

Pornography and the Teen Brain

By Mary Bailey

The chief source of sex education for many young males is pornography on the Internet, according to David Amsden in a recent *New York* magazine. As one 20-year-old confided to him, during his initial sexual experience “my first thought as it was happening was, ‘Oh, this is pornography!’” Some young men cannot get aroused with real women, Amsden found, but have no problem interacting with a pornography site. Others cannot sleep with their girlfriends unless they behave like porn stars. It is “truly amazing,” a sex therapist told Amsden, the “things women feel obliged to do,” without “bothering to please themselves.”

These are not just one writer’s isolated observations. A good 20 years ago I knew two attractive women in their 30s whose husbands preferred a sex life with *Playboy* to one with them. *Playboy* must have known this can happen, too, for one of its 1974 cartoons depicted a man having sex with a large nude poster placed on the body of an anxious woman who is saying, “Are you sure you still love me, Harry?”

The thought has stayed with me a long time that there is something about pornography’s objectification of women, as opposed to erotica’s more natural approach, that is capable of affecting a person’s sexual nature. But how does it work, exactly? Now the answers are beginning to emerge from the pipeline of scientific research and they center, not on the genitals, but on the brain.

When the government declared the 1990s the Decade of the Brain, it poured money into brain research that eventually led to some stunning discoveries. Peruse all but the most recent books about the brain today, and you will still read that the brain does not change after early childhood, and that the brain cells we have now are all we will ever possess. But those books are mistaken. In just the last handful of years, scientists have learned that there are two periods in life when the brain explodes with brain cells (neurons): early childhood, as we know – and adolescence. They have also found that the fully adult brain, something we thought we were stuck with, is capable of building new neurons, albeit not so easily as can the younger brain.

Thanks to brain scans such as magnetic resonance imaging (MRI), scientists now realize that the frontal lobes (or prefrontal cortex, behind the forehead and temples) burgeon with new development from just before puberty through young adulthood. The books I studied in preparation for this essay, all of them recent, agreed that brain development ends in the early to mid-20s. Yet that information may already be obsolete in the world of neuroscience, for as Stephen Honsha of the University of California/Berkeley recently pointed out, “We now know that frontal lobes, which manage both feelings and thought, don’t fully mature until age 30.”

The frontal lobes are the youngest part of the brain in evolutionary terms and the last to mature in humans. This area constitutes the seat of the brain’s higher-level brain functions. It regulates not only reason, planning and organization, but – of significance to this discussion – attention span, impulse control, judgment, and empathy.

Upon entering the tumultuous teenage years, adolescents typically respond to emotional situations with “gut feelings” initiated by the brain’s center of emotions, its ancient limbic system. But this is also the time when the frontal lobes begin their rapid development, sprouting numerous neurons that branch and connect in various directions to form pathways and networks. Some of these branchings and networks get stimulated and used by the individual teen, and others do not. Amazingly, in a person’s 20’s the branchings that are not employed start withering away, and the frontal lobes begin to shrink. This happens to all of us, and which branchings are saved or discarded depend upon our personal experiences and choices.

This means, in effect, that “[t]eens have the power to determine their own brain development,” says Jay Giedd of the National Institute of Mental Health, “whether they do art, or music, or sports, or video games.” Other neuroscientists agree, as the following statements indicate:

“We can change who and what we do by what we see, hear, say, and do. It is important to choose the activities for our brains to be well trained.... We make choices that change our brains and ultimately change who we are.” – Nancy C. Andreasen, *Brave New Brain*, 2001.

“Our brain is marked by the life we lead and retains the footprints of the experiences we have had and the behaviors we have engaged in.” – Jeffrey M. Schwartz and Sharon Begley, *The Mind and the Brain*, 2003.

Neurologists use the word “plasticity” to describe the ability of the brain to rewire itself based on use. MRIs reveal how much cortex space is devoted to each region of one’s body. Take the hand, for instance. Each finger has its own sensory and motor areas on the surface of the cortex. But these cortical regions, or “maps,” are not immutable. The more a movement is made, the more cortical space is given over to it. A Braille reader’s reading finger takes up more space on the cortex than does the same finger on a non-Braille reader. The fingering hand of a violinist has more space than the bowing hand. Trumpet players’ brains zone themselves to respond to brassy sounds, while violinists’ brains are attuned to the sounds of strings. A large cortical area is devoted to the thumb of a video-game addict.

Here is the most amazing part: scientists have also found that our brains rewire themselves based on what we *think*. For example, the brain of a pianist who only imagines playing a simple tune registers the same degree of change as the brain of a pianist who is actually playing the piece. In effect, the plastic brain rezones itself based on movement, whether real or imagined.

But in order for this to occur, the prefrontal cortex must give the movement its focused attention. Casual, passive observation will not do it. Concentrated attention is the prerequisite for any use-caused brain change, imaginary or real, says Schwartz of UCLA. The prefrontal cortex, which is anatomically connected to the primitive limbic system, does this by damping down all other distractions, so that “only one thought, one possible action, prevails over all the other possible ones competing for dominance in consciousness.”

A second prerequisite for changing the cortical landscape is repetition. Repeated experiences are converted into long-term memory, writes Andreasen of the University of Iowa, especially “if they have more personal meanings, a high emotional loading, [and] a vivid sound or appearance” – all qualifications that pornography on the Internet easily meets.

Undoubtedly, a young male such as Amsden describes has given Internet pornography his focused and repeated attention. Evidence reveals that as he grew more experienced with pornography, his brain became stimulated at just the thought of what he was about to observe, even before any images appeared on the screen. Tragically, his pornographic preferences started to crowd out other choices, and his brain built a repertoire of sexual choices that may last him a lifetime if other factors do not intervene.

But what about the women this man has been urging, coaxing, teasing, and perhaps insisting they act like a porn star? Are they not harmed? Is he not harmed as well? Do only their therapists care? And, do they even have therapists?

Neurologists are only beginning to trace the cascades of chemicals that communicate within the brain and between brain and body. Nor do they fully understand the limbic, motor, or memory systems involved, much less the role that genes play in their development. But if the above findings continue to be replicated and expanded, the results could be as relevant to the entertainment media as research on second-hand smoke has been to the tobacco industry.

When I started reading in preparation for this essay, I had a vague idea of finding a direct connection in the brain between male sexuality and violence. Then I came upon the amazing brain-mapping information related by Schwartz and others. Although brain-mapping is implicated in sexual violence, I am more struck by the evidence of the effect of inputs such as video games and Internet pornography on the ordinary, everyday, young male brain, and their plausible effects on our personal lives and shared culture.

Ordinary young females can be drawn into the Internet vortex too, of course. As with their male counterparts, teen curiosity – the brain-wired need to study adult behavior – also can lead them to imitate the rampant pornography on the Internet. By and large, however, young women and girls are more likely to be harmed by it and to suffer from it. From unsatisfactory relationships to lack of respect and worse, they pay the highest price for their generation’s growing up in the age of the Internet.

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