Children TV Video Games and ADHD:

In This Chicken and Egg Relationship, Overexposure Can Leave Kids Fried

When it comes to discussion of Attention Deficit Hyperactivity Disorder (ADHD), the only thing that many doctors, researchers, experts and parents are likely to agree to is that they disagree with each other. There are studies and opinions that support an entire spectrum ranging from ADHD being classified as a purely biological condition, to it being seen as a strictly environmental response. Granting that it is outside the scope of this document to trace the roots of ADHD, this report was created for an audience that recognizes that a significant proportion of the school-aged child population in the United States most estimates range from 2 to 5 percent's exhibit characteristics that are most commonly associated with the term ADHD.

The parents and family of a child with ADHD face many challenges in today's complex society. Through a review of the available research and literature, this report will focus on the connection between children with ADHD and two types of electronic media: television and video games. The amount of influence that electronic media have in the life of contemporary American children can be summed up rather succinctly by the following quote from the journal Family Relations, published by the National Council on Family Relations:

Television has become so entrenched in family life that it needs to be considered a socializing agent comparable to parents and educators. Currently [1989], 98% of the 75 million households in the United States own a television set, and these sets are turned on an average of 7 hours a day (Christopher, et al., 1989).

On the website of the American Academy of Pediatrics, the organization states that the average television viewing time for children is almost 4 hours per day. In providing a figure that represents the total viewing time per day, including videos and video games, the AAP□s journal Pediatrics cites a 1999 study that found children spending an average of 6 hours and 32 minutes with the various electronic media combined (Roberts, et al., 1999).

Do TV and video games cause ADHD?

While there is a range of opinions as to the causes of ADHD, there is a strong consensus among doctors and experts that an excessive amount of electronic media can exacerbate the ADHD behaviors in children. A research conducted by the National Institute of Mental Health concluded: □Extensive exposure to television and video games may promote development of brain systems that scan and shift attention at the expense of those that focus attention□ (Jensen, et al., 1997). Dr. Thomas Armstrong points out how the techniques used in electronic media can effect children: □By creating high-impact audio and visual information in short blasts, television (and also video games) may be secretly undermining some natural attentional mechanisms in the human mind□ (Armstrong, 76).

In his book Running on Ritalin, Dr. Lawrence Diller discusses many environmental and cultural influences related to ADHD, but focuses in on TV:

At least one large factor in our technoculture□television□has been the target of hundreds of scientific studies aimed at resolving arguments about its pernicious effects on children. Pediatric authorities (including the American Academy of Pediatrics) are quite explicit in stating TV□s negative effects on children□s behavior, which include increased aggression and acceptance of violence, difficulty in distinguishing fantasy from reality, distortions of the world, passivity and disengagement, and negative effects on cognitive learning.18 Other studies show a mutually reinforcing effect between excessive TV watching and sedentary, emotionally disturbed children, who tend to watch more than the average child.19 It□s hard to pinpoint the chicken and the egg here: Do such children watch more because they are disturbed, or does watching make them more disturbed? Again, the effect is thought to be bidirectional, but in its own right TV has been shown to clearly contribute to antisocial behavior over the long term. (Diller, 99)

Dr. Daniel Amen, in Healing ADD: The Breakthrough Program That Allows You to See and Heal the 6 Types of ADD, also spends a good deal of time considering how television can effect children, especially those with ADHD:

As far as excess television is concerned, the research is very clear: Kids who watch the most TV do the worst in school. TV is a □no brain□ activity. Everything is provided for it (sounds, sights, plots, outcome, entertainment), and the brain doesn□t have to learn or make new connections. Like a muscle, the more you use your brain, the stronger it becomes and the more it can do. The opposite is also true: The less you work it, the weaker it becomes. Repeatedly engaging in □no brain□ activities, such as TV, decreases a person□s ability to focus (Amen, 29).

