Body Contouring

Abdominoplasty-Derived Dermal-Fat Graft Augmentation Gluteoplasty

Claude Muresan, MD; Gary M. Brownstein, MD; and Samir F. Shureih, MD

Abstract

Background: Plastic surgeons are exploring novel techniques for augmentation gluteoplasty as the demand for this procedure increases annually in the United States.

Objectives: The authors retrospectively reviewed a series of lower abdominal dermal-fat graft augmentation gluteoplasties to validate the procedure.

Methods: Nine consecutive patients underwent abdominoplasty or torsoplasty in which 2 oval dermal-fat grafts were excised, de-epithelialized, and then implanted into subfascial gluteal pockets for augmentation. All operations were independently conducted by 1 of 2 surgeons at facilities in Maryland and New Jersey.

Results: The mean age of the 9 female patients was 46 years. The mean dermal-graft size was 188 cm², and the mean graft weight was 288 g. One graft became infected and required excision 39 days after the procedure. There were no other complications. All surviving grafts provided a substantial increase in posterior projection and long-lasting gluteal volume.

Conclusions: Dermal-fat graft augmentation gluteoplasty provides a voluminous, natural-feeling, and durable aesthetic result. The procedure should be considered a viable option for patients undergoing abdominoplasty or torsoplasty, especially as more experience is gained.

Level of Evidence: 4

Keywords
dermal graft, dermal-fat graft, gluteal augmentation, abdominoplasty, torsoplasty, body contouring

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Human fascination with gluteal aesthetics dates back hundreds of years, with varied levels of interest in and notions of the ideal gluteal unit undoubtedly influenced by environment, cultural changes, and societal pressures. The ancient Greeks valued a feminine figure with a thin torso and voluminous buttocks, whereas pre-Columbian societies valued disproportionately wide buttocks and small posterior projection.¹ In the relatively harsh pre-Columbian environment, fertility was valued; thus, anatomic features favorable for childbirth were deemed aesthetically pleasing. However, as societies and medicine advanced, reproductive ability no longer defined the ideal female shape. According to the current standard, an aesthetic gluteal area is round, firm, and athletic, with a small waist that enhances posterior projection while maintaining proportional width.²,³ This ideal has been reinforced by a media-driven fitness movement that encourages people to wear tight-fitting clothing that draws attention to the gluteal region.⁴ The introduction of thong bathing suits has had a similar effect.⁴,⁵ According to the American Society for Aesthetic Plastic Surgery, these standards and fashion trends account for the increasing number of gluteoplasty procedures performed in the United States (increased from 2556 procedures in 2006 to 7286 in 2012).⁶,⁷

Dr Muresan is a resident, Department of Surgery, Union Memorial Hospital in Baltimore, Maryland. Dr Brownstein is a plastic surgeon in private practice in Berlin, New Jersey. Dr Shureih is a plastic surgeon in private practice in Baltimore, Maryland.

Corresponding Author:
Dr Samir F. Shureih, 10 E 31st St, Baltimore, MD 21218, USA.
E-mail: sshureih@msn.com
Since Bartels et al. performed the first augmentation gluteoplasty with a silicone breast prosthesis in 1969, various surgical techniques and implant-based procedures have been described.\(^1,3,5,9-16\) Results can be especially pleasing in patients with gluteal hypoplasia requiring significant volume.\(^1,3,5,8-16\) For this reason, as well as their historical application in gluteoplasty, implants are preferred for augmentation by some plastic surgeons, who have developed a comfort level with the prosthesis.\(^17\) However, incidences of implant dislodgment, asymmetry, capsular contracture, wound dehiscence, and infection have motivated other surgeons to explore alternatives for augmentation gluteoplasty.\(^1,3,5,8-15\) Another concern is that gluteal implants must be placed at or above the level of the ischial tuberosity to avoid nerve impingement when the patient sits; as a result, lower pole emptiness and contour deformities are common problems.\(^4,13,18\) To overcome some of these complications, surgeons have placed implants in subcutaneous, suprafascial, subfascial, and intramuscular planes and utilized various gluteal incisions and antiseptic practices.\(^1,3,5,8-16\) In one of the largest studies of implantations in the subfascial and intramuscular planes, benefits and complication rates were compared: results showed that implants in the subfascial plane provided improved lower-pole fullness and were associated with quicker patient recovery.\(^19\) Nevertheless, no single technique can eliminate all known implant complications, and thus, the search for an improved gluteoplasty technique continues.

