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REVIEW

# The ideal buttock: some aesthetic and morphometric considerations

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**Abstract**
Remodeling surgical procedures of the gluteal region are increasingly popular and in demand. In most cases, preoperative considerations and planning are largely based on the surgeon's own experience. This article reviews the existing literature on the subject, adding and encoding some personal notes in order to standardize the ideally predictable results in cosmetic surgery of the gluteal region. Anatomical and morphological considerations are described as indications for an accurate preoperative planning, outlining morphological-geometric guidelines on the ideal beauty of the buttocks, with the aim to facilitate such process for the less experienced surgeon.

**Keywords** Buttock aesthetics · Buttock anatomy · Buttock contouring

## Introduction

The buttock is universally considered a cornerstone of female beauty and attractiveness. In recent years, thanks to the progress of surgical techniques in use, the gluteal region in the female patient has been increasingly the subject of attention and targeted procedures. Liposuction, liposculpture, Brazilian Butt Lift (BBL) and gluteal prosthesis are increasingly widespread and carried out procedures [1–7]. Hence, the need to draw up some useful reference notes to optimize preoperative planning, especially for less experienced surgeons. The aim of this study was to review the existing literature on the subject, adding and encoding some personal notes in order to standardize the ideally predictable results in cosmetic surgery of the gluteal region.

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## Basic morphologic principles

The concept of attractiveness seems to be a combination of several elements that encompass traditional values of health and fertility, the influence of current cultural trends and fashion and personal taste itself [8]. The role of attractiveness in suggesting health and heritable fitness, as well as in increasing mating success, has been widely studied by evolutionary psychologists [9, 10]. Cosmetic surgery of the buttocks contemplates not only changes in volumes but also (and above all) a redefinition of the contours. From this point of view, in our opinion, there are four salient morphologic features to be considered in the preoperative planning: anterior and posterior views, the profile, and the infragluteal fold.

### Anterior view

In the front projection, the main guideline in fixing ideal proportions is the waist-to-hip ratio (WHR). The combined narrow waist and full and well-projected butt (the so-called hourglass figure) is a clear characteristic sign of potential reproductive fertility and well-being. Women with a 0.65 WHR are usually rated as more attractive by men from various cultures (Fig. 1). Preferences may vary, ranging from 0.6 in South America and China to 0.8 in Cameroon and Tanzania, with divergent preferences according to the ethnicity of the observed being noted [9–15].

Evaluating the relationship between the waist, the anterior bispinoiliac and the trochanteric line, we significantly noted

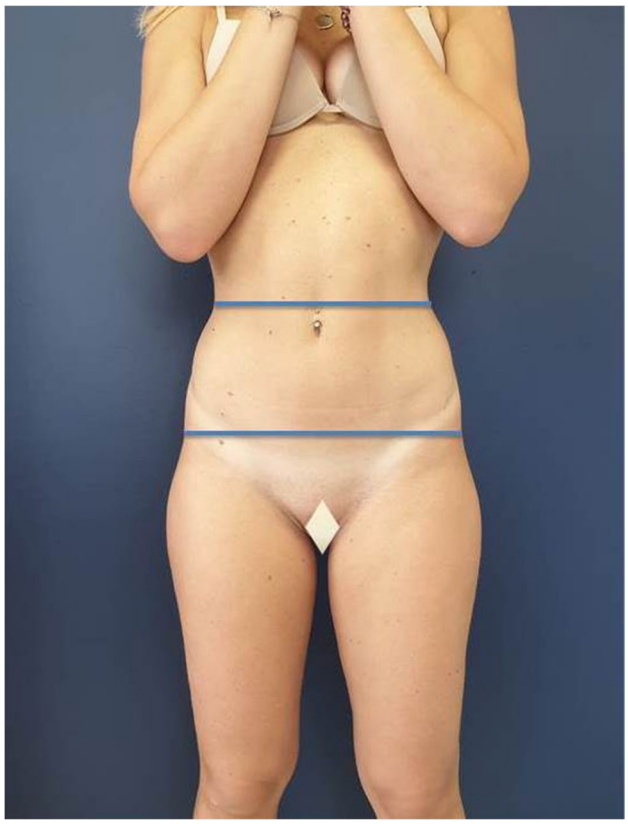

**Fig. 1** Waist to hip ratio

that these parallel lines should be ideally equidistant from each other (Fig. 2).

