



Breast Esthetic Preferences from the Perspective of Medical Students: A Cross-Sectional Study

Preferências estéticas de mama sob a perspectiva de estudantes de medicina: Um estudo transversal

Luís Gustavo Ramos Raupp Pereira¹ Laura Librelotto Rubin Rodrigues¹ Maria Eduarda Caldato¹
Mateus Eduardo Giovelli¹ Karoline Scussel Ruhmke¹ Ana Luíza Fontana¹
Eduardo Madalosso Zanin¹

¹ School of Medicine, Universidade de Passo Fundo, Passo Fundo, RS, Brazil

Rev Bras Cir Plást 2026;41:s00461816565.

Address for correspondence Luís Gustavo Ramos Raupp Pereira, Escola de Medicina, Universidade de Passo Fundo, Rua Teixeira Soares 817, Centro, Passo Fundo, RS, 99010-080, Brazil (e-mail: luisgustavoraupp@gmail.com).

Abstract

Keywords

- breast
- breast implantation
- esthetics
- mammoplasty
- surgery, plastic

Resumo

Palavras-chave

- mama
- implante mamário
- estética
- mamoplastia
- cirurgia plástica

Introduction The lack of objective data in the surgical literature hinders plastic surgeons from guiding patients and selecting the most appropriate technique for cosmetic breast surgery. The present article analyzes breast-related esthetic criteria among medical students from a university in the state of Rio Grande do Sul, Brazil.

Materials and Methods Data collection used a questionnaire sent via email to university students.

Objective To assess the relationship between age and ideal breast esthetics by examining how the university environment influences the definition of breast esthetic standards, and to provide support to surgeons in guiding their patients and selecting the surgical technique.

Results We collected 239 responses. Most participants (61.1%) preferred a 50/50 upper-to-lower pole volumetric ratio. In addition, 59.83% of respondents preferred a central location for the areola and nipple, and 83.68% preferred small-sized areolas and nipples.

Conclusion The results showed a preference for symmetrical patterns over pole deviations or angulations. There were no statistically significant differences between genders.

Introdução Diante da falta de dados objetivos na literatura cirúrgica, existe no meio profissional da cirurgia plástica uma dificuldade quanto à orientação dos pacientes e à escolha da técnica mais adequada para a realização da cirurgia estética de mama. O presente artigo busca compreender os critérios estéticos da mama tendo como base uma amostra de estudantes de medicina de uma universidade gaúcha.

Materiais e Métodos A coleta de dados foi realizada através de um questionário enviado via e-mail aos alunos da universidade.

Study performed at the School of Medicine, Universidade de Passo Fundo, Passo Fundo, RS, Brazil.

received
January 19, 2025
accepted
August 26, 2025

DOI <https://doi.org/10.1055/s-0046-1816565>.
ISSN 2177-1235.

Editor-in-Chief: Dov Charles Goldenberg.

© 2026. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution 4.0 International License, permitting copying and reproduction so long as the original work is given appropriate credit (<https://creativecommons.org/licenses/by/4.0/>)
Thieme Revinter Publicações Ltda., Rua Rego Freitas, 175, loja 1, República, São Paulo, SP, CEP 01220-010, Brazil

Objetivo Avaliar a relação entre idade e ideal estético da mama, analisar a influência do ambiente universitário na definição de um padrão estético de mamas e fornecer suporte aos cirurgiões na orientação de seus pacientes, além de auxiliar tais profissionais na escolha da técnica cirúrgica a ser utilizada.

Resultados Foi coletado um total de 239 respostas. Em relação à diferença proporcional entre o volume dos polos superior e inferior, observamos que 61,1% dos participantes demonstraram preferência pela proporção 50/50. No quesito de diferenças de localização da aréola e do mamilo, evidenciou-se a predileção pela localização central com 59,83%. Em questão do tamanho entre a aréola e o mamilo, percebeu-se que a maior parcela dos participantes da pesquisa, 83,68%, demonstraram preferência pelo tamanho pequeno da aréola e mamilo.

Conclusão Os resultados demonstraram uma preferência aos padrões de simetria comparados àqueles com algum desvio de polo ou angulação. Não foram constatadas diferenças estatisticamente significantes na comparação entre os sexos.

