



**THE SKINNY ON  
NON-INVASIVE  
FAT REDUCTION:**

HOW TO CHOOSE THE  
RIGHT DEVICE TO MEET  
THE RISING DEMAND



## **Demand for non-invasive fat reduction procedures is skyrocketing as consumers welcome treatments that achieve noticeable results with little downtime or discomfort.**

In fact, non-invasive body contouring is the fastest-growing area of cosmetic dermatology, according to a 2018 report by *Cutis*<sup>1</sup>, and the number of non-surgical fat reduction procedures performed tripled from 2012 to 2017, as reported by the American Society of Aesthetic Plastic Surgeons.<sup>2</sup> This growth shows no sign of slowing. The global non-surgical fat reduction market is expected to expand at 15.9% CAGR and be valued at \$2.5 billion by 2025, based on forecasts by Transparency Market Research.<sup>3</sup>

Moreover, the male market is growing faster than the female market, a rarity in aesthetics.<sup>4</sup> In fact, a majority of men and women agreed in a survey that the stomach is the body part they worry about most, and the waist was the top source of concern for a third of all adults.<sup>5</sup>

Much of the growth in aesthetic body treatments has been triggered by innovations in device technology. As a medical aesthetics professional, you want to provide your clients the safest and most effective treatments while maintaining a strong ROI. Choosing the right therapies to offer is an important part of that decision-making process.

In this guide, we will cover the leading fat reduction devices as well as important considerations for incorporating them into your practice, drawn from Venus Concept's work with high-performing aesthetic clinics in more than 60 countries and 29 direct markets.

<sup>1</sup> Rzepecki, A. K., Farberg, A. S., Hashim, P. W., & Goldenberg, G. undefined. (2018). Update on Noninvasive Body Contouring Techniques. *Cutis*, 101(4), 285–288. Retrieved from <https://www.mdedge.com/dermatology/article/162644/aesthetic-dermatology/update-noninvasive-body-contouring-techniques>

<sup>2</sup> American Society of Plastic Surgeons. (2019). *2018 National Plastic Surgery Statistics*. Retrieved from <https://www.plasticsurgery.org/documents/News/Statistics/2018/plastic-surgery-statistics-report-2018.pdf>

<sup>3</sup> Transparency Market Research (2017). *Non-invasive Fat Reduction Market Worth US\$2.50 Billion by 2025, Globally: Transparency Market Research* [Press release]. Retrieved from <https://www.prnewswire.com/news-releases/non-invasive-fat-reduction-market-worth-us250-billion-by-2025-globally-transparency-market-research-652491873.html>

<sup>4</sup> American Society for Aesthetic Plastic Surgery. (2018). *2018 Cosmetic (Aesthetic) Surgery National Data Bank Statistics*. Retrieved from [https://www.surgery.org/sites/default/files/ASAPS-Stats2018\\_0.pdf](https://www.surgery.org/sites/default/files/ASAPS-Stats2018_0.pdf)

<sup>5</sup> Mannino, B. (2014, February 24). TODAY/AOL 'Ideal to Real' body image survey results. Retrieved from <http://www.aol.com/article/2014/02/24/loveyourselfie/20836450/>

# DEVICE LANDSCAPE FOR FAT REDUCTION

Fat reduction device technology has been refined over the past decade, and current modalities include radio frequency, ultrasound, laser, and cryolipolysis. These techniques do not achieve the magnitude of fat reduction that surgical liposuction does, but they generally entail no major recovery period and minimal discomfort.

“Many patients prefer these devices because there’s less downtime. They don’t want pain. They don’t want time away from work,” Dr. Mathew M. Avram, Director of Laser, Cosmetics, and Dermatologic Surgery at Massachusetts General Hospital explained to *Internal Medicine News*.<sup>6</sup>

The different devices have varying mechanisms of action, but they all seek to damage or destroy fat cells, which are then eliminated by the body. The most exciting breakthrough has been in the area of laser lipolysis, and we’ll cover recent advances there including the newest offering that, for the first time, delivers non-invasive lipolysis along with other complementary body treatments using the same device.