## Profile

In the profile view, the most important reference point is the position of the apex of the gluteal curvature. The peak of the projection (or the degree of ptosis) depends on several factors, such as the tone of the tissues and the percentage of muscle and adipose tissue. During a prosthetic implant procedure, or, even more, BBL fat grafting, where to place the maximum projection point? In our opinion, the point of maximum lateral projection of the buttock (profile view) should ideally lie on the horizontal line drawn at the intersection between the end of the abdominal curve and the beginning of the thigh profile, as shown in Fig. 3.

## Posterior view

From a back view, the shape of the buttocks may resemble one of the following letters: V (masculine), H (squared), A (feminine) and O (round), the latter two being by far the most aesthetically pleasing. Although the symmetry and roundness of the buttocks are universally considered as pillars of feminine attractiveness, some details vary between cultures and ethnicities [1, 16], without considering individual aesthetic preferences. Asians prefer small buttocks, symmetrical, but without fullness or volume of the lateral regions. Caucasians prefer full-buttocks but not excessively wide, with the fourth supero-lateral full or hollowed. Instead, Hispanics (and even more African-Americans) prefer extremely full and voluminous buttocks, with accentuated roundness of the supero-lateral quarters. The superior-outer sections, however, should never be excessively bulky to avoid a square

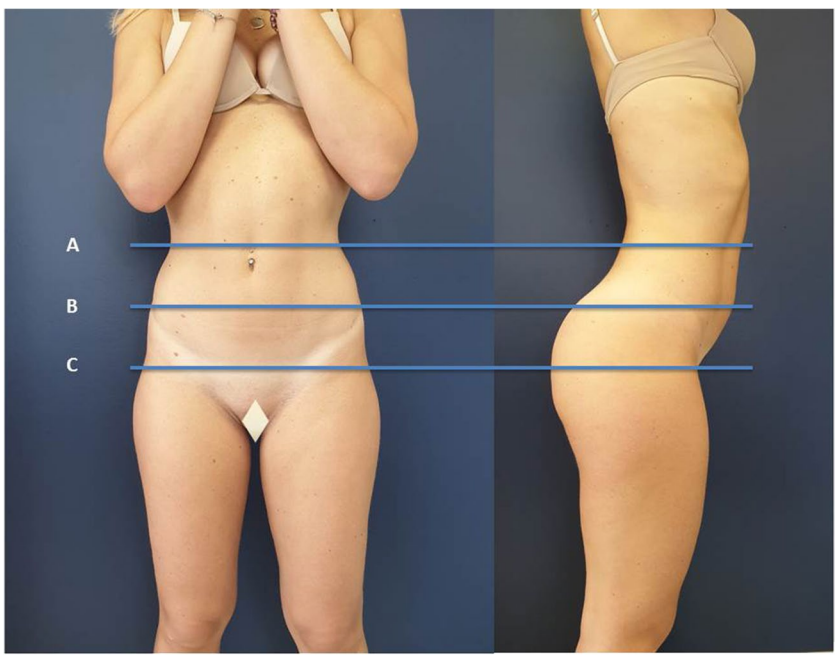


**Fig. 2** Three parallel lines ideally equidistant in the front projection. A: Waist line; B: Anterior bispinoiliac line; C: Throchanteric line