Introduction

Defining the esthetic standard concept is a crucial step when planning cosmetic surgery. However, surgical literature lacks objective data about breast-related esthetic preferences, increasing the challenge of selecting the most appropriate technique.¹ This gap in the literature can hinder patient guidance regarding breast surgery options and, consequently, compromise the achievement of satisfactory esthetic outcomes. Therefore, it is essential to conduct studies to define more objective, clear parameters for breast surgery.

The study of esthetic ideals supports facial surgeries, such as rhinoplasty.^{2,3} In addition, gluteal surgeries use several forms and ideas established by analysis of waist-to-hip ratios.^{4,5} Although there are reports on ideal breast shapes and measurements, the data to guide esthetic preferences regarding breast surgery is scarce. The definition of features such as harmony, flow, and breast shape requires a more comprehensive approach that considers patients' subjective perceptions and the complexity of the procedure.

Pitanguy was one of the pioneers in establishing the esthetic principles that guide breast reconstruction, highlighting the importance of proportional parameters in defining the esthetic breast standard.⁶ Bozola proposed a breast reduction technique with a short L-shaped scar, emphasizing the proportion between the breast poles and breast geometry as fundamental elements for a harmonious outcome.^{7,8}

Later, in collaboration with other authors and based on geometric studies and proportions, such as the golden ratio (ϕ), Bozola reported that breast beauty is strongly related to the harmony between the poles and the proper position of the nipple-areola complex.⁹ Pontes contributed by developing approaches to enhance breast contour and proportion, reinforcing the importance of anatomical and functional parameters in obtaining satisfactory esthetic outcomes.¹⁰

A study aimed at understanding the esthetic ideals of the female breast found that participants preferred a 50:50 or 55:45 upper-to-lower pole ratio, with an areola size of 30 mm being the most common choice.^{11,12} The breast shape preferred by Asian women is a nipple and inframammary fold (IMF) level at 45% and 60%, respectively, of the distance from the sternal notch to the navel.¹³ Most women seek the natural beauty of their breasts, and the ideal size of the nipple-areola complex was 30 mm.¹⁴

The preference for moderately-sized breasts highlights body proportion and harmony. This fact can help plastic surgeons when guiding patients interested in breast surgery.^{15,16}

Objective

The present study aimed to evaluate esthetic preferences and criteria regarding breast perception among medical students at a university in the state of Rio Grande do Sul, Brazil. We analyzed the possible relationship between variables such as age and gender with the ideal of breast esthetics, identifying which proportions, shapes, and characteristics are most valued by this population. Furthermore, we investigated the influence of the university environment on the construction of esthetic standards by comparing the data obtained with references available in scientific literature.

Materials and Methods

We conducted this observational, cross-sectional study with volunteer students from Universidade de Passo Fundo, state of Rio Grande do Sul, Brazil, recruited through a survey sent via institutional email from May to September 2024. This study adhered to the Helsinki Declaration and received approval from the Ethics and Research Committee under protocol CAAE 78650623.4.0000.5342. Participants signed an informed consent form before answering

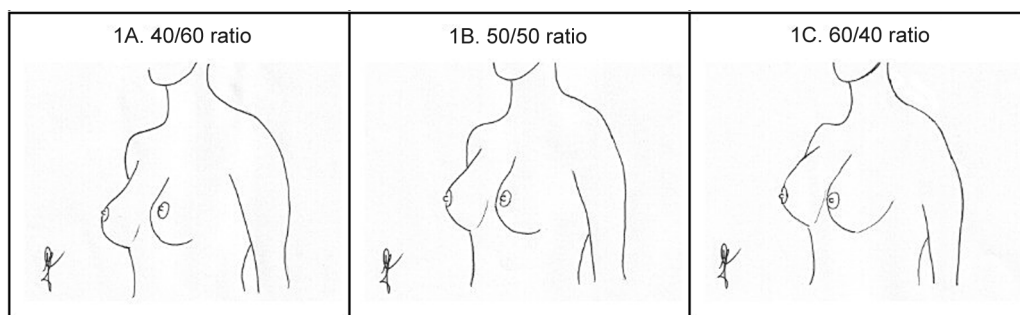


Fig. 1 Upper-to-lower pole ratios.

the survey. The research ensured anonymity in responses, maintained data confidentiality through secure storage, and restricted access to authorized personnel directly involved in the study.

