

Motivation and Emotion

Sex-Linked Mating Strategies Diverge with a Manipulation of Genital Salience

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Abstract:	<p>Trivers (1972) proposed that evolutionary factors should favor divergent mating strategies for males versus females. Such differences may be less pronounced among human beings than other animals and social norms and sex roles are also pertinent influences. The present experiment (N = 133 college undergraduates, 74 female) sought to bypass some of these other influences. Participants were randomly assigned to a condition designed to increase attention to the genital region (a downward pointing arrow) or not (an upward pointing arrow). They then reported on their interest in short-term (e.g., a one-night stand) and long-term (e.g., a potential marital partner) mating opportunities. A theory-consistent three-way interaction occurred such that the genital salience manipulation primed a shorter-term reproductive strategy among men and a longer-term reproductive strategy among women. The results provide unique support for evolution-linked ideas about sex differences in the form of a role for bodily attention.</p>

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4 Running Head: SEX-LINKED MATING STRATEGIES
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19 **Sex-Linked Mating Strategies Diverge with a Manipulation of Genital Salience**
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Abstract

Trivers (1972) proposed that evolutionary factors should favor divergent mating strategies for males versus females. Such differences may be less pronounced among human beings than other animals and social norms and sex roles are also pertinent influences. The present experiment ($N = 133$ college undergraduates, 74 female) sought to bypass some of these other influences.

Participants were randomly assigned to a condition designed to increase attention to the genital region (a downward pointing arrow) or not (an upward pointing arrow). They then reported on their interest in short-term (e.g., a one-night stand) and long-term (e.g., a potential marital partner) mating opportunities. A theory-consistent three-way interaction occurred such that the genital salience manipulation primed a shorter-term reproductive strategy among men and a longer-term reproductive strategy among women. The results provide unique support for evolution-linked ideas about sex differences in the form of a role for bodily attention.

KEYWORDS: Sex Differences, Reproductive Strategies, Priming, Body, Attention

Sex-Linked Mating Strategies Diverge with a Manipulation of Genital Salience

Parental investment theory (Trivers, 1972) proposes that the biological sex that invests more in parenting should be programmed by evolution to favor a longer-term mating strategy, whereas the biological sex that invests less in parenting should be programmed by evolution to favor a shorter-term mating strategy. For most species, including human beings, parental investments tend to be weaker for males, who should therefore favor a short-term mating strategy to a greater extent, and stronger for females, who should therefore favor a long-term mating strategy to a greater extent (Buss, 1994).

There are weaknesses to parental investment theory, however. Even among species in which males invest heavily in their offspring, males are often more competitive in seeking mating opportunities than females (Clutton-Brock & Vincent, 1991). *Potential reproductive rate theory* (Clutton-Brock & Vincent, 1991) covers these cases by pointing to biological differences in the number of offspring it is feasible for males and females to produce. Due to factors such as gestation and age limits in fertility, the number of offspring that females are capable of producing is somewhat necessarily lower. These evolutionary considerations, too, should predispose men rather than women toward shorter-term mating strategies (Buss, 1994).

In their *sexual selection theory*, Buss and Schmitt (1993) tested a number of predictions derived from such evolution-based thinking. They found that men (relative to women) reported wanting a greater number of lifetime sexual partners and desired sex earlier in their relationships. Further, women were less interested in physical attractiveness and more interested in qualities such as wage-earning capacity when thinking about ideal long-term mates. Other data suggest that women tend to seek signs of commitment earlier in their relationships (Buss, 1994).