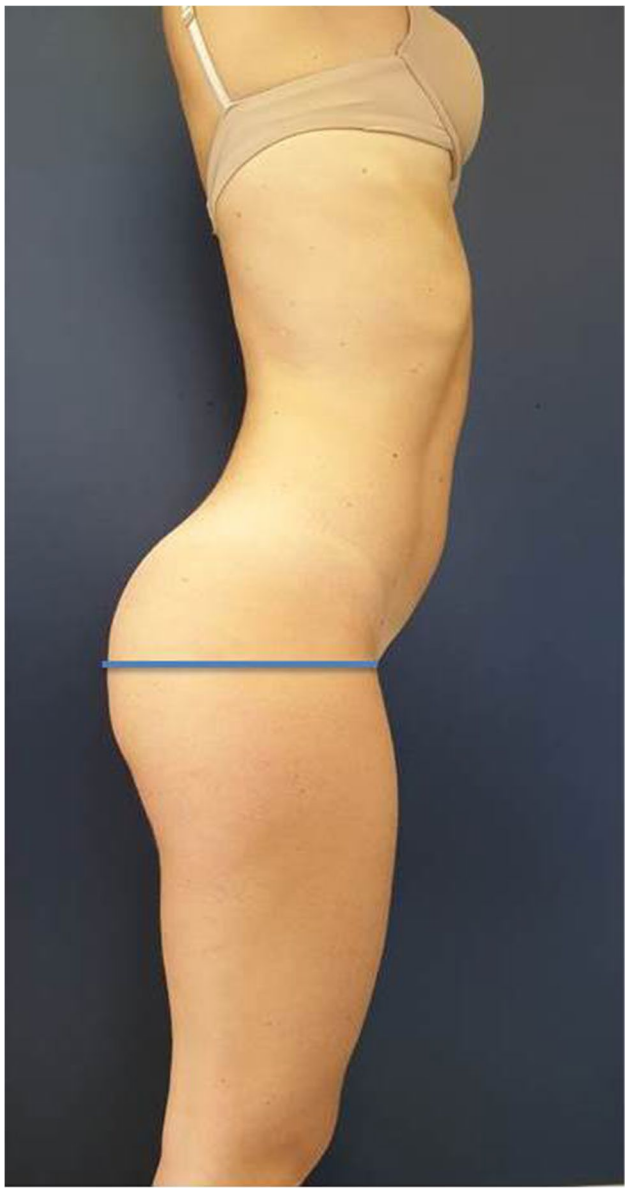

**Fig. 3** Ideal maximum lateral projection

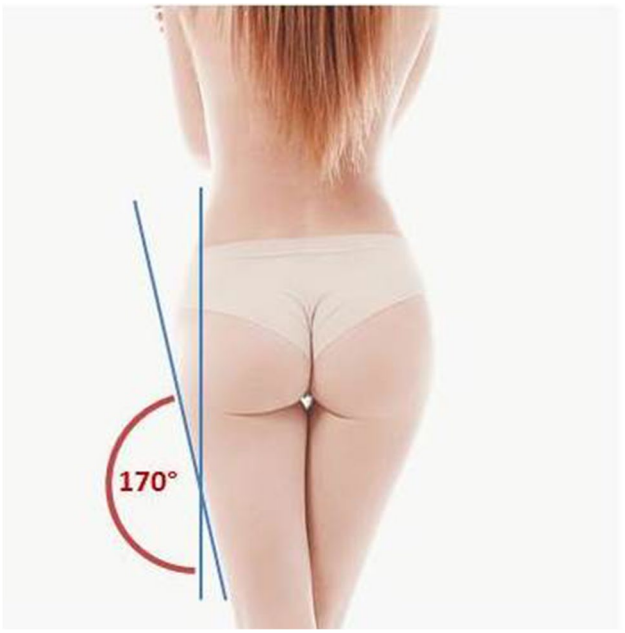


**Fig.4** Ideal thigh-buttock junction angle

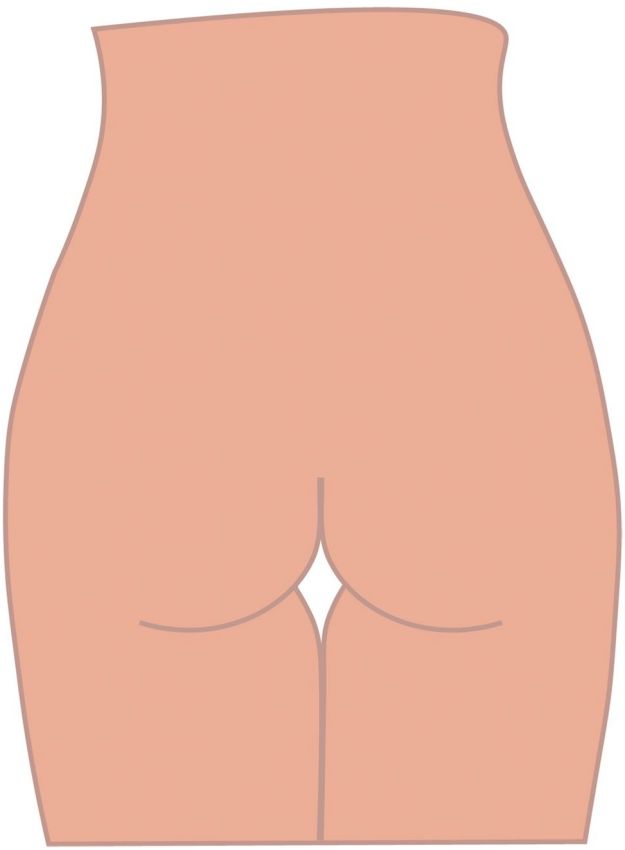

**Fig. 5** Diamond-shaped inter-thigh space

appearance to the buttocks. According to a recent study by Vartanian et al. [17], the angle stretched between the vertical line passing through the antero-superior iliac spine and the tangent line to the middle point of the lower semicircle of the lateral edge of the buttock should ideally be 170° (Fig. 4).

The medial meeting point of the insertion of the thighs should be diamond-shaped (Fig. 5). This is a characteristic sign of the absence of obesity and partially unveils the vulva from a back view. For similar reasons, a larger space (Fig. 6) is also considered very pleasant.

Other additional factors contribute to creating an aesthetically pleasing posterior butt, such as a well-projected lumbosacral curve and two well-defined supragluteal dimples

**Fig. 6** Wide inter-thigh space

(presacral fossettes) and can be surgically modified or created with liposuction/liposculpture.

### Infragluteal fold

The infragluteal fold (IGF) is determined by the IGF ligament, with insertion, as a hammock, on first and second coccygeal vertebra [18]. According to Babuccu et al. [19], the morphology of IGF is distinctly determined in the three age groups: prepubert, in which the IGF is not affected by weight gains (or decreases); in the intermediate fertile period, in which the IGF is determined predominantly by body weight and percentage of adipose tissue; and post-menopause (as well as after important weight loss), where tissue relaxation is determined by atrophy and gradual loss of