

Pilot Study: Hourglass Technique for Male Gluteal Enhancement

Gladstone Faria, MD*
 Rebecca Medina, MD*
 Luciana Zattar, MD*
 Renata Viana, MD†
 Ricardo Boggio, PHD*

Background: The aesthetic demand for male gluteal augmentation is increasing; however, most existing techniques are designed for female anatomy, risking undesired feminization in male patients. This pilot study proposes the “hourglass technique” using hyaluronic acid (HA) fillers as a minimally invasive approach to enhance male gluteal contours while preserving masculine features.

Methods: A total of 10 male patients 20–45 years of age underwent gluteal augmentation using a cross-linked HA filler (UP Max, Iliskia, CGBio). The hourglass technique targets 3 anatomical regions—upper pole, projection, and lower pole—while avoiding the trochanteric depression (“no touch area”) to maintain natural contours. Injections were performed with an 18G cannula in the superficial subcutaneous plane. Safety, tolerance, and aesthetic outcomes were assessed clinically and via photographic documentation up to 30 days postprocedure.

Results: All patients demonstrated enhanced gluteal definition and projection with the preservation of masculine traits and no feminization. No adverse events were reported, aside from mild localized pain and bruising. Results were stable and aesthetically satisfactory at the 30-day follow-up.

Conclusions: The hourglass technique with HA fillers is a safe, effective, and reproducible option for subtle male gluteal enhancement. It preserves masculine anatomy and offers a minimally invasive alternative to surgery, warranting further investigation in studies with longer follow-up and larger samples. (*Plast Reconstr Surg Glob Open* 2025;13:e6755; doi: [10.1097/GOX.00000000000006755](https://doi.org/10.1097/GOX.00000000000006755); Published online 6 May 2025.)

INTRODUCTION

According to data from The International Society of Aesthetic Plastic Surgery,¹ the pursuit of surgical gluteal augmentation increased by 56.8% in 2022 compared with the previous year, and there is a significant increase in scientific literature in this area.^{2–4} However, it is important to note that, despite this growth, the vast majority of scientific articles and clinical studies tend to predominantly focus on aspects and outcomes related to female body aesthetics.

In facial harmonization, gender-specific features such as a more horizontalized zygomatic arch, increased bigonial distance, and a prominent chin result in a more square-shaped facial conformation.⁵ Similarly, it is important to acknowledge body anatomical differences between women

and men, as assessment, planning, and treatment are different. When it comes to male enhancement, attention is generally directed toward enhancing characteristics associated with virility. In this article, we propose a minimally invasive technique for male gluteal enhancement, named the “hourglass technique,” developed to highlight characteristics associated with gluteal masculinity in a dynamic manner, using hyaluronic acid (HA) fillers.

MALE GLUTEAL ANATOMY

Pelvis/Bone Structure

The anatomy of the pelvis exhibits remarkable differences between men and women, rendering this region a pivotal tool in distinguishing between male and female

From the *Departament of Cosmiatry, Instituto Boggio - Medicina, ensino e pesquisa, São Paulo, São Paulo, Brazil; and †Private Practice, São Paulo, São Paulo, Brazil.

Received for publication August 19, 2024; accepted March 6, 2025.

Copyright © 2025 The Authors. Published by Wolters Kluwer Health, Inc. on behalf of The American Society of Plastic Surgeons. This is an open-access article distributed under the terms of the [Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 \(CCBY-NC-ND\)](https://creativecommons.org/licenses/by-nc-nd/4.0/), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal. DOI: [10.1097/GOX.00000000000006755](https://doi.org/10.1097/GOX.00000000000006755)

Limitations regarding long-term follow-up inherently exist in this article type.

Disclosure statements are at the end of this article, following the correspondence information.

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

skeletons. It is considered that the hip bone provides the highest accuracy levels for sex determination.⁶

In general, the structure of the male pelvis is notably heavier and thicker compared with that of the female pelvis. The male pelvic bones are additionally structured to accommodate a more robust and substantial body frame. These shape discrepancies are exemplified by the comparatively curvier form of the female pelvis.⁷

Muscle

In terms of muscular differences between the sexes, men generally have greater overall skeletal muscle mass than women, with this contrast being more accentuated in the upper body regions.⁸ Additionally, the distribution, type, and size of muscle fibers between men and women are different.⁹ Nuzzo¹⁰ reported that the cross-sectional area of the whole muscle in women is typically 60%–70% of that in men.

