilling using WAL alone is faster, cheaper, has a lower risk of contamination and offers at least an equal take rate. We do not see any advantage in stem cell enrichment by the Celution(®) system in cosmetic fat transplantation to the breast.

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**KEYWORDS:** BEAULI; Fat transplantation; Lipofilling; Stem cell; Volumetry; WAL

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