The questionnaires were developed based on the variables reported by Mallucci et al., who analyzed breast esthetic preferences through 1,294 responses.¹ The questionnaire variables (available in ► **Supplementary Material 1**) included age, gender, education level, physical exercise practice, and previous history of breast surgery. The inclusion criterion was medical students, while the exclusion criteria were non-medical students and students from other courses or universities.

The sample size calculation utilized data from the article “Breast Aesthetic Preferences: Analysis of 1,294 Surveys,” which explored female and male opinions on pole distribution.¹⁶ Gender comparison generated an effect size of 15.5% for the 50/50 distribution (female, 52.1% and male, 36.6%) and 15% for the 40/60 distribution (female, 43.4% and male, 58.4%). We considered the smaller effect size (15%); as such, the minimum sample size was 348 participants, with a 5% significance level and 80% power.

We used the commercially available Winpepi (Brixton Health) Version 11.65 software from 2016 to calculate the sample size. For the statistical analysis, we entered the data into a Microsoft Excel (Microsoft Corp.) spreadsheet and used the IBM SPSS Statistics for Windows (IBM Corp.) software, version 24.0, also commercially available. The descriptive analyses showed numerical (quantitative) variables as mean and standard deviation (SD), and categorical (qualitative) variables as number (N) and percentage (%) of subjects. Data comparison between groups used tests for proportions, such as the Chi-squared or Fisher’s exact test, as needed. The *p*-value for statistical significance was 0.05 (Alpha).

Results

We collected 239 responses from medical students at a single university to a questionnaire regarding their preferred breast esthetic standard and the previously indicated variables. We analyzed the complete sample as all responses met the inclusion and exclusion criteria outlined in the Methodology section, making exclusion unnecessary. Therefore, all 239

responses were valid, with 72.38% (*n* = 173) submitted by female participants and 27.62% (*n* = 66) by male participants.

When questioned about their medical history of breast procedures, that is, previous mammoplasty or reconstructive surgery, most (*n* = 219; 91.63%) respondents denied it, reflecting the significant portion of males in the sample. Sixteen (6.69%) participants reported having undergone breast implant surgery. Furthermore, 2 subjects (0.84%) declared they had undergone reduction mammoplasty, and another 2 (0.84%) underwent reduction mammoplasty with breast implants.

We also asked participants about their daily engagement in physical activity and its frequency. Twenty-five (10.46%) subjects did not practice physical activity routinely. However, most (*n* = 214; 89.54%) participants reported practicing physical exercises. As for frequency, we categorized subjects into 3 groups: those practicing physical activity only once a week (*n* = 27; 11.29%), up to 3 times a week (*n* = 85; 35.56%), and up to 5 times a week (*n* = 102; 42.69%).

Most pleasing breast esthetic standard

Different upper-to-lower pole ratios

We analyzed the esthetic preference regarding breast proportionality, that is, the upper-to-lower pole volumetric ratios of 40/60 (► **Fig. 1A**), 50/50 (► **Fig. 1B**), and 60/40 (► **Fig. 1C**). Most (*n* = 146; 61.1%) participants preferred the 50/50 ratio (► **Fig. 1B**). Seventy-one (29.7%) respondents preferred the 40/60 ratio (► **Fig. 1A**), and only 22 (9.2%) preferred the 60/40 ratio (► **Fig. 1C**). ► **Fig. 2** shows these different preferences.

Different nipple-areola location

Regarding the preferred nipple-areola location, 143 (59.83%) participants selected a central site (► **Fig. 3A**); 33 (13.81%) selected the lateral location (► **Fig. 3B**), and 63 (26.36%) respondents preferred a 20° angled arrangement (► **Fig. 3C**). ► **Fig. 4** depicts the preferred nipple-areola location in percentage.

Different nipple-areola ratio

Regarding the size ratio between the areola and the nipple, most (*n* = 200; 83.68%) participants preferred the image in ► **Fig. 5A**, which depicts a smaller areola and nipple.

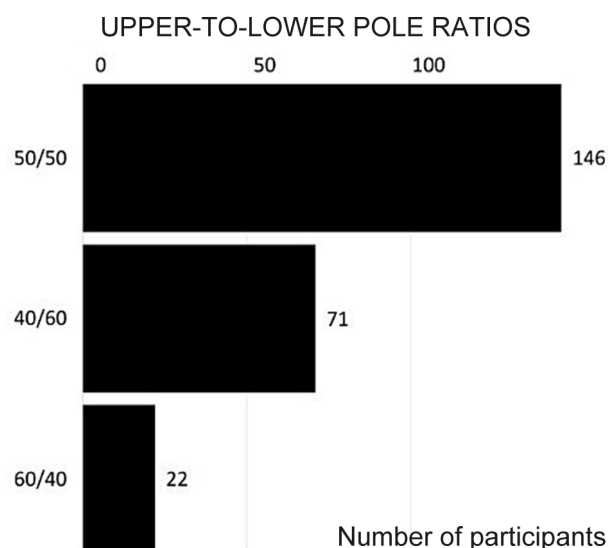


Fig. 2 Preferred upper-to-lower pole ratios.