Fat

Lemieux et al⁹ found that women have a higher percentage of body fat compared with men with the same body mass index (BMI), often accumulating more subcutaneous adipose tissue around the hip, whereas men tend to store it around the trunk and abdomen. Additionally, sex steroid hormones likewise play important roles in the accumulation, metabolism, and distribution of adipose tissue: for example, testosterone and estrogen facilitate fat deposition in the abdominal and gluteofemoral regions, respectively.¹¹ As a result of increased superficial fat deposits and fewer but larger subcutaneous fat lobules, women are more prone to cellulite in the lower extremities, even at an equal BMI.¹²

The sacral triangle is a bony landmark present in both men and women. However, the rhombus of Michaelis

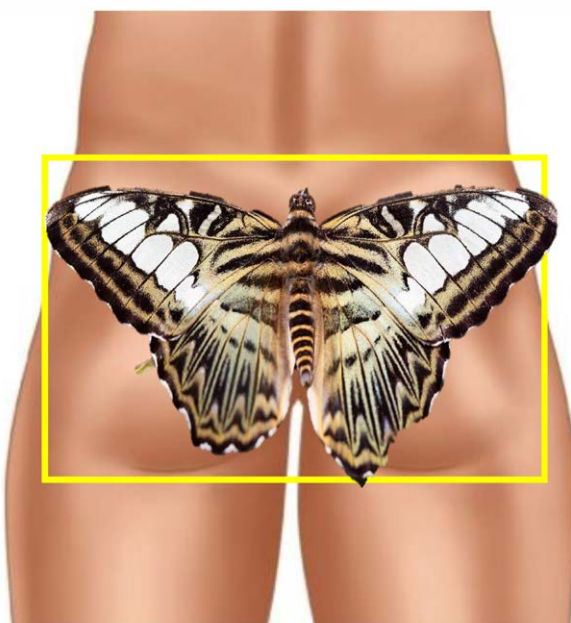


Fig. 1. Schematic illustration of the posterior view of the male buttocks, simultaneously depicting the square shape at rest and the butterfly shape during active contraction.

Takeaways

Question: How can a minimally invasive technique effectively enhance male gluteal aesthetics while preserving masculine characteristics?

Findings: This article introduces the hourglass technique for male gluteal enhancement using hyaluronic acid fillers. The technique involves precise marking and filler placement in specific regions, avoiding the hip dip area. Results show that this method achieves a natural appearance with well-defined contours, maintaining masculine aesthetics.

Meaning: The hourglass technique provides an effective, minimally invasive approach for enhancing male gluteal contours while preserving a natural, masculine look.

(sometimes called the quadrilateral of Michaelis) is a diamond-shaped area over the posterior aspect of the pelvis, formed by the dimples of the posterior superior spines of the ilia, the lines formed by the gluteal muscles, and the groove at the distal end of the vertebral column; it is a fat pad unique to women.

THE IDEAL MALE BUTTOCKS

The lack of studies and attention to the area of male gluteal enhancement can lead to the mistaken application of techniques developed for female buttocks in men, potentially yielding undesired results with potential feminization in this region.

Shape

Due to the aforementioned particularities of the male buttock regarding its bone structure, musculature, and fat distribution, its shape is directly impacted. The masculine buttocks shape is typically squared in the standing (resting) position and has a butterfly shape during active contraction from the posterior view, rather than the rounded female buttocks^{13,14} (Fig. 1).

Additionally, another distinctive characteristic of the male buttock is the C-shaped concavity, characterized by the presence of a prominent trochanteric depression, which contributes to the definition and aesthetics of the region. The well-defined sacral junction is also a common feature, contributing to the angular and athletic appearance of male buttocks.¹³

Volume, Proportions, and Projections

The volume, proportions, and projections in the male gluteal must be carefully calibrated to ensure a natural, athletic appearance. Kollu et al¹⁵ provided information on the ideal appearance of male buttocks. The authors measured the ratio between the lateral thigh and the point of maximal gluteal projection, dividing the anteroposterior measurement of the buttock at its most prominent point by the anteroposterior distance of the thigh just below the infragluteal sulcus. The study demonstrated that the ideal male buttocks have a lateral-to-buttock ratio of 1:18.¹⁵

Additionally, the oblique projection angle was measured using 3 points: the sacrum, the trochanteric depression, and the point of maximal projection in the

intergluteal sulcus. This angle indicates the relative volume and fullness of the buttocks from an oblique view, with the preferred angle being 60 degrees among respondents.

According to the Kollu et al study, the “gluteal trochanteric index” was assessed by dividing the vertical distance from the waist to the infragluteal sulcus by the horizontal distance between the trochanteric depressions. The majority of respondents favored an index of 0.66. Therefore, there was a preference for a narrower gluteal width and defined trochanteric depression in the posterior view.¹⁵ The authors demonstrated that preferred male gluteal aesthetics have moderate gluteal projection in the lateral and oblique views. The gluteal cleft in men is shorter than in women, and the inferior gluteal crease in men is limited to the inner third of the breadth of the buttocks, whereas in women it occupies the inner half, approximating the meridian of the buttocks.¹⁶

Transitions

An important point to consider is the transition from the glutes to the surrounding areas, such as the posterior thigh region. In this transition area, the extent of the infragluteal fold and the presence or absence of a skin fold over this sulcus should be evaluated. The presence of a skin fold determines gluteal ptosis, and the angle of the fold is used to classify ptosis into degrees I, II, or III, according to the Mendieta classification—the angle is less than 10 degrees in degree I, between 10 and 30 degrees in degree II, and greater than 30 degrees in degree III ptosis.⁵ These findings might help injectors to better assess and plan male gluteal enhancement to achieve optimal results and patient satisfaction.

HA DERMAL FILLER

Although several surgical options are available for augmenting the shape and volume of the buttocks, one minimally invasive alternative that has demonstrated favorable

outcomes is the use of cross-linked HA fillers for volumization in this region. Based on the authors’ experience, an initial volume of at least 15 mL per buttock must be used, considering the anatomy and the individual patient’s desires.

