

Adipose Tissue Transfer in Dynamic Definition Liposculpture—PART I. Back: Latissimus Dorsi and Trapezius Muscles

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Background: The aesthetics for the male posterior torso remain a topic not fully studied in body contouring surgery, neither the lipoinjection of its muscles have been considered before. As a result, we carried out a retrospective cohort study including patients who underwent fat grafting of either the trapezius or the latissimus dorsi muscles as part of dynamic definition liposculpture (HD2).

Methods: We performed cadaveric dissections to support the fat grafting technique for both the trapezius and the latissimus dorsi muscles. We also searched our records for patients who underwent fat grafting of these muscles in addition to HD2 from January 2016 to November 2021 at a single center in Bogotá, Colombia.

Results: Thirty-five consecutive patients met the inclusion criteria. In total, 22 (63%) and 7 (20%) of 35 underwent fat grafting at the trapezius and the latissimus dorsi muscles alone, respectively, and 6 out of 35 (17%) of both. Mean age is 39 years (range = 22–63). All patients were men. No complications were recorded related to fat grafting. Almost all patients were satisfied with the procedure (97%). Follow-up period ranged from 2 to 48 months.

Conclusions: Liposuction might not be enough to achieve the ideal V-shape of the men's back in some cases; hence, fat grafting of the power muscles becomes the best option. Recognition of the main neurovascular pedicle, proper preoperative markings, and a correct surgical technique ensure both the safety and the reproducibility of the technique. (*Plast Reconstr Surg Glob Open* 2023; 11:e4587; doi: 10.1097/GOX.0000000000004587; Published online 26 January 2023.)

INTRODUCTION

The shape, size, and definition of the back play an important role in the aesthetics of the male human anatomy.¹

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Received for publication January 6, 2022; accepted August 17, 2022.

Presented at the 53rd Annual Baker & Gordon Educational Symposium, Feb 7–9, 2019, Miami, Florida.

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DOI: 10.1097/GOX.0000000000004587

The ideal posterior torso for the male patient should be “V-shaped”: broad at the top and tapering to the bottom; this was described by the senior authors and further supported by other studies which reported the waist chest ratio and the weight to height ratio as the most appealing features in men.^{2,3} Fat deposits in men are usually most prominent at the chest, the abdomen, and flanks, which somehow conceal the underlying muscular structures. High definition liposculpture was designed to improve the overall muscular definition by removing the majority of the subcutaneous fat, leaving only a thin subdermal layer.⁴ New concepts in dynamic definition liposculpture (HD2) include dynamic muscle movement, power versus definition muscles, multilayer fat grafting, body facets, among others; these were

Disclosure: Dr. Hoyos was an unpaid consultant and speaker for the product development team of Sound Surgical Technologies (SST) system and Cannulas (now: VASER 2018 Solta Medical – Bausch Health Companies Inc.) up to May 2013. He receives royalties for the liposuction kits named after him. All the authors have no financial interest to declare in relation to the content of this article. This study did not receive any financial support.

Related Digital Media are available in the full-text version of the article on www.PRSGlobalOpen.com.

described to provide surgeons with an algorithm to perform different degrees of muscular definition in patients undergoing HD2. One huge change was the incorporation of new muscles to the list of those that could be subject to autologous fat transfer: vastus medialis and lateralis, latissimus dorsi (LD), trapezius, calves, triceps, biceps brachialis, and others.⁵ Such algorithm takes into consideration the patient's body type (endomorph, mesomorph, ectomorph) and their body mass index to determine the suitable degree of muscular definition. Nonetheless, most challenging cases are those with underdeveloped musculature and also fat deposits, for which liposuction alone might be insufficient, so then fat grafting becomes the angular stone.

The authors' experience in multilayer fat grafting (e.g., subcutaneous = SQ, subfascial = SF, intramuscular = IM) as part of HD2 is widely reported,^{2,3,6,7} though the available literature has not addressed the safety or the proper technique for IM fat grafting at the posterior torso (trapezius and LD) for aesthetic purposes.⁸ Therefore, our study aimed to support the safety of lipoinjection of such muscles by means of both cadaveric dissections and the report of a retrospective cohort that included muscle augmentation of the posterior torso in addition to HD2.

ARTISTIC ANATOMY

Both the trapezius and the LD are power muscles of the male posterior torso. These muscles give the back its athletic appearance, hence for those patients who lack well-developed muscles, their definition plus fat grafting during HD2 could be considered the procedure of choice.