Free fat grafting, also known as free fat transfer (FFT), has become an increasingly popular alternative for augmentation gluteoplasty.\(^2,4,17,20,21\) This technique—often performed concomitantly with other cosmetic procedures—can produce aesthetically pleasing results in low- to moderate-volume augmentations. This technique minimizes pain, requires smaller incisions than implant procedures, lessens complications related to foreign bodies, and provides some degree of lower-pole fullness.\(^2,4,17\) However, FFT has limitations. Nerve injury (typically manifested as paresthesia), seroma, fat necrosis, and postoperative infection are associated risks.\(^2,17\) Furthermore, resorption rates for FFTs can be as high as 50%, necessitating overcorrection of the gluteal region.\(^2,4,17\) The need to harvest additional fat can be as high as 50%, necessitating overcorrection of the gluteal region.\(^2,4,17\) The need to harvest additional fat can be as high as 50%, necessitating overcorrection of the gluteal region.\(^2,4,17\)

In 2006, Raposo-Amaral et al. described another augmentation gluteoplasty technique that utilized abdominal adipose tissue grafts,\(^2\) In 2006, Raposo-Amaral et al. described another augmentation gluteoplasty technique that utilized abdominal adipose tissue grafts,\(^2\) but also avoided the risks associated with implants. Given the current obesity epidemic in the United States and more frequent requests for concomitant abdominoplasty or torsooplasty with augmentation gluteoplasty,\(^2\) further investigation of this procedure is warranted. Thus, we describe a larger case series of dermal-fat graft augmentation gluteoplasties to further validate the benefits.

### METHODS

From August 7, 2006, through February 1, 2013, 9 consecutive patients underwent abdominoplasty or torsooplasty combined with dermal-fat graft augmentation gluteoplasty. Eligible patients for this procedure are those who desire an abdominoplasty or torsooplasty. All procedures were independently performed by 2 senior surgeons (S.F.S. and G.M.B.) at a surgical center in Baltimore, Maryland, and at Virtua West Jersey Hospital in Berlin, NJ, respectively. A retrospective medical record review was then conducted to obtain the following data: patient age and sex, date of surgery, type of operation, de-epithelialization technique, operating time, estimated blood loss, complications, follow-up time, and size and weight of the graft (Table 1).

Before surgery, all patients were counseled about the risks and benefits of combined abdominoplasty or torso-plasty and dermal-fat graft augmentation gluteoplasty. Informed consent was obtained from each patient, and all were treated in accordance with the ethical principles and guidelines of the Belmont Report. All surgical procedures were performed under general anesthesia in the fully accredited outpatient surgical facilities of the senior surgeons. After extended recovery, all patients were discharged on post-operative day 1.

### Surgical Techniques

Incisions were carefully marked before surgery for each patient. With the patient in both standing and supine positions, abdominal skin laxity was assessed and marked so that the incision would be concealed by the patient’s underwear. Attention was then directed toward the gluteal region. The subfascial pocket was outlined with the superior iliac crest as the superior boundary, the lateral aspect of the sacrum as the medial boundary, 2 cm above the infragluteal fold as the inferior boundary, and the greater trochanter as the lateral boundary. The pocket was oriented so that the area of maximal projection in the gluteal region corresponded to the level of the pubis as seen in the lateral view. Then the patient, who was encouraged to be an active participant in decision making, stood in front of a mirror and viewed the markings for both the abdominoplasty and the dermal-fat graft augmentation gluteoplasty (Figure 1). If contour adjustments
were necessary, the flanks, thighs, infragluteal region, and lumbar regions were assessed and marked for suction-assisted lipectomy. Once general anesthesia had been induced, the patient’s abdomen was prepped, draped, and injected with local anesthetic, and the abdominoplasty was performed in the