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THERE’S LESS  
DOWNTIME.**

<sup>6</sup> Brunk, D. (2018, September 16). Noninvasive fat removal devices continue to gain popularity. Retrieved from <https://www.mdedge.com/internalmedicine/article/174914/aesthetic-dermatology/noninvasive-fat-removal-devices-continue-gain>



# CRYOLIPOLYSIS

Cryolipolysis was the first type of treatment approved by the U.S. Food and Drug Administration for fat reduction, and it destroys fat cells by freezing them. Since the first device's approval in 2010, millions of procedures have been performed.

In studies, the treatment is well tolerated with minimal to tolerable discomfort and 73 percent patient satisfaction.<sup>7</sup> However, anecdotally, patients and practitioners report that pain and discomfort are not uncommon, and some patients have delayed onset pain requiring pain medication.<sup>8,9</sup> After three months, caliper measurements showed an average 23 percent reduction in fat layer thickness.<sup>10</sup>

It should also be noted that an adverse event called paradoxical adipose hyperplasia (PAH)—a hardened area of localized fat developing after cryolipolysis—“is a rare complication of cryolipolysis that may occur more frequently than in the manufacturer's reported data,” researchers reported. They found this occurred in one in 138 cryolipolysis treatments, compared to manufacturer data of 1 in 4,000.<sup>11</sup>

Other common side effects include bruising, swelling, tingling, and numbness. The treated area must be massaged after the procedure, which patients often describe as painful and adds to treatment time, and the suction applicator can cause sharp demarcations between treated and untreated areas, termed as shelving or shark bites.<sup>12</sup>

In anecdotal reports, people who have received cryolipolysis describe the treatment experience variously as “virtually painless”<sup>13</sup> compared to the two-minute post-procedure massage of the treated area as “the 120 most painful seconds of my life.”<sup>14</sup>

It's also important to note complaints from providers about consumable costs with the most common cryolipolysis device, which range from \$600 to \$900 per treatment area. “The very high consumable costs will drive you crazy,” the Executive Director for the International Association for Physicians in Aesthetic Medicine wrote, adding that it's the “one thing reps gloss over” and “the most lucrative money they make is from the physicians themselves.”<sup>15</sup>

<sup>7</sup> Dierckx, C. C., Mazer, J., Sand, M., Koenig, S. & Arigon, V. (2013), Safety, Tolerance, and Patient Satisfaction With Noninvasive Cryolipolysis. *Dermatologic Surgery*, 39, 1209-1216. doi:10.1111/dsu.12238

<sup>8</sup> (2015, November 20). WarmSculpting with SculpSure. Retrieved from <https://www.realself.com/question/berkeley-heights-nj-difference-results-sculpsure-laser-fat-loss-coolsculpting>

<sup>9</sup> Zoldan, R. J. (n.d.). Coolsculpting Froze Off My Belly Fat, And This Is How It Felt. *Shape*. Retrieved from <https://www.shape.com/lifestyle/beauty-style/coolsculpting-froze-my-belly-fat-and-how-it-felt>

<sup>10</sup> Dierckx, Ibid.

<sup>11</sup> Kelly, M. E., Rodriguez-Feliz, J., Torres, C., & Kelly, E. (2018). Treatment of Paradoxical Adipose Hyperplasia following Cryolipolysis: A Single-Center Experience. *Plastic and Reconstructive Surgery*, 142(1), 17e–22e. doi: 10.1097/PRS.0000000000004523

<sup>12</sup> (2018, April 14). WarmSculpting with SculpSure. Retrieved from <https://www.realself.com/question/los-angeles-ca-cool-sculpting-left-ridges-back-sculpture>

<sup>13</sup> Spencer, G. (2018, May 17). Does CoolSculpting Work? Here's What Happened When I Tried It. Retrieved from <https://www.rd.com/health/beauty/coolsculpting-review/>

<sup>14</sup> Zoldan, R. J. (n.d.). Coolsculpting Froze Off My Belly Fat, And This Is How It Felt. *Shape*. Retrieved from <https://www.shape.com/lifestyle/beauty-style/coolsculpting-froze-my-belly-fat-and-how-it-felt>

<sup>15</sup> International Association for Physicians in Aesthetic Medicine. (n.d.). The Cold Hard Truth About CoolSculpting®. Retrieved from <https://iapam.com/cold-hard-truth-coolsculpting.html>



## RADIO FREQUENCY

Radio frequency (RF) devices to target fat are offered by several manufacturers. They deliver electromagnetic energy to fat cells, which results in controlled deep heat that breaks them down. Depending on the specific device, RF may also offer skin tightening, collagen remodeling, and circumferential reduction.

