

Fatherhood: Evolution and Human Paternal Behavior. Peter B. Gray and Kermyt G. Anderson. Cambridge, MA: Harvard University Press. 2010. ix+304pp.

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Evolutionary biologists have long realized that organisms face a trade-off between the number of offspring that a species produces and the amount of resources and time that they invest in raising them. At one extreme lie mice, giving birth to large litters of offspring that receive minimal parental investment and as a result have high mortality. Contrast this with a typical human, who devotes nearly two slow decades simply to growing, developing, and learning while relying heavily upon parents and other caretakers, and who often does not bother to get on with the work of reproducing until early in the third decade of life.

Although humans epitomize a high-investment parenting strategy, we are in fact a unique evolutionary oddity in that we somehow manage to have our cake and eat it too: not only do we invest intensively in each offspring, ensuring high juvenile survival, but somehow we also manage to have many offspring to boot. For instance, compared to females of other great apes (our closest living relatives), women in contemporary foraging populations tend to have higher fertility rates while a greater percentage of their offspring also survive to adulthood.

What accounts for the unusual human ability to produce many young without compromising the intensity or quality of investment in rearing? Numerically, we raise more offspring by weaning relatively early: unlike wild chimpanzees who breastfeed each offspring until they are about 5 or 6 years of age, in most human foraging populations children are fully weaned onto solid foods at 2 to 3 years old, allowing a mother to achieve her next pregnancy much sooner. However, at a more fundamental level the answer to this question is a social one, because the presence of more overlapping dependent offspring translates into greater requirements for provisioning and care. Our early weaning not only allows more offspring to be born, but appears to require distributing the burden of provisioning and childcare to an extent not seen in other species.

In *Fatherhood*, Peter Gray and Kermyt Anderson synthesize findings from biological anthropology, psychology, and related fields to make the case that males play a key role in this unusual human strategy. They argue that males have been shaped by evolution to not only serve as resource providers—the long held assumption—but also to care for young. There is a rapidly growing body of evidence that human males bear cognitive, emotional, and physiologic signatures of evolutionary selection to provide such care, whereas most male mammals clearly have not. Gray and Anderson synthesize and review various literatures to make the case that fatherhood is a career with deep evolutionary roots in our species' lineage.

Some of the most fascinating evidence that human males have been shaped by evolution for their role as parents comes from studies of the physiologic, hormonal and emotional differences between fathers and non-fathers. For example, the hormone testosterone, which provides a boost of confidence and competitive mojo in social interactions (for men and women alike), is often decreased substantially in fathers. There is some evidence that fathers also have

higher prolactin – the hormone that, in women, is produced during lactation and is known to stimulate nurturing behavior.

Although the perspective presented in this book is evolutionary in focus, it would be a mistake to see this as simple determinism. Where data are available, Gray and Anderson highlight the role of cultural institutions as influences on cross-cultural variation in the behavior and biology of fathers and fatherhood. For instance, the tendency for fathers to have lower testosterone than non-fathers is not seen in settings in which men are expected to play minimal roles in raising children, such as in some polygynous societies. Thus, we see how men have evolved a suite of emotional, hormonal, and psychological capacities that may be mobilized when they become fathers, but also that the need to do so is largely determined by local culture and context.

A wide range of topics receive attention in this volume. Early chapters adopt the perspective of the evolutionary psychologist, and explore research related to paternity certainty, and the differences in behavior and motivations between biological fathers and step-fathers. In the chapter “Fathers and Fertility,” we learn of the myriad things that can go wrong with the male reproductive system, and the underappreciated role that male factor fertility plays among many couples facing fertility issues. One chapter provides a nice synthesis of what is known about the role of marriage and fatherhood as influences on adult health. Available evidence suggests that becoming a father takes a toll early on, but that there are payoffs to health and happiness later in life. One of the early tolls, highlighted in a chapter that includes original data analysis, is less free time for socializing and other non-productive activities. This may not come as a surprise to most fathers, but it is interesting nonetheless to see the evidence compiled from a cross-cultural perspective.

One critique is that the book could have developed stronger linkages between chapters to weave more of an integrated narrative. The concluding chapter (“Rewriting the Manual”) did consolidate some of the authors’ arguments, but did not break new ground so much as summarize the terrain covered in prior chapters. This critique aside, *Fatherhood* is a nicely written book that does the field a service by synthesizing a fascinating and rapidly evolving area of academic inquiry. This book will appeal to advanced undergraduates, graduate students, and also to scholars in unrelated fields for whom these topics may be new. Although most of the ideas presented here have appeared previously in other venues, the volume also serves as a nice resource for academics more directly engaged with this research as it brings the disparate literatures related to the evolution and psychobiology of fatherhood together under one cover. The writing style is accessible enough that the inquisitive lay reader will also gain a broad perspective on human fatherhood.

If a growing number of psychologists, anthropologists, and physiologists are correct, human fathers are more than modern mammalian oddities but have been essential to the peculiar evolutionary success of genus *Homo*. Gray and Anderson’s new book will serve as a nice resource for researchers in this fascinating and rapidly changing field.