Intersexual competition

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Intersexual competition, also known as intersexual selection or epigamic selection, occurs when members of one sex are selective when choosing a mate, requiring members of the other sex to present themselves as attractive to potential mates. This occurs whenever there is a sex difference in the investment provided to ensure the survival of offspring, which results in the differential selection of certain characteristics in the less investing sex by the more investing sex.

By virtue of human biology, men and women operate under different restrictions of minimal parental investment (Trivers 1972). In the absence of modern-day interventions such as contraceptives and abortion, any one sexual encounter may result in conception and the production of offspring. For men, the minimum investment required to promote the survival of that offspring is expended during the sexual encounter. Given one ejaculate and a few minutes of his time, he has passed on his genes to the next generation. Women, on the other hand, are required to commit a much larger investment into the survival of that offspring. Like men, women must make the initial investment of gametes and the time it takes to copulate. Unlike men, however, this marks the beginning of a woman's investment, rather than the sum total of her contribution. Should conception result from her initial investment, she must now contribute a minimum of forty weeks of gestation and birth, and often several years of lactation and childrearing. This time is also associated with risks of morbidity and mortality from pregnancy and birth as well as the loss of other opportunities for mating and reproduction. This difference in minimum investment leads to women's relative choosiness and men's relative promotion of their own epigamic features.

Epigamic features

Epigamic features are those secondary sex characteristics that are not directly necessary for reproduction, but are attractive to members of the opposite sex because they are indicators of high genotypic and phenotypic quality. Much like healthy peacocks flaunt their plumage to indicate their genetic quality, thus gaining sexual access to peahens, so too do human males flaunt their own epigamic features to gain sexual access to human females. For men, these are features that indicate good genes and low parasite loads (e.g., height, symmetry, attractiveness), high testosterone levels (e.g., larger muscle mass, masculine facial features, the ability to produce facial and body hair, deep voice), and the propensity for social dominance (e.g., social status).

Men's epigamic features display their phenotypic and genotypic quality in order to impress and gain access to females, whose sexual choosiness limits men's access to physiological resources (i.e., ova and a womb) required for reproduction. However, this alone fails to explain why human males are not the only sex displaying epigamic features. Like men, women are phenotypically adorned. This is because, although women are the more physiologically investing sex, they are not the only ones investing in offspring. Men provide additional, non-physiological investment in promoting the survival of offspring. And just as women limit access to their relatively large physiological contribution, men limit access to their relatively large contribution of other types of resources. Consequently, women promote their own epigamic features—those features that indicate youth and fertility (e.g., symmetry, low waist-hip ratio, feminine facial features)—to impress men and gain access to the resources they may provide. Additional evidence suggests that women also may use other tactics, such as paternity confusion, to garner access to these resources.

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Paternity confusion

Paternity confusion has been proposed as one mechanism by which women manipulate men's investment of their resources, and which may occur partially as a result of relatively concealed ovulation and continuous receptivity. As women are sexually receptive regardless of ovulatory status, and ovulatory status is not overtly evident, men cannot be certain that they have sired a woman's offspring. Consequently, a woman may be able to convince several men of their genetic relatedness to her offspring. With the assumption that men are less likely to harm and more likely to protect and invest resources in offspring to whom they are genetically related, a woman may be able to extract these resources from multiple men (Hrdy 1979). However, there is evidence that species characterized by a socially monogamous, although perhaps not sexually monogamous, mating structure—such as humans—typically do not have multiple men investing in the same offspring. Additionally, offspring are not widely and frequently in danger of attack by adult men. This has led to alternative theories of women's use of concealed ovulation and sexual receptivity to acquire resources for her and her offspring by means of cuckoldry.

While paternity confusion might help a woman secure additional resources by convincing multiple men to invest in her offspring, cuckoldry involves the unwitting investment of physical and social resources from one man and the genetic material from another. A woman choosing among potential mates may realize that the man who has the most enticing epigamic features may not be the same man who has the means and motivation to provide her and her offspring with physical and social resources. Concealed ovulation, coupled with female infidelity, may provide a means for that woman to gain resources from one man and genes from another. This theory is supported by evidence suggesting that women's preference for men's epigamic features, or at least the importance women place on those features, changes according to her fertility status. Women give the most weight to men's epigamic features around the time of ovulation (Gangestad et al. 2007). Additional evidence suggests that this is also the point in the cycle when women report the most interest in men who are not their social partners (Gangestad et al. 2002). So, while a female may form a social partnership with the one man who is most able and willing to provide non-biological resources, she is using those resources to contribute to the survival of another man's genes. As this is evolutionarily devastating for the cuckolded man, men are hypothesized to have evolved a repertoire of anti-cuckoldry tactics.

Anti-cuckoldry tactics

Anti-cuckoldry tactics are behaviors that men use to prevent the investment of resources into offspring to whom they are not genetically related, and can function either by preventing a partner's sexual infidelity and subsequent cuckoldry or by "correcting" her infidelity once it has occurred. Men's preventative mate retention behaviors can range from positive, benefit-provisioning behaviors to negative, cost-inflicting behaviors. Benefit-provisioning behaviors entice a woman to remain invested in the current relationship, whereas cost-inflicting behaviors threaten a woman's potential defection by threatening punishment for defection or creating circumstances where his partner has (or perceives herself to have) no other options besides the current relationship (Starratt and Shackelford 2012). Men who engage in behaviors intended to prevent cuckoldry, compared to men who do not, are more likely to successfully pass on their genes to the next generation. Consequently, evidence suggests that as the risk of female infidelity and cuckoldry increases, so too does men's use of anti-cuckoldry tactics.

If a male's mate retention behaviors fail to prevent his partner's infidelity, sperm competition may occur. Sperm competition occurs whenever the sperm of two or more males simultaneously occupy the reproductive tract of a single female. In a circumstance in which a woman has had sex with a man who is not her current partner, he may engage in a variety of sperm competition tactics to prevent subsequent cuckoldry. Evidence suggests that men are more likely to sexually coerce their current partners, thus entering his sperm into competition with rival sperm that may already occupy her reproductive tract, when he perceives there to be an increased likelihood of her sexual infidelity. These behaviors may serve to reduce the likelihood of cuckoldry, even if she

has had sex with a rival male. Even when men do not display these coercive behaviors, additional evidence suggests psychological shifts in their perceptions of their partner that indicate anti-cuckoldry motivations. Men who perceive there to be some risk of female infidelity also perceive their partners to be more attractive, think other men find their partners more attractive, and are more likely to report a greater interest in having sex with their partners (Goetz et al. 2007).

SEE ALSO: Attractivity; Cuckoldry (Human and Nonhuman); Female Choice; Loss of Estrus; Mating Effort; Ovulation; Ovulation, Concealed; Parental Investment; Sexual Dimorphism; Theories of Conception and Paternity

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