

CLINICAL roundtable

Third-Generation Ultrasound Device Advances Art of Body Sculpting

By Kevin A. Wilson, Contributing Editor

Physicians and patients alike are very impressed with the body contouring results they are obtaining with the VASER (Vibration Amplification of Sound Energy at Resonance) Ultrasonic Lipo System developed by Sound Surgical Technologies, LLC (Louisville, Colo.). This device uses proprietary ultrasound technology tuned to specifically target fatty tissue, disrupting and emulsifying fat while minimizing collateral damage to surrounding tissue, such as small nerves and blood vessels. Fat is then more easily removed during the aspiration phase of treatment.

VASER Lipo is a gentler method of treating the stubborn fat deposits resistant to diet and exercise. "VASER represents a quantum leap forward in liposuction technology. It allows the physician to target specific fatty layers to create a sculpted appearance," said John A. Millard, M.D., a plastic surgeon in private practice in Lone Tree, Colo. "The energy is tuned specifically to maximize fat removal and minimize damage to the surrounding anatomy."



John A. Millard, M.D.
Plastic Surgeon
Lone Tree, CO

During the VASER Lipo procedure, also referred to as LipoSelection, a titanium probe emitting ultrasound energy is inserted into the treatment area. This energy disrupts and breaks apart adipose tissue while sparing the tissue matrix. There are four probe sizes, larger probes promote large volume fat debulking and smaller probes are used for more delicate work. VASER Lipo's method of energy delivery is another important feature. "Most ultrasonic devices emit energy in a continuous wave, but with VASER mode, pulses of energy are emitted intermittently in a way that stacks the energy waves efficiently," Dr. Millard explained. "The total energy delivered has been cut by almost 50%. What might be achieved in five minutes in continuous mode can be done in six minutes with VASER mode using half the energy. Many of

the complications associated with ultrasonic energy are related to the amount of energy delivered, so anything you can do to minimize that will reduce the risk of problems." Also, the energy output can be adjusted, allowing users to target specific layers of fatty tissue.

"VASER represents a quantum leap forward in liposuction technology. It allows the physician to target specific fatty layers to create a sculpted appearance."

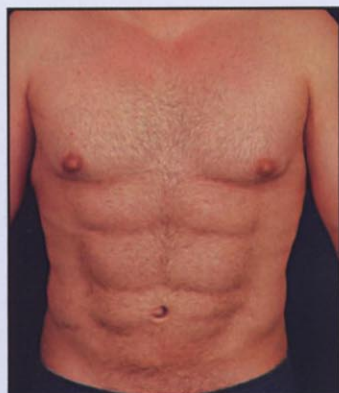
Once emulsified, fat is more easily removed by the VentX aspiration cannulas that come with the VASER device, which are designed to maximize fat removal and minimize tissue trauma. "Years of research went into the cannula design," Dr. Millard said. "The size, shape and distribution of the suction ports, for example, have more impact on potential tissue trauma than was previously understood." The significantly reduced trauma associated with VASER-assisted procedures decreases the potential for heavy bruising that may cause permanent discoloration. Additionally, since the fat is emulsified, the chance of irregularities or unpleasant contouring is reduced as well.

According to Dr. Millard, the VASER Lipo procedure initiates a certain degree of natural skin contraction, due to the loss of subdermal fat, and may stimulate neocollagenesis. Together these effects may produce a noticeable level of skin retraction as an additional benefit, which is currently under clinical investigation. "This is highly dependent on a number of factors such as age and genetics. This sort of effect isn't a new discovery, it just required superficial liposuction with microcannula techniques which were extremely difficult, high-risk procedures that took many hours to perform. Now with VASER, the average user can achieve the same effect in less time with much less risk."

"We use VASER's unique capabilities to perform a more precise, less traumatic procedure that achieves greater outcomes."



Before Tx



Three months after VASER Tx

Photos courtesy of John Millard, M.D.