Table 1. Patient Demographics

<table>
<thead>
<tr>
<th>Patient No.</th>
<th>Age, y</th>
<th>DOS</th>
<th>Graft Size, cm²</th>
<th>Graft Weight, g</th>
<th>EBL, mL</th>
<th>CO</th>
<th>De-epi</th>
<th>Complication</th>
<th>Follow-up, mo</th>
<th>Operating Time, min</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>71</td>
<td>August 7, 2006</td>
<td>R: 141 L: 112</td>
<td>R: 223 L: 182</td>
<td>330</td>
<td>A</td>
<td>In vivo</td>
<td>None</td>
<td>82</td>
<td>245</td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td>April 26, 2007</td>
<td>R: 173 L: 160</td>
<td>R: 262 L: 244</td>
<td>245</td>
<td>A</td>
<td>In vivo</td>
<td>L graft infection</td>
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<td>305</td>
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<tr>
<td>6</td>
<td>50</td>
<td>January 23, 2010</td>
<td>R: 297 L: 297</td>
<td>R: 415 L: 412</td>
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<td>A</td>
<td>Ex vivo</td>
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<td>41</td>
<td>332</td>
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<tr>
<td>8</td>
<td>30</td>
<td>July 26, 2012</td>
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<td>R: 210 L: 223</td>
<td>600</td>
<td>T</td>
<td>In vivo</td>
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<td>11</td>
<td>571</td>
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<tr>
<td>9</td>
<td>52</td>
<td>February 1, 2013</td>
<td>R: 66 L: 66</td>
<td>R: 103 L: 102</td>
<td>800</td>
<td>T</td>
<td>In vivo</td>
<td>None</td>
<td>4</td>
<td>490</td>
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</tbody>
</table>

A, abdominoplasty; CO, concomitant operation; De-epi, de-epithelialization; DOS, date of surgery; EBL, estimated blood loss; L, left; R, right; T, torsoplasty.

*Graft size was calculated using the formula for the area of an ellipse: area = π × radius₁ × radius₂.

Figure 1. Preoperative markings for a dermal-fat graft augmentation gluteoplasty. This 41-year-old woman (patient 5 from Table 1) presented in December 2008 with excess abdominal skin and gluteal hypoplasia. Photographs show (A) anterior, (B) right lateral, and (C) posterior views.
standard fashion. Following the preoperative markings, an elliptical skin incision was made in the lower abdomen with a No. 10 scalpel blade. The abdominal incision was carried down to the anterior rectus fascia and followed by dissection up to the umbilicus, with minimal use of electrocautery for hemostasis on the flap side. Next, the umbilicus was dissected on its stalk, and the upper abdomen was dissected to the xiphoid process. The excess skin and fat were then reassessed and excised. This excised tissue, which served as the dermal-fat graft, was subsequently wrapped in a warm towel that had been soaked in antibiotic solution. The abdominoplasty was then completed with relocation of the umbilicus to its new position, placement of drains, and incision closure.

The patient was then transferred in the supine position to a stretcher and back again to the operating table in the prone position. All areas of pressure were carefully padded, and a hip roll was placed to keep pressure off the abdomen. Routine liposuction was performed by the surgeon as needed. If a skilled first assistant was present, he or she prepared the dermal-fat graft while the surgeon completed the liposuction. However, in our series, the dermal-fat graft was prepared by the senior surgeon.

Key elements of the augmentation gluteoplasty we describe are illustrated in Figure 2. The abdominoplasty dermal-fat graft was first transected with a vertical midline incision to create 2 triangular halves of approximately equal size; each half was then de-epithelialized (Figure 2A,B). Although technically more challenging than in situ de-epithelialization, the ex vivo procedure results in less blood loss and thus was our preferred method. Each graft was thinned and shaped according to its subcutaneous adiposity, the preoperative markings, and the desired amount of augmentation. The final shape was generally ovoid and thinned to the level of the Scarpa fascia, or about 1.5 to 2.5 cm from the dermal layer.