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4 Predictions derived from sexual selection theory have been supported, then, but perhaps
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6 not with the strength initially envisioned (Confer et al., 2010). In the vast majority of cultures
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8 examined, monogamy is the norm, men contribute to child rearing, and sex differences in mating
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10 strategies tend to be modest (Stewart-Williams & Thomas, 2013). Sex role interpretations have
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12 also emerged as an alternative to evolutionary theories (Eagly & Wood, 1999). Women may
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14 report lesser interest in short-term mating opportunities, for example, because injunctive norms
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16 discourage promiscuity more so for women (Baumeister & Twenge, 2002).
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21 Hence, sex role expectations can influence what men and women report to be their
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23 reproductive strategies and interests (Eagly & Wood, 1999). The present study will not bypass
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25 reports of such interests, but will seek to examine their motivational basis. Copulation is
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27 accomplished by one's genitals, which may therefore play an important role in sexual interest as
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29 well as reproductive strategies. Consistent with this reasoning, people often report very different
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31 sexual interests when their genitals are aroused versus not (e.g., Goldey & van Anders, 2012).
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33 Ariely and Loewenstein (2006), for example, found that males rubbing their genitals (relative to
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35 a control group) reported wider sexual interests as well as a greater willingness to engage in
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37 coercive sexual behavior and unprotected sex.
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43 The present experiment seeks to contribute to sexual selection theory along the latter
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45 lines. Asking people to rub their genitals prior to reporting their reproductive strategies, however,
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47 was deemed too demand-laden. We instead created a novel genital attention manipulation, with a
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49 sufficient cover story, in which people simply affixed arrows to their chests. In the genital
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51 attention condition, these arrows pointed straight down toward the genitals. In the comparison
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53 condition, the arrows pointed upward, away from the genitals. This incidental genital attention
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55 manipulation was posited to activate or at least accentuate the sex-specific reproductive
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4 strategies emphasized by evolutionary theorists (Buss, 1994; Clutton-Brock & Vincent, 1991;
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6 Trivers, 1972). Along these lines, we hypothesized that the genital salience manipulation would
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8 increase males' (but not females') interest in short-term mating opportunities and females' (but
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10 not males') interest in long-term mating opportunities. Findings of this type would point to
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12 bodily factors in understanding sex differences in reproductive strategy.
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15 16 **Method**

17 18 **Participants and Setting**

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20 Participants were 133 (74 female; *M* age = 19.45; 92% Caucasian) undergraduate
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22 students who received course credit. They completed the experiment in groups of 6 or less at
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24 personal computers with privacy dividers. We told participants that responses would not be
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26 linked to them personally and could therefore be frank and honest.
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30 31 **Manipulation of Genital Attention**

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33 We sought to draw attention to the genital region of the body (experimental condition) or
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35 not (comparison condition) in an incidental manner. To accomplish this aim, a cover story stated
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37 that we were interested in the effects of wearing different shapes and colors on decision-making.
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39 The implication was that different sessions would involve different shapes and colors, but this
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41 was not the case. All participants clipped an orange arrow (11 inches in length, 8 inches in
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43 width) made of thick, durable card-stock construction paper to the middle of their chests, in
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45 between their breasts. The mini-binder clip was attached to a ring through a hole in the
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47 construction paper and was easy to affix to different types of clothing. Once clipped, gravity
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49 ensured an up-to-down orientation of the arrow, though seating positions and body types had
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51 some minor influence. See Figure 1, which displays the nature of the arrows.¹
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4 The manipulation was simple. In the genital salience condition, the ring and clip were at
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6 the bottom of the arrow so that the arrow would necessarily point down toward the genitals (left
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8 side of Figure 1). In the other condition, the ring and clip were at the top of the arrow so that the
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10 arrow would point upward, away from the genitals (right side of Figure 1). Directional pointing
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12 has probably always served an attention-guiding function (Isbell, 2009), arrows commonly serve
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14 this purpose in our culture and others (Ristic & Kingstone, 2006), and there are behavioral and
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16 neural sources of data in favor of the idea that arrows direct attention toward areas of space that
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18 they point to (Hietanen, Leppanen, Nummenmaa, & Astikainen, 2008). The manipulation also
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20 follows from work showing that drawing attention to a particular body part can affect a person's
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22 motivations and emotions (Winkielman, Niedenthal, & Oberman, 2008). In the downward-
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24 pointing arrow condition, the genital region of the body should become more salient, potentially
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26 exerting some influence on preferences and strategies pertaining to sexual activity.
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33 Sessions were randomly assigned to condition such that all participants in a given session
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35 had the same type of arrows. This was done so that participants could not look at each other and
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37 discern the nature of the manipulation by seeing another condition. The experimenter delivered
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39 the cover story and helped participants affix their arrows, who were then straightforwardly
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41 informed that they would wear the arrows while answering questions on the computer. The
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43 dependent measures (reproductive strategies; see below) were embedded in a larger series of
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45 filler questions and administered through Medialab software. After finishing this initial computer
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47 program, participants returned their arrows and moved on to unrelated tasks.
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52 **Reproductive Strategies**

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55 With arrows affixed, participants answered questions about their interest (1 = not at all
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57 currently seeking; 7 = strongly currently seeking) in short-term and long-term mating
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opportunities with items modeled after similar questions administered by Buss and Schmitt (1993). The short-term items consisted of “a one night stand”, “to have sex with a stranger”, and “brief affairs” and these items were averaged to form a scale ($M = 1.90$; $SD = 1.26$; $\alpha = .87$; $\text{skew} = 1.49$). The long-term scale consisted of the items “a stable relationship”, “a potential marital partner”, and “a long-term love interest” ($M = 5.63$; $SD = 1.74$; $\alpha = .87$; $\text{skew} = 1.39$). Overall, participants reported greater interest in long-term than short-term mating opportunities, a difference that is independent of the processes examined but comports with other sources of data (Stewart-Williams & Thomas, 2013). Interest scores for short-term and long-term mating opportunities were independent across participants, $r = -.16$, $p > .05$.²

