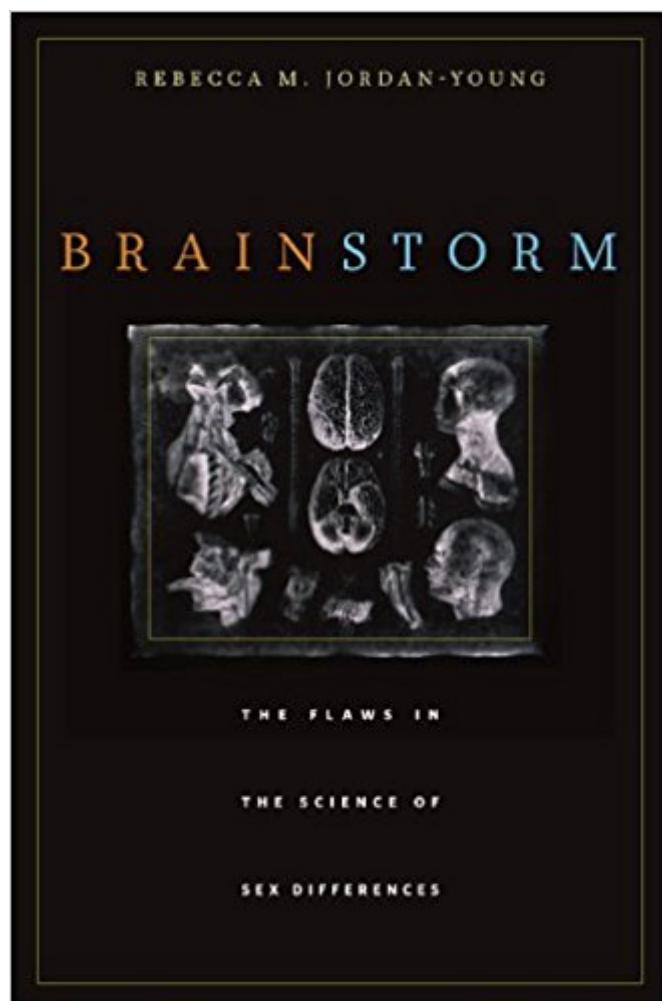


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Brain Storm: The Flaws In The Science Of Sex Differences



Synopsis

Female and male brains are different, thanks to hormones coursing through the brain before birth. That's taught as fact in psychology textbooks, academic journals, and bestselling books. And these hardwired differences explain everything from sexual orientation to gender identity, to why there aren't more women physicists or more stay-at-home dads. In this compelling book, Rebecca Jordan-Young takes on the evidence that sex differences are hardwired into the brain. Analyzing virtually all published research that supports the claims of a *œ*human brain organization theory, Jordan-Young reveals how often these studies fail the standards of science. Even if careful researchers point out the limits of their own studies, other researchers and journalists can easily ignore them because brain organization theory just sounds so right. But if a series of methodological weaknesses, questionable assumptions, inconsistent definitions, and enormous gaps between ambiguous findings and grand conclusions have accumulated through the years, then science isn't scientific at all. Elegantly written, this book argues passionately that the analysis of gender differences deserves far more rigorous, biologically sophisticated science. *œ*The evidence for hormonal sex differentiation of the human brain better resembles a hodge-podge pile than a solid structure. Once we have cleared the rubble, we can begin to build newer, more scientific stories about human development.

Book Information

Paperback: 408 pages

Publisher: Harvard University Press; Reprint edition (October 15, 2011)

Language: English

ISBN-10: 0674063511

ISBN-13: 978-0674063518

Product Dimensions: 6.4 x 1 x 9.2 inches

Shipping Weight: 1 pounds (View shipping rates and policies)

Average Customer Review: 4.1 out of 5 stars 16 customer reviews

Best Sellers Rank: #346,280 in Books (See Top 100 in Books) #84 in Books > Science & Math > Biological Sciences > Biology > Developmental Biology #338 in Books > Science & Math > Experiments, Instruments & Measurement > Methodology & Statistics #562 in Books > Medical Books > Medicine > Internal Medicine > Neurology > Neuroscience