Thirty-nine (16.32%) respondents preferred a larger nipple-areola size (►Fig. 5B). ►Fig. 6 shows the different preferences regarding areola and nipple sizes.

Different preferences per gender

Female and male participants responded differently to the questionnaire. Women accounted for 72.38% (n = 173) of the research sample, while men accounted for 27.62% (n = 66). Regarding the upper-to-lower pole ratio, most women (n = 109; 63.00%) preferred the 50/50 ratio (►Fig. 1B), followed by 50 (28.90%) who selected the 40/60 ratio (►Fig. 1A), and 14 (8.1%) who preferred the 60/40 ratio (►Fig. 1C). For the nipple-areola location, most (n = 107; 61.85%) females preferred the central position (►Fig. 3A), followed by 44 (25.43%) who selected a 20° inclination (►Fig. 3C), and 22 (12.72%) who preferred the lateral position (►Fig. 3B). As for the nipple-areola ratio, most (n = 148; 85.54%) respondents preferred the small size (►Fig. 5A) and 25 (14.45%) selected the large size (►Fig. 5B).

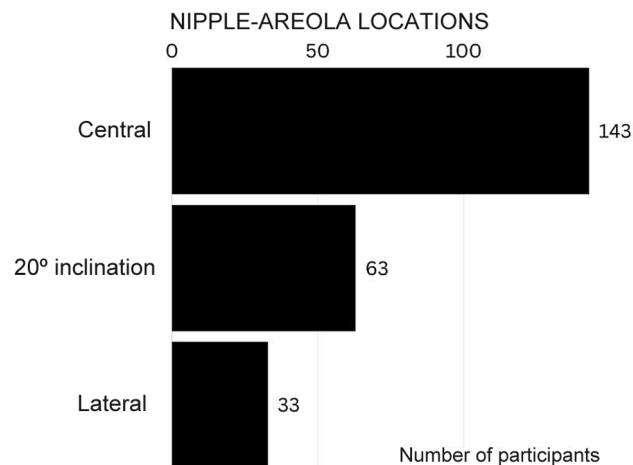


Fig. 4 Preferred nipple-areola locations.

As for men, regarding the upper-to-lower pole ratio, 37 (56.1%) preferred the 50/50 ratio (►Fig. 1B), followed by 21 (31.8%) who opted for the 40/60 ratio (►Fig. 1A), and 8 (12.1%) who selected the 60/40 ratio (►Fig. 1C). For the nipple-areola location, 36 (approximately 54.50%) preferred the central position (►Fig. 3A), followed by 19 (28.80%) who selected a 20° inclination (►Fig. 3C), and 11 (16.70%) who opted for the lateral position (►Fig. 3B). Regarding the nipple-areola ratio preference, 52 (78.8%) men preferred the smaller size, and the remaining 14 (21.20%) selected the larger size.

Discussion

The present cross-sectional study, based on a questionnaire sent to the target population, identified several breast-related esthetic preferences. The single criterion standing out was the agreement among respondents. The authors emphasize that this research did not aim to define an esthetic standard, but rather to understand the esthetic perspective of the sample.

When analyzing esthetic preferences regarding breast proportionality, specifically the volume of the upper and