While there has been some controversy about just how much fat can safely be removed during liposuction, VASER Lipo is reportedly safer, which may challenge current thinking on volume limits. With traditional liposuction there are issues with tissue trauma, blood loss and the physiological impact of the procedure. "The American Society of Plastic Surgeons (ASPS) recommends that aspiration volume above five liters be performed in a hospital setting," said Michael Nagy, M.D., a plastic surgeon practicing in Toms River, N.J.

"I think you can safely treat higher volumes with VASER because it's much less traumatic and there are reports of high volume liposuctions being safely performed in a hospital setting. Every patient is different, larger patients can tolerate more. Taking a conservative approach may be prudent right now but as we progress we could discover that safe levels are much higher."



Michael Nagy, M.D.
Plastic Surgeon
Toms River, NJ

"Physicians can possibly remove three times the fat per unit of area with VASER," Dr. Millard advised. "This means I can more aggressively treat each individual area, but I may have to limit the number of areas I treat in one sitting. Either way, we're going to rewrite the book with VASER."

VASER-Assisted High-Definition Liposculpture (VASER Hi Def) is a new technique to accentuate or create aesthetically pleasing body contours, especially those following the underlying musculature such as the "six-pack abs" look. Developed by Alfredo Hoyos, M.D., a plastic surgeon in private practice in Bogotá, Colombia, Dr. Millard, co-author of the landmark VASER Hi Def study, introduced the technique to the U.S. in late 2005. "It's a marriage of art, science and technology," stated Dr. Millard. "We use VASER's unique capabilities to perform a more precise, less traumatic procedure that achieves greater outcomes. This three-dimensional sculpting technique combines precise removal of superficial and deep fat to enhance the patient's own muscular detail. In a sense it's liposuction for the physically fit, but who knows where or how far this can go."

Editor's Note:

In the following clinical roundtable, six dermatologic and plastic surgeons share their knowledge and clinical expertise with VASER Lipo. Collectively, these physicians have dozens of years of experience successfully treating patients with the full spectrum of fat management devices.

How does VASER Lipo differ from traditional or tumescent liposuction and from laser lipolysis?

John A. Millard, M.D. – Most notably, VASER is selective to fat thus preserving small nerves and blood vessels. There is much less bleeding and bruising with VASER. Laser lipolysis decreases bleeding by coagulating blood during treatment but it isn't selective.

Michael Nagy, M.D. – As far as traditional or tumescent liposuction goes VASER just adds a step – specific targeting of fatty tissue with its ultrasound energy. The removal of fat is easier and less traumatic, which improves the final result and decreases the incidence of complications. Because the fatty tissue is emulsified there are fewer contour irregularities with VASER Lipo.

“VASER Lipo has truly broadened the potential patient population because we can actually treat volume now.”

Onelio Garcia, M.D. – The cannulas that come with VASER have smaller ports that cause less trauma. Our experience has shown that simply using those cannulas can reduce tissue trauma. Liposuction with VASER takes a little longer, but the suction process goes more quickly.

Paul J. Frank, M.D. – VASER emulsifies the fat which eases its removal and speeds up the procedure. Remember VASER is an adjunct to tumescent liposuction, not a replacement. It basically adds a step.

Marlene Mash, M.D. – I use laser lipolysis for localized fat, for example around the neck, although I'll use VASER around the neck as well. Patients come into the office desiring laser lipolysis, but once they receive consultation and options are fully explained, I'll probably end up performing VASER Lipo and following with laser lipolysis. If I had to choose between VASER or laser lipolysis my preference certainly would be VASER since it offers everything laser lipolysis does and more.

Payman Simoni, M.D. – You have to look at laser lipolysis from a different standpoint. It is not used for anything but tiny volumes of localized fat. Ideal patients can only have a little extra fat. I believe laser lipolysis has gained popularity beyond its capability so physicians use that to attract patients since people are asking for it. We provide a little bit of laser but in reality it doesn't add much to the result.

What are the characteristics of the ideal VASER Lipo patient?