Results

The primary analysis consisted of a mixed-model ANOVA. Biological sex (male versus female) and genital attention (as a function of the manipulation: no versus yes) were two-level between-subjects independent variables and reproductive strategy (short-term versus long-term) was a repeated measures dependent variable. A three-way biological sex by genital attention by reproductive strategy interaction was hypothesized, but lower-order effects are also interpreted.

The mixed-model ANOVA revealed a marginally significant main effect for Genital Attention, $F(1, 128) = 3.72$, $p = .056$, partial eta squared = .02, such that genital salience increased interest in mating opportunities ($M = 3.92$) relative to the comparison condition ($M = 3.61$). Thus, there was some general tendency toward greater sexual interest with greater genital salience. There was also a main effect for Biological Sex, $F(1, 128) = 8.41$, $p = .004$, partial eta squared = .05, such that overall interest in mating opportunities was greater among males ($M = 4.00$) than females ($M = 3.53$). A main effect for Reproductive Strategy (i.e., the repeated

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4 measures predictor), $F(1, 128) = 403.68, p < .001$, partial eta squared = .76, was consistent with
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6 the means presented in the method section.
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9 Two-way interactions involving the genital salience manipulation were not significant, F_s
10 < 1 , as the effects of this manipulation should, if we are correct, vary in a three-way manner. Sex
11 differences in mating strategies (e.g., Buss, 1994) would be revealed in a Biological Sex by
12 Reproductive Strategy interaction, which was significant, $F(1, 128) = 10.47, p = .002$, partial eta
13 squared = .08. Males ($M = 2.49$) were more interested in short-term mating opportunities than
14 females ($M = 1.45$), whereas females ($M = 5.62$) and males ($M = 5.51$) were more equivalent in
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16 their interest in long-term mating opportunities. This pattern is consistent with the literature
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18 (Confer et al., 2010) and it is further decomposed below.
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28 The effects of genital salience were hypothesized to be different for men and women and
29 this idea was supported by a significant Genital Attention by Biological Sex by Reproductive
30 Strategy three-way interaction, $F(1, 128) = 5.46, p = .021$, partial eta squared = .04, the means
31 for which are depicted in Figure 2. The pattern was such that the genital salience manipulation
32 increased interest in short-term mating opportunities among males (top left) and long-term
33 mating opportunities among females (bottom right). By contrast, such increases were absent
34 among females reporting on short-term mating interest (top right) and among males reporting on
35 long-term mating interest (bottom left).
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48 The significant interactions of the full model were decomposed using ANOVA-based
49 planned comparisons (Keppel & Wickens, 2004). These follow-up analyses were pairwise in
50 nature, thus contrasting two means in each case, while using the best-estimate error terms of the
51 full model that included all participants (Rosenthal & Rosnow, 1985). Considering the
52 significant two-way interaction first, the sex difference in short-term mating interest was
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4 significant, $F(1, 128) = 26.69, p < .001$, whereas the sex difference in long-term mating interest
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6 was not, $F < 1$. Turning to the significant three-way interaction, the genital salience manipulation
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8 had an influence when males reported on short-term interest, $F(1, 128) = 5.90, p = .017$, and
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10 when females reported on long-term interest, $F(1, 128) = 3.94, p = .049$, but not when males
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12 reported on long-term interest, $F < 1$, or when females reported on short-term interest, $F < 1$.
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14 Drawing attention to the genitals, that is, had divergent effects by sex, either intensifying shorter-
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16 term (men) or longer-term (women) sexual mating inclinations.
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21 Discussion

