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.**

**ALL IN ONE – Precision small-volume fat harvesting & lipofilling from local anesthesia to infiltration, fat tissue harvesting, washing, concentration and reinjection:**

1. compact design - optimized for 20-150 ml fat
2. special Biofill® cannula & applicator
3. proven high fat tissue viability
4. gentle and comfortable procedure
5. reproducible and predictable results
6. sterile, closed loop system – no centrifugation
7. time and cost saving

With a tissue-sparing, defined vacuum allowing harvesting intact and highly viable fat cells from the subcutaneous fat tissue in a gentle way. The gentle water-jet technology helps to avoid side effects that may develop in the donor area as a result of a "dry", manual liposuction, as well as damages to the fat cells often resulting from a too-high syringe vacuum and shear forces. Harvesting autologous fat with 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**

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."

**Short Guideline for Face Lipofilling**

**INTRODUCTION**
Autologous fat as a filler has great advantages because it uses the patient’s own tissue, it is less expensive, and delivers the required quantity to the desired region, with long lasting results.

**TECHNIQUE**

The procedure is carried out,
- either under local anesthesia with or without oral pre-medication, depending on the level of anxiety and the reaction to pain,
- or under general anesthesia. This is also recommended when fat grafting is associated with other procedures.

On the donor site, local anesthesia is provided by the water-jet. This is more efficient than the usual application of local anesthesia. It is applied with adrenaline and lidocaine or even general anesthesia, in order to obtain temporary vasoconstriction, and to limit haematoma. This is done with a 25 gauge needle at the cannula entry point into the skin, then with a cannula (1mm in diameter) after creation of an entry point with an 18 gauge needle. Marking: It always begins with accurate markings and drawings of the face in a sitting position in order to visualize the effect of gravity.

The harvesting of adipose tissue is done by water-jet assisted liposuction with the body-jet®eco, either under local anesthesia or under general anesthesia. Sterile closed loop collection, filtering, washing and concentration of the lipospirate is done with the FillerCollector® which is connected to the body-jet®eco. This provides a viable, evenly dispersed fat quantity within a short time (10 to 15 minutes for the first 100 cc of lipospirosis).

For the face, the 3.5 mm Biofill® cannula is used. Due to the water-jet capillary inside the Biofill® cannula, the lobular size of the harvested fat cell clusters is 0.7 – 0.9 mm which is the optimum size for the survival of the fat transplant in the recipient tissue. This technique allows simultaneous infiltration and aspiration via the same Biofill® cannula. It is preferable that the sampling region should be one that is resistant to weight loss.

No preparation of adipose tissue is required apart from decanting. The water-jet in the FillerCollector® is drained automatically by the vacuum of the body-jet®eco. Thus, the obtained adipose tissue is fluid with a remaining serum content of 20 to 25 %, and can pass through the injection cannula smoothly and without damaging the adipocytes. The lipofilling into the face is more regular and reduces the risk of any lumps. Instruments used:
- 1ml syringes,
- BEAULI® injection cannulas of 1.4 mm outer diameter/1.0 mm inner diameter, lateral long hole 3.4 mm or tip angular cut 65° (human med AG),
- in special cases, intradermal 25 gauge needles, if possible 23 gauge needles.

The technique is the same as recommended by Sydney Coleman 15 years ago, maximizing regeneration and revascularisation of the fat graft.

- Start by making a tunnel with the injection cannula followed by depositing single adipose tissue particles in the tunnel while retracting the cannula.
- Create multiple separate tunnels in many layers and always deposit single adipose tissue particles in the tunnels while retracting the cannula.
- Then, from the tunnels:
  - Thus, 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. Dressings is done at the end of the surgery with Steri-stripe™ 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.

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**WATER-JET ASSISTED FAT GRAFTING FOR THE FACE**

**Yves Surlempt, M.D., Ph.D., Clinique Saint Antoine, Chirurgie plastique et esthétique, Rouen, France**

**COMPOSITE BREAST AUGMENTATION**

**INTERVIEW WITH DR. C. A. SALZBERG, NEW YORK, USA**

The new concept of breast augmentation using the core projection of implants covered with the natural look and feel of the patient’s own fat (Compsohas) has become popular.

In the following interview, Dr. C. Andrew Salzberg, M.D., Associate Professor in the Division of Plastic Surgery, New York Medical College, and Attending Mount Sinai Medical Center, New York, USA explains the method.

