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# Skin Retraction After Liposuction in Patients Over the Age of 40

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**BACKGROUND.** A commonly held misperception regarding liposuction in patients over 40 years of age is that the skin will not retract and redrape following removal of the fat.

**OBJECTIVE.** In order to evaluate tissue retraction in the abdomen, neck, and arms in patients undergoing liposuction after 40 years of age, the following study was conducted.

**METHOD.** A total of 58 patients ranging in age from 40 to 75 years underwent liposuction. Thirty had liposuction of the abdomen, 20 had liposuction of the neck, and 8 had liposuction of the arms. Measurements in inches and weight in pounds were recorded before and at 1, 3, and 6 months after the procedure.

**RESULTS.** Ninety percent of the patients were women. The rest of the patients were men. The average age of the patients undergoing liposuction of the abdomen was 55 years old. The average supranatant fat extracted from these patients was 1725 ml, with an average lidocaine dose of 36 mg/kg of body weight. The patients who had liposuction of the abdomen demonstrated an average weight loss of 5 lb and a decrease of 3 inches in waistline 6 months after the procedure. For those patients

who had liposuction of the neck, the average age was 57 years old. The average supranatant fat extracted from these patients was 75 ml, with an average lidocaine dose of 4 mg/kg of body weight. The patients who had liposuction of the neck decreased an average of 1.3 inches in circumference without any weight change 6 months after the procedure. For those patients having liposuction of the arms, the average age was 44 years. The average supranatant fat extracted from these patients was 525 ml, with an average lidocaine dose of 16 mg/kg of body weight. The patients who had liposuction of the arms had an average of 0.5 inch decrease in circumference without any weight change 6 months after the procedure. The cosmetic results were good to excellent. Our highest lidocaine dose occurred in a patient having suction of the abdomen and was 71 mg/kg of body weight. No patients experienced any objective or subjective signs of lidocaine toxicity.

**CONCLUSION.** Tumescant liposuction of the abdomen, neck, and arms is a safe alternative for contour improvement with good cosmetic results in patients over 40 years of age.

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LIPOSUCTION WAS DEVELOPED by Giorgio Fischer and his father Arpad between 1974 and 1976 when they were using blunt cannulas attached to suction pumps which they manufactured.<sup>1</sup> This work was later improved upon by Illouz and Fournier in Paris, popularizing liposuction worldwide.<sup>2</sup> The first American physician to embrace this new technique was Lawrence Field, MD in 1977.<sup>2,3</sup> The major breakthrough in liposuction occurred in 1987 when dermatologist Jeffrey Klein, MD developed the tumescant technique.<sup>4</sup> This technique, which utilizes normal saline solution containing very dilute lidocaine and epinephrine, has made liposuction a safe outpatient procedure. A commonly held misconception regarding liposuction in patients over 40 years of age is that the skin will not retract and redrape following removal of the fat. This has led many surgeons to recommend abdominoplasty, brachioplasty, and rhytidectomy for

patients in this age group who request contour improvement for the abdomen, arms, and neck.

While it is certainly true that patients with muscle flaccidity and skin laxity may achieve superior final cosmetic results with abdominoplasty,<sup>5</sup> this slight cosmetic advantage may not be cost effective to the majority of patients over the age of 40. Furthermore, the additional risks and "downtime" associated with these more extensive procedures often make them less desirable to many patients.

Patients over the age of 40 have softer fat, which is easily extractable,<sup>6</sup> and this makes them excellent candidates for liposuction alone. The following study was conducted in order to evaluate tissue retraction in the abdomen, neck, and arms in patients over 40 years of age undergoing liposuction alone.

## Materials and Methods

A total of 58 patients ranging in age from 40 to 75 years underwent tumescant liposuction. Twenty-seven women and three men had liposuction of the abdomen. Eighteen women

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and two men had liposuction of the neck. Eight women had liposuction of the arms. Measurements in inches, weight in pounds, and photographs were taken before and 1, 3, and 6 months after the procedure.

