


PAL[®]

Power-Assisted Liposuction



Hard work
can get you 90%
of the way there.

PAL will take you
over the finish line.

Results instead of hype.

Power-Assisted Liposuction (PAL) offers meaningful patient benefits.

- Less bruising, swelling and trauma
- Improved surgeon precision
- High cell viability for autologous fat grafting
- PAL is not a heat-based procedure

What is liposuction?

Liposuction is a surgical procedure that reduces body fat by suctioning fat cells out of the body using a narrow stainless steel tube (called a cannula), connected to a medical-grade suctioning system (called an aspirator).

Liposuction is intended to remove localized fat deposits that are resistant to diet and exercise. The procedure can be used in conjunction with other fat-reducing surgical procedures; but it is not, by itself, a cure for obesity.

Men and women carry fat in different areas of their bodies. Men typically want to reduce fat around their abdomen and chest. Women typically want to reduce fat around their abdomen, hips and thighs. Liposuction is the most common cosmetic surgery procedure chosen by men, and the second most common cosmetic surgery procedure chosen by women, after breast augmentation.

Traditional liposuction, called “suction-assisted liposuction” or SAL, was developed in the 1970s. This method is still practiced by some plastic surgeons, but it requires significant physical effort by the surgeon to push the cannula in and out of fibrous tissue, over and over.

“Powered-Assisted Lipoplasty is the most widely used and preferred alternative to manual liposuction.”¹

What is Power-Assisted Liposuction (PAL)?

To reduce the physical demands of traditional liposuction, MicroAire Surgical Instruments developed a power-assisted cannula that works by gently vibrating back and forth, at speeds that are barely visible to the eye, and which are gentle to the touch. This patented improvement allows the cannula to pass through fibrous tissue with remarkable ease, and provides greater precision and control for the surgeon.

While the PAL innovation achieves the goal of making liposuction easier for the surgeon, it also provides meaningful patient benefits. Primarily, PAL passes through fibrous tissue without tearing it, without damaging micro-vessels, and leaving the fat cells (called adipocytes) intact for autologous grafting to other areas of the body, if so desired.

Cell viability is becoming increasingly more important because of a new process called fat transfer, or fat grafting. In this procedure, a surgeon uses liposuction to harvest fat cells through a closed, sterile system which maintains the viability of the living cells within the fat. The surgeon can then re-inject a portion of the patient's own sterile fat cells into other areas of the body or face to enhance areas that may have lost volume over time. PAL produces higher cell viability than heat-based methods that destroy the fat cells during liposuction.

“Power-Assisted Liposuction is a more effective and safer way to eliminate unwanted deposits of fat from large or small areas, and allows patients to achieve dramatically improved results with a faster recovery than ordinary liposuction.”³



The PAL Solution

Use your imagination to picture the fat in your body as grapes on a grapevine, and your connective tissue as the leaves and vines. PAL's patented reciprocating action gently shakes the grapes loose, leaving the vines and leaves intact.

Heat-based methods such as laser, radio-frequency or ultrasonic methods cause the grapes to explode and may burn the vines and leaves. Traditional manual lipo procedures may tear apart the whole grape-bunch, and extract everything, including the vines and leaves. With these methods, the grapes are destroyed and the vines and leaves are damaged.

Using the PAL system, the grapes are gently plucked without destroying the vines. This means that the PAL procedure has some very worthwhile and unique advantages:

- Less bruising, swelling and trauma
- Increased patient comfort and improved safety
- The healing process is faster because connective tissue is not destroyed
- PAL is not heat based, so patient burns are not a concern
- Improved surgeon precision for body sculpting and contouring
- Greater cell viability for autologous fat grafting and reinjection
- Studies indicate that PAL produces high concentrations of adipose-derived stem cells, which hold great promise for a variety of medical therapies.⁵

Am I a candidate for PAL?

Liposuction surgery may be used to treat areas of excess fat in the stomach, buttocks, hips, love handles, saddlebags, thighs, calves, ankles, back, arms, neck and breasts (including male gynecomasty, or breast reduction). Liposuction is equally effective in men and women.

Your doctor is best suited to determine if you are a candidate for Power-Assisted Liposuction. But there are a few indications that may help you decide:

- You have “diet resistant fat” that will not go away with diet or exercise.
- You have fat deposits that are out of proportion with the rest of your body.
- You have fat deposits in areas with minimal amounts of excess skin, and good skin elasticity.

PAL may be performed as part of an abdominoplasty procedure (tummy tuck) or a panniculectomy procedure (removing hanging fat and skin, typically after massive weight loss or bariatric surgery).

Power-Assisted Liposuction can be performed on overweight patients who want to remove large-volumes of fat, and it can be performed on fit patients for definition, contouring and body sculpting. Even dancers and athletes may show fat rolls in the back and flanks regardless of how much they work out.

For patients seeking body contouring and definition, PAL is used to remove the thin subcutaneous layer of fat. Your surgeon can use PAL to perform exacting body sculpting, for instance, around and between abdominal muscles. PAL allows precise control so that surgeons can stay within pre-surgery markings.



