

Killing fat cells: Death by freezing or liposuction?

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(Medical Xpress) -- Is it more effective to freeze your love handles, killing the fat cells between two super-cooled plates in a procedure known as cryolipolysis, or vacuum them away with liposuction? And which lasts longer, a surgical facelift or facial skin tightening via a laser?

Consumers often are in the dark about the most effective and safest cosmetic dermatology procedures to improve skin texture and color and remove subcutaneous fat, a surging \$10 billion industry in the United States. One reason is a dearth of comparable research trials, reports a new Northwestern Medicine study.

The study, published in the January issue of the journal *Dermatologic Clinics*, reviews existing research and identifies which procedures have been proven safe and effective and which ones have less evidence behind them.

“Many treatments gaining popularity are novel techniques that use complex devices, such as lasers and ultrasound, but there is sparse research evaluating their long-term effects,” said lead author Murad Alam, MD, chief of cutaneous and aesthetic surgery at Northwestern University Feinberg School of Medicine and a surgeon at Northwestern Memorial Hospital. “We need more prospective studies comparing different treatments for the same problem head-to-head, so doctors and consumers know what’s best and safest.”

Best-Known, Proven Procedures

Alam said the cosmetic dermatology surgical procedures that are well-known to be safe and effective when done by a trained, board-certified physician include: injected neurotoxins to smooth wrinkles; liposuction to remove fat; and lasers to treat broken blood vessels, port wine stains and rosacea and for removing brown spots and hair.

Newer, Lesser-Known Procedures

Other procedures that may be effective but have less evidence behind them include devices that use infrared light or ultrasound to purportedly shrink and tighten the skin, low-level laser light for fat removal, and fat “melting” by super cooling the [fat cells](#), Alam noted. These are approved by the Food and Drug Administration (FDA), and data show they work and are safe short term. But these procedures are newer and therefore less is known about their long-term safety and effectiveness.

“Patients need to be smart consumers and ask their doctors better questions such as, ‘How does procedure A compare to procedure B?’” Alam said. “Is there research comparing treatments, such as a facelift versus non-invasive skin tightening? Is there evidence regarding the degree of improvement and how long the results will last? How long has a particular procedure or device been approved, and would the doctor be comfortable recommending it to a friend or family member?”

Here are findings from Alam’s review of 98 studies on cosmetic dermatology procedures:

Injectable botulinum toxins type A or neurotoxins: “These have been around for 20 years and during that entire period, when an approved pharmaceutical product in approved doses is used for cosmetic purposes,

there have not been any instances of serious reactions,” Alam reported.

Liposuction: “Tumescent liposuction, the kind when you inject fluid into the area where you are removing fat, has been shown to be exceedingly safe,” Alam said. “The main potential complication, excessive bleeding, simply doesn’t occur with that form of [liposuction](#) when appropriate rules are followed because the anesthetic used in the procedure prevents bleeding.”

Low-level laser light for fat removal: “Some companies sell products they claim can cause changes in skin and subcutaneous tissue,” Alam said. “One of these devices has been approved for reducing fat. It’s safe, but we have very limited information about its degree of effectiveness or how long the result lasts.”

Fat freezing: A device sandwiches the fat on the abdomen or thighs between two cooling plates. The fat cells die and are absorbed by the body. “It’s FDA approved and does work,” Alam said, “but we don’t know how long it lasts or how many cubic centimeters of fat will go away in different patients. While it appears to be safe and is a promising treatment, we won’t know for several more years if there is a downside or if [fat](#) removal is truly permanent.”

Non-invasive skin tightening: These devices use radio-frequency energy or infrared light or ultrasound to heat and shrink the skin. “Some tightening definitely occurs,” Alam said. “What we don’t know is exactly how much tightening goes on, who it will work on or how long it will last.” One study compared facelifts to these minimally invasive methods and found that they provided approximately one-third the tightening benefits of surgical facelifts.

Obstacles to Big Research Trials

Several obstacles prevent conducting large-scale research trials on cosmetic procedures and devices, Alam said. Because the FDA's approval mechanism for devices is less rigorous than for drugs, the agency doesn't compel pharmaceutical companies to do large trials. Thus, companies may test a device on as few as 50 or 100 patients. As soon as a mechanism gets approval, companies aren't motivated to do more testing or to compare one procedure to another, Alam explained.

Nor is there government funding for cosmetic surgery trials. Recently, the FDA asked companies with recently approved devices to continue monitoring patients even after approval to make sure no new problems are uncovered later.

Finding the Right Treatment

“Selecting the right cosmetic treatment for a patient is not a trivial matter,” Alam stressed. “Patients should get treatments from experienced practitioners with access to the data and an ability to evaluate it, rather than someone at a nearby spa who just has one laser, is minimally trained and is not able to evaluate the scientific evidence but eager to use this device for every patient complaint.”

Patients should be aware there are often many different types of treatment for the same cosmetic concern, Alam said. One of these may be most appropriate for the patient's specific issues and personal preferences (such as degree of downtime that is tolerable). “Experienced physicians can help patients select the treatments that are best for them,” he noted.

To find a skilled cosmetic dermatologist, patients can look for members of major dermatology associations, such as the American Academy of Dermatology or the American Society for Dermatologic Surgery. Association websites will often provide contact information

about such physicians in a specific geographic area. It is also useful to ask physicians if they have specific training in cosmetic dermatologic surgery and what types of procedures they do often.

Provided by Northwestern University

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