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CORRELATES OF PHYSICAL BEAUTY IN MEN AND WOMEN

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Front-view drawings of male and female figures were rated for attractiveness by participants of both sexes. Participant sex did not affect the physique parameters judged relatively attractive. For female stimuli, attractiveness correlated negatively with waist width and hip width, and directly with figure slenderness. For male stimuli, attractiveness correlated positively with shoulder width and upper body taper.

Keywords: physical beauty, attractiveness, correlates, males, females.

The broad subject of interpersonal attraction is handicapped by the lack of clear data on the parameters which define physical beauty (Berscheid & Walster, 1974; Huston & Levinger, 1978), though there is no shortage of intuitive speculation (Barash, 1977; Eibl-Eibesfeldt, 1975; Goodhart, 1964). A moment's reflection is sufficient to conclude that the problems are formidable. If beauty is judged in real life situations the task of identifying all the relevant variables, let alone their systematic quantification, seems overwhelming. The alternative approach of using artificial stimuli which isolate specific variables (Beck et al., 1976; Lavrakas, 1975; Wiggens et al., 1968; Wiggens & Wiggens, 1969) has met with partial success. In these studies strong overall agreement concerning the attractive value of particular physique parameters was not found, and Wiggens and Wiggens (1969) caution that the personality constellations associated with physique preferences are somewhat conjectural. While it may be that there is no unanimity of opinion concerning beauty criteria, it is the present writer's view that the above studies suffer from the fact that the stimuli used were not realistic representations of the human form. In fact Wiggens et al. (1969), whose stimuli were subsequently used by Beck et al. (1976) and Lavrakas (1975), state that realism had to be sacrificed in the interests of experimental control. The view presented here is that such artificially produced stimuli must nonetheless be as realistic as possible in dimension and form if there is to be any hope that judgments so obtained reflect everyday reality. Further, stimulus realism should not preclude experimental control. Thus the present study was conceived as a test of whether increased fidelity in stimulus construction would enable clearer evaluation of body parameter variations.

METHOD

PARTICIPANTS

Participants were 131 males and 229 females enrolled in psychology courses at the University of Windsor.

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STIMULI

The stimuli were 22 front-view line drawings of which 11 represented female, and 11 male, figures. For each sex a standard figure was prepared with dimensions and proportions conforming to reported anthropometric values (Clauser et al., 1972; Croney, 1971; Garrett & Kennedy, 1971; O'Brien & Shelton, 1949). Inasmuch as different sources of anthropometric data do not report identical values, a truly average human figure is elusive. In the present case the standard figures were constructed so that all measurable dimensions were within one standard deviation of reported means. Photographic references, such as Sheldon (1970) were used to achieve realistic body form. The principal dimensions of the standard figures, expressed as normal human measurements in centimeters, are presented in Table I. Figures 1 and 2 show the standard male and female physiques, respectively.

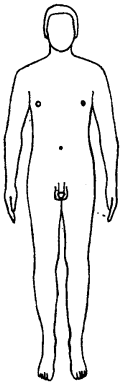

Figure 1. The standard male physique.

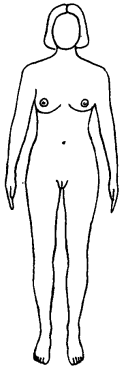

Figure 2. The standard female physique.

The figures were drawn on graph paper with 10 lines/cm (Graphic Controls Canada Ltd., part no. 17-70-11) to a scale of 4 mm : 1 cm, i.e., 40% of life size. Using finely ruled graph paper on which the figure may be reduced to straight lines between points of graph-line intersection achieves drawings which are bilaterally symmetrical and accurately reproducible. The large scale permits the complex figures