Dr. Frank – The ideal patient is someone who can't get rid of stubborn areas of fat despite visiting the gym or changing their diet.

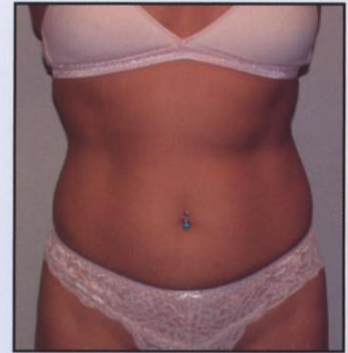
Dr. Garcia – We want a relatively young patient, close to their ideal weight with good skin tone. VASER Lipo has truly broadened the potential patient population because we can actually treat volume now. Patients we may have turned away in the past, because we didn't think we'd get enough skin retraction or be able to remove enough volume, can now be treated successfully.



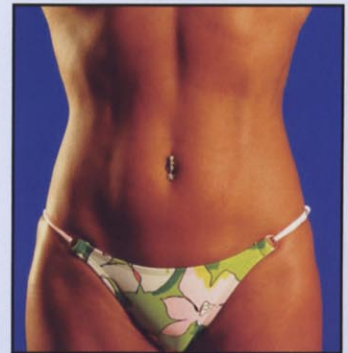
Onelio Garcia, M.D.
Board Certified Plastic Surgeon
Hialeah, FL

Dr. Mash – The ideal patient is the educated patient. They understand that VASER is an ultrasonic device that assists the practitioners in reducing trauma and downtime, not a separate procedure. It makes the treatment easier which means less fatigue for the physician and less downtime for the patient.

Dr. Nagy – VASER is particularly suited to those undergoing a secondary liposuction procedure. These patients have already had liposuction, or maybe a previous tummy tuck and tend to have much more fibrous fatty tissue. VASER is also good for backs since they're very fibrous and any patient looking for maximum skin retraction.



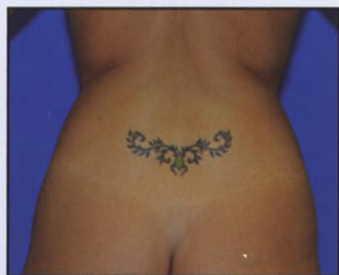
Before Tx



After VASER Tx

Photos courtesy of John Millard, M.D.

"We've completed aggressive VASER Lipo using the active recovery protocol and have been able to get patients back into the gym after only two weeks."



Before Tx



After VASER Tx

Photos courtesy of Onelio Garcia, M.D.



Arm before Tx



Arm after VASER Tx

Photos courtesy of George Commons, M.D.

What are your pre- and post treatment protocols?

Dr. Garcia – Pre-operatively we don't do much except have them stay away from anti-coagulants and make sure they don't come in with bad sunburns in the treatment area. We use compression garments after surgery on most patients. We have them keep cool and maintain a low salt diet for the first few weeks to eliminate any excess fluid they're retaining before beginning moisturizing massages and/or Endermologie.

Dr. Nagy – Before treatment I put everyone on an herbal supplement to decrease bruising. Post-operatively, I have patients wear a compression garment 24 hours a day, seven days a week for two weeks.

Dr. Mash – I definitely use pressure garments. Activity is important so I encourage them to walk the next day. I see them within a few days, then a week and so on.

Dr. Millard – We're doing the pioneer work in this right now. Most people are doing what's called a passive recovery program, which mostly involves the pressure garment. We combine a variety of modalities in an active recovery program over the first ten days post treatment, which may reduce recovery time by up to 50%. We're carrying out clinical studies to refine techniques and although we're a few years away from it, I think what we are developing will become the standard.

How does the patient downtime and overall treatment experience with VASER Lipo compare to that of traditional liposuction?

Dr. Frank – Downtime is a fraction of what it might be with tumescent liposuction since patients can be back on their feet within 48 hours. I also think the patient experience is drastically improved because they come into the practice with preconceived notions about how brutal and invasive liposuction is, then VASER leaves them pleasantly surprised.