Selecting the appropriate filler is crucial for this technique. In this procedure, a multiphasic filler with 100% cross-linked HA (UP Max by Ilikia, CGBio) was used, containing 20 mg/mL of HA particles sized from 800 to 1200 μ m and possessing a high G prime.

The formulation additionally contains 0.3% lidocaine, improving patient comfort during the procedure. This dermal filler is manufactured using a revolution-rotation technique, known as R2 technology by the manufacturer (CGBio). This technology ensures the uniform encapsulation of HA particles, producing a multiphasic filler that is particularly well suited for volumization in this anatomical region.¹⁷

HOURLASS TECHNIQUE

The markings resemble an hourglass shape. For a masculine gluteal contour, it is essential to preserve the hip dip depression (Fig. 2). The delineation simulates the hypertrophy of the gluteus maximus muscle (Fig. 3).

The planning and demarcation are important steps. The gluteal region is divided into 3 distinct sections: (1) the lifting region, (2) the projection region, and (3) the lower pole region, which contributes to the squarer male buttock shape. It is also essential to accurately mark the hip dip depression to avoid filler injection in this area (Fig. 3). Anatomical landmarks such as the iliac crest, the greater trochanter, and the anterior superior iliac spine must be utilized to precisely identify and mark this depression.

In this technique, 3 entry points are strategically placed in the hourglass regions for optimal filler application. In regions (1) and (3), the entry points are located at the outer edges of the demarcation, whereas in region (2), the entry point is made at either the upper or lower edge of

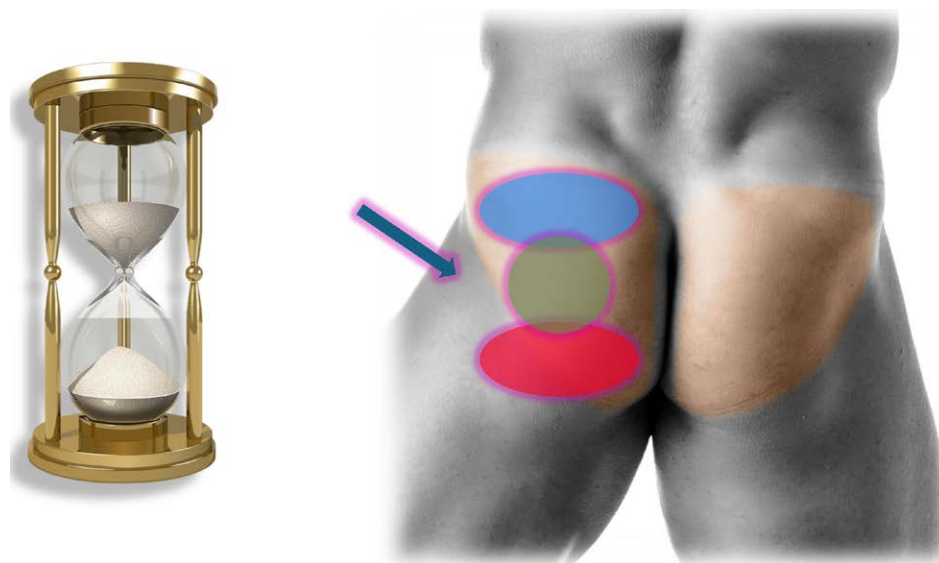


Fig. 2. Illustration of the hourglass technique for male gluteal enhancement, highlighting the filling areas while preserving the hip dip concavity.

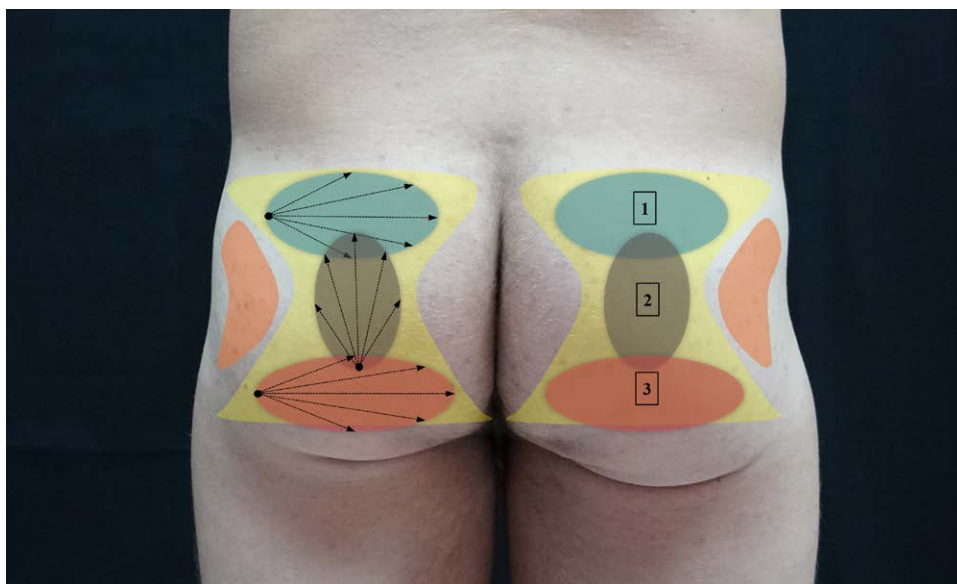


Fig. 3. On the right, the regions targeted for filling are exemplified: (1) the lifting region, (2) the projection region, and (3) the lower pole region. On the left, the entry points and application techniques are exemplified. The hip dip area is marked in red as the “no touch area.”

the demarcation, depending on the injector’s preference (Fig. 3). (See Video 1 [online], which displays the marking process for male gluteal enhancement, highlighting the upper pole, projection, and lower pole regions, and the “no touch area” [hip dip].)