Customer Reviews

I'm the ideal test reader for Brain Storm. I've always had reservations about the sweeping claims

that there are fundamental differences in the organization of male and female brains, caused by prenatal hormones. But the sheer number of published studies that seemed to give incontrovertible evidence led me to assume that the theory was sound. This elegantly written and fascinating book has changed my mind. Jordan-Young's comprehensive analysis of the array of conflicting results and methodological weaknesses shows that we have closed the book on this topic far too soon. Her warning is one that all scientists can agree with: Careful! (Lisa Diamond, author of *Sexual Fluidity*) This important and intellectually powerful book shows that a dominant paradigm in human sex differences is held together by chewing gum. By painstakingly examining a large and contradictory literature, Jordan-Young shows the weakness of the brain organization hypothesis. She has so much respect for the scientific method that she can hope that reason and integrity will help create a better, more empirically sound theory of sex differences, and she reaches out to scientists to offer a glimpse of a new psychobiology. (Anne Fausto-Sterling, author of *Myths of Gender*) This is a book of remarkable depth that sets a new standard for clear scientific thinking about complex behavioral traits, as well as for interdisciplinary scholarship. Rebecca Jordan-Young charts a fresh new course through the morass of questions about gender and sexuality with enviable humor, fairness, and intellectual power. (Evan Balaban, McGill University) *Brain Storm* poses the most comprehensive challenge yet to the claim that prenatal hormone exposure permanently structures the brain to be either masculine or feminine, and does so in a highly engaging, fair-minded narrative that is a delight to read. (Stephen J. Ceci and Wendy M. Williams, Cornell University) Jordan-Young has written a stunning book that demolishes most of the science associated with the dominant paradigm of the development of sex and gender identity, behavior, and orientation. The current paradigm, brain organization theory, proposes: "Because of early exposure to different sex hormones, males and females have different brains"; and these hormones also create "gay" and "straight" brains. Jordan-Young interviewed virtually every major researcher in the field and reviewed hundreds of published scientific papers. Her conclusion: "Brain organization theory is little more than an elaboration of longstanding folk tales about antagonistic male and female essences and how they connect to antagonistic male and female natures." She explains, in exquisite detail, the flaws in the underlying science, from experimental designs that make no statistical sense to "conceptually sloppy" definitions of male and female sexuality, contradictory results, and the social construction of normality. Her conclusion that the patterns we see are far more complicated than previously believed and due to a wider range of variables will shake up the research community and alter public perception. (Publishers Weekly (starred review) 2010-07-12) A carefully researched volume that exposes the problems with the widely accepted idea that gender

differences are created by certain hormones in the womb. (Alex Spanko Boston Globe 2010-09-21)What Jordan-Young's analysis uncovered is by turns fascinating and appalling...This book is not only a tonic, it's also full of scientific insights presented in plain, intelligent prose--an absorbing read, if you've ever wondered what was going on in the secret parts of your attic. (Sara Lippincott Los Angeles Times 2010-10-03)It was with appreciation verging on glee that I read Barnard professor Rebecca Jordan-Young's devastatingly smart and definitive critique: Brain Storm: The Flaws in the Science of Sex Differences. Jordan-Young argues that the science of prenatal hormones, gender, and the mind "better resembles a hodgepodge pile than a solid structure." And she knows of what she speaks. An expert on measures and study designs, Jordan-Young has spent the last 13 years combing the literature on brain organization, unpacking assumptions, questioning methods and statistical practices, holding one paper up against another. She stresses that fetal hormones must matter to the brain--somehow. But after picking apart more than 400 studies that try to understand the genesis of particular psychological sex differences (real or supposed), she concludes that fetal T looks like an awfully anemic explanation...After decades of determined research, if robust links between prenatal hormones and "male" or "female" minds really exist, shouldn't we see those links across lots of different kinds of studies? This matters because the obsession with prenatal T can easily become a distraction. It can make us forget how much gender norms have changed--think of all those female accountants, lawyers, and doctors who weren't around 50 or even 30 years ago--and how remarkably similar men's and women's brains and minds actually are. All this unwarranted hammering away at difference (and its putative explanations) causes real trouble, too. As a growing body of research shows, cues that foreground gender and bring stereotypes to mind can dampen men's performance on tests of social sensitivity, women's scores on math tests, and women's stated interest in quantitative pursuits. Jordan-Young has done an enormous amount of work to untangle the gender claims. We ought to read her, cite her, thank her. And then, let's move on. (Amanda Schaffer Slate 2010-10-21)Jordan-Young ferret[s] out exaggerated, unreplicated claims and other silliness regarding research on sex differences. The book [is] strongest in exposing research conclusions that are closer to fiction than science. (Diane F. Halpern Science 2010-12-03)Exhaustively analyses every relevant study on hormonal sex differentiation of the human brain, and argues that they are riddled with weaknesses, inconsistencies and ambiguity. It's a clarion call for better science on the subject. (Madeleine Bunting The Guardian 2010-11-14)In her exhaustive survey of the literature, Jordan-Young discovers a hodge-podge of tiny samples, inadequate controls, conflicting data and extravagant conclusions...By meticulously revealing the flawed research behind brain organization theory, she

opens the way to a non-hierarchical study of sex difference that will be both more fruitful for science and less damaging for society. (Hilary Rose and Steven Rose London Review of Books 2011-04-28)Jordan-Young's detailed and exhaustive critique of brain organization research is quite welcome. (Vernon Rosario Gay and Lesbian Review 2011-07-01)

Rebecca M. Jordan-Young is a sociomedical scientist and Tow Associate Professor for Distinguished Scholars in the Department of Womenâ™s, Gender, and Sexuality Studies at Barnard College, Columbia University.

