IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 25, Issue 3 Ser. 3 (March. 2026), PP 05-13
www.iosrjournals.org

GS Technique For Trochanteric Depression Correction: A Dual-Layer Structural Approach With Deep Pillar Support And Subcutaneous Triangular Vectorization

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Abstract
Trochanteric depression is a frequent aesthetic concern in gluteal harmonization, often associated with lateral contour irregularities and loss of structural continuity of the hip silhouette. Traditional volumetric filling techniques may require large amounts of filler and may compromise the natural contour of the region. The GS Technique proposes a dual-layer structural approach combining deep structural support ("deep tower") with subcutaneous triangular vectorization to optimize filler distribution and improve contour transitions.This study describes the anatomical basis, application technique and clinical outcomes observed in patients treated with the GS Technique for correction of trochanteric depression. Clinical observation demonstrated significant improvement in lateral hip contour, restoration of anatomical continuity and high patient satisfaction, with reduced filler volume compared to conventional volumetric approaches.
The GS Technique represents an anatomically guided strategy for trochanteric depression correction, providing structural support, improved contour harmony and optimized filler utilization.
Key Word: *Trochanteric depression; Gluteal harmonization; Body contouring; Hyaluronic acid fillers; Structural filler techniques*

Date of Submission: 08-03-2026 Date of Acceptance: 18-03-2026

I. Introduction

Buttock harmonization has evolved significantly in recent years, moving away from exclusively prioritizing volumetric increase to adopting more anatomical, functional, and individualized approaches. In this context, irregularities in the lateral contour of the hip, such as trochanteric depression, constitute one of the most frequent aesthetic complaints in clinical practice, especially among women, as they compromise the visual continuity and harmony of the posterior and lateral body silhouette (De Maio, 2014; Salles et al., 2020).

Trochanteric depression can be defined as a concavity located in the lateral region of the hip, adjacent to the greater trochanter of the femur, resulting from anatomical variations related to the distribution of adipose tissue, the thickness of the subcutaneous panniculus, ligamentous insertion, and the bony conformation of the female pelvis (Moore et al., 2023; Gray, 2021). Although it does not represent a pathological alteration, this condition can generate a significant aesthetic impact, especially when associated with good posterior gluteal projection or relative hypertrophy of the lateral gluteal compartment, accentuating the contrast between convex and concave areas.

From an anatomical point of view, the trochanteric region is characterized by a complex interaction between bony, muscular, and fascial structures, including the greater trochanter of the femur, the gluteus medius muscle, the gluteus maximus, the iliotibial tract, and the deep and superficial fascial layers. Anatomical studies demonstrate that variations in these structures, associated with hormonal, genetic, and biomechanical differences, explain the higher prevalence of trochanteric depression in females (Standring, 2021; Neumann, 2017).

Traditional gluteal augmentation techniques often focus on global volumetric replacement, without adequately considering the anatomical vectors of support and tissue transition. This approach can result in excessive product consumption, an increased risk of superficial irregularities, and, in some cases, a loss of the naturalness of the body contour (Swift et al., 2019; Cotofana et al., 2020). Therefore, it is essential to develop strategies that prioritize deep structural support and contour refinement with a smaller volume of filler.

In this scenario, the GS Technique was developed based on systematic clinical observation and the application of three-dimensional anatomical principles, proposing a structured, double-layer approach for the correction of trochanteric depression. The technique combines deep structuring in a verticalized architecture

("deep tower"), responsible for supporting and correcting the anatomical unevenness, with a subcutaneous vectorization in a triangular shape, aimed at a smooth transition and improvement of the lateral convexity of the hip. This combination allows for optimization of the volume used, greater predictability of results, and preservation of aesthetic naturalness.