The LD is a large, flat, superficial, triangular muscle covering the posteroinferior half of the trunk.⁹ The lower portion of the muscle is superficial to the serratus posterior muscle, and to the serratus anterior muscles in the mid anterior thorax.^{10,11} It has a dual blood supply (Fig. 1): the subscapular artery and the posterior paraspinous perforators.¹¹ The former provides the dominant pedicle through the thoracodorsal artery in 94% of individuals, whereas in some anatomical variations, the thoracodorsal artery arises directly from the axillary artery or even from the lateral thoracic artery (3%–6% of patients).^{11,12,13}

The trapezius muscle is the most superficial muscle in the dorsum and has a unique triangular shape that covers a great extent of the central region of the posterior torso.¹¹ Blood supply for the trapezius muscle is different among its three different sections: branches of the occipital artery irrigate the superior one; the transverse cervical artery (dominant pedicle) irrigates the middle section; and the dorsal scapular artery (branch of the transverse cervical artery) irrigates the inferior section, which perforates the rhomboid muscles and enters at the distal portion of the trapezius (Fig. 2).^{11,14}

MATERIALS AND METHODS

We performed cadaveric dissections of the LD and the trapezius muscles in order to establish how safe the fat grafting procedure and how reliable the graft IM location were. Scalpel with #15/#20 blades, tissue scissors and tissue

Takeaways

Question: How safe and reliable could fat grafting of the muscles from the posterior torso be?

Findings: Following specific anatomical markings and recognizing the location of the main pedicles from the latissimus dorsi and the trapezius muscles allow for a safe and reproducible fat grafting technique.

Meaning: Fat grafting of both the latissimus dorsi and the trapezius muscles can be done to improve the athletic appearance and the muscular volume of the male back.

forceps were used to separate the anatomic layers; vascular retractors and markers were used to denote the main pedicles and vessels. First, we located the pedicle and then did a lipoinjection test on the contralateral virgin muscle with methylene blue to identify its proper placement at the submuscular layer for the LD (See Video 1 [online], which displays LD muscle dissection and fat grafting) and the intramuscular layer for the trapezius muscle (See Video 2 [online], which displays trapezius muscle dissection and fat grafting).

The senior author has incorporated the fat grafting technique for trapezius and LD into HD2 since 2016, so we conducted a retrospective review of our medical records from January 2016 to November 2021 at a single center (Dhara clinic) in Bogotá, Colombia. Inclusion criteria were any patient who underwent high definition liposculpture or HD2 in addition to fat grafting of either the LD or the trapezius muscles, or both. Exclusion criteria included active smokers, patients with body mass index above 32 kg/m², patients with American Society of Anesthesiologists risk classification of III or greater. Cardiology assessment (including EKG and chest X-ray) was required for patients aged above 40 years. All patients were subject to protocols for safe large-volume liposuction, including those for thromboembolic event prevention, blood conservation, and hypothermia prevention (Tables 1–3, respectively).^{15,16,17} The IV medications used were antibiotic prophylaxis with cefazolin (2 gr IV, 60 minutes prior to incision), dexamethasone 8mg, metoclopramide 10mg, diclofenac 50mg, and ranitidine 50mg. Photographic records were taken before and during follow-up at 2 days and 1, 3, 6, and 12 months after surgery.

SURGICAL TECHNIQUE

Markings

We draw all markings with the patient in the standing position, starting with the iliac crest and the lower border of the scapula at rest, and then the muscular borders by asking the patient to push both hands against their hips to contract the trapezius muscle. The anterior border of the LD is revealed by asking the patient to adduct the arm against resistance. The negative spaces including the posterior midline (See figure 1, Supplemental Digital Content 1, which shows negative spaces of the posterior torso, <http://links.lww.com/PRSGO/C203>), the muscle limits for sharp definition (Basic,