In his discussion of electronic media, Dr. Amen talks about another way that ADHD children are effected:

Video games and television have lead to another major contributor in the rise of ADD in our society: the lack of exercise. Exercise increases blood flow to all parts of the body, including the brain□Through the years I have seen a direct relationship between the level of exercise a person gets and the severity of their symptoms. I have seen a number of ADD professionals (such as physicians and attorneys) get through school by exercising two to four hours a day. I have also noted that when my ADD patients are playing sports, such as basketball, where there is intense aerobic exercise, they do better in school, without any change in medication (Amen, 31-32).

Can ADHD children become □addicted□ to electronic media?

As evidenced by her title, The Plug-in Drug, media researcher Marie Winn is convinced that television can be addictive: □Not unlike drugs or alcohol, the television experience allows the participant to blot out the real world and enter into a pleasurable and passive mental state□ (Winn, 24). In Glued to the Tube, media ecologist Dr. Cheryl Pawlowski shows how TV can be more attractive to those that are struggling with problems:

TV□s lure is especially powerful among the lonely and emotionally vulnerable. A Rutgers University study, for example, examined the habits of employees at five Chicago-area companies. The researchers found the highest viewership among those who felt most alienated,

particularly subjects who were divorced or separated. The researchers speculated that these distraught viewers turned to television to avoid examination of conflicts and internal turmoil. Television programs and commercials, after all, provide parasocial experiences and are constructed to keep the viewer's attention focused on the TV and not on the self,87 notes Robert W. Kubey, who led the study (Pawlowski, 54).

In discussing video games and ADHD children, Dr. Amen's experience and research has led him to reach a definitive conclusion:

I have seen many ADD children literally become addicted to playing video games. They will play for hours at a time, to the detriment of their responsibilities, and go through tantrums and withdrawal symptoms when forced to stop. A recent study on brain-imaging and video games was published in the journal Nature. In the study, PET scans were taken while a group of people played action video games. The researchers were trying to see where video games worked in the brain. They discovered that the basal ganglia (where dopamine is produced in the brain) were much more active when the video games were being played than at rest. Both cocaine and Ritalin work in this part of the brain as well. The reason that cocaine is addictive and Ritalin is not is related to how each drug is metabolized. Cocaine has a powerful, immediate effect that stimulates an enormous release of the neurotransmitter dopamine. The pleasure this brings rapidly fades, leaving the addict wanting more. Ritalin, on the other hand, works slowly, inducing no high or pleasure from taking it and the effects stay around for a long time. Similarly, video games bring pleasure and focus by increasing dopamine release. The problem with them is that the more dopamine is released, the less neurotransmitter is available later on to do schoolwork, homework, chores, and so on. Many parents have told me that the more a child plays video games, the worse he does in school and the more irritable he tends to be when asked to stop playing. (Amen, 29-30)

Should parents with an ADHD child get rid of their TVs and video games?

In light of all the evidence pointing to the damaging effects that electronic media can have on ADHD children, many parents might be tempted to get rid of television and video games altogether. While that may be the best course for some families, it is important to keep in mind that negative effects of TV and video games are most pronounced in ADHD children for whom their use is excessive, as highlighted by Dr. Diller:

TV and video games constitute a strange sort of good-fit situation for distractible children. These activities are among the few things they can concentrate on well. Because this is the case, they do watch or play such games a lot; therefore, people are led to think that TV causes hyperactivity or ADD. In television we have a source of input and stimulation that is almost custom-designed with its rapid editing and quickly digestible bites of information for the distractible child in all of us. My own opinion is that excessive watching of TV or use of other electronic devices may amplify preexisting temperamental tendencies toward ADD but are not causative (Diller, 99-100).

