

## PERCEPTION OF FEMALE BUTTOCKS AND BREAST SIZE IN PROFILE

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This study looked at the contribution of breast size and buttock size on ratings of female physical attractiveness in profile. A total of 114 British undergraduates rated 9 silhouettes with 3 varying levels of breast size and 3 levels of buttock size. Results showed significant main effects of breast size (with an overall preference for small breasts) but not of buttock size. Gender of the participants did not have a significant effect on the variables, although there was a significant interaction of breast and buttock size. The findings suggest that variables such as breast size are minor cues of female physical attractiveness.

*Keywords:* breast size, buttocks, physical attractiveness.

Most studies examining the physical attractiveness preferences of males and females have focussed on the human face in the belief that facial attractiveness is a more important determinant of an individual's physical attractiveness than body cues (Furnham, Tan, & McManus, 1997). More recently, however, researchers have turned to studying determinants of bodily attractiveness, driven by developments within the field of evolutionary psychology. Within this literature, the dominant characteristics that have been examined are the waist-to-hip (WHR) ratio and body mass index (e.g., Singh, 1993; Swami & Tovée, 2005).

One particular oversight in this literature is other features of the body that signal sex-specific attributes, such as the buttocks and breasts. It is widely recognized, for example, that the African Hottentot (Caboid) tribe and certain tribes in the Andaman Islands show a preference for large fat deposits on the buttocks, a condition known as steatopygia. It has been suggested that such fat deposits on the buttocks and thighs may signal resource accrual and thus the

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ability to ovulate and lactate, or may signal a digestive system free of parasites that interfere with fat transport from the digestive system (Jones, 1996), as is the case for certain colors in male bird ornaments (Gray, 1996).

There is also a great deal of speculation about how much female breasts contribute in sexual signalling, and it is not clear what role they play in the assessment of female attractiveness (Fisher, 1992). The size of a female's breasts can range from small to large, regardless of overall body weight and shape. As yet, there is no empirical evidence to suggest that breast size has any influence over the likelihood of conception. It has been suggested that, because breasts vary so much in shape and size, they may be a sexually selected characteristic and may influence mate selection (Cant, 1981; Morris, 1967).

The majority of empirical research conducted on the relationship between breasts and attractiveness has only gone as far as to investigate breast size (Furnham, Hester, & Weir, 1990). It was found by Kleinke and Staneski (1980) that medium-sized breasts evoked the most favorable ratings from participants of both sexes, when written stimulus was used. In another study, using color photographs, the same experimenters found that women with smaller breasts were rated as competent, ambitious, intelligent, moral and modest. However, women with large breasts were judged to have the opposite characteristics by both female and male participants. Gitter, Lomranz, Saxe, and Bar-Tal (1983) also conducted a study using male and female participants, and in contrast to the findings of Kleinke and Staneski, their results suggest that males preferred large breasts and smaller breasts were rated more favorably by female participants. Yet, large breasts on obese women are not considered especially attractive. Low (1979) suggested that only slim women with large breasts would be thought of as attractive. This was also the conclusion of Furnham, Dias, and McClelland (1998), who found that attractiveness of breast size varied according to the shape and size of the body, with large breasts consistently enhancing attractiveness ratings so long as the figures had a low WHR.

To augment the research examining other attributes of the female body, the present study investigated the relative effects of buttocks and breast size on perceptions of female attractiveness. The pattern of fat deposition in the lower-body region across the thighs and buttocks is potentially more salient in profile, as are the size and shape of the bust. Thus, this study used modified versions of Wiggins, Wiggins, and Conger's (1968) nude female silhouettes in profile, which combine three breast categories (small, medium, large) and three buttocks sizes (small, medium, large) to produce a total of 9 different combinations of stimuli. This manipulation allowed us to test the effect of changing buttocks and breast size on female physical attractiveness.

## METHOD

### PARTICIPANTS

A total of 114 British undergraduate students (71 females) participated in this study, with a mean age of 20.71 years ( $SD = 3.54$ ). The socioeconomic and educational backgrounds of participants were fairly homogenous, although there was a range of ethnicities represented. All participants were unaware of the aims of the study and participated on a voluntary basis.