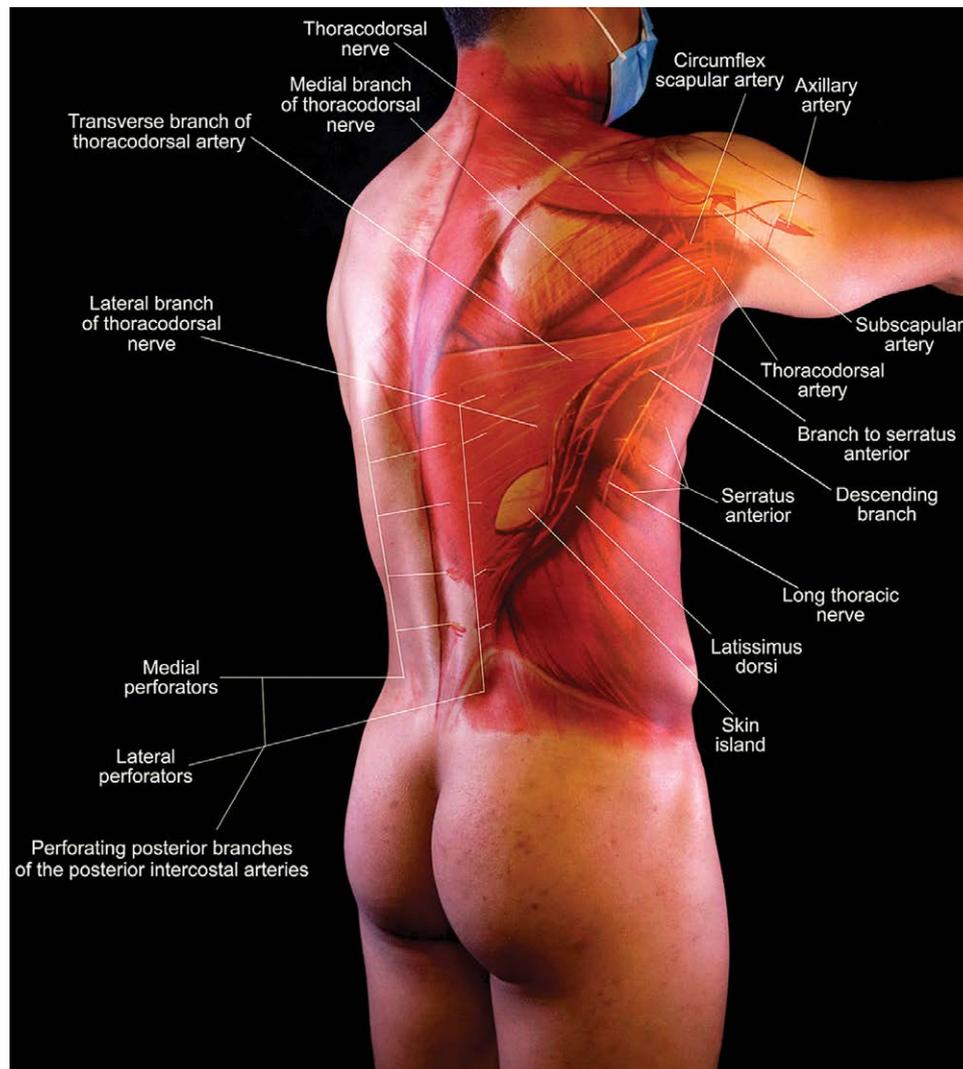


Fig. 1. Neurovascular structures related to the LD muscle main pedicle: the thoracodorsal artery and nerve.

Moderate, Xtreme definition)⁵ and their safe zones for fat grafting are marked as well (See figure 2, Supplemental Digital Content 2, which shows the BMX algorithm for muscular definition, <http://links.lww.com/PRSGO/C204>). Danger zones (main pedicles, adhesion zones, scars, etc.) must be marked with a different color (eg, purple).

Dynamic Definition Liposculpture

We do incisions at the intergluteal crease and the posterior and anterior axillary folds to access the subdermal layer. HD2 is completed as a three-stage procedure:

1. *Infiltration:* Tumescent solution (1000ml of NS and 1ml of epinephrine 1:1000). Ratio of infiltration/lipoaspirate was 2:1.
2. *Fat Emulsification:* We use VASER (Lipo system 2021 Solta Medical, Bausch Health Companies Inc., USA) beginning at the superficial and then the deep layer: Pulsed and continuous modes at 70% according to tissue resistance (buffalo hump required 90% power

in selected cases), until minimum or decreased tissue resistance.

3. *Extraction:* Liposuction is completed using 4.0-mm and 3.0-mm cannulas connected to the Microaire system (Microaire 2020 MicroAire Surgical Instruments, LLC), starting deep and then superficial to achieve the desired muscular definition.

Fat Grafting

1. Latissimus Dorsi

- Pinch the anterior portion of the LD to feel and rise the muscle bulk.
- Insert a 3.0-mm blunt 30-degree long curved cannula into the submuscular space through the anterior axillary fold incision in order to avoid the proximity of the thoracodorsal neurovascular pedicle.
- Inject the adipose graft at the submuscular layer in a retrograde fashion.