Excellent, meticulous research and well written. Rebecca M. Jordan-Young clearly, concisely discusses the science of prenatal hormones, gender, and the mind. An expert in every sense of the word.

As a layperson, I found the reading slightly difficult. Not because of the author's writing style, which is excellent given the material, but because it's not your typical pop-science, easy read. You can't sneak in a few chapters in the waiting room at the doctor's office. I like how she painstakingly defines each concept, and even gives non-academic folks (like me) a fairly thorough description of the types of studies that have been used in developing brain organization theory (and tells you that if you've already mastered those concepts, to go ahead and skip certain sections). She even wrestles with how to define certain terms and concepts because she doesn't want to introduce bias (unlike many of the studies she cites). She delicately balances the line so as to not talk down to the reader, but writes intelligently enough so that, I believe, even other brain researchers won't feel insulted. Although I loved Cordelia Fine's *Delusions of Gender*, Jordan-Young avoids the sarcasm and snarkiness that is so prevalent in Fine's work. As a result, *BrainStorm* is a serious survey of dozens of brain studies, whose results are really not as clear-cut as the researchers would have us believe. Muddling through the incessant citations can slow you down, as she often cites multiple studies at once; but this cannot be avoided, and indeed, is necessary to make her points. Perhaps most striking is the fact that virtually none of the studies uses the same definition (or any definition at all) for words like "feminine" and "masculine." When pressed, researchers and scientists insist that such concepts are "common sense" and require no explicit definitions. Because what is considered feminine and masculine changes over time and varies between cultures, these definitions are not constant, but the research (which spans several decades) treats them as though they are fixed and unchanging concepts that don't need to be spelled out. She points to several

studies that cite previous research to support their hypotheses, when in reality, those studies actually CONTRADICT each other because of varying definitions of key terms. All in all, a very thorough and extremely well-researched read. I often found myself marveling at the amount of data she has obviously pored through to carefully and thoughtfully present to the reader. Highly recommended for the layperson interested in brain research.

Brain Storm is a brilliant tour-de-force of analysis of the scientific literature on the organizational/activational (aka prenatal hormone) theory that reigns in neuroscience and psychology. Through a very careful analysis of the studies themselves Jordan-Young makes the very persuasive argument that there isn't a consistent body of evidence supporting the theory that gender and sexual orientation differences are caused by prenatal exposure to hormones. This will come as shock to some who find this theory to be canonical or 'settled law.' But Jordan-Young's careful, methodical deconstruction of the findings from hundreds of studies quickly reveals that there's no 'there' there. Such supposedly incontrovertible evidence is revealed as the product of an almost willful suspension of critical thinking on the part of the scientists working in this area--some of them don't come off too well here, and Jordan-Young treats them over-generously IMHO. Yes, the writing's rather dense in spots but Jordan-Young's an academic and the book was brought out by Harvard University Press. The author's also trying to avoid some of the inaccuracies created by simplistic metaphors found in many of the pop-sci books on this topic. I have PhD in the humanities but am quite well versed in the secondary literature on this subject and STILL struggled with parts of this book. But Jordan-Young is very kind to us non-experts and nicely sums up her arguments along the way. If you're a fan of Cordelia Fine's or Anne Fausto-Sterling's work, this is a must read! One small quibble: as a cultural historian I would have liked to hear the author's take on exactly WHY so many scientists have been so invested in essentialist theories of gender and sexual difference, to the point that they're unwilling to examine the suppositions on which their own research is grounded. Why so much scientific essentialism and why now? It'd make a tidy feminist argument if all the research had been done by men, but some of the most prominent scientists working in this area today are women; a handful of others are gay men. What exactly is going on in American society just now that makes the flight to biological determinism so darned attractive to so many; so attractive that we're willing to lower our standards for what constitutes legitimate scientific inquiry to 'prove' that gender and sexual orientation are in-born? Perhaps it's the value of essentialist arguments to undergird legal rights claims currently being made by LGBT activists (the "Lady Gaga theory of gay origins") or cultural reactions to women's social and cultural gains ("Men and women

ARE different!") But that's another book.... I'll take this one for now!

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