

## Crowdsourcing the Ideal Nipple Areolar Complex (NAC) Position for Chest Masculinization Surgery

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**Background:** Chest masculinization surgery is increasing in prevalence. However, the ideal location of the nipple areolar complex (NAC) is unknown. Our purpose is to determine the most aesthetically favorable male NAC position for use in chest masculinization through crowdsourcing.

**Methods:** Using Adobe Photoshop CC 2017, 8 locations for the NAC were created based on previous literature descriptions. Amazon Mechanical Turk was utilized as a crowd-sourcing interface “ respondents were asked to rank the top three most favorable as well as least favorable images. Analysis of variance with subsequent Tukey HSD was used for statistical comparison of favorability scores for different NAC localizations. Values were considered significant with  $P < 0.05$ .

**Results:** 819 respondents participated in the survey. NAC positions of *Image C* (mean score = 1.9222) and *A* (mean score = 1.7365) received higher favorability scores than those of Images D, E, F, G, and H (all  $p < 0.05$ ). There were no significant differences between *Images C* and *A* ( $C$  vs.  $A$ :  $p = 0.6412$ , Figure 2). NAC localizations from *Images G* (mean score = -2.0353) and *H* (score = -1.6908) received lower favorability scores than *Images A, B, C, D, E, and F* (all  $p < 0.05$ ). There were no significant differences between *Images G* and *H* ( $p = 0.2279$ ).

**Conclusion:** Most respondents preferred *Images C* and *A*, and few favored *Images G* and *H*, suggesting that lateral NAC placement is favored over more medial localizations. Additionally, both *Images C* and *A* utilize relatively inferior NAC placements. Therefore, we recommend an inferior and lateral location to the NAC. Ultimately, NAC localization during chest masculinization will be the result of shared decision-making between patient and surgeon to fulfill each patient’s aesthetic goals.

**Table 1. Demographics of mTurk survey participants.**

	Number of Respondents (%)
<b>Age</b>	
Under 18	2 (0.25)
18-24	133 (16.90)
25-34	409 (51.97)
35-44	150 (19.06)
45-54	51 (6.48)
55-64	35 (4.45)
65+	7 (0.89)
<b>Gender</b>	
Male	514 (65.39)
Female	263 (33.46)
Transgender Man	2 (0.25)
Transgender Woman	1 (0.13)
Non-binary	2 (0.25)
Agender	2 (0.25)
Unsure	0 (0.00)
Other	2 (0.25)
<b>Sexual Orientation</b>	
Heterosexual	598 (75.89)
Gay	20 (2.54)
Lesbian	13 (1.65)
Asexual	8 (1.02)
Bisexual	128 (16.24)
Pansexual	6 (0.76)
Queer	3 (0.38)
Unsure	6 (0.76)
Other	6 (0.76)
<b>Race</b>	
White or Caucasian	439 (55.85)
Black or African American	54 (6.87)
Hispanic or Latino	44 (5.60)
Asian or Asian American	213 (27.10)
American Indian or Alaska Native	11 (1.40)
Native Hawaiian or other Pacific Islander	2 (0.25)
Other	23 (2.93)
<b>Nation of Origin</b>	
United States	512 (64.16)
India	162 (20.30)
Brazil	13 (1.63)
Canada	8 (1.00)
UK	7 (0.88)
Australia	3 (0.38)
Other	33 (4.14)
Unspecified	60 (7.52)

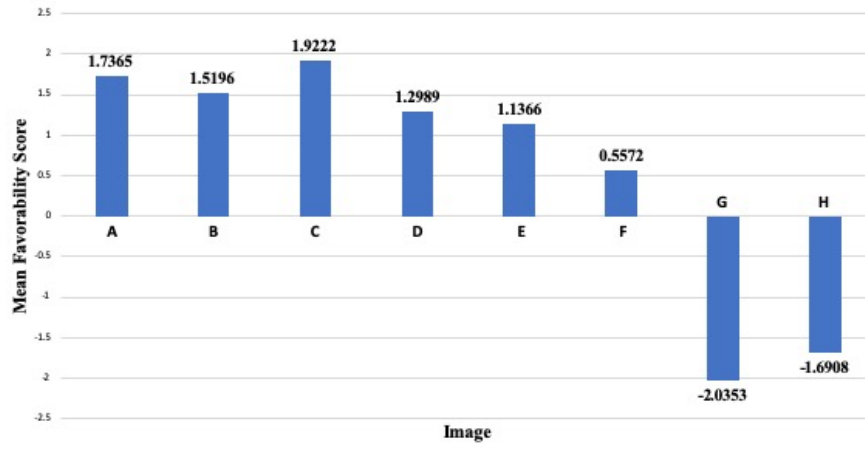


Figure 2. Preferred NAC Positions of mTurk survey respondents ranking by favorability scores.