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Mating Strategy Evolution and Development

Mating strategies fall along a spectrum ranging from short-term, quantity-centered reproduction at one end, and long-term, quality-centered reproduction at the other. Albeit simplistic, this division between short-term and long-term mating strategies can aid our understanding of the variety of sexual behaviors and relationships that humans and non-humans practice.

Short-term mating strategies are those in which organisms apportion most of their metabolic resources towards the production of numerous offspring, without much left for parenting. Long-term mating strategies are characterized by heavy investment in the production and parental care of a small number of offspring. In the jargon of evolutionary biology, organisms that invest more in immediate reproduction and in the pursuit of multiple sexual partners (tending to practice a short-term mating strategy), are said to be employing a “fast life history strategy,” whereas organisms that invest more heavily in growth, learning, long-term mate acquisition, and parenting (tending to practice a long-term mating strategy), are said to be practicing a “slow life history strategy” (Del Giudice, Angeleri, and Manera, 2009; Ellis, 2004; Hill and Kaplan, 1999). The distinction between fast and slow life histories is a relative one. Although some species employ faster or slower life history strategies than others, there are relative differences in investment in short-term versus long-term mating within individual

species, as well. For example, although insects are much faster strategists than humans, some humans are faster strategists than other humans.

In our own species, there are a host of differences that distinguish fast from slow life history strategists. One such difference is the timing of pubertal maturation and the onset of sexual behavior. Some individuals experience earlier puberty and initiate sexual activity at an earlier age, which leads to earlier reproduction and a more frequent turnover of sexual partners. The social costs of teenage pregnancy and sexually transmitted infection cannot be overstated, but the biological benefits of fast life histories are often overlooked (Draper and Harpending, 1982; Ellis, 2004, 2005). Slow life history strategists experience a later onset of pubertal maturation and, when they do initiate sexual activity, are prone to monogamy and later reproduction. So, for example, when slow life history strategists do engage in sexual activity, they are often conscientious about issues of contraception and the foregoing of immediate reproduction in favor of educational and vocational development (Figueredo et al., 2006).

There is debate regarding the antecedent conditions and immediate causes of early versus late pubertal maturation. Although mating strategies are highly heritable (i.e., the population-wide differences in the propensity to engage in a short-term versus a long-term mating strategy are substantially accounted for by genetic differences between individuals; Figueredo, Vásquez, Brumbach, & Schneider, 2004; Rowe, 2002), there is evidence that an organism's developmental environment affects their sexual maturation. For example, girls who come from father-absent homes often experience an earlier onset of menarche, or menstrual cycle initiation (Draper and Harpending, 1982; Ellis, 2004, 2005). The hypothesized reason for this is that female sexual development has evolved to be context-dependent, such that when a girl's social environment is filled with men who are not likely to exhibit long-term romantic commitment or paternal

behaviors (as indicated by father-absence), a hormonal switch triggers early puberty and the development of a short-term mating strategy—a reasonable reproductive strategy in such an environment. In contrast, when a girl experiences paternal care and resource investment, she is physiologically primed for later sexual development and a higher probability of finding a committed mate for herself and a devoted father for her future children.

As boys enter adrenarche—a stage characterized by the influx of adrenal hormones, occurring during the juvenile transition—they display an increase in typically “male” behaviors, such as rough-and-tumble play and hierarchy negotiation (Del Giudice, Angeleri, and Manera, 2009). Although the developmental characteristics of male mating strategies is a product of both genetic and non-genetic factors (for example, it may be that boys who experience an avoidant style of attachment to caregivers might be more likely to transfer such an attachment style to their romantic relationship partners in adulthood; see Del Giudice, Angeleri, and Manera, 2009), given a species-typical environment, individual differences in aggression (a proxy-indication of investment in a short-term mating strategy) largely result from genetic differences (van Beijsterveldt, Bartels, Hudziak, & Boomsma, 2003). For example, although a pair of boys might show similar rates of aggression in early childhood, one of the boys might exhibit more aggression because of his specific genetic makeup once adrenarche is initiated. Just as a host of genes are activated as a result of the influx of androgen and estrogen hormones during the pubertal period, so are a host of genes activated by the influx of adrenal hormones during a child’s (whether a boy or girl) juvenile transition. It is not yet known how each of the activated genes contributes to the developing phenotype, but it is likely that such effects include boys’ increasing pugnacity and competitiveness and girls’ increasing interests in childcare and indirect

aggression toward other girls in the form of gossip or social exclusion (Pellegrini & Archer, 2005).

