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Smartlipo Advances Body Contouring Techniques

Requiring only tumescent anesthesia, the 1064 nm Smartlipo Nd:YAG pulsed laser system from Deka (Calenzano, Italy) removes fat from areas typically unsuitable for traditional liposuction. This procedure, known as Laserlipolisi™, breaks down subcutaneous adipocytes so that the liquid fat may be removed through low-pressure suction or by the body itself. The procedure is significantly less traumatic than traditional liposuction and involves practically no loss of blood.

“Laserlipolisi provides a great option for people who want to improve the focal areas of unwanted fat or overlying laxity, especially at this time when many people are looking for minimally invasive treatments with less downtime,” said Karen Kim, M.D. of Laser & Skin Surgery Center of New York, the practice of Roy Geronemus, M.D. “It’s also less labor intensive than traditional liposuction. I’ve been using it for about 18 months, sometimes on the thighs or abdomen but mostly for small focal areas.”

Bruce Katz, M.D., is enthusiastic after only a few months with Smartlipo. “I think it has a lot of promise,” he said. “There is a distinct lack of bruising and fast recovery, with results after only one treatment.” Dr. Katz is clinical professor of dermatology at The Mount Sinai School of Medicine, director of the Cosmetic Surgery & Laser Clinic at Mount Sinai Medical Center, and director of the JUVA Skin & Laser Center (New York).

After treating more than 100 patients with the Smartlipo system, Uncheol Yeo, M.D., Ph.D., education director of S & U Skin Clinic (Seoul, Korea) is also a believer. “My nurses who had Laserlipolisi treatment had minimal discomfort and resumed work the day of surgery.

Traditional liposuction may be more efficient,” he added, “but Laserlipolisi is better in terms of safety and convenience. With it you can more effectively treat areas like the face, submentum, ankle, and calf, which are prone to

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irregularity.” Dr. Yeo has been using Smartlipo for localized fat removal, treatment of wrinkles and sagging, and for debulking port-wine stains.

Laserlipolisi treatment, or laser lipolysis, involves the insertion of a 1.0 mm cannula, which is about half the size of a traditional liposuction cannula, under the dermis with an 18 gauge needle after tumescent anesthesia. Dr. Yeo said, “The small caliber cannula is very beneficial when we’re treating tricky areas such as the face.”



Smartlipo

The cannula protects two lasers: the treatment laser (1064 nm Nd:YAG) and a Helium-Neon (HeNe) guide laser, both in a 300 micron fiber. “The aiming beam at the tip of the fiber lets you know exactly where you are at all times, which allows the user to be very precise,” Dr. Kim noted. As a result, Smartlipo is very useful in areas not suitable for standard techniques, such as the face, neck, back and knees.

“Preliminary studies have shown no elevation in blood cholesterol and things of that nature, which I think is very relevant given that we let the body remove the fat itself.”

As the device is waved in a fan-like fashion within the subcutaneous fat and the laser is engaged, the Smartlipo system disrupts the cell membranes of adipocytes and the collagen septa with photoacoustic and photothermal energy — basically melting the fat. “Because the 1064 nm laser doesn’t have a specific chromophore in the skin,” Dr. Yeo elaborated, “it generates

heat rather nonspecifically. The 5,000 watt peak power is high enough to break the cell membrane. With proper technique there is no carbonization at peak power.” Tissue carbonization prolongs healing time and delays the onset of visible results.

The heat also promotes blood coagulation during the procedure, which has been seen histologically, according to Dr. Kim. “The heat reduces post treatment bruising. With the treatment itself you can get a little bit of bruising or a little bit of edema that can last a few days to a week, but patients are very pleased overall because there’s very little downtime associated with this procedure.”

“The coagulation effect significantly reduces the chance for fat embolism,” said Dr. Yeo. “Worldwide, there are no reported cases of mortality from tumescent liposuction.” Dr. Katz added that the almost non-existent blood loss during treatment is also due to vasoconstriction as a side effect of the anesthesia.

Dr. Kim was also impressed by the lack of transient effects. “Preliminary studies have shown no elevation in blood cholesterol and things of that nature, which I think is very relevant given that we let the body remove the fat itself,” she remarked.

Triglyceride (TG) released from adipocytes enters the blood stream mainly through lymphatic channel and enters dietary fat metabolism, according to Dr. Yeo. Deka reported that lysate may also be removed actively with low-level suction (approximately 0.5 bar) or by syringe.



Bruce Katz, M.D.

Clinical Professor of Dermatology
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It takes a few weeks to see results as the body slowly but surely eliminates the fat naturally. “Interestingly, when patients come back five or six days later you can hardly tell they’ve had anything done,” said Dr. Katz.

