

# RELATIVE DIGIT LENGTHS PREDICT MEN'S BEHAVIOR AND ATTRACTIVENESS DURING SOCIAL INTERACTIONS WITH WOMEN

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Recent evidence suggests that the ratio of the lengths of the second and fourth fingers (2D:4D) may reflect degree of prenatal androgen exposure in humans. In the present study, we tested the hypotheses that 2D:4D would be associated with ratings of men's attractiveness and with levels of behavioral displays during social interactions with potential mates. Our results confirm that male 2D:4D was significantly negatively correlated with women's ratings of men's physical attractiveness and levels of courtship-like behavior during a brief conversation. These findings provide novel evidence for the organizational effects of hormones on human male attractiveness and social behavior.

KEY WORDS: 2D:4D; Attractiveness; Courtship; Testosterones

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Prenatal exposure to androgens is responsible for the development of many male-typical physical and behavioral traits (for reviews, see Becker et al. 1992) and, as such, variation in prenatal androgen exposure among males may be associated with variation in mate quality and perceived attractiveness. This hypothesis can be investigated in humans via the use of somatic markers of prenatal androgen exposure, such as the ratio of the lengths of the second to fourth digits of the hand (2D:4D; Manning 2002). A number of findings support the use of 2D:4D as such a marker: it is sexually dimorphic in adults (McFadden and Shubel 2002), adult phalangeal ratios are achieved prenatally (Garn et al. 1975) and appear to be

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stable from early childhood through adulthood (Manning et al. 1998), and it is significantly lower in individuals exposed to abnormally elevated prenatal androgen levels as a consequence of congenital adrenal hyperplasia (Brown et al. 2002). Lower 2D:4D has also been associated with higher circulating testosterone levels (Manning et al. 1998; cf. Neave et al. 2003), greater sensitivity to testosterone (Manning, Bundred et al. 2003), and higher rates of putatively androgen-related outcomes such as left-handedness (Manning, Trivers et al. 2000) and autism (Manning et al. 2001).

Other research suggests that variation in 2D:4D may in part explain individual differences in aspects of mate quality in men. Lower 2D:4D has been associated with greater sperm numbers (Manning et al. 1998; Wood et al. 2003), later age at first myocardial infarction (Manning 2002), superior athletic ability (Manning and Taylor 2001), and greater number of children fathered (Manning, Barley et al. 2000; Manning, Henzi et al. 2003). In addition, elite male musicians exhibit lower 2D:4D than control men (Sluming and Manning 2000), and evidence suggests that musical talent may be a courtship-related fitness indicator (Miller 2000). These findings suggest that greater prenatal androgen exposure may organize the development of a suite of traits that make men more sexually attractive because they indicate greater fertility and better physical condition. The possession of such traits would in turn be conducive to behavioral strategies that involve high levels of mating effort (e.g., Gangestad and Simpson 2000). Two hypotheses follow. First, lower 2D:4D should predict higher ratings of men's physical attractiveness. Second, lower 2D:4D should predict greater display of courtship behaviors when in the presence of potential mates.

Only one previous study has examined the relationship between 2D:4D and ratings of male attractiveness. Neave et al. (2003) reported a marginally significant negative relationship between men's left hand 2D:4D and women's assessments of their facial attractiveness as rated from photographs. In addition, ratings of dominance and masculinity exhibited significant negative correlations with 2D:4D in both hands, though levels of testosterone as measured from saliva correlated with neither digit ratios nor ratings of male faces. Recent evidence that low 2D:4D is associated with higher facial asymmetry in men (Fink et al. 2004) may help account for the relatively weak relationship between men's digit ratios and ratings of their facial attractiveness.

Although the Neave et al. study found only equivocal evidence for a relationship between 2D:4D and male attractiveness, it measured attractiveness only from static photos of faces. An arguably more ecologically valid assessment of overall attractiveness could come from ratings made