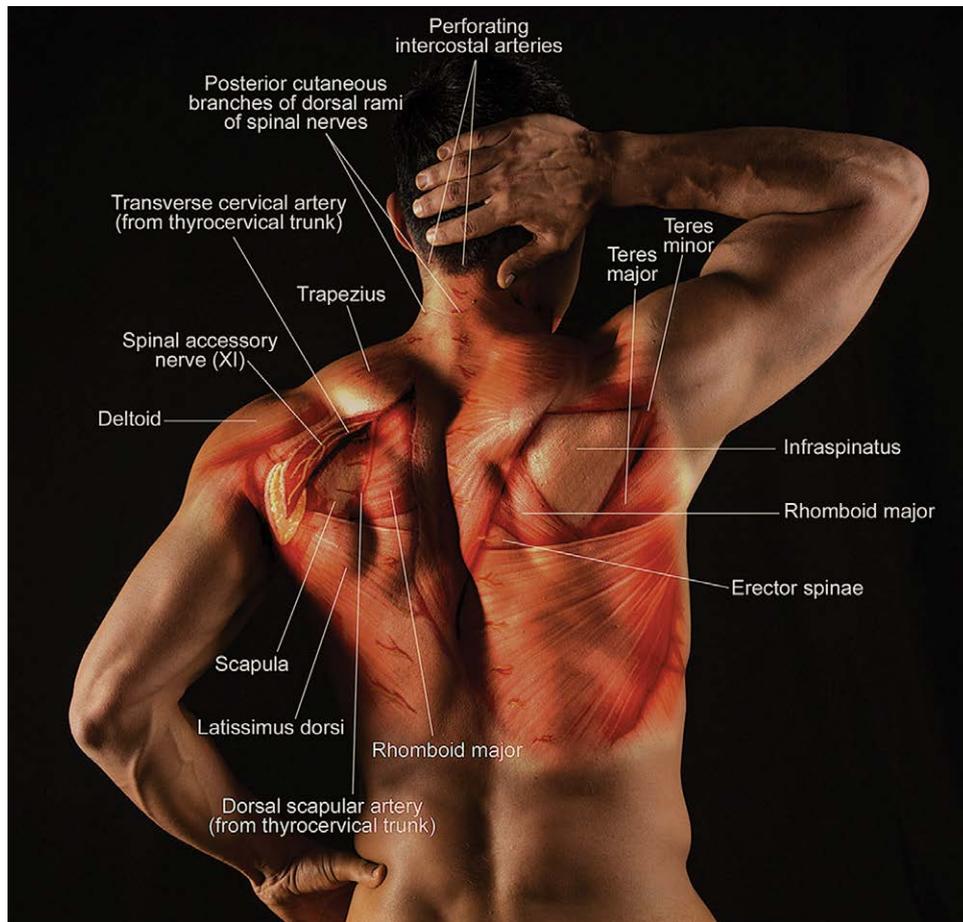


Fig. 2. Neurovascular structures related to the trapezius muscle main pedicle: the transverse cervical artery and nerve.

Table 1. Protocol for Prevention of Thromboembolic Events

1. Suspend OCPs and HRT 3 weeks prior to surgery and resume after 2 wk
2. Avoid prolonged periods of sedentarism 24–48 h before surgery
3. Patients whose travel time is ≥ 8 hours = delay surgery for 48–72 h
4. Use intermittent pneumatic compression boots during surgery
5. Wear compression stockings for 5–7 d after surgery
6. Patient early mobilization: first 4–6 h after surgery (preferably)
7. Guide chemoprophylaxis according to preoperative Caprini score*

Note: Prolonged chemoprophylaxis (2–3 wk) might be required for patients with High Risk for DVT. Also, criteria should be individualized for intermediate dose use.

*Caprini Score:

- ≥ 7 : Chemoprophylaxis with LMWH (40 mg SQ per day) is recommended for 7–10 days after surgery.
- 3–6: Should consider chemoprophylaxis with LMWH (40 mg SQ per day) during patient hospitalization (Extend to outpatient therapy based on individual risks).
- ≤ 2 : No prophylaxis needed.

OCPs: oral contraceptives; HRT: hormone replacement therapy.

Adjusted from *Plast Reconstr Surg Glob Open*. 2017;5:e1539.¹⁵

2. Trapezius Muscle

- The graft location is previously marked to avoid injury to the main pedicle.
- Pinch the muscle bulk.

- Insert a 3.0 mm blunt tip 45-degree cannula through the posterior axillary fold incision (preferably) or a suboccipital incision (not recommended due to the proximity to the main pedicle). Direct the tip of the cannula upwards and parallel to the skin until the muscle mass is felt above the scapula.
- Then, rotate the cannula horizontally and drive it gently into the muscle (feel a click).
- Place the lipograft intramuscularly in a retrograde fashion (**See Video 3 [online]**, which displays an intraoperative technique for autologous fat grafting of the muscles of the back.)

Ethical Considerations

Each patient was informed of the purpose, methods, experimental technique, potential risks and benefits specific to fat grafting and HD2, sources of funding, any possible conflicts of interest, institutional affiliations of the authors, the anticipated benefits and potential risks of the study and the discomfort it may entail, post-study provisions, and outcomes, according to the Helsinki Declaration. They were also informed of the right to

Table 2. Blood Conservation Strategies for Patients Undergoing HD2 Procedures

Patient Hb Level	Treatment
Hb > 13 g/dL	General measures Preheat the patient for 1 h: 38°C–43°C (Bair Hugger) Suspend anticoagulant drugs (1–2 weeks before) Tranexamic acid 1 g IV at anesthetic induction* Heat up IV fluids and tumescent solution at 37°C Permissive hypotension (MAP ≥ 60 mmHg)
Hb 12–13 g/dL	General measures + Normovolemic hemodilution†
Hb ≤ 12 g/dL	Delay surgery until Hb levels ≥ 2 g/dL. In-hospital patient treatment (4h) 1. Patient in supine position and continuous vitals monitoring 2. 200 mg parenteral iron (iron sucrose) + 250 ml of normal saline. IV infusion for 2 h 3. 20,000 U of Erythropoietin (EPO) + 100 ml of normal saline. IV infusion for 1 h 4. Monitor the patient for 1 hour after IV infusion termination 5. Discharge 6. Measure the Hb levels 8 d after treatment: If still Hb ≤ 12 g/dL, repeat protocol If Hb > 12 g/dL = general measures + normovolemic hemodilution

*Additional 500 mg IV 6 hours after the first dose, and then 1 g po BID for 2–5 days after surgery could both be used for patients with high-risk of bleeding.

†Normovolemic Hemodilution: Draw 500 cm³ of blood to an empty sterile Fresenius Kabi bag for blood donation (Fresenius SE & Co., KGaA Else-Kröner-Str. 1, Germany) at body temperature. Replace patient volume with 500 cm³ of intravenous colloids.