TABLE 1

PRINCIPAL LIFE-SIZE BODY DIMENSIONS OF MALE AND FEMALE STANDARD FIGURES

	Male (#15) cm	Female (#3) cm
Stature	175.50	162.00
Shoulder height	143.75	131.50
Arm length	77.00	68.50
Waist height	106.75	101.25
Crotch height	82.50	73.75
Knee height	50.00	45.00
Shoulder width	40.75	36.50
Waist width	27.50	24.00
Hip width	33.50	35.00

to have a proper appearance when actually consisting of straight lines and also accommodates subtle body line details. The female stimuli, numbered 1 to 11, were identical except for waist and hip dimensions. The set consisted of the standard figure, the standard waist paired with four additional hip widths, the standard hip paired with four additional waist widths, a figure which combined a narrower than standard waist and hip, and which combined a wider than standard waist and hip. A single drawing of nonvarying parts of the figure was affixed to a background, then the different waist and hip lines were put in place and each combination photographed separately and subsequently presented to participants as a projected 35mm slide. The hip line has two major points of inflection, these being the iliac crest and the greater trochanter. Since the slope of the line between these points is potentially important it was held constant in this study; thus, in two figures which differed in hip width the curve and slope of the line between iliac trochanter remained identical. This practice was followed for both sexes.

The male drawings varied shoulder width, waist width, and hip width. Shoulder width (biacromial breadth) was measured for both sexes as the width of the body between points where lines drawn 45^{o} to the vertical axis touch the shoulders. The male figures, numbered 12 through 22, were combinations of four shoulder widths, two waist widths, and two hip widths, and were assembled and photographed as for the female stimuli. All stimulus figures were devoid of facial features on the grounds that these might be prepotent and mask subtle body variable differences, and also to keep the stimuli free of racial connotations.

PROCEDURE

Participants were tested in groups of 20 to 138. Some of these groups were classes tested during a regular class hour while some were groups individuals responding to a call for volunteers in a psychology experiment. They were told that this was an investigation into the features which define physical attractiveness and they were being asked to rate drawings of male and female figures for attractiveness on a 9-point scale ranging from 1 = *extremely unattractive* to 9 = *extremely attractive*. The stimuli were presented in a different random order for each group, but the male and female figures were always kept together as sets. The first or second position of the sets was alternated from group to group. Participants were shown all 22 slides at approximately 1 second exposure and told not to rate the figures at this time as the purpose was for them to see the whole range. Then the stimuli were shown again at 15 second exposure with 15 second between stimuli. Participants rated each figure during the second presentation. The whole session took approximately 25 minutes.

RESULTS

PARTICIPANT SEX

As might be expected, for each set of stimuli the mean attractiveness ratings produced by opposite sex participants tended to be slightly higher than those of same-sex participants. A 2 X 2 analysis of variance (ANOVA) of the mean ratings by participant sex with repeated measures on the latter factor yielded no effects for participant sex, stimulus sex, or the interaction. The patterns of ratings were identical for the female

stimuli (Kendall tau = +1.00) and virtually so for the male stimuli (Kendall tau = +0.98), the only difference in ranking having occurred between stimuli #12 and #13, two low-ranked male figures. Since participant sex clearly agreed on the relative attractive value of the parameters manipulated in this study, the subsequent presentation of data is in terms of overall scores.

Female Stimuli

Figure 3 shows the waist and hip widths, expressed as normal human measurements in centimeters, overall mean ratings, and standard deviations of the female stimuli. These data were analyzed in terms of four dimensions: waist width, hip width, slenderness, and curvedness. Slenderness was defined as the product of hip and waist widths and is thus an inverse index of overall trunk slenderness. Curvedness was defined as the ratio of hip to waist widths and reflects the tendency of the body line to break from waist to hip. Table 2 summarizes the relationships obtained between these variables and mean attractiveness ratings. Both waist width and hip width were negatively correlated with mean attractiveness. Hip narrowness becomes unattractive at some point, however, as #1 was rated lower than #2 (see Figure 3). The multiple regression of mean attractiveness on three variables yielded Y = -0.42 (waist), -0.39 (hip), +28.49, with both predictors significant at 0.01 and $R^2 = 0.81$. Slenderness emerged as a powerful predictor of attractiveness despite the insensitivity of this index in the middle range. Curvedness, contrary to intuition, did not correlate with mean attractiveness, but a more systematic exploration of this dimension would be useful.