In general, the evidence indicates that specific mating strategies, whether fast or slow, short-term or long-term, are initiated either during adrenarche or puberty. The specific influences on the timing and characteristics of mating strategy development are ongoing areas of investigation.

Adult Mating Strategies

The mating strategies that are initiated during late childhood and early adolescence come to fruition during adulthood. Some men and women engage in short-term mating strategies (i.e., they invest in immediate reproduction and more promiscuous sexual habits), whereas other men and women engage in long-term mating strategies (i.e., they invest in long-term physical and social stability, and monogamous parenting). However, there are average differences between the sexes, as well. Women are more likely—on average—to invest in a long-term mating strategy than are men. According to parental investment theory (Trivers, 1972), the sex with the larger minimum mandatory investment in offspring (in mammals this is usually females, as indicated by their mandatory investment in gestation and lactation) will be the choosier sex when it comes to mate selection. Women risk their reproductive future by having children with men who are either of low quality (whether due to genetic abnormalities, illnesses, or undesirable traits), or who are unable or unwilling to provide resources for the woman and her offspring. In short, being picky when it comes to mates constrains the extent to which women can invest in a short-term mating strategy.

Men are not as constrained by the costs of reproduction as are women because their mandatory minimum investment in reproduction is the few minutes that it takes for them to

copulate. Therefore, it was more reproductively advantageous for ancestral men to engage in a short-term mating strategy than it was for ancestral women. Whether such a strategy is adaptive in modern environments is debatable, but the fact that men, on average, are more likely to express a willingness to engage in casual sex (Clark & Hatfield, 1989); are more likely to fantasize about having sex with multiple, anonymous partners (Ellis & Symons, 1990); and, generally, have a higher sex-drive than women (Baumeister, Catanese, & Vohs, 2001), suggests that men's sexual behaviors are still under the influence of their ancestral past.

Although there are heritable dispositional influences on the extent to which individuals adopt one strategy over another, there is also evidence for contextual effects on individuals' mating decisions and on the characteristics that they find attractive in potential mates. For example, women's preferences for masculine and dominant men are especially heightened during the fertile phase of their ovulatory cycle (see the meta-analysis by Gildersleeve, Haselton, & Fales, in press; for a critical meta-analysis, see Wood, Kressel, Joshi, & Louie, 2014). Specifically, when evaluating potential short-term mates, women report an increased preference for more socially dominant and physically-masculine men during the fertile phase. Furthermore, women who are mated to unattractive boyfriends or spouses are more likely to have a roving eye during the fertile phase (Larson, Haselton, Gildersleeve, & Pillsworth, 2013). The reason for this shift is due to the reproductive benefits that ancestral women received by mating with men who possessed good genes and healthy bodies. Not only are the women more likely to bear healthy children, but the children are more likely to be attractive and, thus, to attract mates and pass on their parents' genes. Conversely, when a woman is not ovulating, partner characteristics such as kindness, agreeableness, and a propensity to be a good father might secure her commitment to her long-term partner.

Just as women sometimes engage in a short-term mating strategy, men are sometimes prone to valuing commitment and fatherhood over promiscuity. This is not always by choice, however, as less dominant and physically attractive men are less able to attract short-term sexual partners than more dominant and physically attractive men (Bogaert & Fisher, 1995; Hill et al., 2013). What less sexually attractive men can offer, however, is commitment in the form of investment as a long-term mate and father. Therefore, in societies in which there are fewer women than men, men are more likely to offer long-term commitment as a selling point when attempting to attract women (Schmitt, 2005). So, because men are less likely to find a sexual partner when there are fewer potential sexual partners, when they do find a mate, men are more likely to provision long-term commitment to prevent relationship dissolution. Another context-dependent factor that influences men's and women's adoption of either of the two mating strategies is age. Younger individuals are more likely to adopt a short-term mating strategy (Buss, 2012). As individuals mature, and the prospect of forming stable, lifelong commitments increases, they are more likely to adopt a long-term mating strategy.

