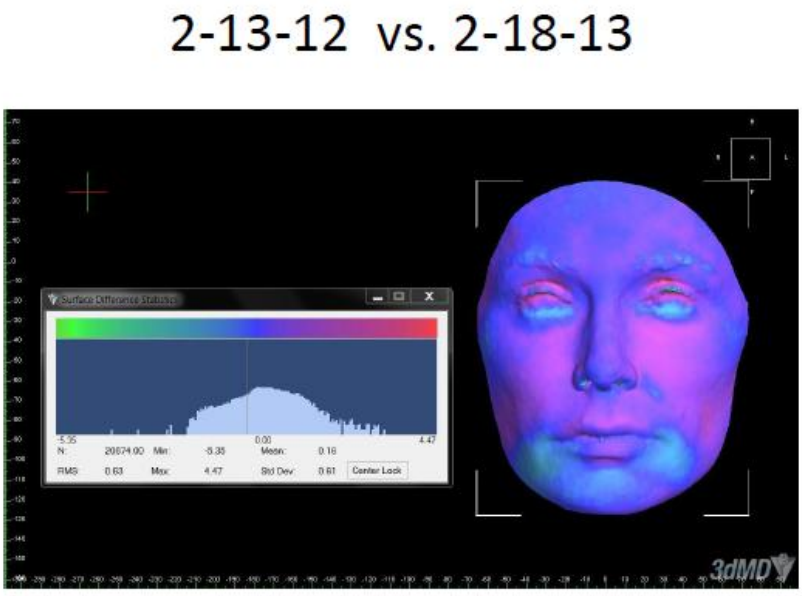
Esthetic Facial Augmentation by Combined Fat and SVF: 3D Computer Results

Purpose: Esthetic augmentation of the face by fat injection is becoming more popular. To improve the end results; harvest and re-injection techniques have been recently refined. In addition the concomitant use of autologous stem cells and the stromal vascular fraction (SVF) has been proposed as an adjunct to improve the amount of retained fat. There are no studies in the literature regarding facial fat augmentation results with the use of SVF using 3D computer volumetric analysis. This prospective study was thus undertaken to answer this question.

Methods and Materials: Fat was harvested by a standard liposuction technique and processed for reinjection. A 50cc aliquot of fat was also processed to obtain the SVF using a standard collagenase technique. A cell count was done using a cytometer and the amount of injected fat and cells recorded. A 3d facial scan was done pre-operatively, postoperatively and at long term follow-up. The Vultus 3d photogrammetric scanning system was used to scan the face and volume changes were then calculated at the different time intervals. The data was then correlated to the variables.



Results: 10 subjects were included in the study with an average follow-up of months. The average amount of fat injected was 18.4 cc of which 70% was retained. The average cell count of the SVF was 4.8×10^5 . The amount of retained fat by volume was found to be positively correlated to the number of cells in the SVF. There was no correlation between the age and number of cells in the SVF.

Conclusion: The concomitant use of the SVF appears to improve the results of facial augmentation by fat injection.