An 18G needle is used to create these entry points, and an 18G × 70mm blunt-tip cannula is used to deliver the filler into the marked regions using the retroinjection technique. The use of a cannula enhances product distribution, and the blunt tip minimizes the risk of vascular injury, contributing to the safety of the procedure. The injection is performed in the subcutaneous plane, approximately 0.5–0.8cm from the dermis, specifically within the superficial subcutaneous layer above the superficial fascia. It is important to note that injections placed more superficially may result in the palpability of the gel, whereas deeper injections may compromise both safety and efficacy.

Although it is not mandatory, as it is recommended to be applied above the superficial layer for safety and better outcomes, the procedure can be performed under ultrasound guidance to improve safety. The ultrasound image (Fig. 4) illustrates the correct location for HA application, showing the anechoic areas corresponding to the filler and the bright white band corresponding to the superficial fascia. As the product expands the area and pushes the superficial fascia, it is mostly visualized at 0.5–0.8cm depth, depending on the area and amount of filler injected, remaining above the superficial fascia within the superficial subcutaneous layer, which is the intended injection site. (See Video 2 [online], which displays the injection process for male gluteal enhancement.)

RESULTS

Volumization of the male buttocks using body HA—strategically distributed across the upper pole, projection

zone, and lower pole while preserving the C-shaped concavity or hip dip—results in a well-defined and projected gluteal contour. This technique provides a subtle yet effective enhancement, maintaining a natural, masculine, and athletic appearance without feminizing the region. As shown in Figure 5, the specific volumes of HA injected into each region are indicated by pencil markings on the male buttocks, demonstrating the precise areas of treatment.

This technique was performed on 10 male patients, with an age range of 20–45 years. No adverse events were observed, such as palpability, nodules, irregularities, or vascular complications. Only mild localized pain during the first 2 days and bruising at the cannula entry points were reported. The effectiveness of this approach is demonstrated by comparing the preprocedure appearance, immediate postprocedure results, and the follow-up at 30 days, which shows sustained improvement (Fig. 6). Additionally, a profile perspective with a demarcated outline of the gluteus further facilitates the visualization of the results, confirming the technique’s ability to achieve a natural and aesthetically pleasing outcome (Fig. 7). In Figure 8, we illustrate an additional case demonstrating the preprocedure appearance and the outcomes observed at the 30-day follow-up.

DISCUSSION

When considering the features of an attractive buttock, certain characteristics are relatively sex-independent. These include a curved infragluteal fold, maximum projection between the middle and upper thirds, and the absence of ptosis below the infragluteal crease.¹⁸

Although some aspects of the ideal gluteal region are appreciated in both men and women, significant differences between the sexes must be respected. The gluteal region plays a fundamental role in the aesthetic composition of the body, shaping the silhouette and significantly