Adjusted from *Plast Reconstr Surg*. 2021;147:355–363.¹⁶

Table 3. Protocol for Hypothermia Prevention in HD2

1. Turn off the air conditioning inside the OR before bringing the patient in.
2. One-hour patient pre-warming with a Bair Hugger before admitting them to the OR (warm air at 38°C/100.4°F)
3. Insert esophageal thermometer (after endotracheal intubation) for continuous T° monitoring
4. Air conditioner inside the OR must be set at 22°C–23°C (68–71.6°F)
5. Keep both IV fluids and tumescent solution for infiltration at 37.5 °C (99.5°F)*
6. Use the Blanketrol system during the entire procedure†
7. Keep the surgical blankets as dry as possible: Decrease non-sensible T° loss
8. Turn off the OR air conditioning about 30 min before the termination of the procedure
9. Use the Bair Hugger (at 38°C/100.4°F) to keep the patient in normothermia after surgery

*We use the ANOVA precision cooker (2013–2021 ANOVA Applied Electronics, Inc.) to keep fluids at this temperature in a bain-marie.

†Blanketrol is a temperature regulation system (computer-controlled heater + circulation pump + water-filled blanket) which is placed beneath the clothing of the surgical table.

Adjusted from *Aesthet Surg J*. 2018;38:448–456.¹⁷

refuse to participate in the study or to withdraw consent to participate at any time without reprisal. A freely given informed consent was signed for each patient participating in our report. Dissections were performed at a center for research and surgical training which holds the ethical rights/standards and legal credentials to provide corpses for medical academic/private institutions for either training or research purposes.

Outcome Evaluation

A nonstandardized survey aimed to evaluate the overall satisfaction with the procedure by asking the patient to rate their results on a scale from 1 to 5 (1 = poor results, 2 = below expectations, 3 = average results, 4 = good results, 5 = above expectations) during the postoperative follow-up appointment.

RESULTS

We found 35 consecutive patients who underwent HD2 in addition to fat grafting of the trapezius muscle alone (n = 22), the LD muscle alone (n = 7), or both (n = 6), which summed a total of 82 grafted muscles. The mean age was 39 years (range = 22–63 yrs.). Since trapezius and

Table 4. Patient Demographics

	n (%)	Average	Range
Age		39	22–63
Gender			
Men	35 (100%)		
Women	0 (0%)		
Weight (kg)		77	59–90
Height (m)		176	162–193
BMI (kg/m ²)		24.7	22.5–26.3
Smoking history (2 wk before)	2 (6%)		
Surgery			
HD2 + trapezius FG	22 (63%)		
HD2 + latissimus dorsi FG	7 (20%)		
HD2 + FG of both	6 (17%)		
HD2 + FG on other muscles	33 (94%)		
Infiltration (cm ³)		6400	3100–10500
Lipoaspirate (cm ³)		4050	1900–8800
Fat grafting (cm ³)			
Latissimus dorsi muscle		110	50–150
Trapezius muscle		55	30–80
Preoperative Hb (g/dL)		14.7	13–18.3
Postoperative Hb (g/dL)		12.1	10–15.1
Preoperative HCT		46.4	39.5–55
Postoperative HCT		36	29.6–45.9
Complications			
Infection	0 (0%)		
Ischemia	0 (0%)		
Hematoma	0 (0%)		
Necrosis	0 (0%)		
Follow-up (mo)		21	2–48

FG, fat grafting; HD2, dynamic definition liposculpture; Hb, hemoglobin; HCT, hematocrit.

Table 5. Survey for Outcomes Evaluation

Grading	Data, n (%)	Timing of the Survey		
		3 mo, n (%)	6 mo, n (%)	9 mo, n (%)
1: Poor results	0 (0%)	—	—	—
2: Below expectations	0 (0%)	—	—	—
3: Average results	1 (3%)		1 (3%)	
4: Good results*	13 (37%)	2 (6%)	11 (31%)	0
5: Above expectations*	21 (60%)	2 (6%)	17 (49%)	2 (6%)

*In total, 97% (n = 34) of patients rated their results as favorable and above the average. There were no complaints or results below the average. direction

LD are masculinizing muscles, 100% of the patients were men. For the LD, the adipose graft volume ranged from 50 to 150 cm³ (Avg = 110 cm³), while for the trapezius it ranged from 30 to 80 cm³ (Avg = 55 cm³). No complications were recorded related to fat grafting (Table 4). Almost all patients were satisfied with the procedure. All

of them (n = 35) answered the survey, which reported a 97% satisfaction index, calculated as the total of positive results (grades 4 or 5) among all surveys (Table 5). Most patients answered it during the 6-month postoperative appointment. Follow-up period ranged from 2 to 48 months. Both the muscle lipograft and the athletic definition endured in time without acute or long-term complications (Figs. 3–5).