The gluteal pocket markings were then infiltrated with local anesthetic. Two 5-cm incisions approximately 3 cm superior to the anus were made on each side of the intergluteal crease with a 15-mm scalpel and carried down to the gluteal fascia. Tumescent solution was then infiltrated under the fascia to help anesthetize and hydrodissect the correct subfascial plane. Dissection was then performed in the subfascial plane in a medial-to-lateral direction with either a harmonic scalpel or long-tipped electrocautery device and long-blade lighted retractors (Figure 2C). The pocket was dissected to the limits of the preoperative markings, with clear visualization maintained. Overly aggressive application of electrocautery was avoided to prevent compromising neovascularization of the graft. Of equal importance, the pocket was precisely created to provide a secure fit for the dermal-fat graft, further aiding in stabilization and graft take.

Once the pocket was created, the oval-shaped dermal-fat graft was further trimmed according to the preoperative markings and pocket dimensions. The dermal-fat graft was then placed in the pocket so that the bulkier portions lay over the area of maximal projection as well as inferiorly to provide ample lower-pole fullness. Insertion of the graft was always done dermis side down directly on the muscle to provide maximal nutrient support and promote neovascularization (Figure 2D). The graft was then carefully inspected with the lighted retractor to ensure that the edges had not rolled or folded and the orientation was correct. The graft was initially secured to the adjacent muscle with 2-0 Vicryl sutures (Ethicon, Somerville, New Jersey) at the superior medial and superior lateral poles. Next, 3-0 Vicryl sutures were placed at the medial border of the graft to secure it to the muscle at the lateral border of the sacrum (Figure 2E). A drain was then inserted through a separate lateral stab incision. The intergluteal incision was closed in 3 layers, tissue glue was applied over the subcuticular sutures, and a plastic dressing was applied (Figure 2F). The process was repeated on the opposite side.

Notably, the operating technique required adjustments when torsoplasty was performed. With this procedure, an intergluteal incision was not made; rather, the pocket was exposed from the superior border, through the posterior back incision of the full body lift. Subfascial dissection of the entered pocket was performed in a superior to inferior direction. Because torsoplasty required a longer operating time than abdominoplasty, we elected to de-epithelialize the grafts in vivo despite the increased risk of blood loss. The remaining steps were identical to those described for the abdominoplasty-derived augmentation.

Patients were discharged with a 5-day course of prophylactic antibiotics, and they wore a compression garment for 6 weeks. They were instructed to minimize pressure on their buttocks and avoid heavy lifting for 6 weeks. Drains were not removed until output was less than 25 mL/d.

RESULTS

Nine women underwent abdominoplasty or torsoplasty and augmentation gluteoplasty with dermal-fat grafts. The mean patient age was 46 years (range, 30-71 years). The mean dermal-fat graft size was 188 cm² (range, 66-297 cm²). This size was calculated using the formula for the area of an ellipse: area = π × radius1 × radius2. To calculate the radii, we measured the shortest and longest diameters of each graft (mean, 13 × 18 cm; range, 6 × 18 cm to 14 × 22 cm, respectively) and divided each diameter by 2.

The mean graft weight was 288 g (range, 102-415 g). The mean operating time was 300 minutes (range, 245-357 minutes) for the abdominoplasty-derived gluteal augmentation and 504 minutes (range, 450-571 minutes) for the torsoplasty-derived augmentation. Mean blood loss with in vivo dermal-fat graft de-epithelialization was 384 mL (range, 200-800 mL); in the case of the single ex vivo de-epithelialization, blood loss was 65 mL. Patients were
monitored for a mean of 47 months postoperatively (range, 4-82 months). Patients 8 and 9 required transfusion of 2 units of packed red blood cells each for asymptomatic anemia discovered during routine blood work on postoperative day 0. Both patients had an appropriate increase in hemoglobin level after blood transfusion, with no complications from the anemia or the transfusion.

