# COMPARISON OF LASER-ASSISTED LIPOLYSIS AND LIPOSUCTION: HISTOLOGY AND SPLIT-BODY CLINICAL RESULTS

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**Background:** Laser-assisted lipolysis (LAL) supplements liposuction (SAL) with laser heating of fat and connective tissue. The two procedures are compared histologically and clinically in multiple-site, split-body studies.

**Study:** Two subjects underwent split-body fat-removal procedures for arms, thighs, back and flanks with follow-ups to 3 months. Photographs and physician self-assessments were collected to 3 months. Suction cups were applied to sites with 200mmHg vacuum pressure to measure the amount of drawn skin. Two subjects were tattooed and underwent split-body treatment followed by abdominoplasty 3 and 6 months later. Clinical endpoint for LAL was 458C temperature 3mm below the skin. Localized hardness developed in one subject who did not massage post-op. A fifth subject underwent abdominoplasty 9 months post-LAL.

**Results:** The LAL-treated side had smoother contours, less bruising and 10–20% less vacuum-drawn skin than the liposuction-only side. Skin contraction increased with time to 20–30% vertical and 5–15% horizontal at 3 months on both sides. The local hardness was not palpable ex vivo but was sectioned and analyzed histologically (H&E). Contour irregularities on the SALtreated sites were greater than on the LAL-treated side, one subject requested revisions to the SAL-side. The irregularities were most pronounced 1 month post-op but still visible at 3 months. Fibrotic tissue was easily identified 9 months post-LAL presumably coincident with the aspiration cannula and/or the laser fiber. No adhesion of the dermis to underlying fascia was found.

**Conclusion:** The results suggest that a laser adjunct to liposuction can decrease bruising, improve contours and reduce skin laxity compared with suction-assisted liposuction. Histology supports the view that thermally altered adipose connective tissue can affect skin laxity. Additional multi-site studies are warranted.

**LASER LIPOLYSIS WITH A 980NM DIODE LASER VERSUS TRADITIONAL AND ULTRASOUND ASSISTED LIPOSUCTION: PERSONAL EXPERIENCE**

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**Background:** Since its advent in the 1970's to now the technique of liposuction has undergone continuous improvements and become a valuable security tool for the treatment of localized lipodystrophies. The purpose of this study was to evaluate the efficacy and safety of a 980nm laser for laser-assisted liposculpture traditional and ultrasound assisted liposuction. Laser lipolysis is designed to provide selective adipose damage, while simultaneously facilitating fat removal, enhancing hemostasis and increasing tissue tightening.

**Study:** Sixty patients of both sexes (ranging in age from 25 to 55 years) with indications for liposculpture by showing the presence of localized fat on the abdomen, flank, trochanteric region and knees were selected for the treatment of laser-assisted liposculpture. After the tumescent anesthesia this technique involves an incision of 1mm to introduce a tube about 1mm in diameter and 15cm in length through which is inserted into a fiber of 600 mm. The laser pulse is set to continue from 5 to 18 W. The emitted energy varies from 2000 to 10,000 J per area. Laser application is followed by the aspiration of adipose tissue zone.

**Results:** In all 60 patients we have achieved good results without major complications.

**Conclusion:** Following a correct methodology, the laser-assisted liposculpture performed by laser 980 has proved a reliable and efficient technique for the surgical reshaping of the body. Although laser lipolysis is not intended to replace traditional liposuction or ultrasound assisted liposuction, it offers to the patients a procedure that achieves similar benefits with fewer complications and faster recovery.

# IS SKIN TIGHTENING AN ADDED ADVANTAGE TO LASER LIPOLYSIS AS COMPARED TO CONVENTIONAL SUCTION ASSISTED LIPOSUCTION? A CONTROLLED STUDY

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**Background:** The purpose of this study is to determine in a prospective controlled fashion using an IRB approved protocol if in fact there are any additional skin tightening benefits during laser lipolysis compared to conventional liposuction.

**Study:** A 24W 924/975nm laser (Palomar Medical Technologies) was used to perform laser lipolysis on the posterior aspect of the upper extremity for correction of the ''bat wing'' deformity on nine patients. The contralateral extremity served as the control and underwent conventional liposuction. Treatments were performed in an accredited office based surgical facility using local tumescent anesthesia. Laser energies were delivered until an internal temperature of 45 and 508C measured using an internal probe was achieved. Following the laser lipolysis, the patients underwent traditional liposuction using 2.5-mm cobra cannulae. The controls sides underwent traditional liposuction alone. All patients were followed for up to 24 weeks. Skin tightening was measured as change in diameter of the abducted upper extremity measured using a commercial web-based program (ImageStore, Portola Valley, California). Patient questionnaires were concurrently taken at 72 hours, 4 and 12 weeks to assess pain, morbidity, skin contour changes and overall satisfaction.

**Results:** The lasered extremities experienced greater skin tightening (3.77%) than the controls (0.28%). This was significant using a paired T-test ($P < 0.04$). There were no complications. Patients had minimal bruising that was resolved within 7–10 days. Patient discomfort was also minimal. Patient questionnaires demonstrated increased satisfaction and skin contour changes as well as decreased pain and morbidity on the lasered side as compared with the controls. These findings were consistent with investigator assessment.

**Conclusion:** Upper extremities treated with laser-assisted liposuction using a 924/975nm laser device demonstrated statistically greater skin tightening than those treated with traditional liposuction alone with no increase in complications or patient morbidity and increased patient satisfaction.