Tumescent Infiltration

Local anesthesia with epinephrine and sterile saline is injected into the fat to numb the tissue and constrict the blood vessels which minimizes blood loss.

Emulsification (optional)

Heat lasers explode the fat cells and liquify the fat tissue.

Aspiration / Suction

Fat cells are removed through a narrow stainless steel tube called a cannula.

How is PAL surgery performed?

Local anesthesia and/or intravenous sedation are frequently used for patients undergoing PAL surgery, although general anesthesia may be desirable in some instances. For your safety during the operation, various monitors are used to check your heart, blood pressure, pulse and the amount of oxygen circulating in your blood.

After sedation, your surgeon will “infiltrate” the area to be liposuctioned by injecting a solution of lidocaine (to numb) and epinephrine (to reduce bleeding) along with sterile saline. In addition to numbing and reducing bleeding, this solution is absorbed by the fat cells, causing the cells to puff up.

After the infused solution has been absorbed by the fat cells (15 - 20 minutes), your surgeon will make tiny incisions in inconspicuous areas, such as in natural skin folds and creases, or in your underwear line. The surgeon will insert the PAL cannula into these tiny incisions to aspirate (or suction) the fat.

The length of the aspiration process will vary according to the extent of the procedure and the patient type. For instance, a micro-sculpting procedure on an athlete might last a shorter time, while a more aggressive procedure on an overweight patient could last many hours.

Certain medications that increase the risk of bleeding such as aspirin, non-steroidal anti-inflammatory medications, and some vitamins/homeopathic regimens (including garlic) should be discontinued before undergoing liposuction surgery. Your surgeon will provide you with additional preoperative instructions. ⁴

What can I expect after surgery?

Your recovery time will vary, depending on the extent and location of your procedure. But there are some general post-surgery conditions that you can expect.

In the first few days after surgery, you should rest quietly. Most patients will take a pain medication for one or two weeks, but patients should consult with their doctor before taking aspirin or other anti-inflammatory medications. There are natural aids that can reduce bruising and swelling, such as pineapple juice and sunflower-derived aids such as arnica. You can expect swelling and bruising to resolve over the course of a few weeks.

Some surgeons will leave the small incision sites open to allow drainage. Other surgeons will suture the small incision with a single suture stitch. In either case, the sites will drain, so you should plan to use absorbent pads and a compression garment after surgery. The small incisions will heal and fade over several months, usually becoming barely visible.

You will wear compression garments for several weeks so your skin can naturally reattach to the underlying muscles. For your convenience in laundering the compression garments, it's probably a good idea to have more than one.

In addition to the skin-healing promoted by the compression garment, your doctor may recommend that you avoid stationery positions (such as sitting at a desk, or driving a long distance) in the first couple of weeks after surgery to prevent undesired skin adhesion, such as creasing. In some cases, daily stretches may be recommended.

Some patients return to work within a few days; but for most patients, full activities can resume after a few weeks. Swelling is usually gone in four weeks, but it is important to note that the final results of your lipoplasty will not be fully apparent for several months.



Possible risks associated with PAL

Fortunately, significant complications from liposuction surgery are infrequent. Liposuction surgery is one of the two most common procedures performed by plastic surgeons each year. Most often, this surgery is performed without experiencing any major problems.⁴

In fact, each year thousands of patients successfully undergo PAL surgery to remove unwanted fat. However, all surgical procedures carry some degree of risk, so it is important to ask your surgeon to explain the risks to you, including the possibility of lidocaine toxicity. Based on your health conditions and other factors, your surgeon may require lab tests or a physical examination prior to determining if liposuction is right for you.

Some of the potential complications that may be discussed include hematoma (an accumulation of blood under the skin that may require removal), infection, changes in sensation, scarring, allergic reactions, damage to underlying structures, need for revisions, unsatisfactory results possibly necessitating additional procedures and medical risks. Other risks more specific to liposuction may include indentations and irregularities.⁴

You can help minimize certain risks by following the advice and instructions of your plastic surgeon, both before and after your liposuction surgery.⁴

“The work required is significantly reduced with PAL, and the device allows a greater degree of control and precision.”²



Information contained in this brochure is intended to provide you with a better understanding of Power-Assisted Lipoplasty (PAL). This is not intended as a substitute for medical advice. The best way to get complete information and answers to your specific questions is through a personal consultation with a credentialed plastic surgeon.

1. February 2011, Surgeon Survey, Aesthetic Surg J 2011; 31 (2)
2. Hunstad JP, Jones SR, Abdominoplasty with Thorough Concurrent Circumferential Abdominal Tumescence Liposuction. Aesthetic Surg J 2011; 31 (5): 578
3. Dr. Michael Macri, MD Aesthetics Medi-Spa Laser Center
4. American Society for Aesthetic Plastic Surgery
5. Evaluation of MicroAire Tissue Collection Method on Adipose Tissue and ADRCs, Cytosol Therapeutics, Inc, July 2011

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For more information on
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