INTRODUCTION: Gluteal fat augmentation is one of the hot topics in plastic surgery nowadays as the demand has steadily increased in the last 3 years. However with the increase in popularity, a recent survey showed an increase in major complications due to this procedure. Expert opinion surveys constitute a well-established tool for obtaining information involving medical conduct, providing insight into individual’s perspectives and experiences. Brazil is the country with the highest number of gluteal augmentation performed in the world according to international statistics.

METHODS: We performed an online anonymous survey composed of two questionnaires with the objectives of identifying technical preferences of Brazilian butt lift and enumerating complications of this procedure with board certified Plastic Surgeons, members of the Brazilian Society of Plastic Surgery. Statistical analysis was performed using chi-square test for categorical variables and ANOVA for the continuous variables.

RESULTS: A total of 853 of the 5655 Board-Certified Brazilian plastic surgeons answered the survey (response rate 15.08%). The confidence level was 99% with 4% margin of error. Fat grafting was considered the best technique for gluteal augmentation in comparison to implants by 79.89% of plastic surgeons. The fat harvesting technique mostly used was vacuum assisted liposuction (60.75%), attached to a 4mm diameter cannula (60%). Fat was processed by decantation by 85.66% plastic surgeons, using a 3 or 4mm diameter cannula (43.48%, 40.52%). The intergluteal cleft incision was used by 63.32% plastic surgeons and fat was injected in the subcutaneous plane only by 55.7%. The most frequent volume of fat injected per buttock was between 200 and 399 ml (75.62%). Seventy one percent members didn’t have any restriction regarding positioning in the post-operative period. The percentages of plastic surgeons that reported complications following the procedure were: 36.5% for contour irregularities, 23.63% for fat necrosis, 17.75% for seroma, 13.5% for infection, 11.25% for oil cysts, 9.38% for hematoma, 5.13% for paresthesia, 2.25% for fat embolism, 2.13% for pulmonary embolism, 1.88% for deep venous thrombosis and 1.5% death. Seventy-six percent plastic surgeons kept their patients in observation for 23 hours. Most plastic surgeons had experience with this procedure as 76% learned it during their residency training. The mortality rate estimated was 1: 20.117 cases or 4.97: 100.000 cases (0.0049%). Non-fatal fat embolism rate was 1: 9530 cases or 10.5: 100.000 cases (0.01%).

CONCLUSION: With all the studies being carried out on this topic, guidelines are being established in order to prevent complications and increase safety with this procedure. Following this survey, recommendations are the following: Inject a maximum of 500ml per buttock subcutaneously only, via superior gluteal incisions, using 3 to 4mm diameter cannulas for fat harvesting and injection, keep the patients in observation for 23 hours. It is also recommended that plastic surgeons acquire experience before performing this procedure.

Radiologic Validation of the Danger Zone Concept to Microscopic (MIFE) Fat Embolism Associated with Gluteal Lipoinjection

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PURPOSE: There has been a great effort from Plastic Surgery Societies recently to provide recommendations to decrease the risks of fat embolism associated with gluteal lipoinjection.1 One of the most common published recommendation is a gluteal area that is more dangerous to inject intramuscularly. Those recommendations are derived from necropsies published in 2015 showing the following triad: tear in gluteal vein wall, intravascular fat, and macroscopic fat embolism (MAFE) in lung tissue.2 More recently, there have been fatal and nonfatal fat embolism cases which did not show the above triad but diagnosed free oil in lung microvasculature, which has been called microscopic fat embolism (MIFE).3 Free oil from the lipoaspirate can access intravascular space even in intact vessels due to its lipophilic walls.4 Indirect venography is the gold standard to radiologically show the presence of veins, its caliber, and trajectory. In this paper, we sought to look after a danger zone within the gluteal region by means of indirect venography with the highest concentration of veins that should be avoided during gluteal fat grafting to prevent either MAFE or MIFE occurrence.

METHODS AND MATERIALS: Indirect venography from different patients was analyzed to highlight constant
patterns of vein distribution in the gluteal region. The area with the highest concentration of veins was demarked and its anatomical boundaries objectively described. Finally, a correlation between this area of highest vein concentration and the muscle mass present within this area was described to locate the area most prone to permit MAFE and MIFE events.

**RESULTS:** The Danger Zone concept, already published by the authors to avoid MAFE, can also be applied to prevent MIFE, because it not only compromises the inferior gluteal vein, which is one of the main concern to be damaged and allow fat into bloodstream (MAFE) but also includes the muscle area with highest density of vessels in gluteal region that could allow absorption of free oil without direct vessel wall rupture (MIFE).

**CONCLUSION:** The delimitation of a gluteal topographic area that should be avoided for intramuscular fat injection is updated to also compromise MIFE risk factors and ensure maximal safety in gluteoplasty with autologous fat tissue.

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**BACKGROUND:** In recent years, gluteal fat grafting has exhibited some of the most significant growth among all surgical procedures. However, as the popularity and media attention of gluteal fat augmentation continue to rise, reports of fatalities have raised concerns regarding the safety of this procedure. These fatalities have largely been attributed to fat embolism, which can occur following intramuscular fat injection due to the large caliber of the gluteal vessels, for this reason subcutaneous fat augmentation has been a preference of many. However, there is a lack of prospective studies offering quantitative analysis of gluteal subcutaneous-only fat grafting.

**OBJECTIVE:** We therefore investigated the long-term outcomes of subcutaneous gluteal fat grafting using the ultrasonography.

**MATERIALS AND METHODS:** Fifty consecutive patients were evaluated in this prospective clinical study. All patients underwent gluteal fat augmentation in the subcutaneous plane only, and were submitted to ultrasound analysis of adipose tissue thickness pre-operatively, immediately post-operatively, and 12 months post-operatively.

**RESULTS:** Immediate post-operative measurements revealed an average increase in gluteal subcutaneous layer thickness of 56.51% (39.5% to 108.6%) (p<0.0001). At 12 months post-operatively, the gluteal adipose tissue thickness decreased by, an average of 18.16% (6.8% to 24.8%) (p<0.0001). Therefore, we observed a volume retention of 81.84% of the injected volume (p<0.0001).

**CONCLUSION:** Subcutaneous only fat injection shows to be as effective as intramuscular fat injection in regards to long-term fat retention in the gluteal region, with satisfactory outcomes and minimal absorption at 12 months post-operatively.

**Cosmetic Tourism: An Infectious Disease Burden**

**Presenter:** Sun Hsieh, MD