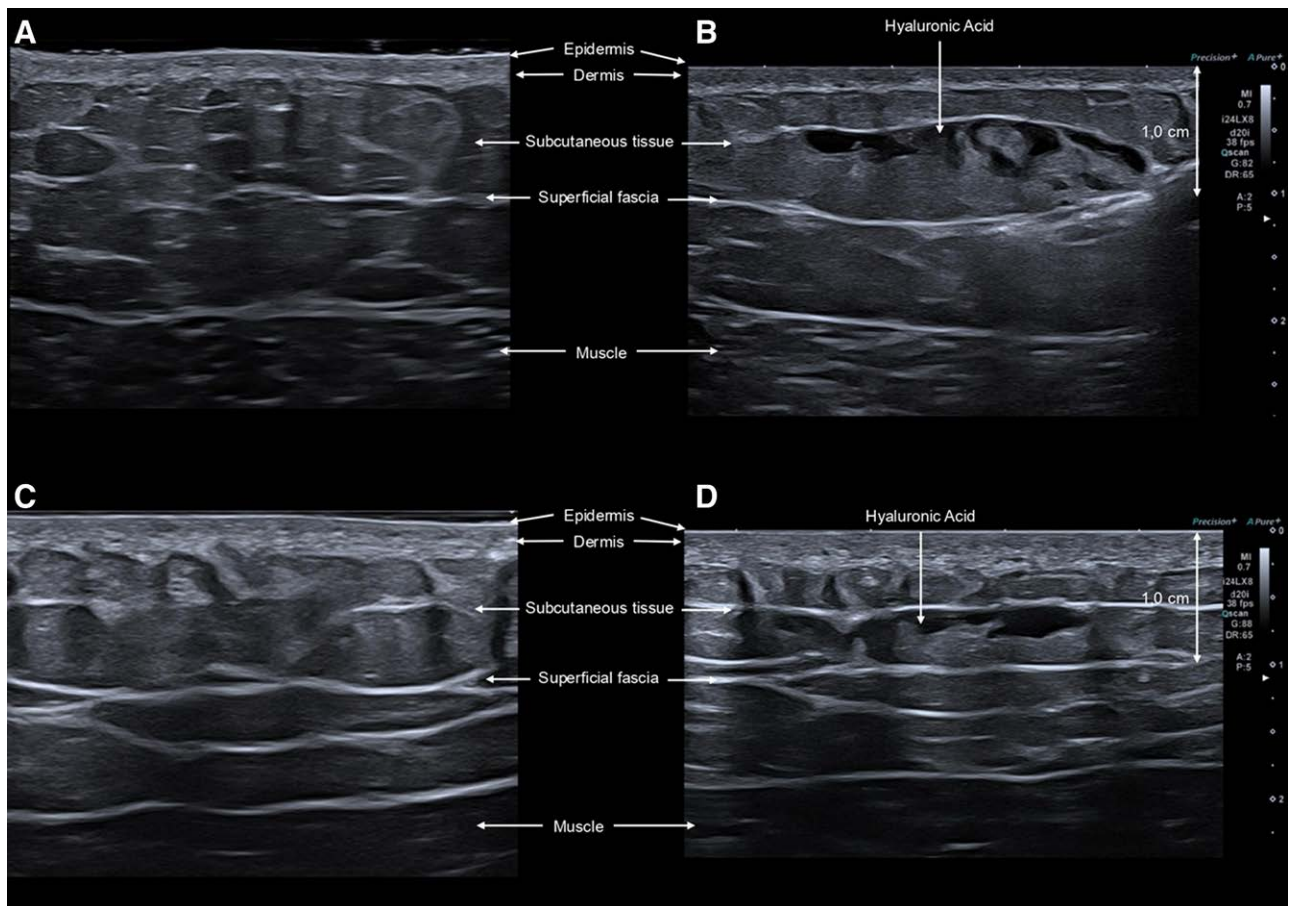


Fig. 4. Ultrasound images showing key anatomical layers: epidermis, dermis, subcutaneous tissue, superficial fascia, and muscle. Panels A and C represent preprocedure images, whereas panels B and D show immediate postprocedure images, with HA filler visible in the superficial subcutaneous layer above the fascia at a depth of approximately 0.5–0.8 cm.

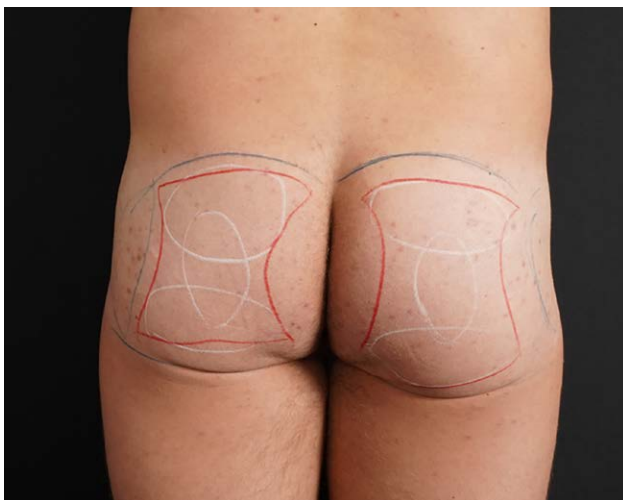


Fig. 5. Photograph of the male buttocks with pencil markings indicating the technique for volumization. The figure details the specific volumes of HA (mL) injected into each region: (1) upper pole, (2) projection, and (3) lower pole. The “no touch area,” corresponding to the C-shape concavity or hip dip, is highlighted.

influencing the perception of beauty.¹⁹ Understanding the differences between female and male gluteal characteristics is crucial for appreciating how these specific features affect overall appearance.

Recognizing the primary anatomical differences between female and male gluteal regions, as well as the characteristics considered ideal, is necessary to approximate these standards when performing aesthetic interventions. However, it is essential to consider the patient's entire body shape and composition, as the idealized gluteal form may not be harmonious on every body. Each individual has a unique structure, and the pursuit of an aesthetic result should prioritize creating a balanced and natural appearance, respecting the specific proportions and characteristics of each person.