All patients reported satisfaction with increased gluteal volume, posterior projection, and well-concealed incisions (Figure 3 and Supplemental Figure S1 [supplementary material is available online at http://aes.sagepub.com/supplemental]) through dialogues with the senior authors during all postoperative visits. These dialogues assessed patient satisfaction with their overall aesthetic result and

Figure 2. (A) The abdominoplasty-derived dermal-fat graft was divided into 2 equivalent triangular halves. (B) Each dermal-fat graft was de-epithelialized with an ex vivo procedure. (C) A subfascial pocket was then created. (D) The graft was then inserted with dermis side down in the subfascial pocket. (E) The medial border of the dermal-fat graft was secured to muscle at the lateral border of the sacrum. (F) This photograph shows the patient’s status after right gluteal augmentation.
with their specific gain in posterior projection. Seven patients also completed a written survey during their first postoperative visit. This survey, which was administered by only 1 of the 2 surgeons who participated in the study, included questions about overall experience with the staff and facility both preoperatively and postoperatively, as well as open-ended questions about satisfaction with the surgical procedure and outcome (survey is available as an online-only appendix); all responses to all questions were positive.

The complication rate for the 9 gluteoplasty procedures was 6%, with 1 dermal-fat graft infection requiring surgical excision (Supplemental Figure S2). Because the patient was an out-of-state resident, she presented to a university hospital in her resident state at 39 days postoperatively with signs of graft infection. The team treating the patient
elected to remove the graft and prescribed a course of oral antibiotics. This patient had sickle cell traits and glucose-6-phosphate dehydrogenase deficiency, either of which may have impaired neovascularization of the dermal-fat graft or its survival and increased the risk of infection. The patient had no other complications and elected not to undergo any further aesthetic augmentation.

No minor complications (wound dehiscence, seroma, hematoma, paresthesia, clinically palpable fat necrosis, or superficial cellulitis) were observed in our series. Microscopic or subclinical fat necrosis and graft calcifications were not assessed because they did not affect the final aesthetic result.

**DISCUSSION**

Augmentation gluteoplasty is an increasingly common procedure in the United States. When patients can benefit from a concomitant abdominoplasty or torsoplasty, the possibility of a augmentation gluteoplasty with dermal-fat graft, as described in 2006 by Raposo-Amaral et al, becomes viable. We slightly modified their technique and found that it offered several aesthetic advantages for this patient population.

Dermal-fat graft augmentation gluteoplasty avoids many of the complications related to foreign body implants while providing an aesthetically voluminous result. Most complications—capsular contraction, asymmetry, dislodgments—are inherent to the placement of implants or to the body’s reaction to foreign material. Augmentation with the patient’s own tissue largely circumvents these effects. As noted by Senderoff, obese patients are poor candidates for implant augmentation because of dissection challenges and shearing forces on the prostheses and wounds postoperatively. In contrast, the ideal candidates for combined abdominoplasty and gluteal augmentation are overweight patients, because a subcutaneous abdominal fat graft is very close in texture and consistency to gluteal fat and provides a smooth, round, and natural-looking gluteal contour that patients perceive as similar in feel to their preoperative buttocks. This sentiment differs greatly from patient comments regarding prosthetic implants, which reportedly do not feel completely natural.

Lower-pole emptiness is another major aesthetic shortcoming commonly attributed to implant operations. This technical inadequacy occurs because implants must be placed above the ischial tuberosity to avoid nerve impingement. Our technique was designed to overcome this poor cosmetic result. Because the soft, malleable fat of the dermal graft does not cause nerve compression, we were free to place it anywhere above the infragluteal crease (Figure 1C). Although our most inferior preoperative markings were 2 cm above the infragluteal crease, subfascial dissection of the pocket could have extended all the way to

**Figure 3.** (continued) This 41-year-old woman (same patient as shown in Figure 1; patient 5 from Table 1) presented with gluteal hypoplasia. Preoperative photographs show the (A) right lateral view, (C) posterior view, and (E) left lateral view. Photographs taken 27 months after abdominoplasty, suction-assisted lipoexy, and dermal-fat graft augmentation gluteoplasty show the (B) right lateral view, (D) posterior view, and (F) left lateral view.
the crease. Furthermore, our technique involved custom-shaped dermal grafts, with the most substantial bulk provided at the point of maximal projection as well as inferiorly to fill the lower pole (Figure 2D-F). As a result, our technique achieved round, symmetrical, and full buttocks without any concavities.