In a study published in the British Journal of Educational Technology, researchers studied the body movements of ADHD boys playing video games. Contrary to what they had theorized, their analysis of the data did not reveal any statistically significant differences in the frequency, type and severity of body movements between the ADHD and non-ADHD boys, which led them to conclude in their summary:

Thus the present research suggests that computer video games may be an additional resource to address the academic and behavioral performance that children with ADHD experience. For example, the consequences of increased motivation through [a] computer video game format includes being able to sit still and concentrate. This, may in turn lead to increased academic performance in terms of quality and quantity (Farrace Di Zinno, et al., 2001).

After discussing many of the adverse effects of television and video games on ADHD children, Dr. Armstrong favors a balanced approach:

Even after this long litany of negatives, however, I'm not sure I'd go along with parents who would completely prohibit television viewing and video games for their hyperactive children. First of all, I wouldn't be honest in saying so, since I am a child of the Television Revolution and continue to find television viewing a satisfying activity when taken in measured doses. Second, television and video games connect children to society, and to deprive your child of access to what other children are engaged in puts him at a disadvantage when he goes to school or plays with friends and hear them discussing television shows or video games he has never seen.

Third, research suggests that children labeled hyperactive seem to have the ability to divide their attention between television viewing and other activities going on around them without having their comprehension of either stimulus negatively affected. Finally, television watching and some video games, properly mediated through adult participation, can lead to increased abilities in a number of visual-spatial and critical thinking skills, including the understanding of plot, characterization, and how individual scenes relate to the whole (Armstrong, 77).

Do ADHD children need to have limitations on TV and Video Games?

While not all doctors and experts agree on the amount of time ADHD children should be allotted to watch TV or play video games, almost without exception they agree that the time spent using these devices must be limited. Dr. Armstrong references Harvard pediatrician T. Berry Brazelton as suggesting one hour a day during the school week and not more than two hours on weekends as a reasonable goal for TV watching (Armstrong, 77). Dr. Amen provides a guideline on video games: To my own patients I recommend an absolute maximum of 30 to 45 minutes a day spent playing computer and video games (Amen, 212). When steps are taken to reduce the amount of time that the TV is on in the home from the 7 hour average cited previously, Jane Murphy and Karen Tucker point out another benefit in their book Stay Tuned!:

Limiting viewing hours can also help to slay one the biggest dragons: television as a default activity. Time limits on TV can lead to many benefits, but the biggest is that kids will begin to seek other things to do (with a lot of your help) and will not simply turn on the set whenever they're bored or lonely, or for any other reason (Murphy and Tucker, 9-10).

Are electronic media effective as a reward in behavior modification programs for ADHD children?

Because television and video games are attractive to ADHD children to the extent that overexposure may lead to addiction-limiting the amount of time that an ADHD child has access to these devices allows parents to utilize TV and video games as compelling rewards for reinforcing positive behaviors. While an outline of the various behavior modification programs suggested by Diller, Amen, and Armstrong is outside the scope of this report, all three

recommend an increase or decrease in the amount of viewing time given to an ADHD child as one of several appropriate rewards and punishments.

When considering behavioral therapy in ADHD children, one study in particular merits a review. By comparing a group of ADHD children against a control group of children, researchers were able to demonstrate that the use of a response cost was more effective than a program based solely on rewards (Carlson, et al., 2000). In the example of using television viewing time to modify a behavior□for example, turning a homework assignment on time□the research implies that it would be more effective to subtract 30 minutes of viewing time from a pre-established allotment for failing to turn in the homework, as opposed to giving the child an extra 30 minutes each time the homework was turned in.

Television and video games are a major factor in the social and cultural environment that ADHD children in the United States are growing up in. An examination of the available research and literature has led to the establishment of a direct and bi-directional relationship between ADHD behaviors and excessive TV watching and video game playing. There are a variety of opinions as to the degree that electronic media should be restricted in the home of an ADHD child, but there is almost universal agreement that TV and video games must be restricted. There seems to be a common consensus that a moderated approach is preferred to strict abstinence for the cognitive, social and behavioral modification benefits that a controlled use of electronic media can provide the ADHD child.

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