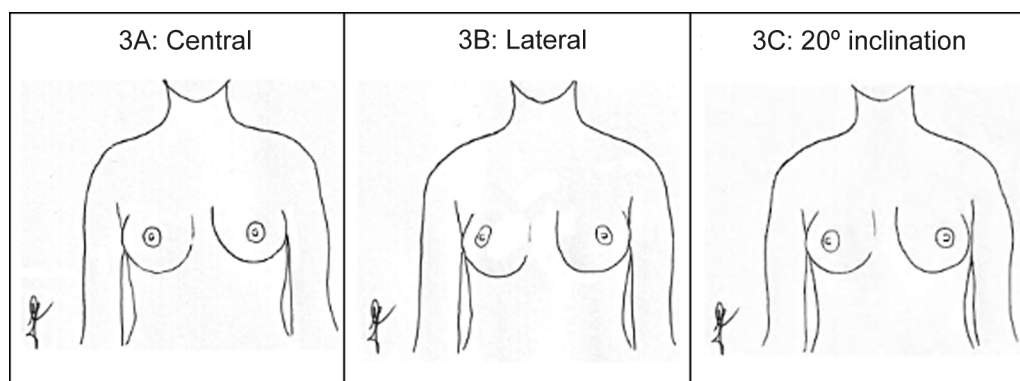


Fig. 3 Nipple-areola location.

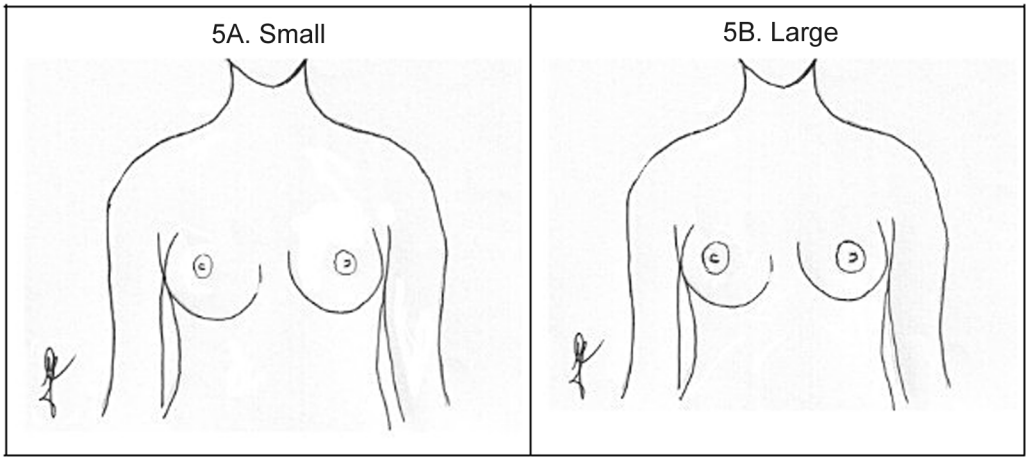


Fig. 5 Nipple-areola ratio.

lower poles, we observed that 63% of participants opted for the 50/50 ratio, rather than the 60/40 or 40/60 ratio. This percentage is consistent with another study.¹⁶ Such a majority choice aligns with the findings of Mallucci et al. on breast beauty definition, who stated that higher breast deviation reduces their attractiveness. Excessive upper and lower pole volumes are equally unattractive, and their deviation from the norm is very pronounced.¹ Breasts that do not exhibit this pronounced measurement would be more attractive. In our research, 8.50% of respondents preferred the 60/40 ratio, consistent with a study by Jimenez et al., in which less than 8.60% of participants chose this ratio.¹⁶

We also inquired about differences in the areola and nipple locations. The visual characteristics of the nipple-areola complex included size, position, projection, vector,

state of contraction, and symmetry with the opposite side.¹¹ In our research, a significant portion (59.50%) of the participants preferred the central location. Other studies indicated that a nipple located at this limit of the upper and lower poles (nipple meridian) and pointing upwards (average angle of 20°) was visually pleasing.^{1,11} Another study also reported a preference for nipple-areola complexes with a central location.¹⁶ The nipple should ideally accentuate the apical projection of the breast.¹¹

Regarding the areola-to-nipple ratio, a significant portion (83.50%) of the research participants opted for smaller areolas and nipples. While some opinions may differ, it is crucial to emphasize that plastic surgeons should carefully consider harmonious body proportions and not focus solely on breast size.¹¹

The comparative assessment of esthetic preferences between females and males revealed no statistically significant differences. In this metric, preferences remained tied to proportionality, emphasizing that despite individual preference factors, the perception of beauty relies on proper sizes and anthropometric proportions, which support harmony.¹¹

Most participants preferred the 50/50 ratio, with 109 (62.90%) females and 37 (56.10%) males choosing this option. In contrast, 50 (28.90%) females and 21 (31.80%) males selected the 40/60 ratio, while only 14 (8.10%) women and 8 (12.10%) men chose the 60/40 ratio. This pattern indicates a general preference for the 50/50 ratio across both genders, though there were slight variations in the choices made by males and females.