DISCUSSION

Cadaveric dissections are both helpful and didactic methods to design, corroborate, and practice new surgical techniques. Prior studies and the focused dissections settled the basis for a safe approach to lipoinjection, as we were able to avoid both vascular lesions and/or intravascular placement of the lipograft. Moreover, a new procedure always entails questions about safety, reliability, and applicability. Although prior anatomic studies¹¹⁻¹⁵ were the basis to support our new lipoinjection technique of the trapezius and the LD muscles, we did not find studies

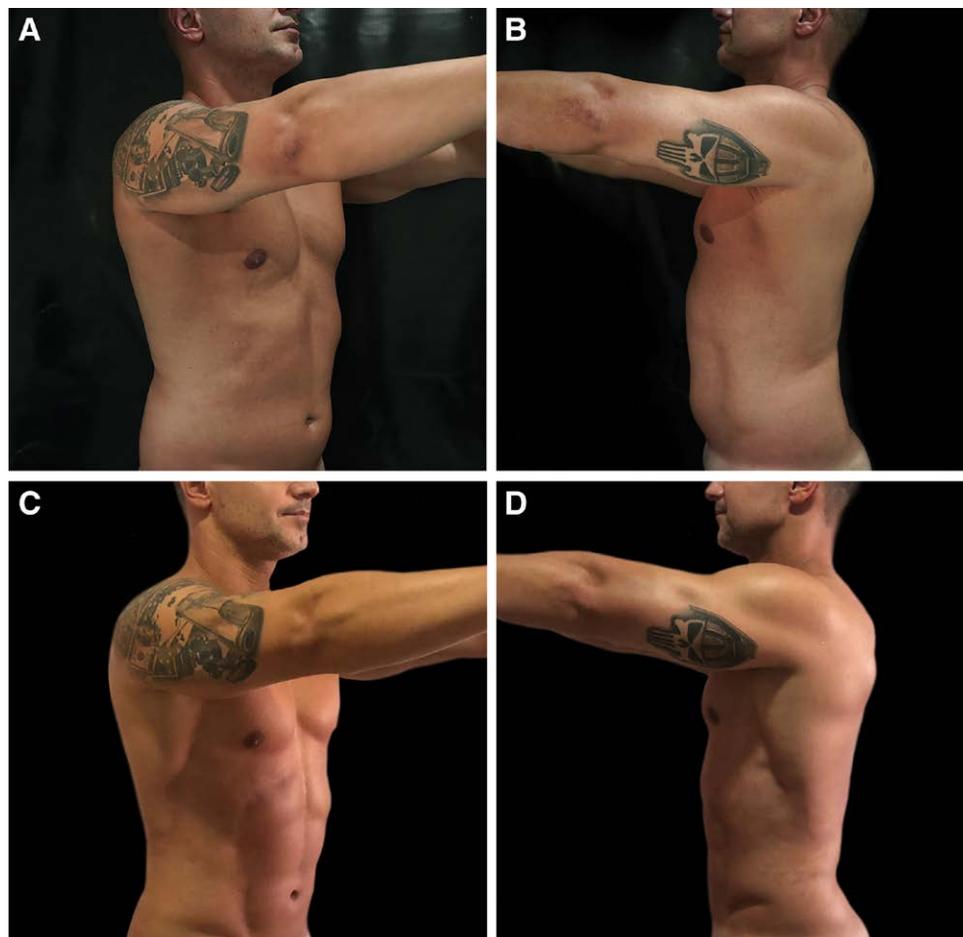


Fig. 3. A 38-year-old male patient with a mesomorph biotype and abundant fat deposits over the love handles and the upper back (A, B). After HD2 + selective fat grafting (100 cm³) of the LD muscle, the posterior torso got an ideal V shape with a youthful but at the same time muscular appearance. Observe the sharp definition of the negative spaces surrounding the LD and the increased volume due to lipoinjection (C, D).

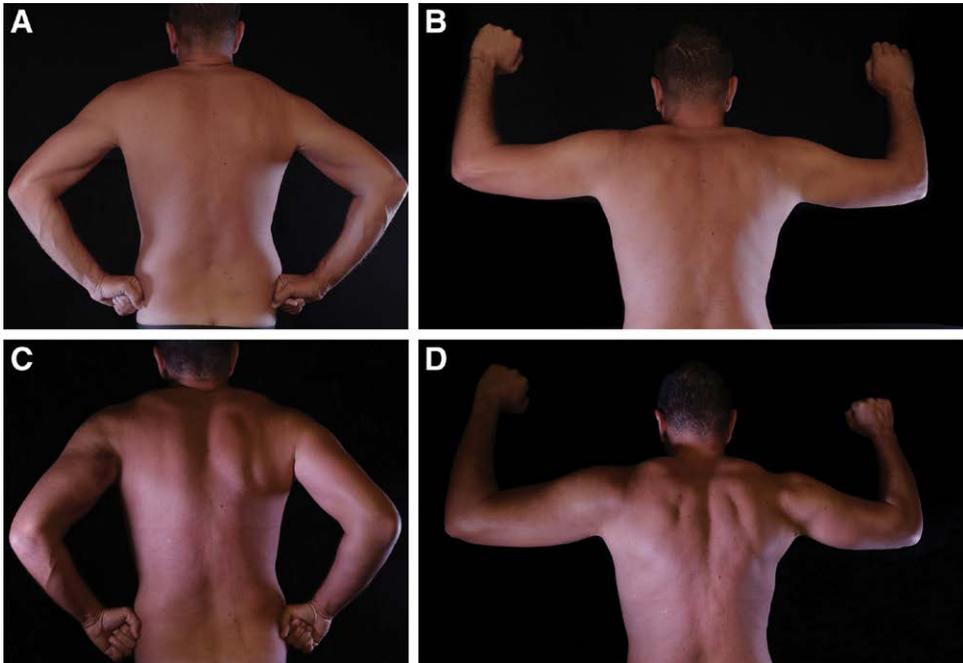


Fig. 4. We performed HD² in addition to fat grating of the trapezius muscle (80cm³ each side) in this 44-year-old male patient. Note the increased volume of the trapezius muscle and the more athletic appearance of the postoperative photographs (C, D) compared to the preoperative ones (A,B).

