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Short-term mating strategies and attraction to masculinity in point-light walkers

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Abstract

Strategic pluralism suggests that women engage in short-term sexual relationships when the benefits to doing so outweigh the costs. We investigated attraction to indicators of good genes (namely, masculinity as demonstrated by point-light walkers) in women varying in menstrual cycle status and sociosexual orientation. When women are fertile, they have the ability to gain genetic benefits from a male partner and should also be attracted to high levels of masculinity in men as a signal of genetic benefits. Sociosexual orientation is an individual difference that indicates openness to short-term mating and, thus, should influence aspects of mating strategy. Women with an unrestricted sociosexual orientation, as compared to women with a restricted sociosexual orientation, are more likely to engage in short-term relationships and obtain fewer nongenetic resources from their mates. Thus, they should place heavy emphasis on male masculinity as a sign of genetic benefits available from their mates. In this study, women indicated the walker most attractive to them on a constructed continuum of male and female point-light walkers. In Study 1, fertile women, as compared to nonfertile women, showed a greater attraction to masculinity. In Study 2, women demonstrated a strong positive relationship between sociosexuality and attraction to masculinity.

Keywords: Sociosexuality; Fertility status; Immunocompetence; Biological motion; Masculinity

1. Introduction

Strategic pluralism suggests that women should generally engage in long-term mating strategies. However, if the benefits (e.g., genetic benefits for offspring) outweigh the costs of short-term mating (e.g., less parental investment, partner loss, unwanted pregnancy, etc.), then women should take advantage of short-term mating opportunities (Gangestad & Simpson, 2000). Evidence for strategic pluralism comes from women's preferences across the menstrual cycle. Because masculinity in faces (Penton-Voak & Chen, 2004), voices, body shape, and social displays (see Zitzmann & Nieschlag, 2001, for a review of the previous three factors) is associated with high testosterone levels and testosterone is an immunosuppressant, highly masculine healthy males are likely to be particularly immunocompetent (Folstad & Karter, 1992). Immunocompetency is a heritable genetic benefit available to a woman's offspring; thus, women engaging in short-term relationships should prefer highly masculine mates. Research has demonstrated that fertile women, as compared to nonfertile women, prefer higher levels of masculinity in faces (Johnston, Hagel, Franklin, Fink, & Grammer, 2001; Penton-Voak & Perrett, 2000; Penton-Voak et al., 1999) and voices (Feinberg et al., 2006), as well as dominant male social displays (Gangestad, Simpson, Cousins, Garver-Apgar, & Niels Christensen, 2004).

Further evidence of strategic pluralism in human mating is demonstrated through research investigating the inter-individual difference of sociosexual orientation. Sociosexual orientation represents a person's openness to short-term mating. People with relatively unrestricted sociosexual orientation, indicated by high scores on the Sociosexual Orientation Inventory (SOI; Simpson & Gangestad, 1991), are more likely to engage in short-term relationships than people with a restricted sociosexual orientation. Generally

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employing a short-term mating strategy, as compared to a long-term mating strategy, yields fewer nongenetic resources (i.e., parental effort) and increases the importance of receiving genetic benefits from sexual partners (Gangestad & Simpson, 2000). Thus, similar to women at times of peak fertility, women with unrestricted sociosexuality should prefer high levels of masculinity. Work by Provost, Kormos, Kosokowski, and Quinsey (2006) has demonstrated that unrestricted sociosexuality is related to greater attraction to the masculine mesomorph body type, as compared to average, endomorph, or ectomorph body types, and attraction to a male confederate for short-term relationships in a mock speed dating paradigm. Similarly, Waynforth, Delwadia, and Camm (2005) demonstrated that unrestricted sociosexuality in women was associated with attraction to male and female faces with masculine features.

