



NEWSMAKERS

Fat Transfer

By Linda W. Lewis

“Lots of factors have to come together to allow transferred fat tissue to take hold and grow.”

Improved techniques and new devices are leading a revival in autologous fat transfer procedures.

The hot topic at this year’s plastic surgery meetings is fat grafting. To find out why, we spoke with Lawrence Koplin, MD (drkoplin.com), a plastic surgeon in Beverly Hills, California, who has been performing autologous fat transfer procedures for 22 years.

“It’s a technique-dependent procedure,” says Dr. Koplin. “Lots of factors have to come together to allow transferred fat tissue to take hold and grow. Tom Biggs [a Houston, Texas-based plastic surgeon] compares it to planting seeds. If everything isn’t right—seeds, soil, weather, nurturing—the plants won’t develop properly. Early autologous fat transfers didn’t work consistently and, just a few years ago, the technique was generally derided at meetings. Slowly over the past two years, surgeons have begun sharing more positive results. I credit much of the turnaround to Sydney Coleman.” New York plastic surgeon Sydney R. Coleman, MD, has written several journal articles and books on fat grafting and invented the LipoStructure technique now being used by surgeons around the world.

Instead of dismissing fat transfer due to inconsistent results, other surgeons, inspired by Dr. Coleman, began working with device manufacturers to make the procedure cleaner and faster. “Until recently, no one [spent] money to develop new equipment for fat grafting. Now there are many different systems,” continues Dr. Koplin.

In January of this year, the United States Food & Drug Administration (FDA, fda.gov) granted Cytori Therapeutics (cytoritx.com) 510(k) marketing clearance for its PureGraft System, the first device in the U.S. cleared for aesthetic body contouring using autologous fat. Cytori announced the product launch of its PureGraft 250 at the April meeting of the American Society of Aesthetic Plastic Surgeons. The device uses dialysis membranes on a sterile field in a process called lipodialysis to remove free lipids, blood cells, infusion chemicals and excess fluid

from 50mL to 250mL of fat in just 15 minutes. There’s no centrifuge and no motorized parts.

“The Cytori PureGraft is a fabulous, state-of-the-art system for purifying fat in preparation for grafting,” says Dr. Koplin. “Theoretically, it can be used for small volumes of fat, but in my practice we use it mostly for larger volume procedures, such as reconstructing breast tissue in lumpectomy patients. Fat grafts can also be used to correct most of the problems we see with current implants, such as rippling. I also use autologous fat transfer to soften the cleavage in thin patients and to cover a bony sternum. The results are almost too good to be true.”

Another essential part of the puzzle is adipose stem cells, which can be added to the fat graft to make the transferred tissue more viable. “Stem cells create angiogenesis,” says Dr. Koplin. “Bringing in blood vessels greatly improves the odds a fat graft will remain viable rather than being resorbed.” Clinical trials are underway in Europe. A breast reconstruction study, referred to as RESTORE 2 and sponsored by Cytori Therapeutics, just reported interim results on 71 patients who received fat grafts enriched with stem and regenerative cells collected with Cytori’s European-approved Celution 800 System (not yet available in the U.S.). Overall physician satisfaction with treatment results was 84% for the 51 patients evaluated at six months, which persisted in the 30 patients evaluated at 12 months. Overall patient satisfaction was 73% for the 51 patients measured at six months.

In the U.S., researchers at the Adipose Stem Cell Center at the University of Pittsburgh are preparing to treat 20 veterans with soft tissue facial injuries with non-stem cell enriched fat. They hope to follow this with a study of 20 more soldiers who will receive stem-cell enriched fat grafts. This is the beginning of a process designed to establish a protocol for long-lasting results with autologous fat transfers. ■

Linda W. Lewis is a MedEsthetics contributing editor.

