

Original Article

# Men's facial masculinity predicts changes in their female partners' sexual interests across the ovulatory cycle, whereas men's intelligence does not

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## Abstract

A substantial body of work demonstrates that women's mate preferences change across the ovulatory cycle. When fertile in their cycles, women are especially attracted to masculine features (e.g., faces, voices, bodies), socially dominant behavior, and male scents associated with body symmetry and social dominance. Women may also find intelligent men particularly attractive when fertile, though findings are mixed. Related research shows that, on average, romantically-involved women report stronger sexual attraction to men other than their pair-bond partners, but not partners, when fertile, and especially when their partners lack features fertile women prefer (e.g., symmetry). In the current study, we examined whether women's patterns of sexual interests across the cycle are similarly moderated by partners' facial masculinity, facial attractiveness, and intelligence. Results revealed predicted effects of male partners' facial masculinity but none for partners' intelligence. Facial attractiveness may have effects, but we find no evidence that it does so independently of facial masculinity.

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## 1. Introduction

A sizeable and increasing number of studies demonstrate that the features to which women are attracted change across their ovarian cycles. During the late follicular, fertile phase, compared to the luteal phase, women are more attracted to men who (a) possess a variety of masculinized sexually dimorphic traits, including facial masculinity (Johnston, Hagel, Franklin, Fink, & Grammer, 2001; Little, Jones & DeBruine, 2008; Penton-Voak & Perrett, 2000; Penton-Voak et al., 1999; cf. Peters, Simmons, & Rhodes, 2009; Scarbrough & Johnston, 2005; see also Roney & Simmons 2008; Welling et al., 2007), body masculinity (e.g., muscularity; Gangestad, Garver-Apgar, Simpson & Cousins, 2007; Little, Jones & Burriss, 2007; cf. Peters et al., 2009), vocal masculinity (Feinberg et al., 2006; Puts, 2005; see also Puts, 2006), and tallness (Pawlowski & Jasienska, 2005); (b)

emit scents associated with body symmetry (developmental stability; Gangestad & Thornhill, 1998; Rikowski & Grammer, 1999; Thornhill & Gangestad, 1999; Thornhill et al., 2003; see also Garver-Apgar, Gangestad & Thornhill, 2008), and social dominance (Havlicek, Roberts, & Flegr, 2005); (c) are physically attractive (Gangestad et al., 2007); and (d) display behavioral traits of social presence and intrasexual competitiveness (Gangestad et al., 2007; Gangestad, Simpson, Cousins, Garver-Apgar, & Christensen, 2004). Additionally, fertile women may particularly prefer men who are or appear to be creative and intelligent, though results in this regard are mixed (see Haselton & Miller, 2006 for one positive finding; see Gangestad et al., 2007 and Prokosch, Coss, Scheib & Blosiz, 2008 for null findings). Preference shifts across the cycle have interestingly only been observed with respect to women's assessments of men's sexual attractiveness, not men's attractiveness as a long-term mate. (See Gangestad & Thornhill, 2008; Thornhill & Gangestad, 2008, for reviews of these effects and others.)

With nearly 20 studies demonstrating effects, some replicated multiple times, the conclusion that women's

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preferences systematically change across the cycle, at least in the populations studied, seems indisputable. Less well understood are the ways and extent to which these shifts in preference alter women's patterns of sexual interest and attraction across the cycle in their own "real" lives outside the laboratory (see, e.g., Peters et al., 2009). Are the shifts in preference of sufficient strength and importance to lead women to experience changes in attraction to men in their environments, including their primary partners, across the cycle? The answer suggested by evidence available to date is yes. If women experience increased attraction to particular (e.g., masculine) men when fertile, one might also expect that women experience attraction to men other than primary partners more frequently when fertile than infertile (as masculine men can always be found in women's surroundings). This is the pattern of women's sexual attraction reported from several studies (Gangestad Thornhill & Garver, 2002; Gangestad, Thornhill & Garver-Apgar, 2005; Haselton & Gangestad, 2006; for one negative finding, cf. Pillsworth, Haselton, & Buss, 2004; but see theoretically important qualifiers below). By contrast, there's little reason to expect that women should, on average, be more attracted to their own primary partners when fertile (as primary partners should not possess more of features valued mid-cycle than men on average). Consistent with this expectation, studies find no consistent changes in attraction to partners across the cycle (Gangestad et al., 2002, 2005; cf. Pillsworth et al., 2004).