Regarding location, most women (n = 107; 61.80%) selected the central option, as did 36 (54.50%) men. However, women showed greater diversity in their choices, with a considerable proportion opting for the inclined location (n = 44; 25.40%). Only 11 (16.70%) men preferred the lateral position.

Regarding areola size, 148 (85.50%) women preferred a smaller areola; among men, the preference was more balanced, with 52 (78.80%) opting for the smaller areola and 14 (21.20%) for the larger areola. These data suggest that, while

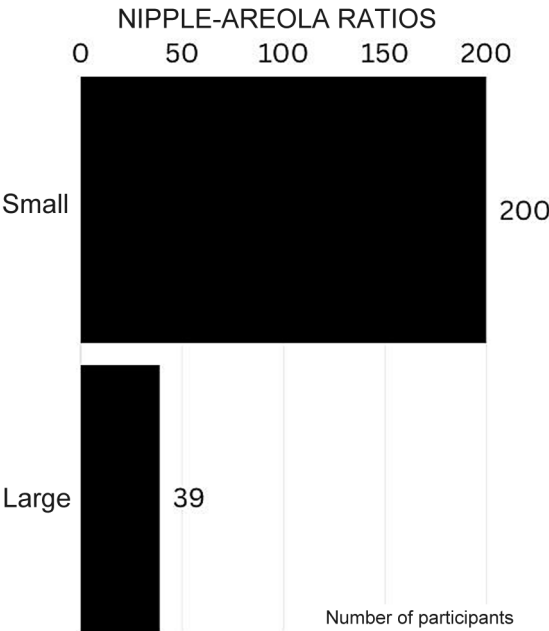


Fig. 6 Preferred nipple-areola ratios.

women preferred smaller areolas more clearly, men displayed a more balanced range of opinions, though the preference for smaller areolas still prevailed.

It is worth noting that, although the study sample was considerably imbalanced (173 women versus 66 men), the results offer important insights into the preference trends of both genders. Nevertheless, the limited representation of men may influence the generalizability of the findings to the male population.

Munhoz et al. underscored the importance of respecting the anatomical proportions and units of the breast cleavage to achieve natural, harmonious outcomes by standardizing fat grafting areas in hybrid augmentations, consistent with the esthetic preferences revealed in this research.¹⁷ Stümpfle et al. highlighted minimally invasive surgical techniques favoring natural outcomes and subtle scars, aspects valued in contemporary breast esthetics.¹⁸

Conclusion

The present study identified that esthetic preferences regarding breasts among medical students at a medical institution in Rio Grande do Sul, Brazil, are influenced by multiple factors, including gender, age, and possibly the academic environment. We observed a predominant appreciation for harmonious proportions, especially the 50/50 upper-to-lower pole ratio, the central location of the nipple-areola complex, and the reduced size of the areola and nipple. These aspects partially align with the standards described in the literature. There were no statistically significant differences between genders, indicating that women and men agree on the ideal breast esthetic. The data pointed out that medical training can shape a more technical and grounded esthetic perception, setting it apart from the norms widely promoted by popular media. The study suggests the need to prioritize surgical techniques to improve breast symmetry to meet the identified preferences. Future research with larger samples and longitudinal designs is recommended to confirm our findings and deepen the understanding of the factors influencing breast esthetic perception.

Data Availability

Data will be available upon request to the corresponding author.

Authors' contributions

LGRRP, LLR, MEC, MEG, KSR, ALF and EMZ: data analysis and/or interpretation, statistical analysis, final manuscript approval, funding acquisition, data collection, conceptualization, study conception and design, resource management, project management, investigation, methodology, performance of surgeries and/or experiments, writing – original draft preparation, writing – review & editing, software, supervision, validation, and visualization.

Copyright

The authors retain copyright and all publishing rights. No embargoes apply. The authors have the right to share (copy and redistribute the material in any medium or format) and adapt (remix, transform, and build upon the material for any purpose, even commercially).

Financial Support

The authors declare that they did not receive financial support from agencies in the public, private or nonprofit sectors to conduct the present study.

Clinical Trials

None.

Conflict of interests

The authors have no conflict of interests to declare.