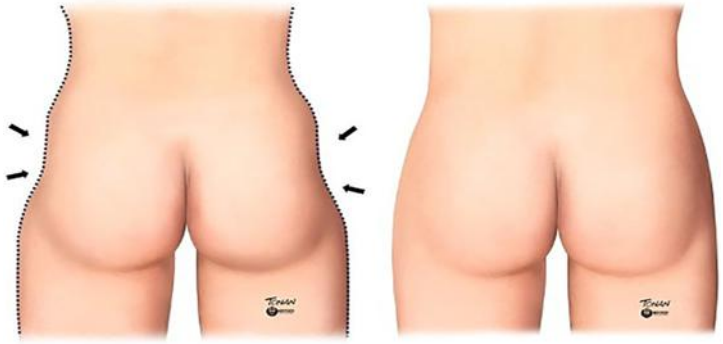

Figure 1 Pronounced trochanteric depression, popularly called 'hip dips'.

Thus, the objective of this article is to describe the anatomical fundamentals, the application technique, and the clinical benefits of the GS Technique in correcting trochanteric depression, highlighting its contribution to female body harmonization with a focus on efficiency, safety, and product optimization.

II. Anatomical Review Of The Trochanteric Region

The trochanteric region corresponds to the lateral portion of the hip, with the greater trochanter of the femur as its main bony reference, a bony prominence that acts as an insertion point for important stabilizing and mobilizing muscles of the hip. From an anatomical and aesthetic point of view, this region represents a critical transition zone between the trunk and the lower limbs, being crucial for the visual reading of the female body silhouette (Gray; Standring, 2021).

Bone Anatomy and Structural Relationships

The greater trochanter is located laterally to the neck of the femur and presents a variable morphology among individuals, influenced by genetic, biomechanical, and sexual factors. In women, the gynecoid pelvic conformation, associated with greater bi-iliac width, can accentuate the visual perception of trochanteric depression, especially when there is less adipose tissue coverage or a deficiency in structural support in this region (Moore et al., 2023).

Figure 2: Anatomical demonstration of the femoral head bone.

In addition to the femur, adjacent bony structures, such as the ilium and acetabulum, indirectly contribute to the lateral contour of the hip, determining pelvic tilt and the distribution of muscle forces acting on the soft tissue of the region (Neumann, 2017).

Muscle Components

The musculature of the trochanteric region is predominantly composed of the gluteus medius and gluteus minimus muscles, located in deep planes, in addition to the gluteus maximus, which partially contributes to the posterior and lateral contour of the hip. The gluteus medius plays a fundamental role in pelvic stabilization during gait, with direct insertion into the greater trochanter (Moore et al., 2023).

Changes in the tone, volume, or insertion of these muscles can directly influence the appearance of the trochanteric region. In individuals with well-developed posterior gluteus maximus but less lateral muscle or adipose tissue thickness, greater evidence of trochanteric concavity is frequently observed, reinforcing the contrast between convex and concave areas of the hip (Salles et al., 2020).

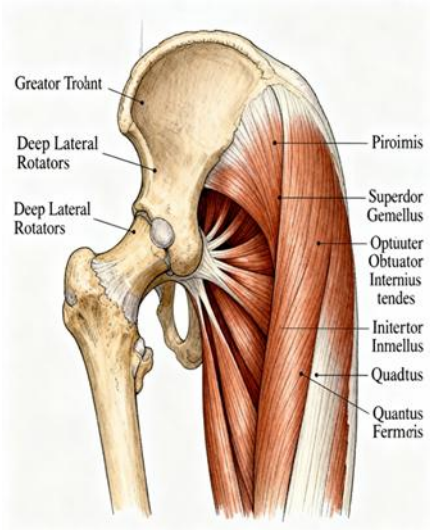

Figure 3: Anatomical demonstration of muscular components attached to the femur bone.

Fasciae, Ligaments, and Iliotibial Tract

The trochanteric region is covered by a complex fascial system, notably the fascia lata and the iliotibial tract, dense structures that directly influence the containment and transition of subcutaneous adipose tissue. The iliotibial tract, extending from the iliac crest to the tibia, acts as a lateral tension element, potentially contributing to the maintenance of the trochanteric depression even in the presence of moderate adipose tissue volume (Standring, 2021).