elasticity. Most authors [19, 20] describe IGF length limited to the medial part as preferable (Fig. 7a). According to Centeno [21] and Coban [22], the IGF should not extend laterally beyond the mid-gluteal line, determined by the convergence of femoral biceps and semitendinosus muscles (Fig. 7b). In our opinion, the IGF can extend pleasantly more laterally, until it also reaches the lateral end of the buttock. Parallely, it is also very important that the lateral IGF end point is always located on the same horizontal line as the starting medial point, neither lower nor upper (Fig. 7c). In any case, a second, inferior fold (banana fold) must never be present.

## To add or to subtract?

Given the above considerations, in the same patient, it can sometimes happen to be undecided about which operation to perform, liposuction or liposculpture. In Figs. 8 and 9, we have highlighted a possible preoperative planning of different procedures in the same subject, respectively, liposuction or liposculpture. In selected cases, the final results can be absolutely overlapping. In these situations, surely a crucial role is represented by the wishes and preferences of the patient. It is the personal preferences of each patient that determine, with the same shape, the volumes that you want to obtain as well as lipoaspirable areas. Hence, it is the fundamental importance of a correct dialogue with the patient and preoperative planning.

### To subtract: Liposuction

In more recent years, liposuction is the most frequent surgical procedure (not only aesthetic) performed per year in Western countries. When applied in the lower back region, it is generally able to achieve excellent results with a low complication rate. In particular, the removal of excess fat

