

Breakthrough Development

Adipose-selective technology offers benefits for body contouring

BY WENDY LEWIS



May 2012, at the American Society for Aesthetic Plastic Surgery annual meeting, Andrew Technologies launched the HydraSolve™ Lipoplasty System (<http://www.hydrasolve.com>) based on the patented Tissue Liquefaction Technology™. An all-American technology, HydraSolve™ was invented in New Jersey, designed in Virginia

by MPR Associates, and is manufactured in Ohio and Massachusetts by Sparton Medical and STD Medical.

Founder and ophthalmologist Mark S. Andrew, MD, originally developed Tissue Liquefaction Technology for use in precision cataract surgery. Now marketed as the AquaLase® Liquefaction Device by Alcon, it offers an alternative to ultrasound in soft- to medium-density cataract lenses while potentially reducing surgical complications. Andrew described the invention as “a new surgical energy source that works on just the target tissue (in this case, the cataract) and does not impact non-target tissues, such as lens capsule, iris, cornea, etc. This goal may have been a subconscious borrowing of the same concept from oncology, where scientists attempt to target just cancer cells in treatment therapies,” and had the vision to see that this technology offered benefits in other surgical fields. He turned to plastic surgeon Christopher P. Godek, MD, FACS, of Toms River, NJ, who also has a bioengineering background, and they collaborated to further study the effects on doing liposuction with this technology using excised tissue from abdominoplasties.

In April 2010 they received 510(k) approval for the liposuction device, and Godek started using the device in the first 12 patients.





THE HYDRASOLVE ADVANTAGE

In a relatively short period of time, HydraSolve's low-energy Tissue Liquefaction Technology™ (TLT) is changing the nature of aesthetic body contouring.

HydraSolve™ combines natural saline solution with low levels of pressure and temperature to liquefy only targeted fat tissue. Because fat tissue is liquefied, the cutting of fat by forceful thrusts of the cannula is no longer required, which allows the surgeon to move the cannula in a slow, controlled, and methodical manner. The HydraSolve™ difference is in its mechanism of action. Utilizing TLT and a specially designed cannula, the HydraSolve™ system works very efficiently because it does not require cutting or shear force to remove fatty tissue. It is the energized saline stream, inside the cannula, that liquefies targeted fat tissue without damaging or cutting blood vessels, nerves, or connective tissue. HydraSolve™ liquefies fat tissue by cell disaggregation, not by destroying the cell membranes.

The system consists of the all-in-one console and the

sterile treatment kit. There are three power settings on the console for the surgeon to make his selection based on the areas to be treated. HydraSolve™ also features a selection of sizes of specially designed reusable and sterilizable cannulae with handles of 2 mm and up which are specifically designed to simultaneously liquefy and aspirate fat tissue, without cutting fat or non-fat tissue. More cannulae are in the pipeline.

Since the FDA approval, Andrew

Technologies has been working with a select group of leading plastic surgeons to demonstrate the full potential of the system.

HYDRASOLVE BENEFITS

- Gentle technique
- Rapid fat extraction
- Precision contouring
- Target-tissue specific
- Low physical exertion for surgeons
- Fast patient recovery
- Minimizes bruising

CLINICAL EXPERIENCE

At the time of this printing, HydraSolve™ has been used in 55 cases. According to many plastic surgeons, HydraSolve™ ticks all the boxes. "The main benefits for patients are that it is more gentle and tissue-friendly, so they have a quicker recovery. For surgeons, it is faster, provides excellent control and precision in removing fat, and it also reduces physical exertion," Godek says.

Dr David Abramson, a plastic surgeon in New York and New Jersey, has recently started using HydraSolve™ and is impressed with the speed of recovery. "With the first patient I treated, on her first post-op visit I had to actively search for bruising and almost didn't find any. Patients definitely have less bruising than with standard power-assisted liposuction or VASER. I did one patient's neck – and she had no bruising at all."

HydraSolve™ can be utilized in the same areas that traditional liposuction methods are used. In particular, upper arms, chest wall, abdomen, inner thighs, saddlebags, and flanks. It has shown to be very effective in all these areas. The versatility of the device is enhanced by the variety of cannulae designs offered to treat various areas effectively. Gynecomastia for male patients is historically a difficult area to treat and where HydraSolve™ has been beneficial. As Godek says, "In secondary liposuction procedures, using the larger cannulae at the highest setting works well because there is more pressure to get through the scar tissue."