Dr. Mash – I've been performing liposuction since 1994, so I have numerous patients that have returned for additional liposuction. They say VASER Lipo is much better, with less discomfort, less bruising and less downtime. Most of my patients don't even take pain medication. They can go back to work within two or three days, which I recommend.



Marlene Mash, M.D.
Board Certified Dermatologist and
Dermatologist
Plymouth Meeting, PA

Dr. Millard – You're looking at about six weeks of downtime with regular liposuction. We've completed aggressive VASER Lipo using the active recovery protocol and have been able to get patients back into the gym after only two weeks.

Dr. Garcia – In our study we chose the back because it's the worst area for pain, swelling and bruising. We brought the patients back in 24 to 48 hours after surgery and took high definition digital photographs. Compared to photos taken a month later,

"Patient feedback has improved with VASER. Our practice is completely referral based so it's nice to hear patients refer others and tell them it wasn't bad."

the difference between the VASER versus non-VASER backs was night and day. There were larger volume VASER patients that had approximately one-third as much bruising at 24 to 48 hours as patients with less volume removed, treated without VASER.

Dr. Simoni – I did one patient's hips with VASER on one side and traditional liposuction on the other. The VASER side appeared smoother and more sculpted and the patient reported much less discomfort on that side.



Payman Simoni, M.D.

Board Certified Facial Plastic and
Reconstructive Surgeon
Beverly Hills, CA

What has patient feedback been like with VASER Lipo? Why do they seek treatment?

Dr. Garcia – Patient feedback has improved with VASER. Our practice is completely referral based so it's nice to hear patients refer others and tell them it wasn't bad. When we were doing a contralateral study it was difficult to find participants, despite compensation, because patients simply were not eager to have half their body treated without VASER.

Dr. Simoni – Patients love the results. It's so much smoother. With traditional liposuction the chance of unevenness is about 15%. VASER decreases that dramatically because it takes the guesswork out. We can melt the fat and remove it without leaving the chunkiness.

Dr. Frank – Patients are very impressed with what VASER Lipo can accomplish and how much easier it is than they expected. It's still a serious procedure but the reality is that the downtime and risk are a fraction of what they once were and patients know that. They ask for VASER now, they've heard about it and know about it.

What makes VASER Lipo an ideal addition to an aesthetic practice?

Dr. Simoni – There are three main things to consider when we discuss a medical device. One is the benefit to the patient, another is the benefit to the physician, and then there's the financial side. Patients get better results with VASER and less downtime. What's good for the patient is good for the physician, of course, but VASER is also easier to physically perform, so there's less user fatigue. This was a major factor behind me choosing the device originally because I was experiencing neck and back pain after liposuction procedures.

Financially, VASER improves a popular procedure and opens it up to those who were afraid to get liposuction, which helps any practice. Laser lipolysis achieved great popularity with intelligent marketing and people seem to come in wanting it for that reason, but I believe it doesn't really meet expectations. Based on my experience, VASER actually delivers the results patients are hoping for.

Dr. Mash – VASER is better for the patient, of course, but it also reduces fatigue for the user. For extremely fibrous areas such as the male breast, the midriff, the



Before Tx



After VASER Tx

Photos courtesy of Tanya Atagi, M.D.



Before Tx



After VASER Tx

Photos courtesy of Stephen Goldstein, M.D.

“VASER gives me more options and patients love it. Word-of-mouth has been great and that has brought more patients and more revenue into my practice.”



Before Tx



After VASER Tx

Photos courtesy of Onelio Garcia, M.D.



Abdomen before Tx



Abdomen after VASER Tx

Photos courtesy of Alberto DiGiuseppe, M.D.

back or the flanks, it's great to employ the suction cannula after VASER because it has already broken up the fatty tissue and fibers. Emulsified fat is more easily and rapidly suctioned out with the gentle VentX cannula.

