New Cellgraft® system! All in one!
body-jet® eco: Harvesting and grafting of fat tissue (adipocytes, SVF, stem cells)

Small Volume Water-Jet Technology.

Due to its cutting-edge concept the body-jet® eco provides the perfect solution for small-volume fat harvesting and lipofilling.

The innovative body-jet® eco has been designed for the precise and gentle removal of small fat tissue volumes that may be used for subsequent autologous fat transfer. A pulsating water-jet technology with a tissue-sparing, defined vacuum allows harvesting intact and highly viable fat cells from the subcutaneous fat tissue in a gentle way.

The body-jet® eco saves time and money. This effect becomes significant in the case of small fat tissue volumes from 20 cc.

The fat tissue harvested and collected in a sterile, closed system (body-jet®eco and FillerCollector®) is highly viable, finely dispersed and excellently suited for immediate re-injection due to the optimum lobular size of approx. 0.9 mm. A further treatment of the aspirated tissue such as filtration or centrifugation is not necessary.

Compared to other methods, the results of water-jet assisted liposuction & lipofilling are predictable, as proven by a multitude of published clinical studies. When extracting fat cells the subcutaneous fat tissue, blood, lymph vessels and nerves are spared. The very high fat cell viability of approximately 90 % allows that up to 87 % of the grafted tissue volume is preserved and adheres to the recipient area. The success of the treatment is very well predictable according to numerous clinical studies.

Fat harvesting and lipofilling for various applications like
- Hand and face lipofilling
- Wrinkle injection
- Body contouring, e.g. of chin and upper arms
- Soft tissue corrections
- Treatment of radiation and burn scars
- Treatment of chronic, non healing wounds
- Optimized for small volume fat grafting and liposuction

The high viability and very fine fat consistency allows working precisely in small body areas avoiding irregularities during grafting.

Treatment of Joint Osteoarthritis with Lipoaspirate

C. Herold et al.: Autologous Fat Injection for Treatment of Carpometacarpal Joint Osteoarthritis of the Thumb – A Promising Alternative*

In a recent publication, Herold et al. are presenting first promising results on the treatment of osteoarthritis with lipoaspirate injections:

“We injected adipose tissue into the thumb carpometacarpal joint in a pilot study. Average preoperative pain according to a VAS was 7.4 in action and 3.8 during rest. It was reduced considerably to 2.2 in action and 0 during rest after 1 month and to 2.4 and 0.8, respectively, 3 months after surgery. The reduction of pain in action was statistically significant 1 month after injection (p=0.042). Average grip strength was 78 % and pinch grip strength was 74 % in comparison to the healthy side preoperatively, 89 % and 80 % one month postoperatively and 93 % and 89 %, respectively, 3 months postoperatively. An average DASH score of 58 preoperative was reduced to 36 after 1 month and 33 after 3 months. The amelioration of hand function was statistically significant (p=0.042 and p=0.043). There were no side effects and all patients were satisfied. These preliminary results are promising. Adipose tissue injection seems to be an alternative to consider, especially as it does not exclude classical surgical options in cases of failure.”

*Handchir Mikrochir plast Chir 2014; 46(02): 108-112
Water-Jet Breast Augmentation Results from Asia

TJ. Kang M.D., Ph.D. of Yejin Esthetics Clinic (South Korea) reports about his experience with water-jet assisted fat grafting for breast augmentation. He is on the South Korean Board of Plastic Surgery, and his specialty is breast surgeries.

“I got introduced to breast augmentation with autologous fat during the BEAULI Workshop in Berlin, Germany, in June 2009. At that time, this method was not recommended in South Korea, therefore it was a kind of “culture shock”. However during the BEAULI Workshop, I observed the procedures and results carefully and came to the conclusion that this method was not only safe but also efficient. My method for breast augmentation with fat starts with the use of local anesthesia under local anesthesia or under general anesthesia. Sterile closed cannula collection and aspiration via the same Biofill® cannula followed by depositing single adipose tissue particles in the tunnel while retracted the cannula. Create multiple separate tunnels in many layers and always deposit single adipose tissue particles in the tunnels while retracting the cannula. Then, the individual fat particles or micro droplets that are “seeded” into the recipient tissue, will be regenerated and revascularized. Working in 3 dimensions helps to:
- eliminate the risk of having larger adipose tissue particles between the vessels, so as to prevent necrosis of the central area.
- avoid a major rise in intra-tissue pressure within the recipient area, and the compression of the vessels which could lead to ischemia and necrosis, and finally to the loss of the tissue graft.

Quantity limits should be respected, grafting of too much volume will lead to a loss of part of the graft. Dressing is done at the end of the surgery with Steri-strips™ in order to maintain position of the treated areas while ensuring revascularisation of the grafts.