We were able to accomplish these aesthetically pleasing results with a relatively simple subfascial dissection, made possible because we did not have large, bulky implants, which can distort normal contours if there is not enough overlying tissue. This dissection plane has the advantage of preserving the septa from the fascia to the dermis, thus maintaining buttock integrity. In addition, risk of injury to the major vessels or nerves found deep to this plane was avoided, enabling a faster dissection and shorter operating time.12,13,18

Mean operating time in our series was approximately 300 minutes for abdominoplasty-derived dermal-fat graft augmentation, which is similar to the time required for large-volume FFTs.4 However, the dermal-fat grafts in our series involved a simultaneous abdominoplasty as well as a large-volume augmentation in the equivalent time. Although FFT can provide good aesthetic results for low-volume augmentation, the procedure becomes increasingly problematic when large (>260 mL) augmentations are required because of limited donor site availability, long operating times, and a high degree of resorption.2,4 Our stipulation that patients for our procedure must be candidates for abdominoplasty or torsoplasty eliminated the issue of donor site availability, as evidenced by a mean dermal-fat graft weight of 288 g, which is larger than the maximum recommended FFT gluteal augmentation.

As previously noted, FFTs also have a high degree of resorption, which necessitates overcorrection and extensive fat purification. Resorption rates associated with FFTs are as high as 50%, substantially greater than the 20% rate observed with dermal-fat grafts.2,4,22 FFTs also have an unpredictable degree of resorption within the target area. This is attributable to several factors: the 3-dimensional dispersal of fat particles, the need for purification, and the spreading techniques, all of which can result in noticeable contour irregularities.23 In contrast, dermal-fat grafts have a uniform, predictable degree of resorption—a degree that some argue is so negligible as to eliminate the need for overcorrection.23 For larger and thicker dermal-fat grafts such as those in our series (>1.5 cm), some degree of resorption is expected; we report that degree to be minimal as determined at physical examination during postoperative office visits and by photographs and patient awareness. Thus, no overcorrection was necessary during placement of gluteal dermal-fat grafts.

To avoid patient anxiety postoperatively, patients who will undergo this procedure should be informed in advance that the immediate postoperative augmentation will be larger than expected because of edema and local tissue inflammation. As local tissue edema subsides, the final contour will begin to emerge. As our series has shown, the resulting contour will be long lasting (ie, more than 6 years) with minimal change in volume.

The dermal-fat graft is well established for correction of contour defects of the face, trunk, breast, and extremities during reconstructive surgery.23-27 In aesthetic surgery, application of dermal-fat grafts is most common for augmentation of the facial region.28 Successful placement of these grafts has been reported in various series and observational case reports; the survival rate approaches 100% in some series, with major complications being cyst formation, hematomas, and seromas.23-28 Vascular supply is critical to the survival of these grafts.

Dermal-fat grafts are free nonvascularized transplants, which we speculate survive because of a mechanism similar to that of skin grafts. Our theory is that before neovascularization of the larger dermal-fat graft, which starts on approximately day 4, survival is due to a combination of nourishment from its dermal and subdermal plexuses in conjunction with imbibition. The dermal component of the flap is critical to graft survival because it contains the vessels and proangiogenic factors that promote subsequent neovascularization.23,24,29 This characteristic is central to our theory, as we observed that placing the dermis directly above by imbibition. Therefore, the grafts were effectively receiving nutrients by imbibition from both the highly vascularized muscle they rested on and the gluteal tissue above them. As more work is done with this type of dermal-fat graft, evidence of its exact vascularization mechanism—and ultimately the maximal size at which it is sustainable—will continue to accumulate, increasing our knowledge and understanding of the procedure.

Dermal-fat grafts have limitations. One patient in our series experienced a graft loss secondary to infection, a 6% risk that must be discussed with patients preoperatively. Because that patient was treated at an outside facility, we do not know if conservative management with antibiotics might have controlled the infection and salvaged the graft. Though offered, the patient elected not to undergo repeat augmentation following graft removal (Supplemental Figure S2).

Although the infection rate with FFT is reportedly lower (ie, 2%),4 our infection rate compares favorably with that of implants (ie, 7%)5 and indicates that our procedure has a place in the aesthetic field. According to the rating scale established by the American Society for Aesthetic Plastic
Surgery, the level of evidence score for our case series is 4.\textsuperscript{30,31} Given the score and the relatively small number of patients in our series, larger prospective randomized trials are needed to better understand infection rates in dermal-fat graft augmentation gluteoplasty.