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23 Trivers (1972) pointed to biological differences between males and females that should
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25 predispose them to different reproductive strategies. Clutton-Brock and Vincent (1991) added
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27 important theorizing along these lines. In both cases, biological differences (e.g., nearly limitless
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29 sperm among males, internal pregnancy among females) should contribute to a shorter-term
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31 mating strategy for men and a longer-term mating strategy for women. Several predictions of this
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33 type have been confirmed (Buss, 1994), but social role interpretations of such phenomena have
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35 also been offered. For example, the fact that women value mate wage-earning potential more
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37 (Buss & Schmitt, 1993) could be because they earn lesser wages in every society that has been
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39 examined (Eagly & Wood, 1999). In addition, societal norms encourage promiscuity more
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41 among men than women (Baumeister & Twenge, 2002) and norms of this type may contribute to
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43 reports on the frequency of short-term sexual encounters (Alexander & Fisher, 2003).
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50 Such considerations suggest that when men and women report on their reproductive
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52 interests, there are likely to be multiple determinants of their answers. This was surely the case
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54 among our participants. Nonetheless, by the use of an experimental design, we were able to
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56 isolate inputs particular to attending to one's genitals and the motivational processes that are
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4 likely to follow from doing so (Ariely & Loewenstein, 2006). In this context, novel support for
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6 evolutionary perspectives on sex differences (Buss & Schmidt, 1993; Clutton-Brock & Vincent,
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8 1991; Trivers, 1972) was found. Attending to the genitals increased interest in short-term mating
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10 among men, but not women, and increased interest in long-term mating among women, but not
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12 men. Such priming-related results represent a valuable addition to the literature on sex
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14 differences in mating strategies and the processes that contribute to them.
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19 Our results also contribute to knowledge concerning the psychological effects of the
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21 body. First, they suggest that attending to a particular area of the body can boost its motivational
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23 input, much as selective attention more generally seems to boost the influence of attended
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25 sources of information (Pashler, 1998). Second, a great deal of previous research has focused on
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27 the bodily effects of smiling, frowning, arm-extension, etc. (Winkielman et al., 2008), but has
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29 not focused on a body region – namely, the genital region – that is of considerable evolutionary
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31 (Miller, 2000) and motivational (Ariely & Loewenstein, 2006) significance. We offer genital
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33 attention manipulations of the present type as an experimental tool in understanding the latter
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35 sorts of processes. Based on the present results, for example, genital attention may cause men,
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37 but not women, to report greater attraction to opposite-sexed strangers (Gillath, Landau, Selcuk,
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39 & Goldenberg, 2011). By contrast, genital attention may cause women to be even more
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41 interested in qualities of a long-term mate – such as commitment and wage-earning potential –
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43 that have been highlighted in the sexual selection literature (Buss & Schmitt, 1993).
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49 Even so, the experiment had some limitations that should be acknowledged. The mating
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51 interest items were straightforward, but possessed some tendencies toward positive (short-term)
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53 or negative (long-term) skew that might be corrected in future studies. The participants were
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55 traditional-aged college students. This age-related homogeneity likely aided experimental
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4 control, but at a potential cost to generalizability given some evidence for age differences in
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6 reproductive strategies (Mathes, King, Miller, & Reed, 2002). We deemed it useful to have a
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8 control condition given the same cover story, the same arrows (though clipped differently), and
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10 run through the same set of procedures. We acknowledge, though, that an upward-pointing arrow
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12 is likely to draw attention to the head, which may in turn prime more rational sorts of decision-
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14 making processes (Fetterman & Robinson, 2013). Another type of comparison condition would
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16 therefore be of value in future studies seeking to pinpoint the effects of genital salience. Finally,
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18 although our experiment highlighted some male/female differences, it also highlighted the
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20 mutual interest in long-term relationships that characterizes both sexes similarly.
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Footnotes

¹It was important to hold color constant to preclude color-related influences. The color orange was chosen because it is bright and salient but not in a way that possesses any particular psychological meaning as yet known (Elliot & Maier, 2014). Orange also seemed reasonable in the context of the cover story and it is a common card-stock color. Nonetheless, the processes manipulated should not be dependent on the use of orange stimuli.

²There was some degree of skew for both reproduction strategy measures. Because skew values were in opposite directions, however, and because absolute skew values less than 2 are considered acceptable (Moore & McCabe, 1989), no transformations were performed. Nonetheless, measures characterized by less skew might be desirable in future studies.