CONCLUSION

Like all techniques lipofilling to the face has its own rules and limits that must be known and respected, alone or together with other techniques for satisfactory results.
**High adipose stem cell numbers and viability in adipose tissue harvested by water-jet assisted liposuction**

Dr. rer. nat. et med. habil. Kirsten Peters, Rostock University Medical Center, Department of Cell Biology: Characterization of adipose-derived stem cells isolated from water-jet harvested fat

In a study of the Department of Cell Biology of the Rostock University Medical Center the content and viability of adipose stem cells in adipose tissue harvested by water-jet assisted (WAL) liposuction (bodyjet® system), combined with the LipoCollector® has been investigated.

The study concludes that:

- Cell population isolated from WAL-isolated adipose tissue contains a large number of highly viable adMSC (15% of the processed liposaprate/PLA are plastic adherent and CD34-positive);
- adMSC from WAL-isolated adipose tissue possess a specific mesenchymal differentiation capacity tested were adipogenic and osteogenic differentiation.

The total cell number (SVF) after flow cytometry was 440,000 cells per g lipoaspirate, and the number of CD34+ (mesenchymal) cells was 183,000 cells per g liposaprate. After 24h incubation the total number of plastic adherent cells (SVF) was 140,000 cells per g liposaprate, and the number of plastic adherent CD34+ (mesenchymal) cells was 65,000 cells per g liposaprate.

**Patients and Methods:**
- Female patients age: 45.5 y (±12 y), n=6.
- Adipose tissue from female abdomen, fundament and thigh.
- Tumescent solution containing epinephrine, sodium bicarbonate and lidocaine in 0.9% saline.
- Suction vacuum was 0.5 bar, 3.8 mm infiltration and aspiration cannula.
- Tissue digestion with collagenase/neutrale proteases (30 min, 37°C), washing and centrifugation.
- Analysis of viability by flow cytometry.
- CD34 surface marker (analysis and positive selection).
- Standard cultivation conditions.
- Cellular differentiation was induced by standard supplements (osteogenic: desamethasone, ascorbic acid, glycerolphosphate; adipogenic: desamethasone, IBMX, indomethacin, insulin).
- Analysis of osteogenic and adipogenic differentiation capacity.

**Results:**
- Wound size after debridement and 4.8 ± 3.6 cm². 12/14 wounds (81%) of wounds healed completely within a mean of 10 weeks. In 2 patients with particularly deep ulcer, another session of lipofilling lead to complete wound healing after another 4 weeks. All patients were followed up for at least 4 months after wound healing which showed stable tissues in all.

**Discussion:** Chronic ulcers on the lower diabetic limb pose a particularly challenging situation with a high morbidity for the patient often associated with recurrent surgical debindements and eventually amputations in a compromised vascularized environment. This study shows the enormous effects of autologous fatgrafting on wound healing as a relatively easy to perform and well tolerated procedure.  


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**Successful treatment of Osteoarthritis with Stromal Vascular Fraction and Adipose Stem Cells**


The authors “performed a pilot study using a novel stem cell therapy approach that was performed during one surgical procedure. It relies on abdominal liposapration and processing of connective tissue to stromal vascular fraction (SVF) cells that typically contain relatively large amounts of mesenchymal stromal and stem cells. SVF cells are injected immediately to the target joint or to the connective tissue of the target joint. Since 2011, total of 1128 patients have been treated with SVF injections into 1 – 4 joints (knees and hips) per patient. A total number of 1769 joints were treated.

Clinical scale evaluation including pain, non-stereoid analgesic use, limping, extent of joint movement and stiffness was used as measurement of the clinical effect. All patients were diagnosed with stage II-V osteoarthritis using clinical examination and X-ray, in some cases MRI was also performed to monitor the changes before and after stem cell therapy.

Results: After 12 months from SVF therapy, and clinical scale evaluation, 81% of patients had at least 50% improvement of clinical disorders, and 47% of patients had at least 75% clinical improvement, respectively. Within 1-2 weeks from SVF therapy 72% of patients were off the non-steroidal analgesics and most of them remained such for at least 12 months. No serious side effects, infection or cancer was associated with SVF cell therapy.”

1. Breast augmentation – permanent take rate

H受限の著者たちが別途で報告した。優れた安全性と効果性を提供するバルスならびにリポシフト技術を組み合わせた方法で、これらの結果を向上させることが出来ると考えられる。

2. Fat grafting after silicone implant removal due to capsular contracture


3. Precision body shaping - less pain - less aspiration of tumescent solution - local anesthesia

F. Melvin A., Di Giuseppe, Alberto (Eds.), 2013, pp 595-603

4. Lipojet assisted lipolysis – high fat viability


5. Breast augmentation – permanent take rate


6. Breast augmentation – permanent take rate

H. Melzer, P. M. Vogt. 2 bra cup size or 100 – 150 ml) per procedure were used.

7. Fat grafting after silicone implant removal due to capsular contracture

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9. Fat grafting after silicone implant removal due to capsular contracture

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10. Fat grafting after silicone implant removal due to capsular contracture

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