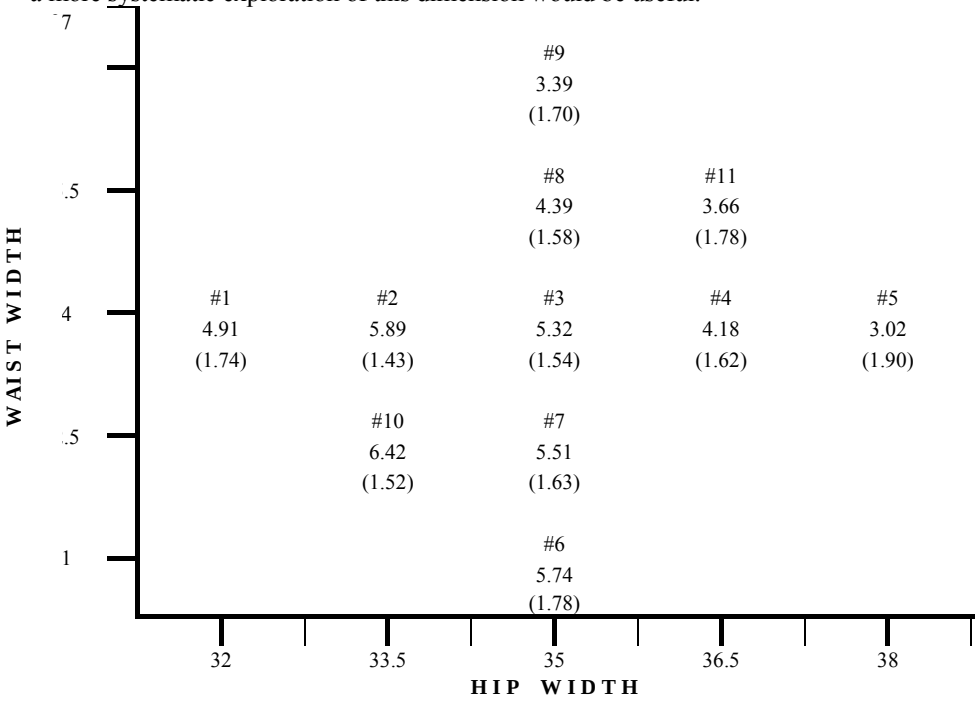

Figure 3. Female stimuli and hip width combinations, overall mean ratings (*SD*s)

MALE STIMULI

Figure 4 shows the shoulder widths, and waist-hip width combinations, expressed as normal human measurements in cm, overall mean ratings, and *SD*s of the male stimuli. It is immediately obvious that shoulder width correlated strongly with mean attractiveness, with no indication of a turning point as occurred for the female hips. Since only two waist widths and hip widths were used, the lack of correlation between these variables and attractiveness cannot be considered conclusive. Figure 4 suggests that waist width is the more influential of the two and this is borne out in the consideration of upper body taper. Body taper was defined in two ways, i.e., as the ratio of shoulder to hip widths (S/H), and as the ratio of shoulder to waist widths (S/W). Table 2 shows that

ATTRACTIVENESS RATINGS AND BODY VARIABLES FOR FEMALE AND MALE STIMULI

Variable	*r*	R^2	*p*
Female stimuli:			
waist width	-0.71	0.50	0.02
hip width	-0.67	0.45	0.03
slenderness (H X W)	-0.89	0.79	0.0002
curvedness (H/W)	0.24		>0.05
Male stimuli:			
shoulder width	0.85	0.72	0.001
waist width	-0.32		>0.05
hip width	-0.14		>0.05
body taper (S/H)	0.84	0.71	0.001
body taper (S/W)	0.98	0.96	0.0001
slenderness (H X W)	-0.27		>0.05