Although there is evidence that both menstrual cycle status and sociosexuality are related to preference for masculinity, this research has only used static images and comparative judgments among stimuli that may have been confounded by variations in such characteristics as age, skin color, and health. These variables themselves influence interpersonal attraction (see, e.g.,Kenrick & Keefe, 1992, for age; Fink, Grammer, & Thornhill, 2001, for skin color; Buss et al., 1990, for health; and Jones, Little, Burt, & Perrett, 2004, for healthy skin in particular). In this study, we investigated the effect of menstrual cycle stage and sociosexuality on female attraction to masculinity using point-light displays of human walkers. Point-light displays limit the influence of confounding variables and, thus, are beneficial in testing specifically for a preference for masculinity. These stimuli contain information on walker structure and walking dynamics, both of which are key components in sex discrimination. For example, in addition to the hormonally influenced structural differences between men and women (e.g., broader shoulders and narrower hips in men compared to women), male walkers, as compared to female walkers, have a larger upper-body lateral sway (Mather & Murdoch, 1994), whereas women have a hip rotation that is in the opposite phase to vertical leg motion (Troje, 2003), resulting in more pronounced hip movement. Using point-light displays of biological motion, we investigated the unique effect of masculinity on attractiveness with fewer confounding variables. The first study investigated women's attraction to masculinity as a function of their female fertility, and the second study investigated women's attraction to masculinity as a function of their sociosexuality.

2. Study 1

2.1. Method

2.1.1. Participants—stimulus generation

Forty-four male (mean age=25.4, S.D.=7.9) and 48 female (mean age=19.8, S.D.=3.1) students participated in a separate study on sex differences in biological motion.

2.1.2. Participants—laboratory study

Participants were introductory psychology students. Fifty-five women not using hormonal birth control (NHBC) participated; however, 13 were removed because the late follicular phase (indicated by self-report of their menstrual cycle history and expected onset of next menses) was not confirmed through salivary ferning, and 3 additional women were removed because they did not self-identify as heterosexual. Thus, 39 NHBC women were included in the analyses (mean age=18.1, S.D.=0.67). In addition, 19 of these women did not participate at both cycle stages, leaving 20 women (mean age=17.9, S.D.=0.7) to be included in the repeated measures analyses. Twenty-four women using hormonal birth control (HBC) participated; however, we only included 19 (mean age=18.2, S.D.=0.8) because 5 did not self-identify as heterosexual; 70% of the participants were White.

2.1.3. Stimuli

The 44 male and 48 female walkers participated in a motion capture session. Participants wore a supplied suit attached with reflecting markers and had additional markers (to a total of 41) placed directly on the skin using a modified version of the Helen Hayes marker set (Davis, Ounpuu, Tyburski, & Gage, 1991). We recorded four walking trials from the 92 walkers using a 12-camera motion capture system (Vicon, Oxford Metrics). Participants were asked to walk across a 6-m-long motion capture field at their own pace. They were told to walk back and forth across the space until told to stop, until we eventually recorded two walks in each direction. Participants were unaware of which walks were recorded. The raw data were transformed into a linear, Fourier-based model and then simplified with a principal components analysis. Based on the first 10 Eigenwalkers, we created a function that represented an optimal linear classifier and reflected the differences between male and female walkers (i.e., a gender axis). To test the performance of the classifier, we used a cross-validation procedure that removed each walker individually, recalculated the classifier, and then classified the removed walker. The output was the number of misclassifications. Using a z test for differences in proportions, comparing the number of misclassifications to the null of 50% misclassifications, the gender linear classifier was able to accurately distinguish male from female walkers with 66% classification accuracy (z=3.15, p<.05). The gender axis was scaled in z scores (see Troje 2002a, 2002b) and was rendered as a morphable 15-dot point-light motion display in frontal view on a computer screen. It was possible to change the appearance of the walker by changing the z score of its position along the gender axis. z scores were presented along a continuum without limits. The walkers beyond about 15 z scores began to lose resemblance to natural walkers; however, no one indicated these walkers as the most attractive to them. The motion display changed instantaneously as participants changed the z score.