Moreover, cultural differences can significantly influence opinions on what constitutes an ideal gluteal region, varying according to the age, race, origin, sex, and sexual orientation of the evaluator, among other characteristics.^{15,19–24} In some cultures, more voluminous and rounded gluteal regions are seen as symbols of beauty and fertility, whereas in others, a more discreet and toned contour may be preferred. Additionally, perceptions of beauty

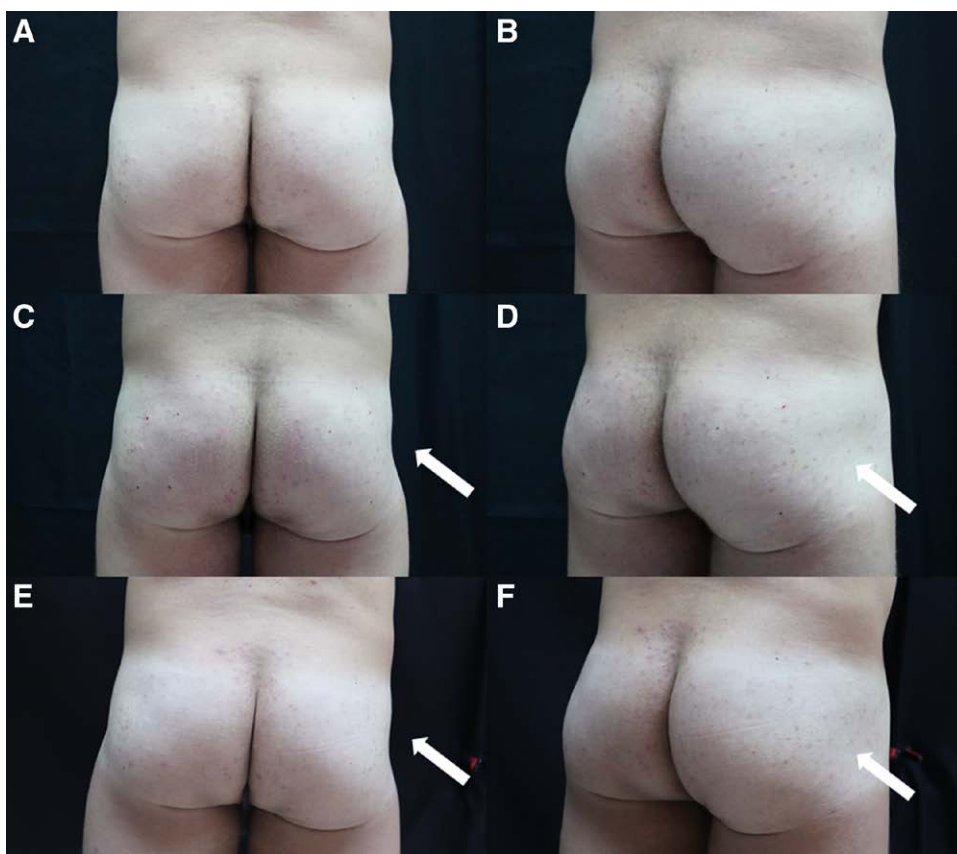


Fig. 6. Before and after treatments of male buttocks with the hourglass technique. A, Preprocedure appearance. B, Preprocedure view indicating the hip dip. C, Immediate postprocedure results. D, Immediate postprocedure view with a white arrow indicating the hip dip. E, Follow-up at 30 days. F, Follow-up view at 30 days with a white arrow indicating the hip dip.

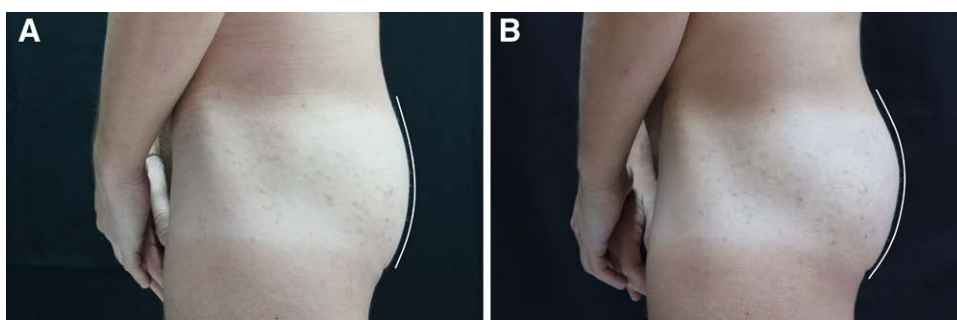


Fig. 7. Before and after treatments of male buttocks with the hourglass technique. A, Appearance of the male buttocks before the procedure. B, Appearance 30 days after the procedure. A white line has been added to both images to demarcate the shape of the gluteus and facilitate the visualization of the result.

can change over time, reflecting trends and social influences. The diversity of opinions highlights the importance of personalizing aesthetic approaches to meet individual and cultural expectations, promoting a more inclusive and comprehensive appreciation of beauty.

Regardless of the cultural variations that influence the perception of buttock aesthetics, HA fillers offer an excellent alternative for volumizing, shaping, and/or altering the contours and transitions of the glutes in a minimally invasive way.^{4,25,26} Additionally, combining other treatment

techniques is crucial to achieving the desired aesthetic outcome. For instance, collagen biostimulators may be indicated to improve skin elasticity and firmness of the area.²⁷ In cases of significant gluteal ptosis, gluteoplasty may be the ideal solution for lifting and remodeling the buttocks. When there is excess volume in the subcutaneous layer in certain areas, liposuction can be used to create a more defined and proportional outline.

