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# Does intramuscular gluteal augmentation using implants affect sensitivity in the buttocks?

Fernando Serra-Guimarães <sup>a,\*</sup>,  
Marco Antonio Venturini De Barros <sup>b</sup>, Jose Horacio Aboudib <sup>a</sup>,  
Denise Salles Coelho Da Mota <sup>a</sup>, Daniel Gouvea Leal <sup>b</sup>,  
Claudio Cardoso De Castro <sup>a</sup>, Fabio Xerfan Nahas <sup>c,d</sup>

<sup>a</sup> Division of Plastic Surgery, Pedro Ernesto University Hospital, Rio de Janeiro State University, Brazil

<sup>b</sup> Brazilian Society of Plastic Surgery, Brazil

<sup>c</sup> Division of Plastic Surgery, Federal University of São Paulo, Brazil

<sup>d</sup> Division of Plastic Surgery, Rio de Janeiro State University (UERJ), Boulevard 28 de setembro, 77 Vila Isabel, 20.551-030 Rio de Janeiro, RJ, Brazil

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## KEYWORDS

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**Summary** The evolution of techniques and materials has made gluteoplasty a safe and reproducible operation with high acceptance among surgeons and patients. Functional aspects should be considered in gluteoplasty but are poorly studied. The sensitivity of the buttocks is fundamental as it represents an erogenous zone and provides protection through sensory stimuli for the prevention of pressure sores and burns. This study aimed to evaluate the sensitivity of the gluteal region in patients undergoing gluteal augmentation with implants. We included 20 consecutive patients undergoing gluteoplasty and 20 controls not undergoing gluteal surgery. All patients are females and were being treated at the Division of Plastic Surgery of the Rio de Janeiro State University. The right and left gluteal regions were delimited, and each one was divided into four quadrants numbered 1–8. Sensitivity tests were performed in all quadrants for six different stimuli: touch, heat, cold, pain, vibration, and pressure. The mean age and BMI were 36.3 years and 26.3, respectively. No difference in sensitivity was observed in the gluteal region after augmentation gluteoplasty when compared with those patients who had no operation in this series. Prospective and controlled studies are needed to better assess these issues.

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\* Corresponding author. Rua Visconde de Pirajá 550/1413, Ipanema, 22410-901 Rio de Janeiro, RJ, Brazil.  
E-mail address: [fserrag@gmail.com](mailto:fserrag@gmail.com) (F. Serra-Guimarães).

## Introduction

The concept of female beauty has been changing over the years, but the shape and size of the breasts and buttocks remain as symbols of maximum femininity.<sup>1</sup> The search for the perfect body, the continuous evolution of the fashion industry, with its tendency to create more revealing clothes, and the development of new techniques and technologies have contributed to the increased demand for gluteal augmentation with implants. This trend can be translated into numbers as this procedure jumped from 15th position in 2010<sup>2</sup> to 13th in 2014<sup>3</sup> in the list of the most popular cosmetic surgeries. During the same period, the number of procedures performed annually had risen by 374.6%<sup>2,3</sup> globally and by 273.2%<sup>2,3</sup> in Brazil—currently the country with the highest number of gluteal augmentation surgeries in a year and responsible for 22.05% of all the 289.023 cases operated around the world in 2015.<sup>3</sup>

The improvement of the techniques evolved from the subcutaneous<sup>4</sup> and submuscular<sup>5</sup> to the intramuscular technique, leading to fewer complications. The association with liposuction of the flanks improved the final cosmetic result, making gluteoplasty with implants feasible.<sup>6–13</sup> Currently, the intramuscular technique has greater acceptance among plastic surgeons and provides the best results, with a low complication rate.<sup>8–14</sup>

Functional aspects are of great importance and should be considered even in esthetic surgeries. The erogenous factor through sensory stimuli is important for sensation of pleasure, and the protection factor prevents pressure ulcers and injury by burns.

Changes in gluteal sensitivity after buttock augmentation have not yet been studied. The knowledge of possible postoperative changes is important to provide greater clarity for patients and surgeons and avoid future sequelae.

This study aims to evaluate changes in the cutaneous sensitivity of the gluteal region following buttock augmentation with implants.