RF systems can be monopolar, bipolar, or multipolar, depending on the number of electrodes on the applicator. Monopolar devices typically need fewer treatments and achieve circumference reduction in 60 to 80 percent of subjects.<sup>16</sup> However, monopolar RF treatments are often reported to be more painful for the patient because the energy output is higher, and it can arc (resulting in a thermal injury on the treatment area) if the applicator breaks contact with the skin.

RF therapies are versatile and can be used on large and small areas of the body. The side effect profile for radio frequency is favorable with swelling and redness at the treatment site, and will commonly subside within a couple hours. Patients report no pain issues and typically experience no downtime with results manifesting four or more weeks after completing a treatment plan.<sup>17</sup>

It should be noted that unlike cryolipolysis, which destroys fat cells, RF works to shrink the cells, which can help to reduce circumference and smoothen out the area. In a follow-up study of patients treated with RF for abdominal fat, they achieved an initial average 5.88 cm waist circumference reduction and weight loss of 1.29 kg. After four years, they retained an average 75.2 percent of the circumferential reduction.<sup>18</sup>

For providers, RF devices offer some notable advantages. There are generally no consumable costs, and in addition to targeting fat, the modality can address various other aesthetic issues, such as wrinkle reduction, skin laxity, and cellulite. Lastly, applicators featuring a larger spot size enable these devices to treat broader areas of the body, speeding treatment time. However, it is also worth noting many of these RF devices are very hands-on, in that they require the provider to constantly move the applicator over the treatment area in order for them to work safely and effectively.

**RF** WORKS TO SHRINK THE CELLS, WHICH CAN HELP TO REDUCE CIRCUMFERENCE AND SMOOTHEN OUT THE AREA.

<sup>16</sup> Nassab, R. (2015). The Evidence Behind Noninvasive Body Contouring Devices. *Aesthetic Surgery Journal*, 35(3), 279-293. doi: 10.1093/asj/sju063

<sup>17</sup> Beasley, K.L. & Weiss, R.A. (2014). Radiofrequency in Cosmetic Dermatology. *Dermatologic Clinics*, 32(1), 79-90. doi: 10.1016/j.det.2013.09.010

<sup>18</sup> Fritz, K. & Salavastru, C. (2017). Long-term follow-up on patients treated for abdominal fat using a selective contactless radiofrequency device. *Journal of Cosmetic Dermatology*, 16(4), 471-475. doi: 10.1111/jocd.12429



# ULTRASOUND

Ultrasound fat reduction devices are based on two mechanisms: high-intensity focused ultrasound (HIFU) or focused pulsed ultrasound. The former is similar to RF in that it creates heat to destroy fat cells while the latter uses acoustic energy to achieve that result.

HIFU is commonly done in one treatment, and the heat has the advantage of addressing skin laxity. However, some patients report discomfort. Focused pulsed ultrasound requires multiple treatments but is much better tolerated.

In clinical trials of HIFU, patients had an average of 2.5 cm waist circumference reduction after one treatment with results typically seen in eight to 12 weeks.<sup>19</sup> Other research found an average circumference reduction of 4 cm to 5 cm.<sup>20</sup> Patients experience minimal side effects, consisting of minor swelling, redness, and bruising.