The liposuction protocol was performed as follows: A thorough medical history and physical examination were performed on each patient before liposuction. Special emphasis was placed on cardiac, pulmonary, and hematologic disorders. All patients had a preoperative CBC with platelets, PT, PTT, SMA 20, and hepatitis C antibody profile performed. When indicated, medical clearance was obtained for some patients, including a preoperative EKG and chest X-ray. Patients were treated with oral antibiotics, commencing the day before the procedure and continuing for a total of 5 days. For patients without penicillin allergy, cephalexin 250 mg four times a day was used, and for patients allergic to penicillin, zithromax 500 mg on day 1 followed by 250 mg daily for the remaining 4 days was chosen. At the time of surgery, standard photographs were taken and informed consent signed. Patients were given 1000 mg of acetaminophen and offered the option of an oral benzodiazepine (either diazepam 5 mg or lorazepam 1 mg). The patients were then prepped and draped in sterile fashion. Tumescence solution was prepared as described by Klein,<sup>4</sup> adding 500–1000 mg lidocaine, 1 mg of epinephrine, and 12 mEq bicarbonate to 1 L normal saline. The tumescent fluid was infused using a Klein infusion pump, first using 20-gauge spinal needles followed by 2 mm infiltration cannulas. We limit our lidocaine dose to approximately 70 mg/kg of body weight, and have never observed any objective or subjective lidocaine toxicity. The suction cannulas used were as follows: for the neck, 3 mm spatula, 14- and 16-gauge Klein finesse cannulas; for the arms, 3 mm accelerator, 12- and 14-gauge Klein finesse cannulas; and for the abdomen, occasionally a 3.7 mm pyramid with 3 mm accelerator, 12- and 14-gauge Klein finesse cannulas. The procedure was performed without intravenous (IV) sedation or IV fluid replacement. We do not routinely place an IV in our patients. All patients tolerated the procedure well. The patients were given free access to either water or Gatorade during and following the procedure. Discomfort was minimal and postoperative analgesia consisted of extra strength acetaminophen 4–6 times daily for 1–3 days after the procedure, as needed. At the conclusion of the procedure, the incision sites were left open to drain. Bacitracin-impregnated gauze pads were applied to the incision sites and compression garments were placed. Our cur-

rent preference of garments includes a standard neck support garment; for the trunk, two garments, a Klein garment followed by a Veronique garment; and for the arms, a Veronique vest/arm garment. Patients were instructed to wear the garments for the arms and abdomen 24 hours/day for the first week followed by 12 hours/day for the second week, with daily showering starting the day after surgery. Neck liposuction patients wore their garments continuously for 72 hours and then overnight for an additional 4 nights.

## Results

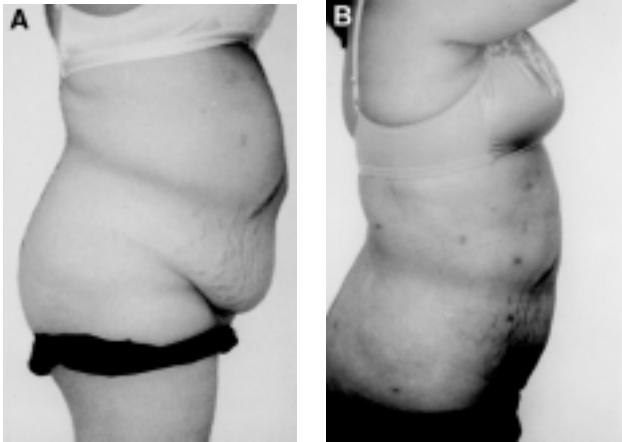
Ninety percent of the patients were women and the rest were men. The average age of the patients undergoing liposuction of the abdomen was 55 years. The average supranatant fat extracted from the patients who had liposuction of the abdomen was 1725 ml, with an average lidocaine dose of 36 mg/kg of body weight. These patients demonstrated an average weight loss of 5 lb and a decrease of 3 in. in waistline 6 months after the procedure (Table 1).

For those patients undergoing liposuction of the neck, the average age was 57 years. The average supranatant fat extracted from patients undergoing liposuction of the neck was 75 ml, with an average lidocaine dose of 4 mg/kg of body weight. The patients who had neck liposuction decreased an average of 1.3 in. in circumference without any weight change 6 months after the procedure (Table 1).

