The unpredictable and sometimes incomprehensible moods and behaviors of a teenager can be a head-scratching mystery—especially to parents. Hormones, boredom, social media, peer pressure, and drugs and alcohol are just a few of the factors to consider. Frances E. Jensen, M.D., professor and chair of neurology at the University of Pennsylvania and the mother of two sons who are now in their twenties (along with Washington Post health and science reporter and Pulitzer Prize winner Amy Ellis Nutt) look at the emerging science of the adolescent brain and provide advice based on Jensen’s own research and experience as a single mother.
Most humans, and to some extent other species, have one thing in common, regardless of age, race, gender identity, hair color, height, IQ, etc. We have all been teens—whether it was last week, in the 1980s, or in the seventeenth century. While the trials and tribulations facing teens may have changed dramatically over the millennia, we all have, or will have, traversed the chasm between childhood and maturity, collectively referred to as adolescence (from the Latin term *adolescere*, meaning “to grow up”).

Author Frances E. Jensen, M.D., professor and chair of neurology at the University of Pennsylvania, is dedicated to raising public awareness regarding the teen brain. She also—particularly relevant to the writing of a book on this subject—is the mother of two sons who graduated from adolescence. Publisher Harper touts *The Teenage Brain* as a neuroscientist’s survival guide for understanding adolescence from multiple perspectives, and topics in this comprehensive tome include hormones, drugs and alcohol, historical perspectives, the impact of stress, mental illness, and matters legal and otherwise.

Jensen provides her sound scientific expertise and presents experimental brain data, as well as her firsthand practice of parenting through vignettes about her sons’ sometimes questionable behavior—hair dye, a car crash, her response to a son having too much to drink as a college student. Jensen also presents humorous, cliché, and disheartening teen stories and testimonials from parents who have sought her advice. She also provides somewhat of an autobiographical account of her scientific career, which is interesting but perhaps not relevant to the main point of the book.

In terms of the science, Jensen writes in pseudo-lay terms to introduce the neurobiology of adolescent brain development. While having a background in neuroscience is not necessary to take full advantage of the advice offered, it is helpful. Early on, she emphasizes that until the past
decade, the study of adolescence has been a relatively neglected research area. This is indeed true, and research in this area of brain science has been expanding precipitously, in part because of advances in technology that can reliably, and safely, provide a window into the human brain. Jensen and co-writer Amy Ellis Nutt, a Pulitzer Prize-winning reporter who covers health and science for the Washington Post, interpret the new data beautifully and accurately.

The book’s overarching theme, presented from a variety of angles, is that adolescence is a period of unique opportunities and vulnerabilities. Each chapter includes historical perspectives on adolescence, from cultural to psychological to neurobiological. While historical information, including perspectives from different eras on the potency of drugs such as marijuana, the evolution of psychological studies on emotion and stress, and legal statutes for criminal culpability is interesting, the abundance of facts detracts somewhat from the neuroscience. Nonetheless, the authors successfully digest and interpret the brain science for parents and teens, with the goal of providing evidence and advice that will improve their navigation of this decade of unique life challenges. Jensen writes that their book “is about knowing [adolescents’] limits and what can be done to support them” and to provide “real data from real science journals”—and they indeed meet these goals. Figures reprinted with permission from previously published journal articles will be helpful to those who like having real data in hand, although these figures may lack the context necessary to have true utility to some lay readers.

The book is largely organized in bottom-up fashion, covering the more microscopic aspects of brain function and development, including emphasis on the importance of myelination and neuronal pruning in the teenage frontal lobe. Jensen points out that these processes contribute to a more efficient brain and largely underlie observed functional improvements during this age period. Further, she correctly underscores that teen brains are primed for knowledge, the main stage for the “opportunities” associated with adolescence. In contrast, Jensen writes that teenage “vulnerabilities” result from the well-documented evidence of increased teenage novelty seeking.
(i.e. risk taking), and with due diligence, she spends the remaining chapters of the book combing over studies on alcohol and drug effects.

The most useful information for parents may be the presentation of data on parental positions on alcohol and drug use, which have been shown to be a protective factor against future youth substance use and abuse. Stress, a ubiquitous experience that has transcended evolution, is also part of the equation. The book does a good job of describing the underlying biology of the damage stress can cause in teens, from the cellular level all the way to behavior, with notable impacts on memory and mental health.

Making this teenage guidebook especially timely is a focus on the obvious and the not so obvious perils of digital technology. Jensen keenly advocates for the formalization of Internet addictive disorder, which is not yet a diagnosis but certainly is a condition for which many adolescents, and adults, likely would meet diagnostic criteria.

The authors can’t be blamed for not covering the impact of exercise or nutrition on teenage neurobiology, since those are areas where there are few existing data. And they do a good job of discussing where imaging has made an enormous impact in recent years: head injuries and mild traumatic brain injury, and the idea that the developing brain does not recover like that of an adult. Finally, although applicable to a somewhat smaller subset of the population, they discuss the juvenile justice system and offer the sound suggestion that local governments create rehabilitation and counseling programs for adolescents at risk, rather than build additional prison space and facilities.

The book closes by making parents aware that their offspring won’t reach neurobiological adulthood until their mid-twenties, rightly concluding that the period of opportunity and vulnerability extends beyond eighteen, an age once believed to be the gateway to adulthood.
Bio

Marisa M. Silveri, Ph.D., is associate professor of psychiatry at the Harvard Medical School, adjunct assistant professor of psychiatry at the Boston University School of Medicine, and director of the Neurodevelopmental Laboratory on Addictions and Mental Health at McLean Hospital. Silveri uses magnetic resonance imaging (MRI) to study teen and emerging adult brain development, with a focus on identifying risk factors for substance abuse and psychiatric disorders. Silveri has received numerous awards and has more than fifty peer-reviewed scientific publications. She received a B.S. in biology/psychology from Union College and M.A. and Ph.D. degrees in behavioral neuroscience from the State University of New York at Binghamton.