With focused pulsed ultrasound, three treatments are recommended at two-week intervals. Waist circumference reduced a maximum average of 3.58 cm in test subjects after 112 days, and the treatments were well tolerated.<sup>21</sup>



<sup>19</sup> (n.d.). FREQUENTLY ASKED QUESTIONS. Retrieved from <https://www.liposonix.com/liposonix-physician/en/learn-connect/faq>

<sup>20</sup> Fatemi, A. (2009). High-Intensity Focused Ultrasound Effectively Reduces Adipose Tissue. *Seminars in Cutaneous Medicine and Surgery*, 28(4), 257-262. doi: 10.1016/j.sder.2009.11.005

<sup>21</sup> Ascher, B. (2010). Safety and Efficacy of UltraShape Contour I Treatments to Improve the Appearance of Body Contours: Multiple Treatments in Shorter Intervals. *Aesthetic Surgery Journal*, 30(2), 217-224. doi: 10.1177/1090820X09360692



## LASER

Laser modalities for non-invasive fat treatments are evolving rapidly and are the focus of much innovation. The historical application of laser in fat reduction involved low-level laser, sometimes called cold laser. But newer 1064 nm diode laser technology offers a significant advance.





## LOW-LEVEL LASER

First, let's review low-level laser, which uses low levels of light to disrupt the membranes of fat cells, creating a temporary pore through which fat seeps out. During treatment, the device aims six lasers at the body, offering generalized body contouring. The procedure is comfortable and six sessions within two weeks are recommended.

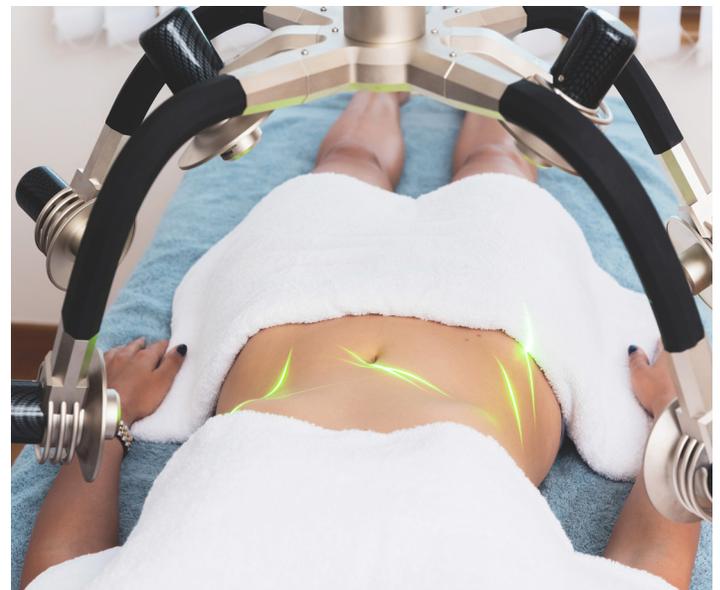
On the consumer review site RealSelf.com, only 47 percent of users rate the low-level laser treatment as "worth it," and the site says that patients are also expected to take a daily supplement, drink 64 ounces of water daily, follow a low-fat diet, and eliminate caffeine and alcohol.<sup>22</sup>

This regimen poses adherence challenges, and it's important to note that the procedure cannot target particular fat deposits, which are often the motivation for patients to seek treatment. So, this limitation requires careful explanation in the aesthetic consultation.

Results from low-level laser are reported as mixed. One device manufacturer says that clients lose an average of 3.72 inches from the total circumference of waist, thighs, and hips compared to a half-inch for a placebo group.<sup>23</sup> A multicenter, double-blind, randomized, placebo-controlled trial on 67 patients

found that about 63 percent of participants lost at least three inches and had an average reduction in waist circumference of 1.08 inches at four weeks.<sup>24</sup>

However, another study found no statistically significant reduction in circumference measurements at one week or one month after treatment,<sup>25</sup> and a comprehensive literature review found that evidence for the efficacy of this modality was inadequate.<sup>26</sup>



<sup>22</sup> Karr, A. (2019, August 7). Zerona Reviews. Retrieved from <https://www.realself.com/zerona>

<sup>23</sup> (n.d.) What is Zerona? Retrieved from <https://www.myzerona.com/what-is-zerona/>

