

Understanding the Mind Over the Video Game Matter:

Is excessive video gaming harmful to your child's brain?

By Dr. Ron J. Swatzyna
www.drswatzyna.com

Something for parents to consider for the holiday season...

The debate over excessive video gaming comes down to the potential harm to our children. Can too much time on the Xbox or Play Station interfere with our child's ability to function normally? More importantly, are there damaging, psychological effects to "over video gaming?" Recent studies on brain functioning suggest playing video games for long hours is more than just child's play. Studies suggest that excessive video gaming can have lasting and serious effects, especially in young maturing brains. Further, children with Attention Deficit Hyperactivity Disorder (ADHD) or Pervasive Development Disorder (PDD) might be most at risk.

To understand how excessive video gaming can lead to a poorly developed brain, we must first understand how the brain works. Your child's brain is a learning machine constantly growing new neuronal pathways. As he or she learns, the brain grows. This process is called neuronal plasticity. The more learning is repeated, the stronger the neuronal pathways.

Some video games stimulate these learning pathways. For example, "Sim City" teach gamers skills such as organization, planning and strategizing. Still, these learning games

are outnumbered by games that are violent, include hi-tech graphics and spur emotional arousal. Today's video games are exciting, interactive and feel real; gamers get ready for action in pseudo life or death situations. Their bodies are flooded with adrenaline, the respiration rate increases, blood vessels constrict, and the heart rate and blood pressure increase as adrenaline is released into the brain.

We may think this arousal state "powers" the brain. In fact, the opposite occurs. Blood flow to the frontal lobes is suppressed as in a "fight or flight" response. This is potentially damaging, because when we suppress our frontal lobes, our brain's ability for higher thinking and decision making is inhibited. In children immersed in an intense video game for long amounts of time, parents may have a hard time getting their attention.

Additionally, high levels of the neurochemical Norepinephrine produced by thrilling video games also suppress blood flow to the frontal lobes. This enables a hyper focus on the "survival" task at hand. Another neurochemical involved is Dopamine. Dopamine motivates us to strive to attain a goal by stimulating the pleasure center of the brain. This leaves gamers feeling a sense of high,

only to be followed by a need to play longer and longer for the same pleasure. With excessive video gaming, the continuous excessive flow of dopamine is eventually exhausted and a precipitous drop occurs.

In children with ADHD and PDD, the effects of excessive video gaming could be equivalent to an incipient alcoholic playing nightly drinking games. These kids are often socially challenged and lack the maturity for their age, have anger or anxiety issues, are doing poorly in school and have difficulty engaging in treatment. Add intense video gaming to those issues and this is a recipe for disaster. Perhaps children with these troubles are drawn to heavy gaming. It is also possible heavy video gaming is causing these problems or worsening them.

The American Academy of Pediatrics recommends children spend no more than two hours behind the television or video game each day. Of course, parents can monitor their child's daily video gaming allowance. Parents can also look for the following warning signs their child might be spending too much time gaming.

1. How is your child's sleep quality? Is your child not waking up rested or appears grouchy?
2. Does your child not want to participate in family functions such as meals, shopping and outside activities?

3. Is your child having increased conflict with family and losing the ability to control anger and mood?
4. Is your child increasingly isolating and staying buried in the games?
5. Is your child's immune system being challenged as indicated by increased illnesses and allergies?

In order to rebuild and strengthen our brain's neuronal pathways, neurofeedback training is considered an effective approach. Patients are connected to electrodes that measure electrical activity in the brain. This activity is displayed to the patient on a video screen. As the patient alters their brain activity in a functional direction, the video image changes to let them know they have achieved success.

Over time, practicing healthier brain activity works like practicing anything. Patients get better at it, until eventually it becomes the most natural thing in the world. Neurotherapy patients may spend two hours a week training their brains to work better. Heavy video gamers spend hours and hours every day training their brains to become more ADHD-like. As parents, it is time we limit video gaming for our children. The price their young brains pay is too great.

Dr. Ron J. Swatzyna, Ph.D. is Director of Neurotherapy at The Tarnow Center for Self-Management. He specializes in EEG/QEEG brain mapping analysis and treatment of children and adolescents who have not responded well to traditional approaches. Dr. Swatzyna is also a Sigma Xi clinical brain scientist who has presented twenty peer reviewed papers on brain dysfunction at national and international neuroscience conferences.