Secondary procedures and male patients are always cited as the most challenging liposuction cases due to scar tissue formation from previous surgery and more viscous fat deposits. HydraSolve™ has been shown to achieve excellent results on the back and flanks.

According to Abramson, "I did a gynecomastia case with HydraSolve™ for which I would normally have done VASER®. First, I suction fat from the area, and then I am left with core tissue. Traditionally, I would make a periareolar incision and cut it out, but on men, having that scar is not ideal. Through the same tiny liposuction scar, I use a Cartilage Abrader to remove the core of the breast tissue without having to make

a larger incision. By using HydraSolve™, the patient had essentially no bruising.”

Plastic surgeon Richard D’Amico, MD, FACS, of Englewood, NJ, believes that the sweet spots for HydraSolve™ may prove to be small areas as well as large-volume cases. “In large-volume cases, increased efficiency and speed is particularly helpful. In the submental area overall, I think it is better and the bruising appears to be less so far.”

Another benefit to surgeons, according to Abramson, is that HydraSolve™ is faster than other methods, such as VASER® liposuction or Smart Lipo™. “Because you have to do two things to get your end result with these methods, it takes additional time. With HydraSolve™ you can use one system to get the results because it is all being done at the same time. It is not slowing you down, and the procedure is easy on your arm. The device isn’t vibrating, and you don’t have the back and forth action of the older tumescent technique.”

According to Godek, “If you are a plastic surgeon doing any form of body contouring, HydraSolve™ is essential. It takes me half the time to do a case, so I can do more cases in a given day, and I have more time to do other kinds of cases.”

INCREASED PRECISION DELIVERS OPTIMAL RESULTS

HydraSolve™ provides faster, smoother fat extraction. “Instead of just relying on standard techniques, it is a much more efficient and precise way to extract fat. There is a remote chance that you might take too much fat out because you are taking fat out at a rate that is two to three times faster,” Godek says.

D’Amico agrees. “HydraSolve™ is clearly more efficient, and my opinion is that it is less traumatic and may result in less blood loss for a given amount of lipoaspirate. It’s more like playing a violin. There is less effort required.”

He adds, “I see two levels where this is very promising. It’s a very efficient and gentle way to remove fat. You can use a smaller cannula and do finer work with the same degree of efficiency than you can get with regular liposuction and larger cannulae. It is clearly a gentle way to separate adipocytes from fat matrix using a low-pressure stream of water that is warm but not hot. The physical aspects of low pressure and low temperature combined seem to be a very gentle yet efficient way to remove fat.”

The concept of a “gentler” approach is something patients can relate well to. As Godek explains, “The real benefits to patients include a tendency to have less pain and significantly less bruising. There is still some bruising, but not as much as with other techniques. This is the first truly tissue selective technology, so there is minimal destruction to blood vessels, which means less bruising. Since you’re only taking out fat, you’re not injuring nerves, so there is less pain for the patient.” He also comments that the recovery for patients is faster with this gentler technology. “I would estimate that patients have one third less recovery due to decreased swelling. They are fully recovered in two months instead of the typical three months, which is significant,” Godek says.

Godek put HydraSolve™ to the test on some of his patients to judge their overall experience. “On certain patients, I treated one area with HydraSolve™ and the second area with



either UAL or traditional liposuction. Universally, the patients described less pain in the HydraSolve™ treated areas.”

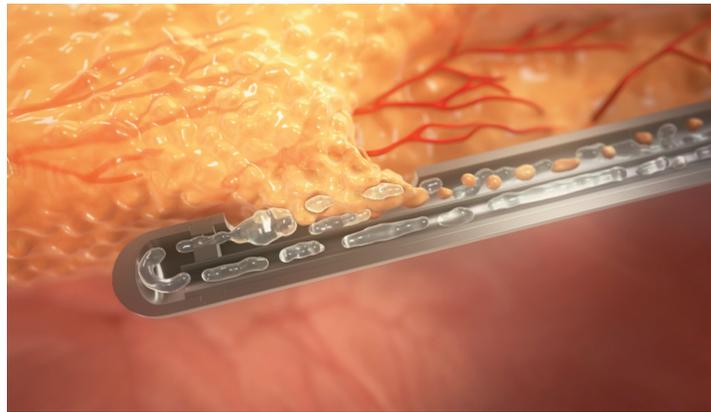
Patients seem to grasp the concept of this exclusive new technology, which comes at a premium due to the patented technology used in the disposable sterile treatment kit. Saving operating room time, additional anesthesia, and downtime for patients are the main selling points of the HydraSolve™ system that tend to override any additional costs involved. “If the patient perceives that they are getting a real benefit, they are willing to pay a little bit more,” D’Amico says. “I explain to the patient what I am planning to do and why I think it is good for them.”

