Ovulatory Cycle Effects on Women’s Attention to High-Status Products

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This research relates women’s attention to status-conveying stimuli to the evolutionary principles of reproduction and mate selection. We show that the attention of normally cycling women to high-status products is higher around ovulation than during less fertile phases in their menstrual cycle. Pill use eliminates cycle phase effects.

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Extended Abstract

An important life-goal of many species, including humans, is to find an appropriate sexual partner. A number of studies have shown that a woman benefits from selecting a mate with strong genes, who is also willing and able to invest in her and her children (Bjorklund and Shackelford 1999; Brase 2006). Consequently, women are attracted to men with social status and sufficient financial resources (e.g., Li et al. 2002). In response to this, men in a mating-mindset show an increased intention to spend money on luxury products (Griskevicius et al. 2007). Various studies found that women’s mating motivations change or increase during the most fertile period of their monthly cycle. For instance, near ovulation women are attracted to more masculine, taller and more socially dominant men (Gangestad, Thornhill, and Garver-Apgar 2005) and they are willing to pay more for products that increase their attractiveness (Hill and Durante 2009). These findings suggest that around ovulation women are more receptive to stimuli that highlight the qualities of a potential mate (mate selection) and are more willing to attract a suitable sexual partner (mate attraction). With respect to the mate selection goal, most research focused on menstrual cycle effects on women’s interest in physical signs of genetic quality. Only few studies investigated cycle effects on the appreciation of mate values related to investment capacity (e.g., Gangestad et al. 2007). We aim to fill this gap, yet we focus on attention to material signs of status (i.e., high-status products), rather than on the appreciation of males carrying these products. In particular, we test whether ovulating women pay more attention to status products, even in the absence of an explicit mating context (i.e., without potential partner present). In addition, we test whether attention to high-status products is predicted by levels of estrogen (positively) and progesterone (negatively), consistent with previous findings that hormones underlie menstrual cycle effects on mate preferences (e.g., Lukaszewski and Roney 2009; Roney and Simmons 2008). For women using hormonal contraceptives, such as the Pill, no effect of cycle phase is expected as Pill usage suppresses the regular flow of female hormones. Therefore, Pill use is expected to moderate the effect of cycle phase on attention to high-status products.

In a (quasi)experiment, 124 Pill users and 38 normally cycling women (Mage=22.34) were exposed to ten computerized, visual displays consisting of six products (cf. Roskos-Ewoldsen and Fazio 1992). One product in each display was a high-status product (expensive car, exclusive watch,…), the remaining five products were low-status products (bucket, umbrella,…). A pretest confirmed that high-status products were perceived to be more prestigious than low-status products, t(57)=17.2, p<.001. Exposure to each display lasted one second after which participants had 20 seconds to write down the objects they had noticed. The dependent variable used in further analyses is the absolute number, as well as the proportion of listed high-status products (taking into account the total number of products listed). We also calculated a score indicating the position of each high-status product in the list of recalled items for each display. Higher scores indicate quicker recall/more attention.

Next, participants indicated whether they take a contraceptive Pill or other hormone based medicine. Subsequently, they reported the start of their last menstruation (cycle day 1). We divided participants in three groups: Participants in days 1-5 are in the menstrual phase (9 normally cycling women, 23 Pill users), participants in days 9-15 are in the fertile phase (11 normally cycling women, 25 Pill users) and participants in days 18-28 are in the luteal phase (12 normally cycling women, 47 Pill users). We dropped participants who were in the ambiguous zones between two phases (cf. Miller, Tybur, and Jordan 2007) or who reported an unusual cycle length. Finally, based on the cycle day we estimated levels of estrogen and progesterone in normally cycling participants (cf. Martin and Behbehani 2006).

Empirical evidence confirms our predictions. For normally cycling women cycle phase has a significant effect on the absolute number, F(2, 29)=7.14, p=.003, and proportion of listed high-status products, F(2, 29)=8.32, p=.001. Women around ovulation notice more high-status products than women in other phases do, consistent with the notion that the activation of a goal (e.g., mate selection goal) directs attention to goal-consistent stimuli (Moskowitz 2002). In addition, high-status products are recalled quicker during ovulation than during other phases, F(2, 29)=7.63, p=.002. As expected, Pill use moderates the effect of cycle phase on the absolute number, F(2, 121)=5.07, p=.008, and proportion of listed high-status products, F(2, 121)=5.51, p=.005, as well as on the position of the listed high-status products, F(2, 121)=3.79, p=.03. In all cases, attention to high-status products does not differ across the cycle for Pill users. In addition, estrogen and progesterone levels significantly influence attention to high-status products. Higher levels of estrogen lead to higher absolute, β=.85, t(29)=2.03, p=.05, and relative numbers of noticed high-status products, β=.03, t(29)=2.31, p=.03, and to quicker recall, β=-.06, t(29)=2.07, p=.047. Progesterone levels are associated with smaller absolute numbers, β=-.23, t(29)=2.05, p=.049, and proportions of listed high-status products, β=-.008, t(29)=2.22, p=.03, and with slower recall, β=-.02, t(29)=2.57, p=.02.