Dr. Garcia – VASER allows you to precisely contour. Older generation ultrasound devices could not be run under the skin for fear of thermal injury, but VASER can be used superficially with an extremely low complication rate. We've known for a long time that if we're capable of emulsifying the fatty layer underneath the skin, that's where skin retraction and shape come from. We can make someone smaller by removing the deep fat, but if you want to shape someone you need to be able to remove the superficial fat. Results with VASER are much smoother because with standard liposuction we occasionally created little tunnels with the cannula.

Dr. Millard – Even if you don't use the Hi Def techniques you can remove more fat per unit area with reduced downtime and sequelae, and better results than those who don't use VASER. New techniques such as VASER Hi Def enable users to further stand out from the competition.

What effect has VASER Lipo had on your practice? Have you seen an increase in revenue and/or number of patients?

Dr. Frank – I've been providing liposuction for ten years and it is now more than 50% of my practice. VASER gives me more options and patients love it. Word-of-mouth has been great and that has brought more patients and more revenue into my practice.



Paul J. Frank, M.D.
Board Certified Dermatologist and
Dermatologic Surgeon
New York, NY

Dr. Millard – I used to actively avoid liposuction. It was miserable for both me and the patient, and you were limited to certain body areas. There wasn't much room for finesse either. VASER has changed all that. Last year, 86% of my practice was VASER Lipo. This year it will be higher. The new sculpting techniques open VASER up to patients who otherwise wouldn't consider themselves candidates for liposuction. For example, an average practice may be 10% to 15% males while mine is more than 50%. At this point I'm 40% ahead of where I was last year, even in a declining economy.

Dr. Nagy – As soon as we started offering VASER in the practice, the number of liposuction procedures increased. Liposuction is the number one cosmetic surgical procedure in the country, yet it's looked at as very invasive so I really think that when more people have experienced VASER it will grow even more.

What advanced body contouring applications do you perform with the VASER Lipo System? Do you combine VASER Lipo with other procedures?

Dr. Mash – I perform a modified short scar face-lift using VASER to remove some fat and improve skin retraction. I've read that it's dangerous to expect skin retraction with ultrasound, but that was a few years ago and I've witnessed it in patients after VASER treatment in the neck and jowl areas. I am getting ready to present an

"The future of body sculpting involves internal ultrasound and VASER is the most precise of this technology."

abstract about ten cases I did using VASER for primary axillary hyperhidrosis, where the patients experienced almost complete resolution with no adverse events. I determine where the sweat is originating from with a starch iodine test, then use the ultrasonic energy at the tip of the probe underneath the skin. I believe the treatment works by causing thermal and mechanical disruption of the glands.

Dr. Frank – Right now I'm combining VASER with laser lipolysis. VASER is better for treating large volumes so I'll use it in those cases and touch up other areas with laser lipolysis.

Dr. Garcia – I almost always use VASER with abdominoplasty because there's very little undermining of the tissue and most of the fat is removed. We also use it to create better waistlines and focus on some areas in the trunk that are not addressed by abdominoplasty alone. A certain group of patients with a tight enough skin envelope can benefit from having breast reductions done with VASER to avoid an open procedure and the subsequent scarring. We also use it frequently for gynecomastia. We're able to remove the fatty portion through a small lipoplasty incision and new instruments allow us to remove a good portion of the breast tissue through the same passage, facilitating removal of the male breast without visible incisions.

Dr. Nagy – I perform VASER liposuction procedures anywhere in the body and I combine VASER with almost all of my excisional surgeries including face-lifts, to enhance retraction as well as make dissection easier and safer. I use it in my breast reduction surgeries because the final result is better. VASER is extremely versatile. There are different sized probes, cannulas and continuous delivery of ultrasonic energy so you can safely treat areas all over the body. I've heard that some physicians are using VASER to treat axillary hyperhidrosis, which is great. Currently there are some prescription strength deodorants that are not very effective and the current gold standard is BOTOX from Allergan (Irvine, Calif.) but that only provides relief for approximately 9 to 12 months.