Some surgeons are passing on the costs of the disposables used during a procedure to the patient as a line item, while others are adjusting their fees accordingly to cover the additional expense. “The more cases you are doing, the more cost-effective the TLT system becomes. If you are doing a patient in June, being able to give them less bruising makes a huge difference in how quickly they recover and is a big plus. The key is getting the patient back to their daily life as soon as possible,” Abramson says.

BEFORE

AFTER

PHOTOS COURTESY OF CHRIS GODEK, MD



Another major advantage of HydraSolve™ is that it is known to be a very safe device to use, and there is no skin-burning risk. The learning curve for experienced surgeons appears to be straightforward as well. “From a surgical standpoint, if you’ve done traditional suction-assisted liposuction, it is not difficult to learn the TLT method,” Godek says. “The only difficulty is to learn to slow down your stroke rate. Instead of two to three strokes per second, you need to slow down to one stroke every two seconds. The slower stroke rate allows the fat to enter the blunt cannula, which allows ample time for the fat to be liquefied by the pulsating saline.”

ADJUNCTIVE PROCEDURES

Both Godek and Abramson report that for secondary procedures, they have now started using HydraSolve™. As Godek explains, “Sometimes UAL delivers too much energy, which causes more swelling and pain. UAL is not truly tissue selective. HydraSolve™ is the most tissue selective technology available today and is an excellent adjunct to UAL.”

Godek also relates that he has also found HydraSolve™ to be a helpful tool during facelift procedures. “Due to the reduction in bruising and swelling, adding HydraSolve™ to my facial contouring procedures has helped to improve my facelifting techniques. With HydraSolve™ I can remove fat more quickly and more accurately from the neck, allowing for improved results.”

Another challenge of body contouring and shaping is that a lot of women have cellulite on their legs and liposuction alone does not achieve the desired results. According to Abramson, “There is nothing out there anymore that will control the market. There are many different modalities that can reach the same end point. Combinations of procedures, such as HydraSolve™ with Cellulaze® for example, may enable us to get patients to where they want to go.”

POTENTIAL IN AUTOLOGOUS FAT TRANSPLANTATION

Next on Andrew Technologies’ agenda is completing a pilot study for fat grafting, as many surgeons are excited

about the advantages that HydraSolve™ may offer in this evolving category in aesthetic surgery. Autologous fat grafting following liposuction has become a standard method for soft tissue augmentation, and is commonly used for breast reconstruction as well as volume restoration for facial aging. Atrophic scars, traumatic defects, lip enhancement, and buttock augmentation are additional areas where injecting fat harvested from liposuction is an effective tool. Fat grafting can also be particularly beneficial when used to improve suboptimal results, depressions, and asymmetries post liposuction procedures.

“The way the fat comes out is very smooth. If we can show that the viability of the fat is superior, it would be very interesting. I do fat grafting for the face and breast reconstruction. Every patient in my practice with breast reconstruction gets fat grafts. If I can do fat grafting at the same time for their nasolabial folds and add an incremental fee, that would be a big advantage,” Abramson says.

According to D’Amico, “Data is preliminary, but my impression is that the fat is good quality, especially for transplantation. Using the HydraSolve™ device to harvest fat for subsequent grafting has definite potential. Depending on how the studies on cell viability and fat graft take come out, this could be the technology of choice for plastic surgeons.”

CONCLUSION

There may be more advantages of Tissue Liquefaction Technology™ revealed in the near future. As Abramson suggests, “The heat aspect of this system may aid in skin contraction, but we have to study it over time to see if there is some tightening and collagen formation.”

According to D’Amico, “It is still early days. There is much more to find out, but so far, this technology looks very promising. It could potentially serve as the everyday ‘go to’ liposuction device.” ■

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 HydraSolve™