<sup>24</sup> Jackson, R.F., Dedo, D.D., Roche, G.C., Turok, D.I., & Maloney, R.J. (2009). Low-level laser therapy as a non-invasive approach for body contouring: A randomized, controlled study. *Lasers in Surgery and Medicine*, 41(10), 799-809. doi: 10.1002/lsm.20855

<sup>25</sup> Elm, C.M., Wallander, I.D., Endrizzi, B., & Zelickson, B.D. (2011). Efficacy of a multiple diode laser system for body contouring. *Lasers in Surgery and Medicine*, 43(2), 114-121. doi:10.1002/lsm.21016

<sup>26</sup> Avci, P., Nyame, T.T., Gupta, G.K., Sadasivam, M., & Hamblin, M.R. (2013). Low-level laser therapy for fat layer reduction: a comprehensive review. *Lasers in Surgery and Medicine*, 45(6), 349-357. doi:10.1002/lsm.22153

PATIENT SATISFACTION  
IS MORE THAN

90%

## LASER LIPOLYSIS

Non-invasive lipolysis using diode lasers at 1064 nm is a different modality and significantly more effective. These wavelengths penetrate the skin to target the adipose tissue layer and deliver energy that damages cells through heat. The treatment is safe for all skin types.

The procedure takes no more than 30 minutes, is very comfortable, and entails no downtime. A contact cooling system during treatment limits discomfort and prevents damage to the surface of the skin. Patient satisfaction is more than 90 percent, and only mild side effects such as slight soreness and swelling are seen.<sup>27</sup> The abdomen and flanks can be treated, and a study showed a 24 percent reduction in fat volume.<sup>28</sup>

A follow-up study showed an average reduction of 4.31 mm and 2.72 mm in circumference of the flanks and abdomen respectively, and results were maintained at six months after one treatment.<sup>29</sup>

This modality offers several distinct advantages over cryolipolysis and other modalities.

- Results in terms of fat reduction are similar to cryolipolysis<sup>30</sup> but laser lipolysis entails no downtime while reports of post-procedure pain and downtime, with certain cryolipolysis treatments are more common.
- Treatments are faster at around 25 minutes versus about an hour for cryolipolysis.
- The PAH side effect sometimes seen with cryolipolysis has not been reported with laser lipolysis.
- Results are more natural-looking because the heat from laser lipolysis feathers at the edge of the treatment area, so the potential for shelving and shark bites is significantly lower.

Aesthetic practitioners also note cost efficiencies and ROI enhancement, because consumable costs are drastically lower, treatment times are faster, very little procedure prep time is needed, and there is almost no post-treatment care required. Applicators can also be applied to the body and left in place for the duration of the treatment, allowing for less manual work for the provider, and the possibility of simultaneously providing other treatments.



25  
MINUTES

<sup>27</sup> Decorato, J.W., Chen, B., & Sierra, R. (2017). Subcutaneous adipose tissue response to a non-invasive hyperthermic treatment using a 1,060nm laser. *Lasers in Surgery and Medicine*, 49(5), 480-489. doi:10.1002/lsm.22625

<sup>28</sup> Decorato J.W. (2014, April). *Clinical Evaluations of a 1060nm laser device for non-invasive fat reduction as compared to cryolipolysis*. Paper presented at 2014 Annual American Society for Laser Medicine and Surgery Conference, Phoenix, AZ.

<sup>29</sup> Bass, L., Katz, B., & Doherty, S.A. (2016, March). *Multicenter study of a non-invasive 1060nm diode laser for fat reduction of the flanks and abdomen: 6-month follow-up*. Paper presented at 2016 Annual American Society for Laser Medicine and Surgery Conference, Boston, MA.

<sup>30</sup> Decorato, J.W., Chen, B., & Sierra, R. (2017). Subcutaneous adipose tissue response to a non-invasive hyperthermic treatment using a 1,060nm laser. *Lasers in Surgery and Medicine*, 49(5), 480-489. doi:10.1002/lsm.22625



## FURTHER ADVANCES IN LASER LIPOLYSIS

Laser lipolysis devices have been available for a few years now, but innovation continues to improve the technology. The latest offering is Venus Bliss™.