Figure 4: Anatomy of the fascia, ligaments, and iliotibial tract.

Deep ligaments and fibrous septa also play a relevant role in the compartmentalization of adipose tissue, creating areas of greater skin adhesion that favor the formation of visible depressions on the body surface (Cotofana et al., 2020).

Adipose Tissue and Sexual Dimorphism

The adipose tissue of the trochanteric region presents significant variations in thickness, distribution, and compartmentalization. In women, hormonal action, especially estrogens, favors peripheral adipose tissue accumulation; however, this distribution is not homogeneous and can result in areas of less lateral filling, even in patients with good overall gluteal volume (Karastergiou et al., 2012; Moleiro; Ruiz-Silva et al 2025).

Figure 5: Adipose tissue in the trochanteric region

Anatomical and imaging studies demonstrate that trochanteric depression is frequently associated with a combination of less deep adipose tissue, greater lateral fascial stiffness, and more evident muscle insertions, reinforcing the need for therapeutic approaches that consider not only volume but also deep structural support and tissue transition (Swift et al., 2019).

Anatomical Implications for Body Harmonization

A detailed understanding of the anatomy of the trochanteric region is fundamental for the safe and effective planning of body harmonization procedures. Interventions that disregard deep anatomical planes and fascial restrictions tend to require larger volumes of filler and may result in irregularities, product displacement, or loss of the naturalness of the body contour (Cotofana et al., 2020).

Thus, approaches that prioritize deep structuring, respecting bone, muscle, and fascial anatomy, associated with subcutaneous refinement techniques, prove to be more suitable for correcting trochanteric depression, aligning with contemporary principles of anatomy-based body harmonization (Sá et al., 2025).

III. Materials And Methods

This is an observational, descriptive, and retrospective study, based on the clinical analysis of patients who underwent trochanteric depression correction using the GS Technique, developed for female body harmonization. The technique was applied in a standardized manner, respecting anatomical criteria and safety principles widely described in the literature on body filling with hyaluronic acid (Sá et al., 2025; Cotofana et al., 2020; Swift et al., 2019).

Case Studies

The technique was developed and refined based on the systematic observation of approximately 300 clinical cases, performed by a professional experienced in body harmonization. For descriptive purposes, female patients presenting with bilateral or unilateral trochanteric depression, with aesthetic complaints related to discontinuity of the lateral hip contour, were included.

Patients with active local infections, decompensated autoimmune diseases, pregnancy, a history of hypersensitivity to hyaluronic acid, or anatomical alterations that contraindicated body filling were excluded from the procedure.

Material Used

The filler used was Sofiderme® (Aeskin), a cross-linked hyaluronic acid with BDDE technology, at a concentration of 20 mg/mL and a high elastic modulus (G'), characterized by high density and cohesiveness. These properties give the material a high capacity for support, projection, and resistance to mechanical deformation, making it suitable for applications in deep structural planes, such as the supraperiosteal and deep subcutaneous planes, in body areas requiring support and volumetric correction. The product selection followed international recommendations for structural body fillers (De Maio, 2014; Salles et al., 2020). The applied volume was individualized according to morphological analysis and vector planning.

The instrumentation consisted of 18G blunt cannulas, selected according to the thickness of the subcutaneous tissue and the depth of the application plane, aiming for greater vascular safety and better control of product distribution.

Anatomical Planning and Marking

The procedure planning was based on the individual anatomical analysis of the trochanteric region, considering the bony topography of the greater trochanter, the posterior gluteal projection, the thickness of the lateral adipose tissue, and the presence of areas of greater fascial adhesion. The markings were made with the patient in an upright position, allowing for dynamic visualization of the trochanteric depression and precise identification of the concavity and transition zones of the body contour.

Figure 6: Bilateral posterior view for identifying the treatment area and beginning the marking of the GS technique.