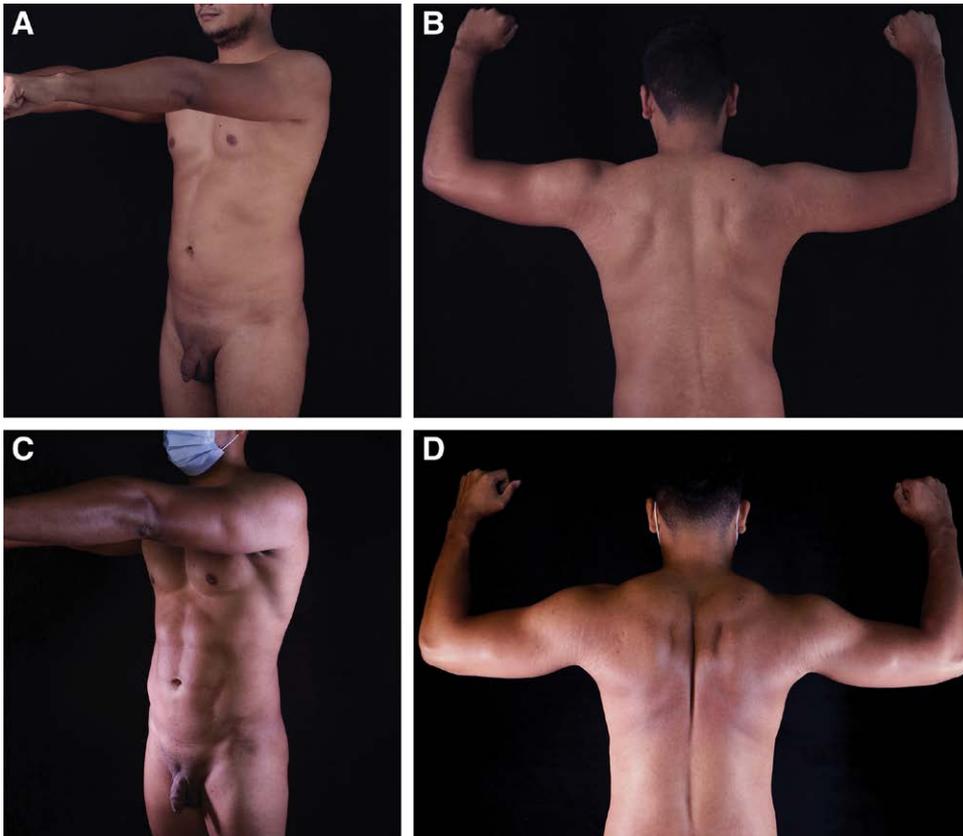


Fig. 5. A 27-year-old male who underwent HD² with Fat grafting over both the trapezius (70cm³) and the LD (120cm³) muscles. The preoperative photos show the lack of delineation and volume for the definition and power muscles, respectively (A, B), while the postoperative photographs show a new athletic posterior torso with bigger power muscles and a well-defined musculature (C, D).

that actually addressed the safety and reliability of a fat grafting technique for improving the posterior torso aesthetics. In benefit of aesthetic body contouring surgery, anatomical studies^{13,18} encouraged us to try fat grafting as a method to enhance muscles that were previously not considered elective to such, hence the purpose of our paper to carry out “blinded” cadaveric dissections in order to corroborate the graft location at the IM and the submuscular layers of the trapezius and the LD, respectively.

We are reporting our results after 56 trapezius muscle and 26 LD muscle adipose grafts from our retrospective cohort of 35 patients with zero rate for complications, which surely impacted the overall success, as some of our prior reports showed that the incidence of complications is one of the most crucial factors for patients qualifying the aesthetic outcomes either as optimal, average, or poor. Though the ultimate outcome is merely aesthetic, the primary goal must be no other than safety, which is why we included both cadaveric dissections and clinical outcomes within a significant heterogeneous sample. Dissections helped us to define precautions and to design a step-by-step process to perform fat grafting of the trapezius and the LD. First of all, we identify the main pedicle and then the zone where the graft will be placed, which should be about 10cm lateral to the midline trapezius muscle and 10cm below the posterior axillary fold for the LD. Moreover, the use of a blunt tip curved cannula and the appropriate maneuvers to direct it are both crucial to avoid complications. Particularly, the cannula should be inserted at the submuscular plane to place the graft between the LD and the anterior serratus fibers to achieve sharp definition of the lats, while the IM insertion of the cannula is required to obtain an optimal augmentation of the trapezius muscle. Due to the anatomic distribution of these muscles and their dynamics, the risk of graft migration, vascular lesion, and poor outcomes are all increased when the graft is placed submuscular for the trapezius or IM for the LD. Therefore, the surgeon should endorse the adequate location of the cannula into the submuscular plane by inserting it smoothly rather than forcefully (LD), and must feel a click when disrupting the muscular fascia and entering the IM plane (trapezius). For the junior surgeon or those who do not usually practice IM muscular fat grafting, we strongly recommend the regular practice of ultrasound-guided puncture to properly corroborate the location of the cannula before doing ‘blinded’ lipoinjection. We are also providing a list of our favorite five considerations when performing intramuscular fat grafting (Table 6).