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Figure 1

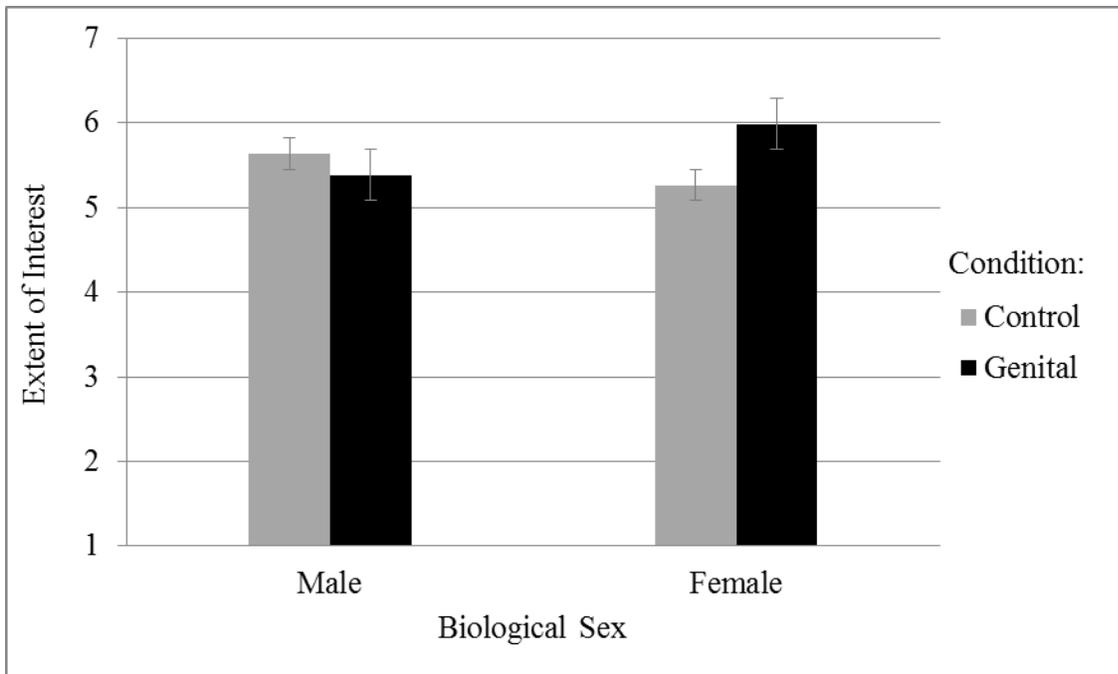
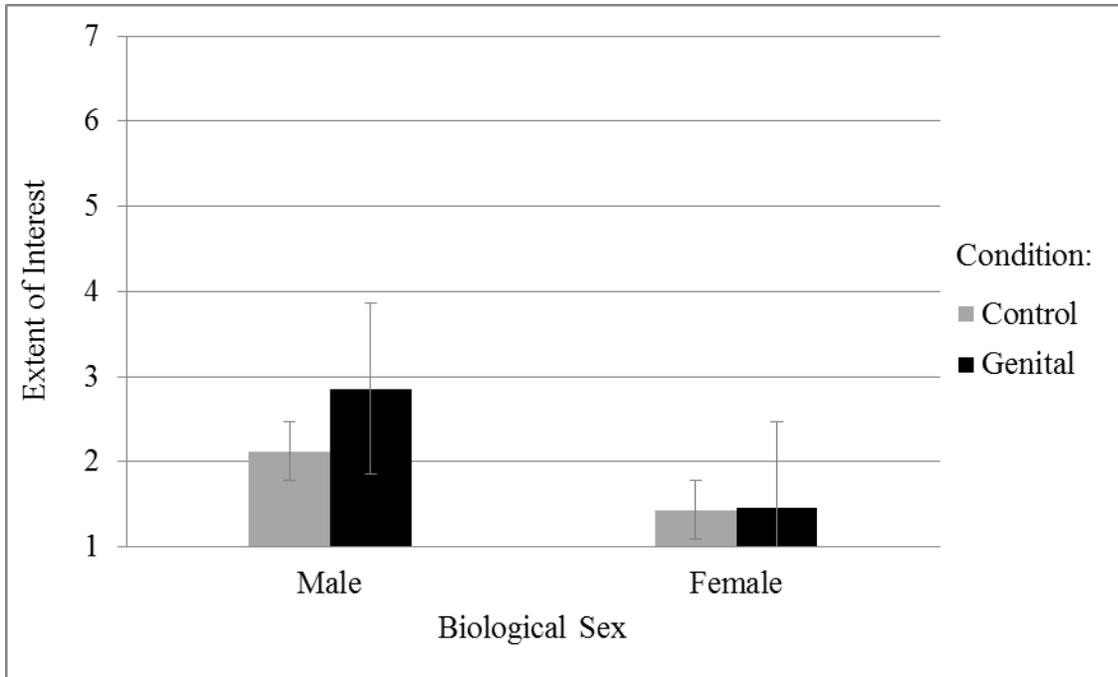
Photographic Examples of Arrow Placement for the Comparison (Left Photo) and Genital Saliience (Right Photo) Conditions

Figure 2

Interest in Short-Term Mating Opportunities (Top Panel) and Long-Term Mating Opportunities (Bottom Panel) as a Function of Genital Attention and Biological Sex



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