As importantly, women's pattern of changes across the cycle in sexual attraction to men depends on the features of women's own primary partners. At mid cycle, women should be particularly attracted to men other than their own partners, and less attracted to their own partners, when their own partners lack the features that women find sexually attractive when fertile. By contrast, they may be more attracted to their own partners mid-cycle when their partners possess those valued features. Body symmetry (an indicator of developmental stability) covaries with a number of traits women find particularly attractive when fertile: scents associated with symmetry (Gangestad & Thornhill, 1998; Rikowski & Grammer, 1999; Thornhill & Gangestad, 1999; Thornhill et al., 2003), facial masculinity (Gangestad & Thornhill, 2003; Little, Jones, Waite, et al., 2008; but see also Koehler, Simmons, Rhodes, & Peters, 2004), body masculinity (Brown et al., 2008; Gangestad & Thornhill, 1997), and intrasexual competitiveness (Furlow, Gangestad & Armijo-Prewitt, 1998; Manning & Wood, 1998; Simpson, Gangestad, Christensen & Leck, 1999). In one study, we measured the body symmetry of women's primary partners. As predicted, the shifts in women's attraction to "extra-pair" men were moderated by primary partners' symmetry: most pronounced (i.e., toward greater extra-pair attraction during the fertile phase) when primary partners were asymmetrical. At the same time, shifts in women's attraction to primary partners were moderated in the opposite direction: toward greater attraction to the in-pair male when primary partners

were symmetrical. The three-way interaction effect on sexual interest (extra-pair vs. in-pair attraction  $\times$  fertile vs. luteal phase  $\times$  partner symmetry) was highly robust (Gangestad et al., 2005) and not moderated by women's satisfaction with their romantic relationship.

Several related findings have been reported subsequently. Haselton and Gangestad (2006) and Pillsworth and Haselton (2006) found that women's attraction to men other than primary partners is most pronounced when women themselves report that their partner is not particularly sexually attractive. And Garver-Apgar, Gangestad, Thornhill, Miller and Olp (2006) reported that fertile women are particularly attracted to extra-pair men, relative to their own partners when they and their partners possess purportedly incompatible major histocompatibility complex (MHC) alleles. (Specifically, the extra-pair vs. in-pair attraction  $\times$  fertile vs. luteal phase interaction was significantly moderated by the proportion of MHC alleles shared by both members of the couple.)

Thornhill & Gangestad (2008) argue that these empirical findings should be interpreted as evidence that, contrary to long-standing conclusions, women did not evolve to lose estrus, a distinct phase of fertile sexuality possessed by other primates and mammals (and, indeed, arguably all vertebrates). Vertebrate estrous sexuality (patterns of female sexual attraction during the fertile phase) importantly functions, they propose, to favor mating with males who provide genetic benefits to offspring, either in the form of intrinsic good genes or compatible genes, when females are fertile. Intrinsic good genes yield phenotypic effects attractive to most or all members of the choosy sex, whereas compatible good genes are attractive or not in relation to the genotype (e.g., MHC) of the individual mate chooser. As has been argued elsewhere (e.g., Thornhill & Gangestad, 1993; Penton-Voak et al., 2004), men's masculine features (as promoted and maintained by testosterone and perhaps other androgens) may have been indicators of intrinsic genetic benefits for offspring ancestrally (see also Puts, 2010). According to Thornhill and Gangestad (2008), women possess estrus, and women's estrus is in many respects homologous with the estrus of other primates, mammals, and vertebrates. At the same time, they do acknowledge—indeed, emphasize—that features of estrus show evolved design specificity in the hominin lineage in response to biparental patterns of care and substantial paternal investment in offspring (see Thornhill & Gangestad 2008).

### 1.1. The current study

The current study examined the moderating effects of three additional features on romantically-involved women's extra-pair and in-pair sexual interests across the cycle: Facial masculinity, facial attractiveness, and intelligence.

#### 1.1.1. Facial masculinity

Enhanced attraction to masculine faces during the fertile phase is one of the earliest and best-documented shifts in

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