The results of our technique for back etching showed an overall satisfaction index of 97% (non-standardized survey), which confirms its success for enhancing the

athletic and V-shape appearance of the male posterior torso through the improvement of both the anatomical details of the definition muscles and the volume augmentation of the muscles. To our surprise, the selective lipoinjection of the LD and the trapezius muscles were recalled by most patients at the postoperative appointment, which might have an impact on the overall satisfaction with outcomes, though no bi-variate analysis was carried out.

The risks after intramuscular fat grafting deserve a special mention due to the Multi-Society Task Force for Safety in Gluteal Fat Grafting (ASAPS, ASPSP, ISAPS, IFATS, ISPRES), and its released practice advisory on January 31, 2018, which prohibited gluteal IM fat grafting due to the fatality cases and pulmonary embolism events after such practice. Afterward, most of the studies reported the special anatomy of the gluteus major, in which its venous plexus disposition within the muscle fibers supposed a higher risk for intravascular placement of the adipose graft. Hence, new practices for a safe approach for gluteal submuscular fat grafting such the jackknife position of the surgery table, the EVL, and other approaches were described. Regardless, every new technique is prone to non-predictable or unforeseen complications; to our knowledge, there has not been any fatality or pulmonary fat embolism reported in the medical literature after intramuscular fat grafting in a muscle other than the gluteus major. Animal studies have shown that intramuscular fat grafts have no association with long or short term events of fat embolism after autologous fat transplantation, which further supports the special case of the gluteus major muscle. In our case, the authors have vast experience with intramuscular fat grafting techniques with more than 1200 cases for pectoral and deltoid reshaping and enhancement through intramuscular fat grafting^{5-7,19,20}

Before the preparation and writing of this article, we had not read or found evidence regarding the fat grafting of the trapezius muscle. In fact, the preliminary results of our experience were shared during various international meetings in 2019 and 2020, as stated within the title page of this article. Nonetheless, we recently found a Spanish-written article from Manzaneda et al,²¹ in which a technique for trapezius fat grafting is included; however, we consider their conclusions not suitable for generalization due its low level of evidence and poor outcome evaluation. The article has numerous flaws, including the lack of postoperative follow-up, the inappropriate conclusions, and the non-standardized protocol for ultrasound measurements in the preoperative and postoperative evaluation of the muscle volume. In fact, the article does not have a safety profile or a follow-up from which one can draw conclusions, which might presume that their results were somehow precipitated for no reason.

Table 6. The “Fav Five” Tips for a Safe Approach to intramuscular Fat Grafting in Dynamic Definition Liposculpture

1. The access should be as far from the pedicle as possible
2. The tip of the cannula should be directed in a perpendicular fashion in relation to the anatomical axis of the pedicle
3. Place the graft at the superficial layer of the muscle*
4. Fat grafting is done in a retrograde fashion
5. Use 3- to 4-mm diameter cannulas for fat grafting (bigger than the diameter of the pedicle)

*Except for the LD where the graft is placed preferably submuscular and above the serratus muscle.

LIMITATIONS

Our study is undoubtedly subject to both selection and observer bias, since the lack of inferential statistics and the usual population seeking aesthetic surgery are somehow different from the general population; hence the generalizability would be restricted. The evaluation of outcomes is also limited due to the nonstandardized survey we used, from which associations cannot be drawn objectively. Further studies such as prospective trials are required to support our findings, hopefully by means of a multicentered approach.

CONCLUSIONS

The aesthetic ideal for the male posterior torso entails a V-shape as it generates a sense of elegance and athletic appearance. In some cases, liposuction might not be enough to achieve this purpose; hence, muscular augmentation through fat grafting of the power muscles of the back becomes an optimal alternative. The recognition of the main neurovascular pedicle, the proper pre-operative markings, and a correct surgical technique ensure both the safety and the reproducibility of our fat grafting technique for the LD and the trapezius muscles when performing HD2. Prospective clinical trials and other large-scale studies are required to further support our findings.

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ACKNOWLEDGMENT

Products used in this study include the VASER Lipo System – 2021 Solta Medical – Bausch Health Companies Inc.; MicroAire Liposuction System 2020 MicroAire Surgical Instruments, LLC; Drains: Blake – ETHICON, Inc., Johnson & Johnson.

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