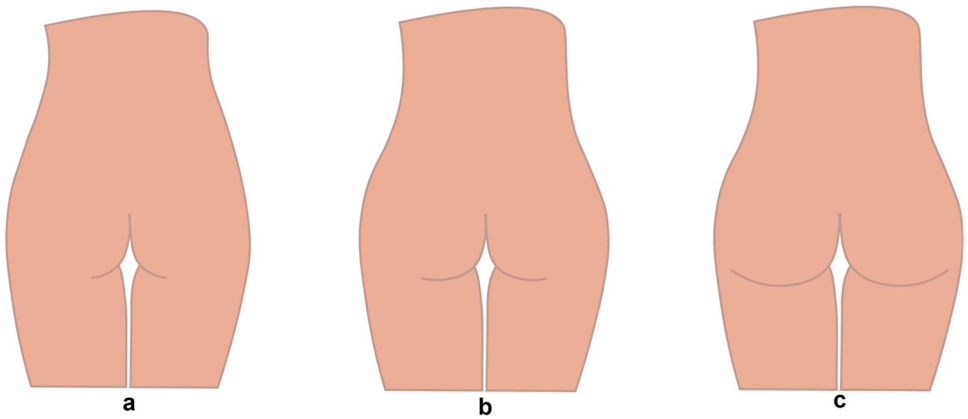


**Fig. 7** Infragluteal fold. **a** Medial third. **b** Medial half. **c** Complete

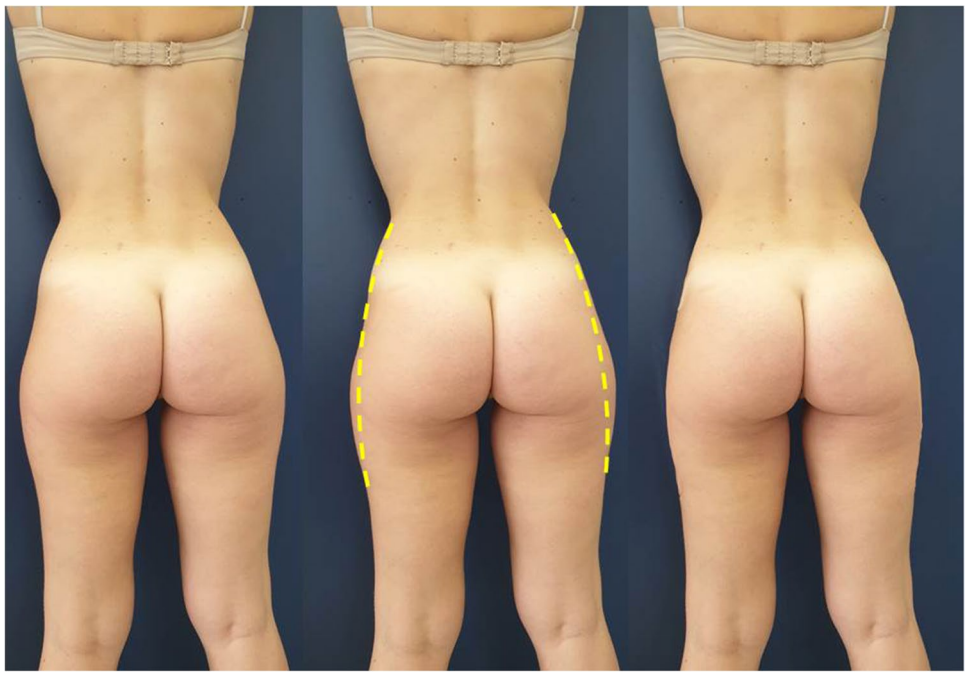

**Fig. 8** Liposuction simulation

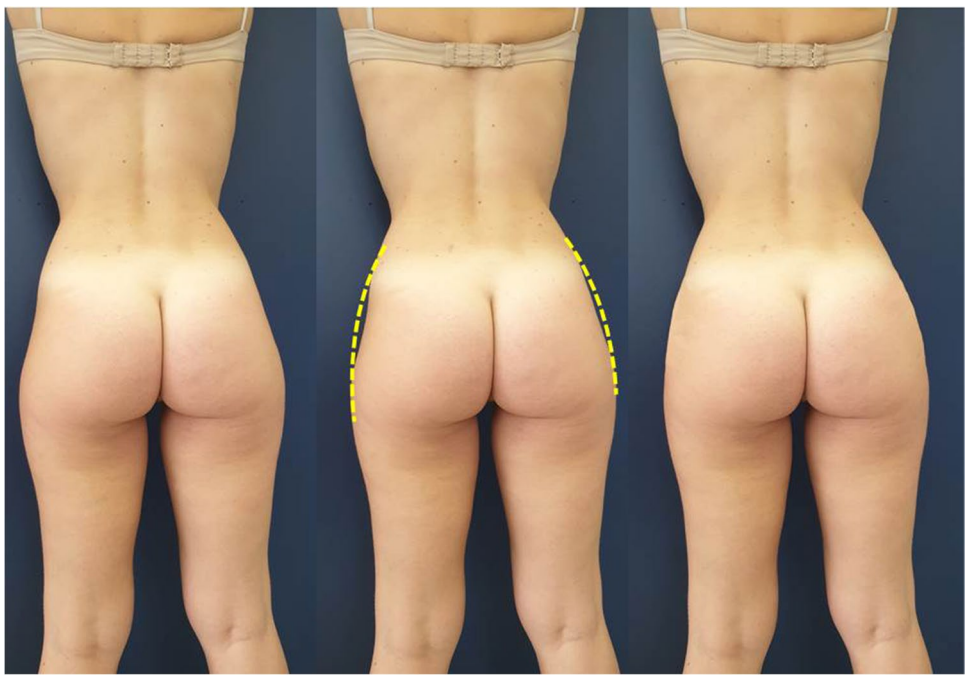

**Fig. 9** Lipostructure simulation

concerns the areas surrounding the buttocks: the hips and back above to emphasize the supra-gluteal fossettes and the "V zone", the supratrochanteric region laterally to eliminate the square shape and the sub-gluteal area to enhance the subgluteal fold. This surgical technique involves an accurate preoperative planning to identify the areas of adipose accumulations to be aspirated, and it is usually performed via the conventional tumescence procedure or the ultrasonic technique.

## To add: Lipograft

Autologous fat grafting has gained popularity in recent years, enjoying natural results in the absence of the complications, characteristic of prosthetic implants and other synthetic injectable materials. In this context, gluteal fat grafting (also called Brazilian Butt Lift) is a surgical procedure that has become increasingly requested and performed. It is preferentially used to increase overall gluteal projection

and fill the upper quadrants. Since this is an operation with a high risk of complications (even fatal), some procedural precautions must be observed. In particular, the surgeon should (a) use only large, blunt cannulas (diameter: 4 mm or more); (b) inject fat in the subcutaneous layer only (avoiding injection in the gluteal muscles); (c) use intra-operative ultrasound (to localize the cannula and site of grafting); and (d) avoid downward injection.