Venus Bliss™ is an advanced medical aesthetic device indicated for non-invasive lipolysis of the abdomen and flanks, resulting in fat reduction. It employs up to four diode laser applicators that have a 50 percent larger spot size than the competitor, meaning a greater area can be treated. This results in a faster treatment and enhanced efficiency. The applicator also provides superior power distribution, so heating is more homogenous throughout the treatment area. More even heat distribution supports consistent results and reduces hot spots that can cause pain or discomfort.

Moreover, Venus Bliss™ also features an (MP)<sup>2</sup> applicator powered by a proprietary combination of Multi-Polar Radio Frequency and Pulsed Electro Magnetic Fields with innovative VariPulse™ vacuum technology. The additional applicator provides patients with an additional solution to smooth out the abdominal area as part of a complete treatment plan, while also reducing cellulite on other areas of the body—something that cryolipolysis and the older laser lipolysis devices do not offer. With this additional treatment, the overall appearance of the treatment area is improved. These benefits enhance the body slimming effects and contribute to patient satisfaction.



The Venus Bliss™ workstation is more compact and easily maneuverable than previous devices, meaning its footprint is easily accommodated in treatment rooms and it can quickly be relocated. The potential for ROI is high, especially when the added features are considered and there are no consumable costs. Venus Bliss™ owners also benefit from

Venus Concept's superior post-sale support, which includes Practice Enhancement Managers, post-sale marketing support, clinical training, extended warranty programs, and seamless upgrades.

The table below summarizes the findings for the main fat treatment technologies.



## COMPARISON OF NON-INVASIVE FAT TREATMENT MODALITIES FOR THE ABDOMEN<sup>31</sup>

THERAPY	MECHANISM	DURATION OF TREATMENT SESSION (MINUTES)	NUMBER OF TREATMENTS	FREQUENCY	TIME TO ONSET OF RESULTS (WEEKS)	TIME TO OPTIMAL RESULTS (WEEKS)	DECREASE IN ABDOMINAL CIRCUMFERENCE (CM)
Cryolipolysis	Cold-induced apoptosis/necrosis	60	Varies	Once	8	24	Not evaluated
RF	Heat-induced apoptosis	35-45	4-6	Once every 1-2 weeks	1	4-16	1.4-7.4
Ultrasound (HIFU)	Heat-induced necrosis	45-60	1	Once	4	2	2.1-4.15
Low-Level Laser	Micropore formation	40	6	3 per week	1	2	2.1-2.89
1064 nm Diode Laser <sup>32</sup>	Heat-induced apoptosis	25	1 may be sufficient	Once or at 6-week intervals	4	12	N/A 24 percent fat volume reduction in target area; Flanks average fat reduction 2.6 mm <sup>33</sup>

<sup>31</sup> Rzepecki, A. K., Farberg, A. S., Hashim, P. W., & Goldenberg, G. undefined. (2018). Update on Noninvasive Body Contouring Techniques. *Cutis*, 101(4), 285–288.

<sup>32</sup> Decorato, J.W., Chen, B., & Sierra, R. (2017). Subcutaneous adipose tissue response to a non-invasive hyperthermic treatment using a 1,060nm laser. *Lasers in Surgery and Medicine*, 49(5), 480-489. doi:10.1002/lsm.22625

<sup>33</sup> Katz, B. & Doherty, S. (2018). Safety and Efficacy of a Noninvasive 1,060-nm Diode Laser for Fat Reduction of the Flanks. *Dermatologic Surgery*, 44(3), 388-396.



# CONCLUSION

As you have seen, non-invasive fat treatments are a highly attractive opportunity for consumers and aesthetic providers alike. Choosing the right device is important, since it will provide a foundation for your practice for years to come.

Safety and efficacy are paramount, of course. And as you narrow your options further, you will want to invest in a device that offers high ROI, the most advanced technology, and superior patient satisfaction.

At Venus Concept, our comprehensive business model is designed to support your practice every step of the way. If you have any questions about the devices discussed here, including Venus Bliss™, contact us at 888.907.0115.

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