References

- 1 Mallucci P, Branford OA. Shapes, Proportions, and Variations in Breast Aesthetic Ideals: The Definition of Breast Beauty, Analysis, and Surgical Practice. *Clin Plast Surg* 2015;42(04):451–464. Doi: 10.1016/j.cps.2015.06.012
- 2 Rhee SC, Woo KS, Kwon B. Biometric study of eyelid shape and dimensions of different races with references to beauty. *Aesthetic Plast Surg* 2012;36(05):1236–1245. Doi: 10.1007/s00266-012-9937-7
- 3 Sinno HH, Markarian MK, Ibrahim AMS, Lin SJ. The ideal nasolabial angle in rhinoplasty: a preference analysis of the general population. *Plast Reconstr Surg* 2014;134(02):201–210. Doi: 10.1097/PRS.0000000000000385
- 4 Wong WW, Motakef S, Lin Y, Gupta SC. Redefining the Ideal Buttocks: A Population Analysis. *Plast Reconstr Surg* 2016;137(06):1739–1747. Doi: 10.1097/PRS.0000000000002192
- 5 Freese J, Meland S. Seven tenths incorrect: heterogeneity and change in the waist-to-hip ratios of Playboy centerfold models and Miss America pageant winners. *J Sex Res* 2002;39(02):133–138. Doi: 10.1080/00224490209552132
- 6 Pitanguy I. Mammaplastias. *Rev Latinoam Cir Plast* 1963;7:139
- 7 Bozola AR. Redução mamária com cicatriz curta em L. *Plast Reconstr Surg* 1990;85(05):728–738. Doi: 10.1097/00006534-199005000-0001
- 8 Bozola AR. Mamoplastia Redutora: Técnicas Preferenciais. In: Goldwyn RM, ed. *Mamoplastia Redutora*. Boston: Little Brown; 1990:407–437
- 9 Bozola AR, Longato FM, Bozola AP. Análise geométrica da forma da beleza da mama e da forma de prótese baseado na proporção Phi: aplicação prática. *Rev Bras Cir Plást* 2011;26(01):94–103. Doi: 10.1590/S1983-51752011000100019
- 10 Pontes R. A technique of reduction mammaplasty. *Br J Plast Surg* 1973;26(04):365–370. Doi: 10.1016/s0007-1226(73)90042-8
- 11 Atiye B, Chahine F. Metrics of the Aesthetically Perfect Breast. *Aesthetic Plast Surg* 2018;42(05):1187–1194. Doi: 10.1007/s00266-018-1154-6
- 12 Sandberg LJ, Tønseth KA, Kloster-Jensen K, et al. An Aesthetic Factor Priority List of the Female Breast in Scandinavian Subjects. *Plast Reconstr Surg Glob Open* 2020;8(10):e3173. Doi: 10.1097/GOX.0000000000003173
- 13 Lee HJ, Ock JJ. An Ideal Female Breast Shape in Balance with the Body Proportions of Asians. *Plast Reconstr Surg Glob Open* 2019;7(09):e2377. Doi: 10.1097/GOX.0000000000002377

- 14 Hamzan MI, Sulaiman WAW, Ismail NN. Bigger Bust No Longer on Trend: Malaysians Prefer Moderation in Ideal Female Breast Augmentation. *Indian J Plast Surg* 2021;54(03):321–326. Doi: 10.1055/s-0041-1734572
- 15 Wallner C, Dahlmann V, Montemurro P, et al. The Search for the Ideal Female Breast: A Nationally Representative United-States-Census Study. *Aesthetic Plast Surg* 2018;46(04):1567–1574. Doi: 10.1007/s00266-021-02753-y
- 16 Jimenez NM, Gómez ASP. Breast Aesthetic Preferences: Analysis of 1294 Surveys. *Aesthetic Plast Surg* 2021;45(05):2088–2093. Doi: 10.1007/s00266-021-02253-z
- 17 Munhoz AM, Maximiliano J, Neto AAM, et al. Zones for Fat Grafting in Hybrid Breast Augmentation: Standardization for Planning of Fat Grafting Based on Breast Cleavage Units. *Plast Reconstr Surg* 2022;150(04):782–795. Doi: 10.1097/PRS.0000000000009605
- 18 Stümpfle RL, Piccinini PS, Zanin EM. Muscle-Splitting Transaxillary Revision Breast Augmentation-A Single Surgeon's Experience. *Aesthetic Plast Surg* 2021;45(05):2027–2033. Doi: 10.1007/s00266-021-02179-6