Evidence also indicates that a man's testosterone level, which contributes to aggressiveness and sex-drive (and, hence, to a predilection for short-term mating), is sensitive to context. For example, with increasing degrees of romantic commitment (e.g., being in a long-term relationship, being married, having children, etc.), a man experiences corresponding decreases in his baseline testosterone level (Gettler et al., 2011a; Gettler et al., 2011b; Gray et al., 2002; Gray et al., 2006; Kuzawa et al., 2009; McIntyre et al., 2006; Pollet et al., 2011; van Anders & Watson, 2006). The reason for this stems from the somewhat incompatible nature of a short-term versus a long-term mating strategy. If a man were to engage in both, he might not succeed in either. For example, a man cannot be a watchful and caring father at the same time as

he is going to a bar or strip club (though this does not preclude individuals from adopting a dual mating strategy whereby their sexual behavior changes in different contexts; Pillsworth & Haselton, 2006). Therefore, men's testosterone decreases to enable them to engage in activities associated with a long-term, parenting-oriented reproductive strategy—i.e., attending to children's nurturance-eliciting cuteness, changing their diapers, cooking, cleaning, and forming a loving attachment to a long-term partner. Similarly, when a man experiences a victory in a competitive task against another man, his testosterone level rises (Bernhardt et al., 1998; Gladue et al., 1989; Gonzalez-Bono et al., 2000; Mazur et al., 1992; Stanton et al., 2009). Conversely, if he experiences a loss, his testosterone level decreases. That these competition-induced shifts in testosterone might be related to sex-drive is suggested by Markey and Markey's (2010, 2011) studies of pornography viewership following presidential or congressional elections. Specifically, US states whose inhabitants overwhelmingly voted for a winning candidate, showed a rise in pornography viewership, whereas states whose inhabitants overwhelmingly voted for a losing candidate, showed a decrease in pornography viewership. This phenomenon suggests that male sexual motivation might be reserved for contexts where it is most likely to lead to reproductive success. Thus, ancestral men who were defeated by their reproductive rivals might have down-regulated their aggressiveness and sex-drive to save themselves from the costs of pursuing uninterested women or being defeated by bigger and stronger rivals. With enough losses, perhaps a man would forego a short-term mating strategy altogether and focus on the formation of a long-term romantic relationship.

Mating Strategies and Mate Selection

Although there is much overlap between the characteristics that humans seek in both short-term and long-term sexual partners, there are also some differences. For example, although

women place a premium on a man's social status and resource holdings when seeking either short-term or long-term partners (Buss, 1989; Li, 2007), they are more likely to value immediate investment from their short-term partners than from their long-term partners (Greiling & Buss, 2000). Presumably, this is because the potential costs of short-term mating (e.g., in time spent away from the mating market due to pregnancy and child rearing) must be outweighed by other factors, such as an immediate inflow of material or financial resources from their short-term mates. The costs of short-term mating might likewise be outweighed by the genetic quality of a woman's short-term partner, as gauged by such characteristics as height, symmetry, masculinity, and athleticism. That is, if a short-term mate cannot contribute either material or financial resources, a woman might still have sex with him if he can bequeath his health and attractiveness to the children that he sires with her.

Whether seeking short-term or long-term mates, men put a premium on a partner's physical attractiveness (Buss, 1989). A woman's lack of social status and resource-holdings is less of a barrier to successful conception and gestation than is her fertility (at least in environments where a woman is likely to receive assistance in childrearing from mates, family members, or friends). Consequently, a man's reproductive priority is to select mates who display fertility cues, as embodied in their physical attractiveness. Women's physical attractiveness is gauged similarly across the world, among tribal hunter-gatherers as among people residing in urban-industrial centers. Specifically, women are judged attractive if they possess symmetry, femininity, a low waist-to-hip ratio, and signs of youth and health, such as unwrinkled and unblemished skin and lustrous hair (for a review, see Buss, 2012). Men are more likely to compromise their preferences for beauty in short-term mating contexts (Gladue & Delaney, 1990) and, when seeking long-term mates, men tend to prefer partners who are kind and

intelligent (in addition to being physically attractive) (Buss, 1989). A geographical region's food availability can influence the specifics of men's mate preferences (Sugiyama, 2005). In nutritionally-scarce environments, for example, men tend to prefer women who have more body fat than would be ideal in an environment filled with supermarkets and fast-food restaurants.

Individuals can adopt reproductive behaviors that are not limited to either investing in an exclusively short-term or an exclusively long-term mating strategy. For example, some might pursue one type of strategy when they are younger, and switch to a different strategy when they are older, whereas others might pursue different strategies in different social contexts (e.g., at home with family versus at a bar with friends). Many of the complexities of human mating behaviors are nevertheless explicable when tracked along the short-term versus long-term mating dimension.

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