Figure 7: Left lateral marking of the GS Technique highlighting the central structuring point. The external triangular delimitation guides the treatment area, promoting a smooth double-layer transition between the trochanteric concavity and the adjacent gluteal convexity.

Figure 8: Right lateral marking of the GS Technique highlighting the central structuring point. The external triangular delimitation guides the treatment area, promoting a smooth double-layer transition between the trochanteric concavity and the adjacent gluteal convexity.

The markings follow a geometric principle based on identifying the point of greatest trochanteric concavity, from which deep structural vectors and surface refinement vectors are established.

Application Technique

The GS Technique is based on a structured, double-layer approach, encompassing two distinct anatomical planes:

Deep Plane – Deep Tower

After rigorous asepsis and prior anatomical marking of the trochanteric depression area, a cutaneous entry point (pertuit) was made with an 18G needle, allowing safe access to the deep plane.

Next, a blunt cannula was introduced at an approximate 90° angle to the skin surface, advancing to the deep structural plane, with careful progression until perception of tissue resistance compatible with the deep supraperiosteal/subcutaneous plane.

At the point of greatest structural support, an initial deep bolus deposit was made to create a support base and primary projection.

Subsequently, slow and controlled retroinjection was performed during the progressive withdrawal of the cannula (retroinjection technique), promoting vertical distribution of the product, configuring vectorization in a "structural tower". This strategy favors ascending tissue support (lift effect), volumetric correction of the depression, and harmonization of the lateral contour of the hip.

The volume was individualized according to the degree of depression, biotype, and previously established morphostructural planning.

In the deep plane, adjacent to the deep muscular and fascial structures of the trochanteric region, vertical deposition of the filler was performed, forming a structural architecture called a "deep tower". The main objective of this step was to correct the anatomical unevenness, provide tissue support, and reduce the need for excessive volumes in superficial planes.

Subcutaneous Plane – Subcutaneous Triangle

In the subcutaneous plane, the product was vectorized at three strategic points, forming a triangle that favors a smooth transition between the gluteal region and the lateral hip. This distribution aimed to improve lateral convexity, smooth surface irregularities, and promote a natural and harmonious aesthetic finish.

Product Volume and Optimization

The total volume of hyaluronic acid used varied according to the intensity of the trochanteric depression and the individual anatomical characteristics of each patient. The double-layer architecture allowed for significant visual impact with a smaller total product volume compared to conventional volumetric techniques, prioritizing efficiency and naturalness (Sá et al, 2025; Swift et al., 2019).

Results Evaluation

The clinical evaluation of the results was performed through comparative visual analysis, standardized photographic documentation, and patient satisfaction reports. The criteria observed included improvement in the lateral hip contour, smoothing of the trochanteric depression, aesthetic continuity of the body silhouette, and absence of visible irregularities.

Ethical Considerations and Safety

All procedures were performed in an appropriate outpatient setting, following the ethical principles of clinical practice and safety recommendations for body fillers. The patients were previously informed about the risks, benefits, and limitations of the procedure, and informed consent was obtained.

Technique Description

After anatomical marking of the trochanteric depression area and adequate antisepsis, an 18G needle was used to access the deep plane. A blunt cannula was introduced to the supraperiosteal/deep subcutaneous plane, where an initial structural bolus deposit was made for support.

Subsequently, controlled retroinjection was performed during cannula withdrawal, promoting vertical distribution of hyaluronic acid to correct the unevenness and optimize the lateral contour of the hip.
The volume was individualized according to a previous morphostructural assessment.

IV. Product Optimization

Optimizing the filler volume is one of the main challenges in body harmonization procedures, especially in the correction of trochanteric depression, where purely volumetric approaches tend to require large amounts of product to obtain visible results. Strategies based solely on increasing superficial volume can compromise the naturalness of body contour, in addition to increasing the risk of irregularities, material displacement, and local adverse events (Swift et al., 2019; Cotofana et al., 2020).