Expected blood loss for the combined procedures we have described should not be significantly greater than that associated with either standard abdominoplasty or torsoplasty. Thus, the abnormally high blood loss in patients 8 and 9 in this series merits discussion. We believe several factors contributed to this finding. During the 3 torsoplasty procedures (which included patients 8 and 9), we elected to de-epithelialize the grafts in vivo, which decreased operating time but increased blood loss. Moreover, there is a clear learning curve with these procedures. Mastering the simpler abdominoplasty-derived dermal-fat graft operation before moving to the more complex torsoplasty procedure is key to lowering blood loss. The senior author performed the first 7 operations with consistently low patient blood loss (range, 65–350 mL), the first 6 of which were abdominoplasty-derived dermal-fat grafts. Once comfortable with this simpler operation, he performed the technically more challenging torsoplasty, which we believe contributed to minimal blood loss. Furthermore, total blood loss during the single ex vivo de-epithelialization of a 415-g dermal-fat graft was 65 mL, a result that should be attainable for all such procedures. Certainly, blood loss >500 mL is unusual for a graft of any size and is avoidable with proper surgical technique and experience.

As first described in 2006 by Raposo-Amaral et al.,\textsuperscript{22} dermal-fat graft augmentation gluteoplasty is an innovative aesthetic operation that produces a voluminous, natural result. In the original technique, a then state-of-the-art crochet-hook instrument was used to insert the dermal-fat graft, which had been tubularized before inset. This differs from our simplified technique involving basic lighted retractors to inset oval-shaped dermal-fat grafts. Furthermore, Raposo-Amaral et al\textsuperscript{22} made a single intergluteal incision, which has since been associated with complications such as dehiscence.\textsuperscript{13,32} We used 2 intergluteal incisions, a practice that provides the same degree of camouflage postoperatively but is associated with fewer site complications.\textsuperscript{13,23} With the exception of these 2 deviations, our procedure was identical to that of Raposo-Amaral et al\textsuperscript{22} and yielded similar results: a voluminous, smoothly contoured, aesthetic gluteal region. In addition to reproducing efficacious aesthetic results, our case series confirmed the associated learning curve, an issue that surfaced with reporting of results from 2 surgeons who independently performed the technique.

As demonstrated in our experience with patients who can benefit from dual abdominoplasty and augmentation gluteoplasty but who are hesitant to have implants, dermal-fat grafting provides an alternative that achieves an aesthetic, natural result. A preemptive discussion with the patient to establish postoperative expectations is important, as dissatisfaction with suboptimal gain in maximal posterior projection is common with gluteal augmentation.\textsuperscript{19} Although none of our patients expressed this concern, we did not quantify postoperative increase in gluteal augmentation. Anthropometric and sonographic measurements of gluteal projection as well as resorption values are simple, accurate, and inexpensive to obtain and can be performed routinely in the office during postoperative visits.\textsuperscript{33} As demand for augmentation gluteoplasty increases in the United States, future studies of the procedure should include such measurements.

The dermal-fat augmentation gluteoplasty provides durable, natural outcomes through a simple dissection, which could eventually make this a common aesthetic procedure. Unlike augmentation with implants, the procedure as described avoids foreign body–related complications and provides ample lower-pole fullness. In comparison with FFT, it allows for larger augmentations in a reasonable amount of time with minimal resorption. For these reasons, dermal-fat graft gluteal augmentation is our preferred technique in patients who are undergoing concomitant abdominoplasty or torsoplasty.

**CONCLUSIONS**

Nine consecutive patients in need of dual abdominoplasty or torsoplasty and gluteoplasty underwent augmentation with 2 dermal-fat grafts excised from the lower abdomen. Unlike related techniques, this procedure avoided implanting foreign bodies while providing a durable, large-volume augmentation with sufficient lower-pole fullness. However, the risk of infection must be taken into consideration and discussed preoperatively. As more experience is gained with this procedure, the potential benefits and risks must be balanced to optimize the procedure for qualified candidates.

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**REFERENCES**


