PHOTOS COURTESY DR. ROBERT A. WEISS

A 42-year-old patient is shown before and 6 weeks after undergoing treatment with the SlimLipo unit. She has noticed that all of her clothes fit more loosely, according to Dr. Robert A. Weiss.

Diode Lasers Spark New Liposuction Technology

BY DOUG BRUNK
San Diego Bureau

LAS VEGAS — When Dr. Robert A. Weiss started using the SlimLipo liposuction unit for fat melting and fat sculpting, he was surprised to learn that most patients returned to work the day after the procedure.

"They had almost no bruising," he recalled at the annual meeting of the American Society of Cosmetic Dermatology and Aesthetic Surgery. "The tumescent fluid drainage was over in 12 hours instead of 2 or 3 days and I thought, 'We've found something pretty remarkable.' "

Of 10 patients who participated in an institutional review board study led by Dr. Weiss, 4 had their abdomens treated, 3 had their thighs treated, 2 had their flanks treated, and one had the arms treated. No side effects were seen at 6 weeks, and all patients rated the procedure as significantly improving the appearance of fat, said Dr. Weiss of the department of dermatology at Johns Hopkins University, Baltimore, who is also in private practice in that city.

He credited the successful outcomes to technology that simultaneously blends 924-nm and 975-nm wavelengths and the unit's redesigned tip, which became available in May of 2008. "The problem with standard fiber tips is that the temperature gets very high, from 400° to 1,000° F," he said. The redesigned tip is rounded and distributes heat more efficiently.

In experiments on abdominoplasty skin, Dr. Weiss and his associates observed that wavelengths in the 920-nm range achieved fat absorption, whereas wavelengths in the 980-nm range achieved water absorption. He noted that SlimLipo's shorter wavelength and redesigned tip set it apart from other devices used for laser-assisted lipolysis. According to data on the manufacturer's (Palomar Medical Technologies Inc.) Web site, the Food and Drug Administration–cleared unit releases five times as much fat as does the 1,064-nm SmartLipo laser.

"What we're trying to do is overcome the potential disadvantages of laser-assisted lipolysis by making it a shorter procedure time instead of a longer one," he said. "We want to decrease the risk of skin injury [and] eliminate the risk of fibrin breakage, and we want to reduce bruising and tenderness. We can do this by using a wavelength that also shrinks capillaries. Nd:YAG lasers have been typically used to affect fat. These new wavelengths come from diode lasers."

After the SlimLipo tip smoothly irradiates adipose tissue, highly selective wavelengths "melt" adipocytes while coagulating the surrounding connective-tissue meshwork. Liquified fatty acid leaks out through the incision or is easily aspirated though a micro cannula. Coagulated subdermal collagen provides a shrinkage effect that, over time, is replaced by new septa and support meshwork for new improved body contour.

"There is no plasma or mechanical damage, just gentle thermal melting and coagulation," said Dr. Weiss, who noted that most procedures take about 45 minutes.

Dr. Weiss disclosed that he is a consultant, has performed research, and speaks on behalf of many medical device companies, including Palomar. ■

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