### STIMULI

The stimuli consisted of 9 nude female silhouettes, prepared by Wiggins et al. (1968) in such a manner that the size of breasts and buttocks could be varied systematically. Three levels of breast size (small, medium, large) and three levels of buttocks size (small, medium, large) were employed for this study. No other alterations were made within each category, and all other sex-specific information (e.g., the hairstyle) was kept constant. Breast and buttocks were manipulated through the computer modification of the selected attribute.

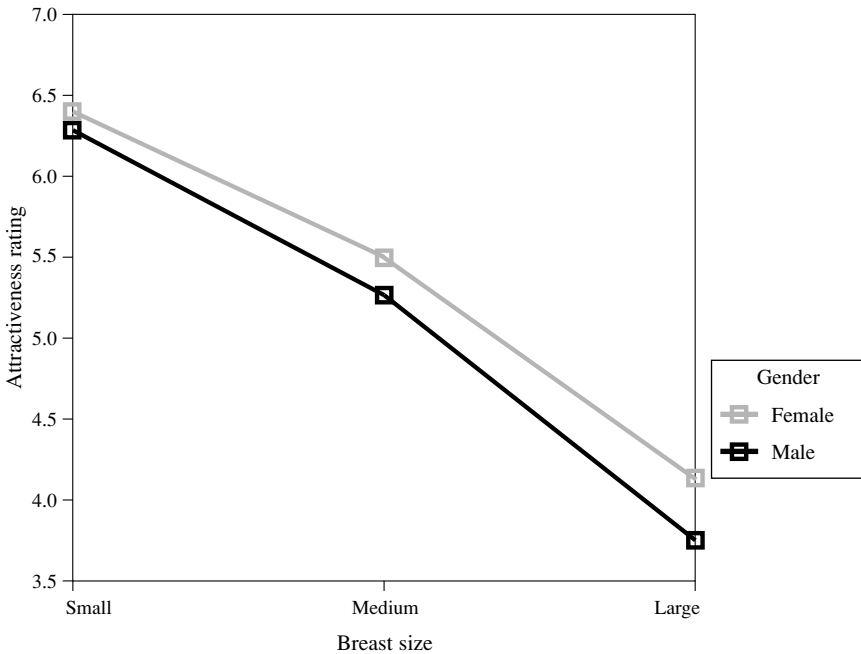
### PROCEDURE

Participants were tested in groups of 20 to 30. They were asked to rate each figure, which was presented randomly for 45 seconds, according to physical attractiveness. Participants were requested to make ratings according to their own judgement and not to confer with other subjects. They were also told that each figure was different from the others. Participants completed the ratings scales anonymously and were later debriefed. The entire testing session took approximately 20 minutes.

## RESULTS

A  $3 \times 3 \times 2$  repeated measures analysis of variance (ANOVA) was conducted on the data, to investigate the effects of breast size, buttocks size and gender on attractiveness ratings. Breast and buttocks size were treated as within-subjects variables, whereas gender was treated as a between-subjects factor. Mauchley's test of sphericity yielded a significant interaction of breast and buttocks size ( $\chi^2 = 65.73$ ,  $p < 0.001$ ). Due to the violation of the sphericity assumption, the Greenhouse-Geisser correction was applied to the degrees of freedom.

The ANOVA yielded a significant main effect of breast size ( $F_{(2, 448)} = 329.45$ ,  $p < 0.001$ ) and a significant two-way interaction for breast  $\times$  buttocks size ( $F_{(3.22, 362.15)} = 12.65$ ,  $p < 0.001$ ). There were no other significant main effects or interactions. The ANOVA revealed that breast size, but not buttocks size, had a significant effect on the ratings of physical attractiveness. From Figure 1 it can be



**Figure 1:** Graph showing the significant main effect of breast size.

seen that, for both male and female observers, small-breast size was accorded the highest ratings. Pairwise Bonferroni comparisons showed that participants rated small-breast figures as the most attractive and large-breast figures as the least attractive. There was also a significant interaction of breast and buttocks size, although it is important to note that the effect size for this interaction ( $\eta_p^2 = 0.10$ ) was considerably smaller than that for breast size ( $\eta_p^2 = 0.75$ ). This suggests that the significance of this interaction may have been caused by the large number of participants who undertook this study. Interestingly, however, there were no significant interactions of gender with either breast or buttocks size.