Additional recommendations, such as weight loss and/or volume gain and muscle exercises, are also essential



Fig. 8. Before and after treatments of male buttocks with the hourglass technique. Preprocedure appearance (A and B) and results observed 30 days postprocedure (C and D).

for a harmonious and lasting result. The combination of these approaches allows effective customization of treatment, respecting the individual needs and expectations of each patient. Postprocedure care usually follows that applies for HA fillers, including avoiding intense activity and heat exposure for 48 hours. In general, and to the extent that other characteristics of the patient's body allow, efforts should be made to create a muscular and well-defined appearance in the male buttocks, with buttocks proportionally higher than wide, focusing projection on the central and upper portions while preserving the trochanteric depressions.

The use of HA for gluteal augmentation offers advantages over more invasive techniques, such as fat transfer and implants, as it is an appealing option for patients seeking subtle enhancement and no downtime. However, this technique has limitations, including high costs for larger volumes of HA filler and its temporary nature, as it is an absorbable implant requiring periodic reapplications for maintenance of the results. In contrast, fat transfer and permanent implants, though more invasive, provide greater volume and durability, making them suitable for individuals desiring more pronounced changes and lasting results. Nevertheless, fat transfer and permanent implants also

carry the potential for important complications, such as wound dehiscence, excessive implant palpability, seroma, infection, and transient sciatic paresthesia.² HA filler is particularly suitable for patients with limited fat donor areas or those who wish to avoid surgery for any reason. As there are no strict physical characteristics required for this procedure, it is suitable for a wide range of patients, although patients with a higher BMI may require larger volumes of HA to achieve their desired results. Contraindications include autoimmune diseases, active infections, or known hypersensitivity to HA or its components. The choice of the technique for gluteal augmentation must consider also the patient's individual preferences, tolerance for potential risks, and aesthetic expectations.

In this study, a total of 30 mL of HA was injected in the gluteal area, providing a subtle enhancement suited to patients seeking a natural aesthetic result. Although this is a small volume, the rheology and advanced technology of the product used in this technique allow for effective volumization and projection with significantly lower amounts compared with fat or other HA fillers. The R2 technology—a revolution-rotation method—ensures that the gel, composed of smaller HA particles, evenly surrounds the larger particles.^{17,28} The described 15 mL of HA applied per side is

considered the initial volume, which we find ideal for male patients who typically prefer natural-looking results. If required, and aligned with patient expectations, additional filler can be applied during the same session or even in separate sessions. This approach is particularly beneficial for patients who are unsure about their desired volume, allowing for gradual adjustment to meet their aesthetic goals. Studies in the literature report using an average of 80–420 mL for more noticeable results.^{4,29,30} However, it is important to consider the increased cost associated with higher volumes of filler. Finally, the durability of the results achieved with cross-linked HA fillers is an important factor to consider. A study on long-term follow-up in gluteal augmentation using HA filler reported sustained aesthetic improvements lasting up to 20 months.³¹

In this article, we propose the “hourglass technique” as a practical method to replicate the ideal main characteristics of male buttocks. We emphasize the importance of individualizing each treatment plan based on the unique anatomical characteristics of each patient, while also taking into consideration their personal preferences and aesthetic goals. Although this technique is relatively straightforward, it requires familiarity with anatomical landmarks and precision in the correct injection plane. Practitioners may experience a learning curve, emphasizing the importance of proper training and practice.

In this article, our focus was on describing the technique and its short-term effects; however, future studies with longer follow-up periods and additional cases will be necessary to evaluate the long-term outcomes of this approach.

Gladstone Faria, MD

Instituto Boggio, Endereço: Rua Cincinato Braga, 37
8º Andar Bela Vista
São Paulo, São Paulo CEP 04004-030, Brazil
E-mail: gladstonefaria@hotmail.com

DISCLOSURES

Dr. Faria is a speaker for Merz. Renata Viana is scientific consultant for Ilikia Brasil. Ricardo Boggio is speaker for Allergan. The other authors have no financial interest to declare in relation to the content of this article.

ACKNOWLEDGMENTS

The authors would like to thank Ilikia for their support in facilitating the submission of this article and for covering the publication costs. The authors also extend their special thanks to Beatriz Domenici and Leticia Araujo for their invaluable assistance during the publication process.