## Discussion

The adoption of the upright posture has determined, over the millennia, an important remodeling of the gluteal region, and aside from posture, the morphology of the gluteal region is determined by numerous factors, such as hormonal, body weight, ethnic and age-related. Since ancient times, the buttocks are one of the cornerstones (if not the main) of female beauty. Over the centuries, in this regard, the universal ideal of feminine beauty (although with some marginal differences between cultures) has increasingly been oriented towards buttocks of limited volume, athletic, with round lines. In the effort to obtain the aesthetic result closest to the patient's expectations, the plastic surgeon must necessarily follow the predominant aesthetic and cultural orientation. As often happens in cosmetic surgery, the operating choices are largely determined by the experience and aesthetic sensitivity of the surgeon. Our hope is that outlining some morphological-geometric guidelines on the ideal beauty of the buttocks will facilitate some aspects of the preoperative planning of less experienced surgeons.

## Conclusions

Remodeling surgeries of the gluteal region are increasingly popular in our days. As in any other indication, proper preoperative planning is essential to obtain optimal results. Nothing can replace a correct mix between specific experience, culture and personal tastes. Nevertheless, we hope that the few indications given will be of some help, particularly for less experienced surgeons, in the strive of planning a rewarding cosmetic surgery of the buttocks.

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## Declarations

**Ethical approval** For this review article, ethical approval was not required.

**Conflict of interest** Edoardo Raposio, Ilaria Baldelli, Monica Vappiani, Alessandro Gualdi, and Giorgio Raposio declare no conflict of interest.

**Patient consent** Written patient consent was obtained from all participants for the use of their medical photography/data in the writing of this research paper.



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