## Patients and methods

This is a clinical, analytical, cross-sectional study, approved by the Brazilian Commission of Ethics in Research (number 011.0.305.305-10).

The study was conducted at the University of State of Rio de Janeiro from January 2010 to November 2013. None of the authors have a financial interest in any of the products or devices mentioned in this manuscript. We included 40 female consecutive patients selected from the gluteal reshaping clinic, the Division of Plastic Surgery of Pedro Ernesto University Hospital. Twenty patients who underwent gluteal augmentation with implants by the intramuscular technique and 20 individuals without any buttocks surgery were included. All the patients were submitted to cutaneous sensitivity tests in a single moment. Inclusion criteria were female patients, age between 18 and 60 years, and BMI between 20 and 30 kg/m<sup>2</sup>. The criteria for noninclusion were as follows: history of high blood pressure; diabetes; smoking; skin and/or rheumatic diseases; previous surgeries in the trunk and/or lower limbs; and scars on the buttocks; lower back or thighs. The

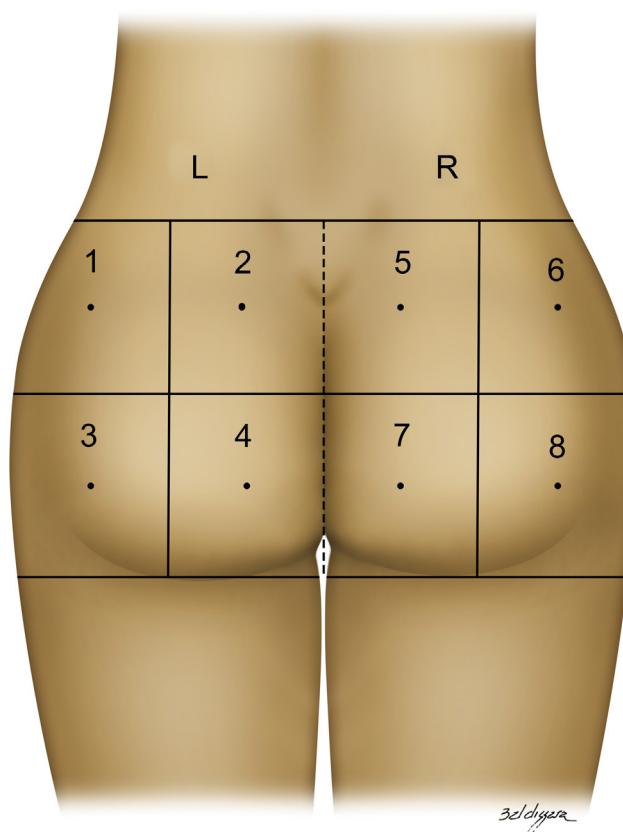
study exclusion criteria included any dermatological or systemic conditions in the postoperative period that could compromise the sensitivity test.

The study group included 20 consecutive patients who underwent buttock augmentation with implants by the intramuscular technique at Pedro Ernesto University Hospital between January 2010 and December 2012 and who had at least 12 months of postoperative follow-up.

The control group included 20 consecutive candidates for buttock augmentation in the Plastic Surgery Division of the University of the State of Rio de Janeiro. The patients in this group have never had gluteal surgery.

The study group was subdivided into patients who underwent liposuction of the flanks at the time of gluteoplasty and patients who did not undergo liposuction. Ten patients were allocated in each subgroup.

The right and left gluteal regions were delimited superiorly and inferiorly by two horizontal parallel lines, being the cranial and tangential to the iliac crests and the caudal and tangential to the infragluteal fold. The medial boundary of each region was set as the median line and the lateral boundary by a line tangent to the greater trochanter. Each buttock region was divided into four quadrants (Figure 1) numbered 1–8 (1–4 for the right side and 5–8 for the left side). Sensitivity testing was conducted in the center of all quadrants for six different stimuli: touch, heat, cold, pain, vibration, and pressure. The measurements were performed at the point of intersection of the diagonals of each quadrant.



**Figure 1** Boundaries and divisions of the gluteal region. Sensitivity was tested in the center of each quadrant.

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