REFERENCES

- International Society of Aesthetic Plastic Surgery (ISAPS). ISAPS International Survey on Aesthetic/Cosmetic Procedures performed in 2022. Available at https://www.isaps.org/media/a0qfm4h3/isaps-global-survey_2022.pdf. 2022. Accessed January, 2025.
- Oregi P, Khatib M, Cavale N, et al. Comparing the safety profiles of implants and autologous fat grafting in gluteal augmentation: a systematic review. *J Plast Reconstr Aesthet Surg*. 2023;83:463–474.
- Trignano E, Tettamanzi M, Liperi C, et al. Outcomes of intramuscular gluteal augmentation with implants using tumescent local anesthesia. *Aesthetic Plast Surg*. 2023;47:1931–1938.
- Santorelli A, Cerullo F, Salti G, et al. Gluteal augmentation with hyaluronic acid filler: a retrospective analysis using the BODY-Q scale. *Aesthetic Plast Surg*. 2023;47:1175–1181.
- Faria GEDL, Bento AM, Dos Santos DB, et al. Facial beautification with fillers and main differences between genders. *Rev Bras Cir Plást*. 2021;36:100–107.
- Bruzek J. A method for visual determination of sex, using the human hip bone. *Am J Phys Anthropol*. 2002;117:157–168.
- Leong A. Sexual dimorphism of the pelvic architecture: a struggling response to destructive and parsimonious forces by natural & mate selection. *McGill J Med*. 2006;9:61–66.
- Gallagher D, Visser M, De Meersman RE, et al. Appendicular skeletal muscle mass: effects of age, gender, and ethnicity. *J Appl Physiol* (1985). 1997;83:229–239.
- Lemieux S, Prud'homme D, Bouchard C, et al. Sex differences in the relation of visceral adipose tissue accumulation to total body fatness. *Am J Clin Nutr*. 1993;58:463–467.
- Nuzzo JL. Narrative review of sex differences in muscle strength, endurance, activation, size, fiber type, and strength training participation rates, preferences, motivations, injuries, and neuromuscular adaptations. *J Strength Cond Res*. 2023;37:494–536.
- Norgan N. The beneficial effects of body fat and adipose tissue in humans. *Int J Obes*. 1997;21:738–746.
- Rudolph C, Hladik C, Hamade H, et al. Structural gender dimorphism and the biomechanics of the gluteal subcutaneous tissue: implications for the pathophysiology of cellulite. *Plast Reconstr Surg*. 2019;143:1077–1086.
- Hoyos AE, Perez ME, Domínguez-Millán R. Male aesthetics for the gluteal area: anatomy and algorithm for surgical approach for dynamic definition body contouring. *Plast Reconstr Surg*. 2020;146:284–293.
- Mendieta CG, Sood A. Classification system for gluteal evaluation. *Clin Plast Surg*. 2018;45:159–177.
- Kollu T, Giutashvili T, Bhat D, et al. Defining the Ideal Male Buttocks. *Plast Reconstr Surg*. 2023;152:1030e–1039e.
- Cansanção A, Condé-Green A, eds. *Gluteal Fat Augmentation*. Springer; 2021.
- Hahn HM, Lee WB, Lee IJ. The effects of subcutaneously injected novel biphasic cross-linked hyaluronic acid filler: in vivo study. *Aesthetic Plast Surg*. 2021;45:322–331.
- Morrison SD, Wilson SC, Mosser SW. Breast and body contouring for transgender and gender nonconforming individuals. *Clin Plast Surg*. 2018;45:333–342.
- Cuenca-Guerra R, Quezada J. What makes buttocks beautiful? A review and classification of the determinants of gluteal beauty and the surgical techniques to achieve them. *Aesthetic Plast Surg*. 2004;28:340–347.
- Danilla S, Troncoso E, Jara R, et al. What makes a beautiful buttock beautiful? A case-control study comparing buttocks models versus normal women by magnetic resonance imaging, photography and anthropometry. *Aesthetic Plast Surg*. 2023;47:1896–1904.
- Nteli Chatzioglou G, Govsa F, Bicer A, et al. Physical attractiveness: analysis of buttocks patterns for planning body contouring treatment. *Surg Radiol Anat*. 2019;41:133–140.
- Cuenca-Guerra R, Lugo-Beltran I. Beautiful buttocks: characteristics and surgical techniques. *Clin Plast Surg*. 2006;33:321–332.
- Wong WW, Motakef S, Lin Y, et al. Redefining the ideal buttocks: a population analysis. *Plast Reconstr Surg*. 2016;137:1739–1747.
- Lee EI, Roberts TL, Bruner TW. Ethnic considerations in buttock aesthetics. *Semin Plast Surg*. 2009;23:232–243.
- Lourenço LM, de Noronha MGO, Colla LA, et al. LL body contour technique—a new way of gluteal contouring and augmentation with hyaluronic acid filler. *J Cosmet Dermatol*. 2022;21:1967–1972.

26. Arantes M. A non-surgical approach to treat gluteal asymmetry due to large hemangioma: a case report. *JOJ Dermatol Cosmet.* 2024;6:1.
27. Faria G, Boggio R, Bellini M. Gluteal remodelling protocol: volumization with hyaluronic acid and collagen biostimulation with poly-L-lactic acid. *Skin Health Dis.* 2023;3.
28. Yi CC, Hahn HM, Lim H, et al. A multicenter, randomized, double-blind, comparative study of a multiphasic hyaluronic acid filler and existing hyaluronic acid fillers for temporary restoration of the midface volume of Asian individuals. *J Plast Reconstr Aesthet Surg.* 2023;82:92–102.
29. Crabai P, Marchetti F, Santacatterina F, et al. Nonsurgical gluteal volume correction with hyaluronic acid: a retrospective study to assess long-term safety and efficacy. *Plast Reconstr Surg Glob Open.* 2024;12:e5792.
30. De Meyere B, Mir-Mir S, Peñas J, et al. Stabilized hyaluronic acid gel for volume restoration and contouring of the buttocks: 24-month efficacy and safety. *Aesthetic Plast Surg.* 2014;38:404–412.
31. Pazzini R, Viana R, Petrone G. Long term follow-up in gluteal augmentation using cross-linked hyaluronic acid: up to 20 months ultrasound follow-up. *Cosmetics.* 2024;11:194.