Because Laserlipolisi is minimally invasive, a small bandage to protect the insertion wound is about the only post treatment care required. Some patients may additionally wear compression garments or bandages, said Dr. Kim. Dr. Yeo recommends a three day course of antibiotics as well.

According to Dr. Yeo, side effects are minimal, which contributes to the extremely low downtime. Common side effects such as inflammation, tenderness, minor bruising, or temporary lumping subside within a week.

“Even subcutaneous nodules, the manifestation of severe damage at the focus, subsided without further management,” Dr. Yeo explained. “If it persists, I would consider triamcinolone intralesional injection.” Dr. Kim reported two instances of mild hyperpigmentation which resolved within the first month.

“Smartlipo tightens the skin as it removes the fat, which typical liposuction doesn’t do.”

Dr. Kim stressed that technique is very important, as it is for many procedures. “The learning curve is quite steep. You don’t want to be overly aggressive because you’re heating up the subcutaneous fat. And theoretically there is a risk of providing too much heat superficially to the skin. But as long as you’re well trained and careful, I think the procedure itself has a lot of potential,” she said.

Other lasers treat fat deposits with a transdermal approach, using light through the skin from the outside. “There’s no comparison,” said Dr. Kim. “With other lasers you’re not actually touching the area, so you’ll see a definite reduction in potential efficacy. Smartlipo works under the skin, in contact with the treatment area.”



Karen Kim, M.D.

Laser & Skin Surgery Center of New York
New York, N.Y., USA

The description of the ideal candidate for Laserlipolisi given by Dr. Katz echoed those of Drs. Kim and Yeo, “I don’t think it’s much different than traditional liposuction – someone who exercises regularly, is not obese, or just has localized fat deposits that they can’t get rid of with exercise and diet. That’s really the ideal patient.”

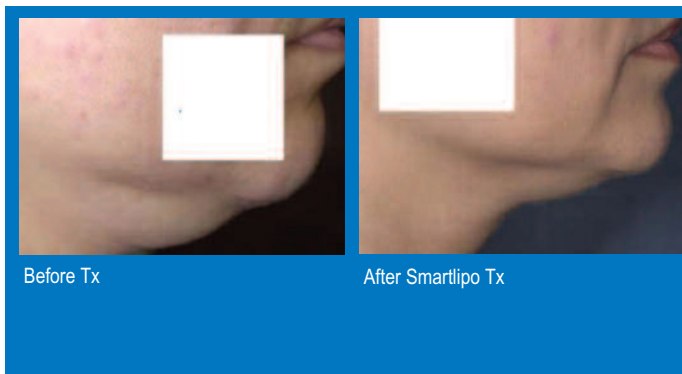
According to Dr. Yeo, “As with traditional liposuction, some patients mistakenly think that Smartlipo can remove all their unwanted fat. It’s important that the patients have realistic expectations.”

Dr. Kim has had success combining Laserlipolisi treatment with the TriActive Laser Dermatology (Cynosure, Westford, Mass., U.S. and Deka, Calenzano,

Italy) system in a recent study. “Combining both the fat reduction as well as the overlying skin tightening and contouring effect yielded higher, statistically significant subjective improvement over Smartlipo alone,” she explained.

Laserlipolisi with Smartlipo may be extremely handy for revisiting areas of the body previously treated with traditional liposuction. “With previously treated areas, if you wanted to further sculpt or contour without going in again with liposuction, then the Smartlipo is a good idea,” she observed. “It’s also for areas anywhere on the body that have overlying skin laxity, especially if you’re a relatively thin, fit, and healthy person looking for additional toning and tightening.”

According to Dr. Katz, the main advantage of Smartlipo will be its two pronged attack. “Smartlipo tightens the skin as it removes the fat, which typical liposuction doesn’t do,” he said. “We don’t have long-term experience with it yet but we’ve done studies with pig skin and seen shrinkage of about 40%.” Dr. Katz is currently involved in a study to investigate this potential in human patients.



As an additional application, Smartlipo may soon be added to the armamentarium for port-wine stains (PWS) and other indications. “As the port-wine stain lesion progresses, there is soft tissue overgrowth under the PWS lesion,” noted Dr. Yeo. “This is hard to remove with a conventional vascular laser. I inserted the Smartlipo tip through the hypertrophic tissue under the stain. Surprisingly, that induced debulking for the lesion. No other conventional laser can do this. I also used Smartlipo for venous malformations. and for minor facial lifting on five patients. I did minor facial lifting, without fear of damaging facial motor nerves because they are too deep to be effected by the technique.”

“I think Smartlipo is a wonderful technology that opens up a whole new world for doctors,” added Dr. Yeo. ■