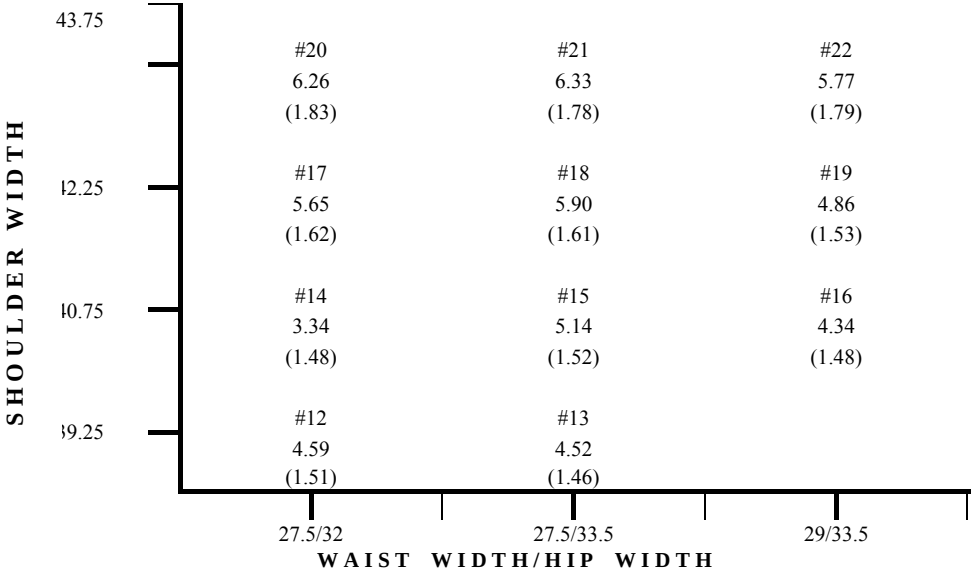

Figure 4. Male stimuli shoulder and waist/hip width combinations; overall mean ratings (*SD*s)

shoulder/waist ratio was a very powerful predictor of mean attractiveness and more closely related to attractiveness than shoulder/hip ratio. Trunk slenderness (H x W) appeared not to correlate with attractiveness, but the partial correlation between slenderness and mean attractiveness, with shoulder width held constant, was 0.81. Thus slenderness seems influential in male physiques as well but is difficult to disentangle from body taper.

DISCUSSION

Because any body feature occurs in the context of the remainder of the physique, interpretations based on configurations are to be preferred over specific variables viewed as absolutes. The findings of the present study are that waist-hip interactions, expressed as trunk slenderness, are an important facet of feminine physical beauty, and that shoulder-trunk interactions, expressed as body taper, are important in masculine physical attractiveness. Thus Eibl-Eibesfeldt's (1975) conjectures concerning the importance of these variables are supported. The present results are in general accord with those of Wiggens et al. (1969), Lavrakas (1975), and Beck et al. (1976), differing mainly in the degree of consensus among participants as to the relative attractiveness of specific body parameters. The greater degree of agreement reported here may have resulted from the use of stimuli which were more realistic representations of human dimensions and form. The present findings accord with the view expressed by Barclay et al. (1978) that shoulder and hip width information is of primary importance in gender recognition.

Finally, two issues pertaining to interpretation must be mentioned. The first relates to variable confounding, some of which appears unavoidable. For example, when two figures have the same waist but different hip widths, then the slope of the line from waist to hip covaries with hip width. Interpretation based on configure-ations should minimize the likelihood of misidentifying the crucial variables. One must proceed with caution and be wary of the pitfalls. Secondly, it may be said, with some validity, that the isolated manipulation of a few variables focuses participants' attention on them to an unnatural degree. However, the participant is not obligated to indicate differential preference, much less in a linear fashion. Correlations such as those presented here should not be taken at face value as magnitudes but rather as indices of influential parameters. A sufficient number of such piecemeal data should enable the construction of a hierarchical inventory of physical attractiveness parameters. At least, given our present state of ignorance, it seems worth the attempt.

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