For those patients having liposuction of the arms, the average age was 44 years. The average supranatant fat extracted from patients undergoing liposuction of the arms was 525 ml, with an average lidocaine dose of 16 mg/kg of body weight. These patients demonstrated an average of 0.5 in. decrease in circumference without any weight change 6 months after the procedure (Table 1). There were no serious complications. There were two seromas, both in patients who had liposuction of the abdomen. One was a male who had liposuction of his upper and lower abdomen and flanks; the other was a female who had liposuction of the upper and lower abdomen. Both were subsequently drained and healed with excellent cosmetic results.

**Table 1.** Skin Retraction Results in Liposuction Patients over 40

	Abdomen	Neck	Arms
Number of patients	30	20	8
Average age (years)	55 (range 40–74)	57 (range 40–74)	44 (range 40–75)
Average supranatant fat (ml)	1725 (range 250–4400)	75 (range 25–125)	525 (range 300–900)
Average lidocaine dose (mg/kg of body weight)	36 (range 15–71)	4 (range 1.5–6)	16 (range 13–24)
Average weight loss (lbs)	5	0	0
Average decrease in inches	3 (range 1–6)	1.3 (range 0.5–1.75)	0.5 (range 0.25–1)



**Figure 1.** Liposuction of the abdomen. A) A 42-year-old obese woman before liposuction of the abdomen. B) The same patient 6 months after the procedure.

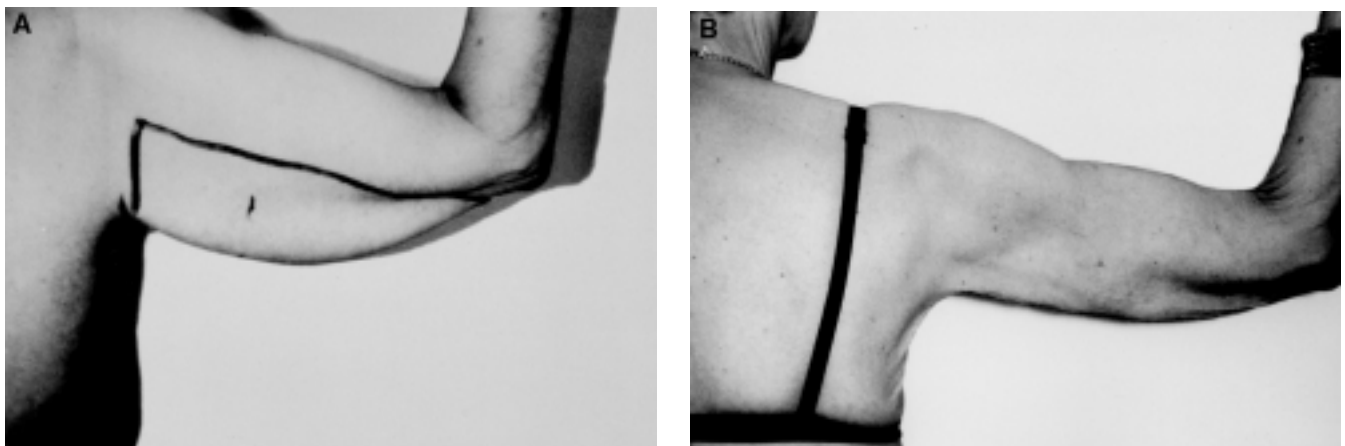


**Figure 2.** Liposuction of the neck. A) A 54-year-old woman before liposuction of the neck. B) The same patient 6 months after the procedure.

