



## SEEING THE SHRINK

Women have always dreamed of having their fat magically melt away. When liposuction came on the scene in the eighties, it seemed to signal the realization of their fantasies. Small wonder it has become one of the most popular procedures in plastic surgery, with more than 300,000 people in the U.S. opting for it in 2012. But results can be uneven, the side effects of rippled skin are often not worth the trade-off, and surgery always comes with risks.

Now, a new generation of fat tacklers has arrived, and none of the latest artillery requires going under the knife. The bevy of machines covers a range of technologies, including radio frequency, high-intensity focused ultrasound, and cryolipolysis. Most have minimal risks and require only a handful of sessions of an hour or less. In 2012, the American Society for Aesthetic Plastic Surgery began tracking non-invasive body sculpting and found that more than 76,600 people had already rushed in for the pioneering techniques.

"The freezing method was launched in 2009, and in my practice, the amount of people asking for non-surgical body sculpting has doubled each year since 2010," observes Dr. Sabrina Fabi, a San Diego-based dermatologist, whose practice offers fat melting with monopolar radio frequency, ultrasound, and freezing techniques.

"The freezing method was launched in 2009, and in my practice, the amount of people asking for nonsurgical body sculpting has doubled each year since 2010," observes Dr. Sabrina Fabi, a San Diego-based dermatologist, whose practice offers fat melting with monopolar radio frequency, ultrasound, and freezing techniques. New York City dermatologist Dr. Paul Frank says he is now seeing about 40 patients a week for fat removal, and half of them are opting for the non-surgical methods.

"Until recently, the [reputation] of fat removal has been brutal, and a lot of people were fearful of the risks," he says. "Now it is appealing to a broader audience." Unlike many past gizmos, which basically mechanically rolled and pressed your fat, these new devices use science to eradicate bulge.

The methods are mostly based on destruction of fat cells, either by heat or by freezing. Heat induced by radio frequency or ultrasound can penetrate much deeper than light in a laser source, destroying fat without damaging superficial fatty layers or hurting the skin. "The body then metabolizes the fat, as it does when you are losing weight," explains Dr. Frank.

At the other end of the spectrum, cryolipolysis, or freezing with a machine like CoolSculpting, creates a climate in which fat cells can't survive. In either case, fat is programmed to be eliminated. "It generally takes four to six weeks to get rid of the fat, so patients continue to see results for weeks after a treatment," notes Dr. Neil Sadick, a Manhattan dermatologist.

The strongest of the new paunch fighters are the highintensity, ultrasound-based machines like Liposonix. "They produce the most heat and have the deepest penetration," says Dr. Frank. Apart from efficacy, ultrasound requires only one treatment, generally costing about \$1,750 per area.

The downside: Patients complain of pain and often need to take medication to deal with it. A little bruising, swelling, and soreness are common side effects. Radio frequency waves also eradicate fat with heat. However, they are more comfortable than sound waves, usually require more than one treatment, and come in a wide range of technologies.

Unipolar devices were first-generation products but the initial results were somewhat disappointing. Energy traveled in all directions and didn't go deep enough to actually kill fat cells. Bipolar devices, which use energy that travels between two poles, have now come on the market. The appeal is that they are less painful.

In fact, patients often find them relaxing, but they require five or six sessions and energy can only penetrate half the distance between the two electrodes, or 8 to 9 millimeters. This can tighten skin but not actually kill the fat. Monopolar devices like Thermage and the newer Exilis allow energy to travel in a more focused manner through the tissue and into a grounding pad.

These machines penetrate 2.5 centimeters—deep enough to actually destroy fat cells—and they have an added bonus of tightening skin. “I don't believe that bipolar or multipolar technologies can penetrate deep enough to permanently disrupt fat cells in areas like the abdomen,” says Dr. Fabi.

Radio frequency device Vanquish kills fat by sending out a field of energy, and can treat a broad area. Patients go for four to six 30-minute sessions of about \$750 each. Sensors detect the amount of energy each person needs. “It's shaped like a horseshoe and covers a large electromagnetic field,” says Dr. Howard Sobel. Fat is heated to 120 degrees, though patients don't complain of pain. “Some radio frequency devices can deliver burns, but the Vanquish applicator panels don't make contact with skin. There's zero chance of getting burned.”

Dr. Margaret Weiss, a Baltimore dermatologist who shares a practice with her husband, Dr. Robert Weiss, says that Vanquish can be beneficial for patients who are seeking overall reduction. “I have seen it work for people who are 20 or 30 pounds overweight,” she notes. “Choosing one method over another has a lot to do with an individual choice of pain versus time,” says Dr. Frank. “Ultrasound is fast but harder to tolerate. Cryotherapy may be best for someone who wants to lose fat in a specific area.

Radio frequency is the most time- and cost-effective for a larger area.” Destroying fat cells by freezing them with CoolSculpting is a more laborious process, but requires only one session. Doctors report, on average, a 20 percent fat reduction in a single treatment (\$600 per area).

The part of your body you want to sculpt is sucked into the freezing mechanism for an hour, and you get a pins-and-needles sensation during the cooling process. When the machine is removed, the area is massaged. Because of the numbness, there is a bizarre sensation of being disconnected from that body part. Because each area takes an hour to freeze, it might not be the ideal procedure for those in a hurry, but some make the best of that time.

“One woman comes in for eight hours with her iPad, watches movies, and gets her entire body done, and I've had couples come in together,” reports Dr. Marina Peredo of Spatique Medical Spa in Smithtown, New York. Both she and the Weisses have acquired two machines each to speed up the process. “We use two at once to cut time in half,” says Dr. Robert Weiss.

Ergonomics come into play when one is choosing a potential method. The abdomen has to fit into a freezing machine, and some other target areas such as the upper arms may be too thin. "Muffin tops and fat under the bra respond well to cold, and new hand pieces allow the machine to grab inner thighs," according to Dr. Robert.

In other fat-melting news, a new technology called Futura Pro uses ultrasound vibrations to release fat from cells, then electronically stimulates muscles to help metabolize that fat and move it out of the tissues into the bloodstream, so it can't travel to another area. A machine called UltraShape, which is awaiting FDA approval, combines ultrasound and radio frequency.

Shock waves are also being employed in the war against fat. "They cause mechanical disruption of the cells," explains Dr. Sadick. Two injectables are also awaiting the FDA nod: ATX-101 by Kythera, made from deoxycholic acid, is being tested for the area under the chin, and Lithera, a form of cortisone that causes abdominal fat to atrophy, is in trials.

Because they don't require machines (which can cost up to \$80,000), they will be available on a wider scale. "We had nice results and saw a flattening of the abdomen in four weeks," reports Dr. Peredo, who was involved in the studies. "These injectables are to liposuction what Botox was to facelifts." Of course, the best results are always accompanied by a positive lifestyle change. Treatments will work better when paired with an organic, whole-food, low-glycemic diet and exercise. "Non-surgical treatments are for teacups, not soup bowls," says Dr. Frank. "Someone who has a bulge at the love handles or belly will really be helped, but someone who wants to dramatically alter their body shape will do better with liposuction."