

Book Review

On the Evolutionary Virtues of Temperate Orgasms and Prudent Sperm Allocation

A review of Todd K. Shackelford and Nicholas Pound (Eds.), *Sperm Competition in Humans: Classic and Contemporary Readings*. New York: Springer, 2006. 283 pp. US\$129.00 ISBN 0-387-28036-7 (hardback)

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The field of evolutionary psychology has seen its share of hot topics over the years. In the domain of human mating, the adaptive origins and romantic consequences of certain physical characteristics—such as waist-to-hip ratios, finger length ratios, and bodily symmetry—have generated vigorous research interest for over a decade. Although some of these research topics might be considered controversial, their continuing ability to generate novel and testable hypotheses has helped make the field of evolutionary psychology a progressive scientific paradigm (Ketelaar and Ellis, 2000). Among the latest hot topics in the field of evolution and human mating has been a renewed interest in human sperm competition.

Anchored by a classic 1984 book chapter by Robert Smith, the study of human sperm competition has gained significant momentum in recent years. This momentum has culminated in the newly released *Sperm Competition in Humans: Classic and Contemporary Readings* by editors Todd Shackelford and Nicholas Pound. Shackelford and Pound have amassed a collection of works that obliges the reader to take the possibility of human sperm competition seriously. Indeed, the evidence that sperm competition has played a significant force in human evolution is now considerable. Importantly, their edited volume contains a treasure trove of testable hypotheses that readers can critically evaluate for themselves. A primary goal of the editors is to stimulate evolutionary psychologists to consider the implications of human sperm competition in their research agendas. I would wager that they will succeed in their objective.

This edited volume is divided into three main sections. The first contains reprints of two articles by Geoffrey Parker and his colleagues (on the theoretical reasons why there are so many sperm and how they may be prudently allocated), and a newly written overview of the field by the volume's editors along with Aaron Goetz. The second section contains eight reprints of "Classic Readings," including the seminal chapter by Smith, six well-known and somewhat controversial works by Robin Baker and Mark Bellis (including original empirical work on patterns of male masturbation, female orgasm, sperm morphology as possible adaptations to sperm competition), and a critical response to Baker and Bellis' morphological hypotheses by Alexander Harcourt. The third section focuses on "Contemporary Readings" and contains original research reports by Shackelford and his colleagues on human psychological adaptations to sperm competition, Gordon Gallup and Rebecca Burch on semen displacement adaptations to human sperm competition, Randy Thornhill and his colleagues on female orgasm as an adaptation to human sperm competition, and an article by Moore, Martin, and Birkhead that takes a critical view of human sperm competition research.

The fundamental issue underlying much of this research is whether our species possesses

attributes (physical or psychological) that reveal “special design” or biological adaptation for human sperm competition. Theoretically, for such adaptations to exist, women must somehow benefit from engaging in double-mating (i.e., mating concurrently with two or more men during the fertile phase of their menstrual cycle). In his classic review, Smith suggested women may benefit from double-mating in several ways, such as allowing them to obtain high quality genes, genes that give their sons a competitive advantage (i.e., sexy son genes), overall genetic diversity in their offspring, a fertility back-up in case a primary reproductive partner is sterile, material resources from multiple suitors, protection from multiple males, and possibly through status enhancement.

Empirical evidence of sperm competition in humans has been steadily mounting since Smith first outlined the possible benefits to women from double-mating. Again, the most important evidence—essential for the evolution of adaptations to sperm competition—is that women, at least occasionally, do engage in double-mating. Several large social surveys in the United States and Britain suggest about 10% of women have “temporally concurrent” sex with two or more men in a given year. Genetic paternity testing shows about 9% of men unknowingly raise children that are not biologically their own. Around 20% of women report fantasies of having sex with more than one man, and many of women’s polyandrous sexual desires (including desires for men with high genetic quality) seem to peak during the high fertility phase of their menstrual cycle. Additionally, patterns of women’s sexual choices, timing of orgasms, and degrees of semen retention appear to show evidence of special design for discriminating from among multiple concurrent sexual partners. Finally, ethnological analyses of the Standard Cross-Cultural Sample (e.g., Broude and Greene, 1976) suggest that women have historically engaged in behaviors supportive of double-mating. For example, in about 67% of cultures from the Standard Cross-Cultural Sample, women’s rates of pre-marital sex are moderate to universal, in about 57% of cultures from the Standard Cross-Cultural Sample women’s rates of extra-marital sex are moderate to universal, and prostitution is noted in 92% of cultures from the Standard Cross-Cultural Sample.

The fundamental issue of whether women have specially designed adaptations for double-mating is skillfully addressed in the book’s Foreword by Randy Thornhill. He argues—invoking both strong theoretical rationale and wide-ranging empirical evidence—that women possess two strategic sexualities, what he describes as “estrus” and “extended” sexual strategies. These basically correspond to the *short-term* and *long-term* sexual strategies that have framed much of the scholarship on evolution and human mating over the last decade (Buss and Schmitt, 1993; Gangestad and Simpson, 2000). Women’s estrus/short-term sexual psychology is most pronounced during the pre-ovulatory phase of the menstrual cycle, precisely when engaging in a double-mating through extra-pair copulation would be most beneficial to women (e.g., by gaining access to high quality genes, sexy son genes, diverse genes). This realization has led to an “ovulation revolution” in our understanding of human mate preferences, attraction tactics, infidelity, jealousy, and mate guarding behaviors.

Additional evidence of adaptation to sperm competition in women can be found throughout this volume, including Baker and Bellis’ work on women’s variation in orgasm and sperm retention patterns across partners of differing quality. Concealed ovulation, pendulous breasts, and continuous sexual receptivity may represent additional adaptations that support women’s dual sexual psychology.

In men, possible physical adaptations indicative of human sperm competition include penis length, shape, and thrusting patterns (for both depositing sperm and displacing rival

sperm); testes size and scrotal location (especially compared to other mammals); and various sperm qualities including allocation volume, viscosity, and morphology. Possible psychological adaptations to sperm competition in men include special designs for sexual jealousy, mate retention behaviors (varying according to mate value, ovulation status of partners, and time spent apart from partners), and sexual arousal patterns (especially in response to likely presence of rival sperm, as when judged by men's reactions to certain pornographic images or the time spent apart from a partner before sex). All of these adaptations represent strategic responses to women's double-mating behavior, behavior that would have presented adaptive problems for ancestral men.

The most important implication of sperm competition relevant to humans is that research programs must now fully acknowledge the differing short-term and long-term mating psychologies of men and women. Similar to the movement in personality psychology acknowledging trait variation *within* people (Fleeson, 2004), evolutionary approaches must focus on mating strategy variation (short-term versus long-term) within people. Although this has to some degree occurred in our understanding of male sexuality, the increased focus on women's estrus/short-term mating psychology is long overdue. At this point, future theories and research programs that fail to account for women's short-term mating, including its variation across the menstrual cycle and its effects on men's strategic psychology, will remain mired in the simplistic notion that sex differences are the only important determinant of mating variation.

Regrettably, the majority of social and developmental psychologists continue to view humans as solely designed for monogamy (Barash and Lipton, 2001). Any notion of the adaptive pursuit of short-term mating, especially by women, is seen as pathological, dysfunctional, and rooted in "insecure" romantic attachment. The mounting evidence of sperm competition in humans—including evidence that women are fundamentally designed for double-mating—should be the final nail in the coffin of humans as life-long monogamists. With this edited volume, Shackelford and Pound have hit the nail on the head.

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