The GS Technique is based on the principle that the aesthetic impact is not directly related to the absolute volume of filler, but to how this volume is distributed in different anatomical planes. The combination of deep structuring, responsible for mechanical support and correction of anatomical unevenness, with subcutaneous refinement, aimed at transition and surface finishing, allows maximizing the visual effect with a smaller total amount of product.

The application of filler in the deep plane, through the architecture called "deep tower," promotes redistribution of tissue forces and improves lateral hip support. This support reduces the dependence on large volumes in superficial planes, where the risk of irregularities and palpability is greater (De Maio, 2014; Salles et al., 2020). From a biomechanical point of view, deep structuring acts as an anchoring point, favoring the harmonious projection of adjacent tissues.

The triangular subcutaneous refinement complements this approach by allowing a more homogeneous distribution of the product at the interface between the convex and concave areas of the lateral contour. This strategic vectorization softens abrupt transitions, improves lateral convexity, and contributes to a more natural aesthetic result, without the need for excessive volumes (Swift et al., 2019).

In addition to the aesthetic benefit, product optimization has direct implications for the safety of the procedure. Reducing the total volume of filler decreases local tissue pressure, reduces the risk of superficial irregularities, and minimizes the chance of complications related to the accumulation or migration of the material, especially in regions with strong fascial influence, such as the trochanteric region (Cotofana et al., 2020).

In this way, the layered architecture proposed by the GS Technique aligns with contemporary concepts of body harmonization based on anatomy, efficiency, and clinical predictability. By prioritizing deep structural support and controlled surface refinement, the technique allows for consistent, natural, and safe results, with rationalization of filler use and greater patient satisfaction.

V. Results

The application of the GS Technique for correcting trochanteric depression resulted in immediate and progressive clinical improvement of the lateral hip contour. In general, a significant smoothing of the trochanteric concavity was observed, with restoration of aesthetic continuity between the posterior gluteal region and the lateral hip, favoring a more harmonious body reading.

The improvement in lateral contour was noticeable immediately after the procedure and was maintained during clinical follow-up, especially in cases where deep structuring provided adequate tissue support. The association between the deep tower and subcutaneous refinement contributed to a more homogeneous volume distribution, reducing shadow areas and visual irregularities frequently associated with trochanteric depression (Swift et al., 2019).

Figure 9: Posterior view before and immediately after application of the GS Technique for correction of trochanteric depression. An improvement in the continuity of the lateral hip contour, a smoothing of the trochanteric concavity, and greater harmony between the posterior gluteal region and the lateral hip are observed.

Figure 10: Posterior view before and immediately after application of the GS Technique for correction of trochanteric depression. An improvement in the continuity of the lateral hip contour, a smoothing of the trochanteric concavity, and greater harmony between the posterior gluteal region and the lateral hip are observed.

Another relevant result was the feminization of the body silhouette, characterized by increased smoothness of the lateral hip lines and improved harmonious convexity of the trochanteric region. This effect was particularly evident in patients with good posterior gluteal projection and lateral support deficiency, in whom exclusively volumetric techniques tend to accentuate the contrast between convex and concave areas (Salles et al., 2020).

Patient satisfaction was high, according to spontaneous reports and subjective clinical evaluation, highlighting the naturalness of the result and the absence of an artificial appearance. The use of smaller volumes of filler, combined with correct distribution in the anatomical planes, contributed to more predictable results and a lower incidence of superficial irregularities, as described in the literature on body fillers (De Maio, 2014; Cotofana et al., 2020).

Regarding safety, no serious adverse events associated with the technique were observed when the anatomical planes, the indicated volumes, and the principles of safe application were respected. Mild and transient events, such as local edema and tenderness to palpation, were consistent with the expected effects of injectable and self-limiting procedures.

