



Details By Hema Sundaram, MD

Autologous Fat Transfer

A board-certified dermatologist offers details about the fat transfer procedures she performs in her Maryland and Virginia practices.

Albert Einstein often comes to my mind while I'm performing autologous fat transfer in my office. Although I am quite sure that Einstein would be unimpressed by my small-scale attempts at conserving mass and energy by moving fat from one location to another, his aphorism that "everything should be made as simple as possible... but not simpler" does apply perfectly to fat transfer. After all, it's fascinatingly simple to remove fat from an area where it's unwanted and to place it where it *is*, but the key to success—perhaps less simple—lies in careful technique and placement. My strategies are to manipulate the fat as little as possible between harvesting and injection and to inject slowly and with low pressure to minimize tissue trauma.

Why do I use fat rather than the ever-expanding array of synthetic fillers currently available? It's an aesthetically appealing, economical and (with the right technique in the right patient) long-lasting method to restore significant volume to the lower face and dorsal hands. Fat transfer has become a mainstay of my practice because it fits perfectly

with the holistic philosophy that many of my patients, proud members of the "Whole Foods" demographic, share with me. Its "naturalness" appeals to those who've never considered themselves cosmetic surgery candidates.

Preparation

I recommend autologous fat transfer to patients who require volume replacement of more than 10 cc to their lower faces or who wish to improve the appearance of bony, veined hands. Patients are advised to avoid aspirin, nonsteroidal anti-inflammatory medications and vitamin E for a couple of weeks before the procedure. Prior to commencing the fat transfer, topical anesthetic cream is applied for about 40 minutes to the donor site—usually the buttock or abdomen.

Harvesting Technique

After sterile preparation of the donor site, I infiltrate about 0.5 cc of 1% lidocaine with epinephrine intradermally around the planned incision site. I have never experienced problems with skin necrosis using this small volume of lidocaine with epinephrine. Next, I slowly and gently infiltrate the donor site with 200 cc to 250 cc of Klein tumescent solution (0.1% lidocaine, 0.0084% sodium bicarbonate and 1:1,000,000 epinephrine in normal saline), using a 21-gauge needle attached to a 30 cc syringe and aiming for the uniform *peau d'orange* appearance that is indicative of good tumescent anesthesia.

After waiting 7 to 10 minutes, using sterile technique, I make a 2 mm incision with a No. 11 scalpel blade and insert a blunt-ended 12-gauge stainless steel cannula into the subcutaneous layer. This is attached to a sterile Luer lock 10 cc syringe into which I aspirate the fat, changing the syringe as needed until I have harvested 40 cc to 80 cc of fat. If I'm combining fat transfer with liposuction, I infiltrate and harvest manually from the donor site to minimize trauma to the fat, and then switch to



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▲ Preferred areas from which to harvest fat include the buttock or abdomen.

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mechanical tumescence and aspiration for the remainder of the liposuction procedure.

from the 3cc syringe into the desired areas, which have been prepared with topical anesthetic

For the perioral region and cheeks, I typically use only two injection points.

In keeping with my philosophy of avoiding over-manipulation of the fat, I rarely centrifuge it. Instead, I simply stand the 10 cc syringes upright to separate the fat from the infranate, which is usually virtually bloodless, and then carefully expel the infranate from each syringe. If the infranate is blood-tinged, I expel it and then draw a few cubic centimeters of normal saline into the syringe, invert it gently several times, stand the syringe upright again and expel the infranate. I repeat this rinsing process with fresh saline until the fat is blood-free.

Injection Technique

To prepare the fat for injection, I pass it back and forth a few times through a 12- or 14-gauge Luer lock female-to-female transfer device between the 10 cc syringe into which it was harvested and a sterile 3 cc syringe. I inject fat

cream and ice packs, followed by 0.2 to 0.5 cc of 1% lidocaine with epinephrine intradermally at each planned injection point. I attach an 18-gauge needle to the syringe containing the fat and advance it slowly with aspiration into the subcutaneous layer, withdrawing the syringe if I aspirate blood. I inject the fat slowly and evenly while pulling the needle back along the desired injection path within the subcutaneous layer.

After withdrawing the needle, I apply pressure to the injection point and externally massage the injected fat to achieve the desired contour. When transferring fat to the perioral region and cheeks, I typically use only two injection points on each side of the face with a fanning technique. For depressed scars, I subcise with the 18-gauge needle to create a pocket into which I inject the fat. The entire fat transfer procedure takes 30 to 45 minutes, depending on the ease with which the fat can be harvested.

I nearly always combine fat transfer to the lower face with injections of Restylane. Restylane is my hyaluronic acid filler of choice because its slight traction against the syringe allows for precise, controlled injection, and its stable volume and lack of mobility after injection produce consistently smooth results even in anatomically unforgiving areas such as the

safety and aesthetics, I never inject fat within the orbital rim or on the forehead. Restylane enables me to achieve excellent improvement of tear troughs and glabellar furrows with minimal risk and recovery time. The utility of combining fat transfer with Restylane for long-term volume replacement is pointed up by a recent study demonstrating that Restylane stimulates de novo collagen synthesis.

I freeze fat that is not used on the day of harvesting in the sterile 10 cc syringes that were used for collection. My patients return for three or four touch-up treatments with thawed fat, at intervals of three to four weeks. The fat is thawed slowly by rolling syringes between the hands. My use of frozen fat is supported by studies showing that frozen fat has better longevity than fresh fat, and that patients prefer both the results and convenience of frozen fat.

Conclusions

I find that layering Restylane over autologous fat is an excellent method for restoring significant volume to mobile facial areas such as the perioral region and cheeks. The fat provides deeper, bulk contouring, while the Restylane allows for more superficial fine-tuning to fill in the last traces of rhytides and scars or to precisely define and evert the vermilion lip borders. A combination of subcutaneous fat injection with intradermal Restylane gives a much softer, more natural look to the cheeks and chin than can be obtained with more rigid implants. Both fat and Restylane injections can be performed on the same day, with surprisingly little bruising if a measured, careful injection technique is employed.



Photo: © Banana Stock, Ltd.

▲ Layering Restylane over autologous fat produces excellent results when significant volume is needed in the cheeks.

tear troughs. For reasons of both

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Autologous fat is a wonderful rejuvenator for hands that have lost volume with time. The injected fat usually has excellent longevity, often lasting for years due to the relative immobility of the dorsal hands, compared to the lower face. I inject at one or two sites at the base of the hand, avoiding visible veins, and then massage the fat distally across the entire dorsum of the hand, to achieve even filling.

With the technique I have outlined above, my patients generally experience little more than mild bruising and swelling for a few days. Small lumps or bumps are rare and can be easily removed at follow-up by incision with a 30-gauge needle, followed by drainage. My patients embrace the concept of rebalance through fat transfer, with some even going so far as to volunteer enthusiastically, albeit facetiously, to serve as fat donors for other patients! Autologous fat transfer delights my patients, gives me unparalleled creative satisfaction and brings to my mind the French painter (and Einstein's contemporary), Henri Matisse. His dream of "an art of balance" must surely be shared by all cosmetic surgeons worth their salt—and fat. ✿

Hema Sundaram, MD, a former fellow at the National Institutes of Health, is a board-certified dermatologist with private practices in Maryland and Virginia. She is the author of Face Value—The Truth About Beauty and a Guilt-Free Guide to Finding It, published in 2003 and distributed by St. Martin's Press. This innovative holistic approach to beauty is available in fine bookstores everywhere.