**Dr. Salzberg what do you like about the method of combining implants with autologous fat for breast augmentation?**

The ability to alter the shape and contour of the breast with both an implant and subcutaneous fat transfer at the same time allows the surgeon unparalleled capability to refine the beauty of the breast and the ability to place one’s own tissue in exactly the needed areas of the breast.

**What is the main advantage of combining implant and autologous fat?**

Autologous fat is the natural filler. It allows for consistent and persistent correction of breast deformities and volume deficiencies.

**What method do you apply for fat harvesting and lipofilling?**

I use water-jet assisted liposuction and lipofilling.

**What do you like about the water-jet method?**

I enjoy the ease of use and effectiveness of the body-jet®. For example, using the mobilization force of the water-jet, the mandibular ligaments, that have to be dissected for a natural reposition of the facial structures, can be addressed with minimal risk of nerve irritation or damage. With this technique there is significantly less bleeding in comparison to the conventional technique of transillumination. Besides the advantages of the tissue characteristics of the water-jet, the mandibular ligaments, that have to be dissected for a natural reposition of the facial structures, can be addressed with minimal risk of nerve irritation or damage. With this technique there is significantly less bleeding in comparison to the conventional technique of transillumination.

**Experience with Aqualift – how does it make the Life of Surgeon and Patient easier?**

Hydrodissection is the key principle of a facelift concept called the Aqualift. “With Aqualift the water-jet technology combines minimal impact and collateral damage with powerful dissection. For example, using the mobilization force of the water-jet, the mandibular ligaments, that have to be dissected for a natural reposition of the facial structures, can be addressed with minimal risk of nerve irritation or damage. With this technique there is significantly less bleeding in comparison to the conventional technique of transillumination. Besides the advantages of the tissue characteristics of the water-jet, the mandibular ligaments, that have to be dissected for a natural reposition of the facial structures, can be addressed with minimal risk of nerve irritation or damage. With this technique there is significantly less bleeding in comparison to the conventional technique of transillumination.”

**Presentation** Las Vegas Cosmetic Surgery & Aesthetic Dermatology Congress, June 2014

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**Water-jet assisted dissection during face lift procedures**

Dr. Thomas Tork, Ahlen, Germany: 10 years of Experience with Aqualift – how does it make the Life of Surgeon and Patient easier?

Hydrodissection is the key principle of a facelift concept called the Aqualift. “With Aqualift the water-jet technology combines minimal impact and collateral damage with powerful dissection. For example, using the mobilization force of the water-jet, the mandibular ligaments, that have to be dissected for a natural reposition of the facial structures, can be addressed with minimal risk of nerve irritation or damage. With this technique there is significantly less bleeding in comparison to the conventional technique of transillumination. Besides the advantages of the tissue characteristics of the water-jet, the mandibular ligaments, that have to be dissected for a natural reposition of the facial structures, can be addressed with minimal risk of nerve irritation or damage. With this technique there is significantly less bleeding in comparison to the conventional technique of transillumination.”

**Presentation** Las Vegas Cosmetic Surgery & Aesthetic Dermatology Congress, June 2014
Successful treatment of Osteoarthritis with Stromal Vascular Fraction and Adipose Stem Cells

Michael J. et al; Stem Cell Therapy of Osteoarthritis Using Stromal Vascular Fraction 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 lipospiration 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-steroid analgesic usage, limping, extent of joint movement and stiffness was used as measurement of the clinical effect.

All patients were diagnosed with stage II-IV 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

Antilipogenous fat grafting (lipofilling) allows wound healing in chronic, previously non-healing ulcers in diabetic patients

Dr. Tilman Stasch et al, Aachen, Germany: AUTOLGOSUS FAT GRAFTING (LIPOFILLING) FOR CHRONIC ULCERATION ON THE DIABETIC FOOT IMPROVES WOUND HEALING

During the 2013 ISPRBS congress, T. Stasch presented a case series on the healing progress of chronic, non-healing lower-limb wounds in diabetic patients following peri-lesional autologous fat grafting.

"The study included 16 diabetic patients (11 men and 5 women) with deep, non-healing chronic foot ulcers that were previously unsuccessfully treated with traditional methods for a mean of 6 months, range 2-333. In all patients, peripheral vascular perfusion was optimized if possible. The ulcers were debrided and liposaprate was injected peri-lesionally."