Dr. Millard – With VASER Hi Def, I'm providing liposuction to men with 7% body fat who otherwise wouldn't come in for such procedures. We're also harnessing the VASER for breast tightening – a shaping and tightening enhancement. It's another way VASER furnishes the ability to sculpt. I'm also using it to create shape in arms and legs, and that's not even published yet.

How will ultrasonic body contouring evolve in aesthetic medicine? What do you see as the future of the body sculpting market?

Dr. Garcia – Right now, body sculpting remains the number one aesthetic surgical procedure we perform in this country. Last year Americans spent more money on lipoplasty than any other procedure, including BOTOX, but for some reason ultrasonic lipoplasty has not caught on as quickly despite the positive reports and considerably less surgeon fatigue with VASER. The increase in awareness should change this. The future of body sculpting involves internal ultrasound and VASER is the most precise of this technology.



Before Tx



After VASER Tx

Photos courtesy of John Millard, M.D.



Before Tx



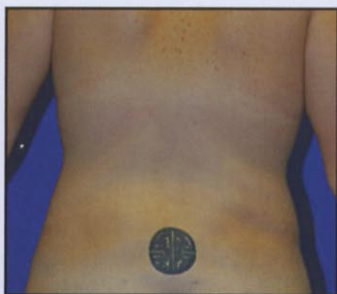
After VASER Tx

Photos courtesy of Paul Loverme, M.D.

"For fat and body sculpting, there is nothing better than VASER, and we're nowhere near the limits of what we can do."



Before Tx



After VASER Tx

Photos courtesy of Onelio Garcia, M.D.



Back before Tx



Back after VASER Tx

Photos courtesy of Ewaldo Bolivar De Souza Pinto, M.D.

Dr. Frank – VASER is changing patient's perception of liposuction and that's a big part of it. The technology and techniques will only continue to improve. Liposuction itself is a generally well-known procedure that's becoming easier and safer, which means more patients are going to want it. That's been the trend for other aesthetic treatments and it'll continue for body contouring.

Dr. Mash – There's a growing demand for the removal of localized fat, not as a weight loss tool but to contour the body and create a more pleasing shape. Technologies that reduce bruising and downtime further may be introduced and we may even see more successful non-invasive treatments, but I don't think we'll ever replace the physician and the aesthetic eye, the future there lies with ultrasound.

Do you have any treatment advice or final thoughts to share with readers?

Dr. Nagy – Again I'd like to stress the versatility VASER brings to liposuction. With VASER you can do anything from small aspiration procedures to high-volume aspiration. There are different tools you can use depending on what you need. I apply this to as many procedures as I can and I get better results.

Dr. Garcia – Newcomers should be sure to use maybe three times more fluid with VASER than you'd use for traditional liposuction. The incidence of thermal injury is extremely low with these devices so long as you have fluid in the tissue.

Dr. Frank – I still perform a lot of tumescent liposuction and I don't use VASER for everyone. People with less fibrous fat are fine candidates for tumescent techniques, but VASER is an essential part of my armamentarium because it does so much to improve the procedure. Oftentimes I decide to use it after beginning anesthesia when I had not previously planned to. That's another benefit of the device, you don't need to do a lot of extra prep to use it.

Dr. Mash – One thing I think is huge is that the company does not push you to buy the machine. They allow you to pay per treatment. That's how I do it. Every time it gets used the company is notified by computer and I pay per case. Not having the risk of buying a device outright is a huge bonus. It's smart marketing and a wonderful idea. Additionally, their technical support is excellent and very timely as well.

Dr. Simoni – With VASER I use smaller than average cannulas because I think it provides a more gentle result. Also, be careful not to overexert the ultrasound because it could prolong post treatment swelling. You learn how much or how little you can do through experience and training.

Dr. Millard – For fat and body sculpting, there is nothing better than VASER, and we're nowhere near the limits of what we can do. VASER allows us to turn people into living, breathing works of art and that's what aesthetic medicine is all about.