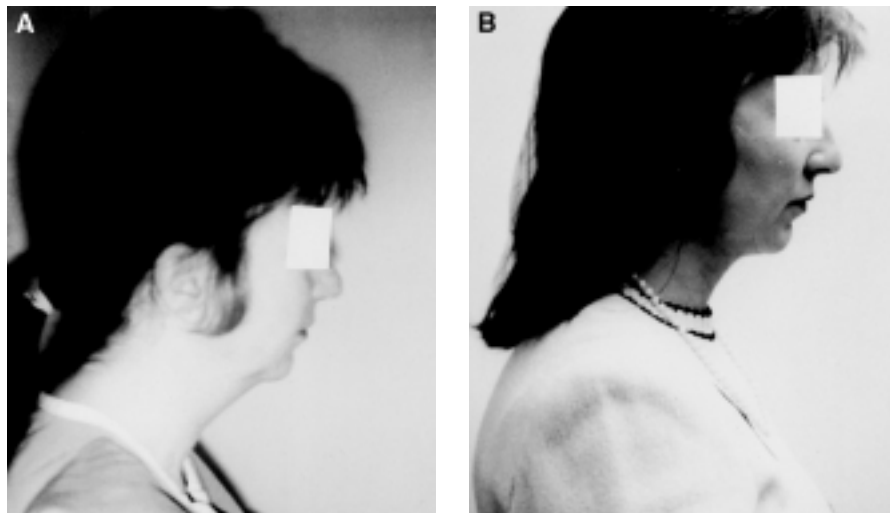
The cosmetic results of the group as a whole were good to excellent, as shown in Figures 1–4. Figure 1A shows a 42-year-old obese woman before liposuction of the abdomen. Figure 1B shows the good cosmetic results 6 months after the procedure with good tissue retraction. Figure 2A shows the neck of a 54-year-old woman with localized tissue adiposity before liposuction. Figure 2B shows the same patient 6 months after the procedure, with an excellent result and significant tissue retraction. Figure 3A shows the arms of a 55-year-old physically fit female before liposuction. Figure 3B shows the same patient with excellent results and significant tissue retraction. The benefit of liposuction extended beyond merely removing the localized adiposity. Figure 4A shows the obtuse angle neck of a 43-year-old physically fit female. The excellent results observed in attaining a right angle after liposuction are shown in Figure 4B.

### Discussion

Since the introduction of tumescent liposuction, its popularity, safety, and acceptance have made it the most commonly requested aesthetic surgical procedure in the United States.<sup>7</sup> In contrast, abdominoplasty is considered a major surgical procedure in terms of risk and the impact on normal homeostasis.<sup>8</sup> It is arguable that an abdominoplasty in some patients may offer an ultimately superior aesthetic result when compared to liposuction alone. However, it is often the case that patients in the over-40 age group will gladly accept the significant contour improvement that liposuction alone can offer without the “downtime,” scarring, and potential risks of an abdominoplasty. These patients typically have realistic and achievable expectations and have an unmatched satisfaction rate. Whereas liposuction of the neck and jowls is clearly not an alternative in all patients to rhytidectomy, it is



**Figure 3.** Liposuction of the arms. A) A 55-year-old woman before liposuction of the arms. B) The same patient 6 months after the procedure.



**Figure 4.** Liposuction of an obtuse angle neck. A) A 43-year-old physically fit woman before liposuction of the neck. B) The same patient 6 months after the procedure.

clear that in many patients this far simpler, safer outpatient procedure under local anesthesia can achieve dramatic and greatly satisfying results. With regard to liposuction of the arms, the skin's own ability to retract virtually always results in a superior aesthetic result when compared to the resultant scar from a brachioplasty.

There are probably many contributing factors to the skin's excellent ability to retract following tumescent liposuction. These include the lack of disruption to many of the interconnecting bundles which run from the fascia to the deep dermis, allowing redraping and retraction of the skin following the removal of the intervening fat. In addition, there may be some induction of collagen production as a result of the mechanical process of the friction of the cannulas and the resultant inflammatory tissue reaction. Whatever the reasons for the skin's retraction after liposuction, it is clear that an even and relatively thorough extraction of the fat is necessary to achieve this retraction. It is most likely that inadequate fat extraction may have contributed in the past to the misconception that the skin will not properly retract and redrape in patients over the age of 40. It is now clear that it is the bulk and weight of the fat which causes the bulging and sagging that is seen before suction, and by removing this weight and bulk, the skin has a natural tendency to redrape itself over the underlying muscular structures.

We have included size reduction and weight reduction to demonstrate that the size reduction cannot be

accounted for by weight reduction alone, since the change in inches is far greater than that which could be accounted for in the corresponding weight reduction.

### Conclusion

Tumescent liposuction of the abdomen, neck, and arms is a safe alternative for contour improvement with good cosmetic results in patients over 40 years of age. Therefore, this procedure should be discussed with all patients who meet these parameters as part of informed consent before considering rhytidectomy, brachioplasty, and abdominoplasty.

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