Methods: The non-processed liposaprate (mean 7.7 +/- 3.9 ml) was then transferred into the wounds using a closed system, with peri-lesional infiltration into the edges and base of the chronic wounds. The wound was then covered with a PVA foam and negative pressure applied (VAC-System) for 5 days. Thereafter the wounds were regularly assessed and measured and covered with Suprasorb H® dressings until complete healing. Healing was defined as complete rep epithelialisation of the wound. Wound sizes were measured and analysed using digital photograpy.

Results: Wound size after debridement was 4.8 +/- 3.6 cm2. 13.7% (81%) of wounds healed completely within a mean of 10 weeks. In 2 patients with partially 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 debridements and eventually amputations in a compromised vascularized environment. This study shows the enormous effects of autologous fat grafting on wound healing as a relatively easy to perform and well tolerated procedure."

Lymph Sparing Liposuction for Lipoedema - American-European Expert-Meeting

Catherine Soo, Professor of Management at Cambridge College, Boston USA, and advocate for lipoedema patients (see www.lipoedema-simplified.org) convened an International Gathering of American and European experts to meet on developing a standard of care for the treatment of lipode-ma in Frankfurt, Germany on 16 March 2014.

After a misdiagnosis in 2011 that resulted in life-changing serious complications, Catherine learned that she has lipoedema and in fact has had it for many years since early puberty. She unsuccessfully sought answers from many specialists in the US discovering that “knowledge about lipopaedema is almost non-existent in the US at this time.” However, there are 17 million women with unrecognized and misdiagnosed lipoedema in the US alone, with over 3 million in both Germany and the UK. In her search for experts she went to Europe and found, interviewed and filmed for a documentary about lipoedema, the most experienced plastic surgeons and their operations procedures in Germany, the Netherlands and Great Britain.

Among those she visited German plastic surgeons Dr. Josef Stutz* and Dr. Christian Falk-Heck who have been treating lipoedema patients with gentle water-jet assisted liposuc- tion with very good results for many years. She successfully underwent WAL surgery in Schwarzenbach am Wald, Germany with Dr. Stutz the week after the gathering, which greatly improved her gait and diminished pain. She is planning to have two additional WAL surgeries later during 2014. From the USA, Drs. Mark Smith and Joseph Dayan from Mt. Sinai Beth Israel in New York City took part in the meeting. They will start offering medically reconstructive lymph sparing liposuction for lipoedema beginning in the fall of 2014. They are currently working with doctors in Germany to bring this treatment to the USA. One of the highlights of the meeting was the active participation of lipoedema patient support groups from the US, Netherlands, Great Britain and Germany. All participants agreed on the success of the meeting in defining future strategies for the improvement of lipoedema treatment.

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1. Safe and controlled removal of fat tissue - surgery times reduced by 40% 

2. Less pain and side effects - faster recovery

3. Precision body shaping - less pain - less absorption of tumescent solution - local anesthesi 

4. Liposuction - nontoxic solution - high fat viability

5. Breast augmentation - permanent take rate

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

7. Water-jet assisted lipotransfer to the breast

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**Results:**

“The average patient satisfaction rate for both the ded infiltration solutions compared with all other previous techniques was completely pain free, as compared with standard tumescent technique. Furthermore, swelling was markedly less for the patients who underwent power-assisted liposuction (p < 0.05). During the study, no specific side effects were observed to demonstrate that water-assisted liposuction is an almost painless procedure that produces less tissue trauma than traditional liposuction.”

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**Conclusion:**

“The authors conclude that “in autologous fat transplantation, the study “revealed a mean volume persistence of 65 % (+13 %) within the pectoral muscle and of 50 % (SD 10) in the pectoral muscle contralateral to the breast” – An MRI volumetric study. Handchir Mikrochir Plast Chir 2010; 42: 379 – 385. This retrospective European multicenter trial included 28 (30 breasts) postmastectomy patients (mean 52.4 years). “All women were treated with the water-assisted-105000 (BEAULI) method, with additional procedures (NRC reconstruction, concomitant mastopexy) and even 6 months follow-up (mean 2.6 years). Sonography or mammography, clinical examination, patient satisfaction and additional investigations were performed. The authors conclude that “in autologous fat transplantation using water-jet assisted liposuction and the BEAULI Method.”

**Total breast reconstruction with WAL in combined procedures:**

“After the first report in 2010, the Berlin Autologous Lipotransfer (BEAULI) method became one of the latest and most promising approaches in autologous fat grafting. Preliminary experiments with the rising-jailed-fat transfer in a large case series of 2 specialized European centers are presented.”

“Retrospective analysis endowed over 167 fema 

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**References:**