DISCUSSION

The findings of this study suggest that both male and female observers show a preference for small breast size when asked to judge silhouettes for physical attractiveness. Buttocks size, however, does not seem to play a significant role in determining female physical attractiveness. The finding regarding breast size is particularly interesting, as it stands in contrast to previous studies which show a general preference for medium (Furnham et al., 1990; Kleinke & Staneski, 1980)

or large (Furnham et al., 1998; Low, 1979) breast size. There are a number of possible reasons for this discrepancy.

First, it may simply be the case that breast size is not a reliable predictor of physical attractiveness, and that there is, therefore, great variance in such preferences. As documented by Mazur (1986), conceptions of ideal breast size have fluctuated dramatically over time. For example, preferred breast size increased continually from its flat period in the 1920s to the large-breasted ideal of the early 1960s. Since then, preferred breast size has become smaller, although there has been a recent trend towards large-breasted figures in media appealing to men (Koff & Benevise, 1998). Certainly, size is only one of several characteristics that can affect preferences for upper-body shape, but it is the most public variable and a principal way in which women's breasts have come to be represented in popular culture (Mazur).

The suggestion that there is high variability in preferences for breast size is supported by studies of cosmetic breast surgery. What is notable is the popularity of both breast enlargement *and* breast reduction. For example, in 1994, American women had over 39,000 breast augmentations, 36,000 breast reductions, and more than 10,000 breast lifts (Grant, 1996). Of course, women may choose augmentation and reduction surgery for different reasons. While most women elect to have breast augmentation primarily for aesthetic purposes, breast reduction is usually performed on women who want to relieve the physical discomfort associated with large breasts (Fallon, 1990). Nevertheless, the relatively comparable frequencies of both augmentations and reductions suggest that, as far as breasts are concerned, both smallness and largeness may be experienced as undesirable or unattractive.

A different reason for the current findings may be the nature of the stimuli used. It is of note that figures depicting silhouettes with large breasts were somewhat unrealistic in comparison with small-breasted figures. Participants may, therefore, have simply been choosing the most realistic figures. When more discerning sets of stimuli are used in front-view, breast size does seem to play a minor role in determining female physical attractiveness (e.g., Furnham et al. 1998). One recent cross-cultural study, however, found high variability in preferences for breast size using front-view line drawings (Furnham, Shah, Swami, McClelland, & Baguma, 2006). In this study, preference for two levels of breast size (small and large) interacted significantly with body weight and WHR, suggesting that these variables all interact to influence ratings of attractiveness of female figures.

A related issue with the stimuli used in this study has to do with its covariation with body weight. In making alterations to breast and buttocks size, we assumed that body weight would remain constant. However, as Tovée and Cornelissen (2001) have pointed out in relation to modifications of waist size, altering breast

and buttocks size may invariably alter body weight. There is evidence, for example, that a figure's perimeter-area ratio (PAR; the area of the figure divided by the path length of the perimeter) is highly correlated with body weight (Tovée, Mason, Emery, McCluskey, & Cohen-Tovée, 1997). PAR remains a very good index of body weight and attractiveness ratings in both front-view and profile (Tovée & Cornelissen). Furthermore, breasts are composed mainly of fat (Sherwood, 1993) and the amount of breast fat is highly correlated with total body fat (Katch et al., 1980). It could be argued, therefore, that participants in this study were rating figures on the basis of breast size, body weight or both. That is, there is a potential confound between PAR and breast size in the stimuli used in this study.

Overall, the evidence suggests that there are no stable preferences for female breast size. This variability need not be viewed as inexplicable. For example, because breast size is a sexually dimorphic characteristic, it may be the case that breasts per se are considered attractive in women but not in men. Such a hypothesis would predict a preference for a differently sized female chest in comparison with men, and not a preference for a specific breast size or shape. In other words, there need not be a preference for a specific breast size, only that it signals a sex difference from males.

This study attempted to add further dimensions to the literature on female body shape by examining preferences for breast and buttocks size. Overall, the participants in this study showed a preference for small breast size, although buttocks size did not appear to alter ratings of attractiveness. It would be useful for future research to include a larger range of breast sizes and shapes in stimuli to investigate the possibility that optimal breast size (and shape) varies across individuals. In addition, anecdotal evidence suggests that there may indeed exist cross-cultural differences in preferences for buttocks size, which future studies would do well to explicate.

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