VI. Discussion

Trochanteric depression, commonly referred to as hip dips, represents a frequent aesthetic concern in body contouring and gluteal harmonization procedures. This anatomical characteristic results from the complex interaction between skeletal morphology, fascial tension and regional adipose tissue distribution. Although not considered a pathological condition, the presence of trochanteric depression may disrupt the lateral contour of the hip and compromise the perceived harmony of the body silhouette.

Traditional approaches for the correction of trochanteric depression have primarily relied on volumetric augmentation using dermal fillers or fat grafting. While these strategies may improve the appearance of the lateral hip concavity, they often require large volumes of product and may increase the risk of contour irregularities, asymmetries and unnatural transitions between anatomical compartments.

Recent advances in aesthetic medicine have emphasized the importance of anatomically guided filler placement, prioritizing structural support and vector-based distribution rather than purely volumetric augmentation. This paradigm shift reflects the growing understanding that tissue support and biomechanical balance play a critical role in achieving natural aesthetic outcomes.

The GS Technique was developed within this anatomical framework, proposing a dual-layer strategy that combines deep structural support with controlled subcutaneous contour refinement. The deep structural pillar created in the supraperiosteal or deep subcutaneous plane acts as a support column, redistributing mechanical forces and correcting the structural depression at its origin. This approach is consistent with previously described structural concepts in aesthetic filler techniques, in which deep support provides a foundation for more efficient superficial contour modification.

In addition to structural support, the triangular subcutaneous vectorization allows for a controlled and homogeneous distribution of filler within the transition zone between the gluteal region and the lateral hip. This strategy contributes to smoother contour transitions and reduces the need for excessive filler deposition in superficial planes, where the risk of palpability and irregularities is greater.

From a biomechanical perspective, the dual-layer architecture proposed by the GS Technique enhances the redistribution of tissue tension across the treated area. By combining vertical structural support with lateral contour refinement, the technique promotes a more balanced projection of the lateral hip contour while maintaining natural anatomical proportions.

Another relevant aspect of the GS Technique is the optimization of filler utilization. By prioritizing structural correction in deeper anatomical planes, the technique allows significant aesthetic improvement with reduced total filler volume when compared with traditional volumetric approaches. This reduction in filler quantity may contribute not only to improved cost-effectiveness but also to increased procedural safety.

The clinical outcomes observed in this series demonstrated consistent improvement in the lateral hip contour, restoration of silhouette continuity and high patient satisfaction. The absence of significant complications further reinforces the safety profile of the technique when performed with appropriate anatomical knowledge and adherence to established safety protocols.

Despite these promising results, this study presents limitations inherent to observational descriptive studies, including the absence of quantitative outcome measurements and long-term controlled follow-up. Future prospective studies with standardized photographic analysis, objective contour measurements and larger patient cohorts would be valuable to further validate the clinical effectiveness of the GS Technique.

Nevertheless, the anatomical rationale and clinical observations presented in this study suggest that the GS Technique represents a promising structural approach for the correction of trochanteric depression, combining anatomical precision, efficient filler utilization and natural aesthetic outcomes.

VII. Conclusion

The GS Technique is an innovative, precise approach based on anatomical principles for correcting trochanteric depression in female body harmonization. By combining deep structuring with tissue support function and strategic subcutaneous refinement, the technique allows for the harmonious and predictable restoration of the lateral hip contour.

The proposed double-layer architecture demonstrates that the aesthetic impact does not depend exclusively on the absolute volume of filler, but on the correct distribution of the product in the appropriate anatomical planes. This rationalization of volume contributes to more natural results, reduced risk of superficial irregularities, and greater clinical safety.

Furthermore, the observed results indicate immediate and sustained improvement in lateral contour, feminization of the body silhouette, and high patient satisfaction rates, reinforcing the clinical applicability of the GS Technique as an alternative to conventional volumetric approaches.

Thus, the GS Technique represents a significant contribution to contemporary body harmonization, aligning aesthetic efficiency, respect for anatomy, and clinical predictability. Future studies using prospective methodology and quantitative analysis could expand the scientific validation of the technique and deepen the understanding of its long-term benefits.

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