In sum, our research relates women’s attention to status products to the evolutionary principles of mate selection by showing that attention to high-status products increases during days of high fertility. This finding may have interesting implications, as more diverse consumer preferences or behaviours may differ depending on hormonal fluctuations. Future research might, for instance, address whether heightened attention to luxury products during ovulation leads to increased spending intentions or willingness to pay for status products or to greater acceptance of advertising messages for luxuries.

References


**Testosterone and Context-Specific Risk:**

**Digit Ratios as Predictors of Recreational, Financial, and Social Risk-taking**

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Consumers frequently make choices between options that entail varying degrees of risk. Whether it is within financial, recreational, or health contexts, consumers differ in their great deal in their appetite for risk. While prior research has identified numerous antecedents of risk-taking propensities (e.g., Baker and Maner 2009; Loewenstein et al. 2001; Levenson 1990), the physiological correlates of risk-taking remain relatively unexplored. We investigate the impact of testosterone on risk preferences across a variety of contexts. Specifically, we examine the association between digit length ratio (a proxy of prenatal testosterone exposure) and risk-taking behavior across financial, recreational, social, health and ethical domains.

Prenatal androgens have significant effects on brain organization and future behavior (Archer 2006; Auyeung et al. 2009; Udry 2000). This exposure also stunts the growth of the second digit relative to the other fingers. As a result, the second (index) to fourth (ring) digit length ratio (2D:4D) has been used as a proxy of exposure to prenatal testosterone (Lutchmaya et al. 2004; Manning et al. 1998). This association has spurred considerable interest in 2D:4D, which has been associated to an array of masculine traits including aggression (Bailey and Hurd 2005), athletic ability (Manning and Hill 2009), and perceived dominance (Neave et al. 2003). Even among females, a lower 2D:4D tends to predict masculine behavioral traits (Csathó et al. 2003; Paul et al. 2006).

Recent research has linked 2D:4D to financial risk-taking (Coates, Gurnell, and Rustichini 2009; Coates and Page 2009; Dreber and Hoffman 2007). However, there is a paucity of research exploring the link between digit ratio and other forms of risk-taking. Risk-taking preferences are typically assessed via a financially-related measure subsequent to which the findings are generalized to all domains of risk (i.e., one index of risk is associated equally to all risk-related contexts). While this operationalization of risk preferences is consistent with the expected utility framework and prospect theory (Kahneman and Tversky 1979), more recent research suggests that risk-taking propensities are a domain-specific phenomenon in which an individual’s risk propensities are different across domains (Weber et al. 2002; Blais and Weber 2006; Kruger, Wang, and Wilke 2009). In other words, an individual may display a strong appetite for financial risk and a strong aversion to risk in other domains such as recreational activities or social situations. Accordingly, the current paper examines if digit ratio is predictive of risk-taking propensity across recreational, financial, social, ethical, and health domains. We propose that lower, more masculine digit ratios are predictive of riskier behaviors across all five domains among men and women.

A sample of four hundred and thirteen students completed a survey and had the lengths of all right-hand digits measured by a trained experimenter. The 2D:4D and rel2 (the length of the second finger relative to the sum of the lengths of all four fingers) ratios were computed for each participant. The rel2 ratio was included because it has recently been shown to be more accurate than 2D:4D in discriminating between males and females (Loehlin, Medland, and Martin 2008). Risk was assessed via a domain-specific risk-taking behavior scale as described in Weber, Blais and Betz (2002). Each of the five domains contained 10 five-point Likert-type items (1 to 5) assessing one’s likelihood of engaging in a given risky activity (all alphas above .67). Items include “periodically engaging in a dangerous sports (e.g., mountain climbing or sky diving)” (recreational), “investing 10% of your annual income in a very speculative stock” (financial), “speaking your mind about an unpopular issue at a social occasion” (social), “shoplifting a small item (e.g., a lipstick or pen)” (ethical), and “eating ‘expired’ food products that still ‘look okay’ ” (health).