

15. HUMAN FEMALE ORGASM AND MATE FLUCTUATING ASYMMETRY

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ABSTRACT

Human, *Homo sapiens*, female orgasm is not necessary for conception; hence it seems reasonable to hypothesize that orgasm is an adaptation for manipulating the outcome of sperm competition resulting from facultative polyandry. If heritable differences in male viability existed in the evolutionary past, selection could have favoured female adaptations (e.g. orgasm) that biased sperm competition in favour of males possessing heritable fitness indicators. Accumulating evidence suggests that low fluctuating asymmetry is a sexually selected male feature in a variety of species, including humans, possibly because it is a marker of genetic quality. Based on these notions, the proportion of a woman's copulations associated with orgasm is predicted to be associated with her partner's fluctuating asymmetry. A questionnaire study of 86 sexually active heterosexual couples supported this prediction. Women with partners possessing low fluctuating asymmetry and their partners reported significantly more copulatory female orgasms than were reported by women with partners possessing high fluctuating asymmetry and their partners, even with many potential confounding variables controlled. The findings are used to examine hypotheses for female orgasm other than selective sperm retention.

The human female orgasm has attracted great interest from many evolutionary behavioural scientists. Several hypotheses propose that female orgasm is an adaptation. First, human female orgasm has been claimed to create and maintain the pair bond between male and female by promoting female intimacy through sexual pleasure (e.g. Morris 1967; Eibl-Eibesfeldt 1989). Second, a number of evolutionists have suggested

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that human female orgasm functions in selective bonding with males by promoting affiliation primarily with males who are willing to invest time or material resources in the female (Alexander 1979; Alcock 1987) and/or males of genotypic quality (Smith 1984; Alcock 1987). Third, female orgasm has been said to motivate a female to pursue multiple males to prevent male infanticide of the female's offspring and/or to gain material benefits from multiple mates (Hrdy 1981). Fourth, Morris (1967) proposed that human female orgasm functions to induce fatigue, sleep and a prone position, and thereby passively acts to retain sperm.

Additional adaptational hypotheses suggest a more active process by which orgasm retains sperm. The 'upsuck' hypothesis proposes that orgasm actively retains sperm by sucking sperm into the uterus (Fox *et al.* 1970; see also Singer 1973). Smith (1984) modified this hypothesis into one based on sire choice; he argued that the evolved function of female orgasm is control over paternity of offspring by assisting the sperm of preferred sires and handicapping the sperm of non-preferred mates. Also, Baker & Bellis (1993; see also Baker *et al.* 1989) speculated that timing of the human female orgasm plays a role in sperm retention. Baker & Bellis (1993) showed that orgasm occurring near the time of male ejaculation results in greater sperm retention, as does orgasm up to 45 min after ejaculation. Orgasm occurring more than a minute before male ejaculation appears not to enhance sperm retention. Baker & Bellis (1993) furthermore argued that orgasms occurring at one time may hinder retention of sperm from subsequent copulations up to 8 days later.

In addition, a number of theorists have argued that human female orgasm has not been selected for because of its own functional significance and hence is not an adaptation. Rather, these theorists claim that female orgasm is an incidental by-product of male orgasm, which is an adaptation (e.g. Symons 1979; Gould 1987; Fox 1993).

The primary criterion by which features can be identified as adaptations is purposeful design (Williams 1966; Thornhill 1990). Is the feature designed to solve a particular problem posed by selective pressures? The functional hypotheses of human female orgasm suggest that it ought to have certain special design features. The by-product hypothesis predicts the absence of functional design in female orgasm. Human female orgasm clearly is not necessary for conception; hence, its function could not have arisen simply to ensure conception (Smith 1984; Baker & Bellis 1993). Perhaps the leading functional hypothesis is that human female orgasm is a female choice adaptation, designed to manipulate sperm competition and promote conception with males of high quality (Smith 1984; Baker & Bellis 1993). In hominid evolution, the primary context in which sperm competition has taken place is probably facultative polyandry, or copulation with an extra-pair male (Smith 1984). Female orgasm as a selective response thus may have evolved as a means by which females could favour sperm of an extra-pair male over that of an in-pair male, or vice versa.

Although extra-pair mating in humans may have evolved because of a number of potential benefits, a primary theory concerns good genes (Benshoof & Thornhill 1979; Smith 1984; Gangestad 1993). A woman who perceives her mate to be of low genetic quality may employ a strategy of garnering resources from her primary mate but having extra-pair sex with a male who is of higher genetic quality. These circumstances could have selected female design favouring retention of sperm from men who possess phenotypic markers of good genes. Baker & Bellis (1993) reported provisional support