PRACTICE PREVENTION

"What's the Connection between Television and Attention Problems?"

Why do more children appear to be showing attention difficulties at school?
Why does the American Academy of Pediatrics recommend that children under the age of two not watch television?

Recent research shows a connection between **TELEVISION VIEWING AND ATTENTION DEFICITS.**[a]

What is an attention deficit?

According to the Child Development Institute: "Some children have more trouble paying attention in class and completing academic assignments than others. It is estimated that from 3 to 10 percent of the population has a condition known as Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD). This disorder is said to be found present more often in boys than girls (3:1)."[1] It is the most common behavioral disorder of childhood.

Though there are likely multiple contributors to the onset of ADD or ADHD, including genetics, nutrition, exposures to toxic chemicals and various social environments, the high level of television viewing in American culture may be a significant reason that so many children have these disorders.

[a] Other "Practice Prevention" columns from the Institute for Children's Environmental Health describe how environmental pollutants may impact children's brain development. For this column, we broadened our definition of "environment" to include television, a significant part of most children's social environment.

What is the connection between television and attention?

A recent research study[2] led by Dr. Dimitri Christakis looked at the connection between the amount of television that very young children watch and attention problems years later when those children are at school. Parents were asked about how much television their children watched each day at ages one and three. When those children were about seven years old, parents were asked about how well their child was able to pay attention, how well he or she was able to focus, whether they were impulsive and easily distractible. Dr. Christakis and his team found that "for each additional hour of television they watched on average before age three, they were 10 percent more likely to have attentional problems by their parents' report."[3]

How could television viewing contribute to attention problems?

The human brain is a fantastically complex organ that takes many years to develop. While the intricate process of creating the brain starts well before birth, it continues for several years afterwards. This process involves the production of all the nerve cells (neurons), differentiation of those neurons, movement of neurons to the right location, and then "wiring" the correct connections (called synapses) between neurons. In a newborn baby, the cells of the brainstem, the region that that controls vital functions like heartbeat and breathing, are completely wired, but the synapses throughout the rest of the brain are still undergoing substantial development.

All these developmental processes are affected by both genetic and environmental influences. Environmental impacts, including types and degrees of stimulation, affect the number and the density of neuronal synapses. Studies of animals, such as rats, have shown structural differences in the brains of newborns depending on the level of visual stimulation received after birth.

Either too much or too little stimulation can have negative effects on the developing brain. "Researchers at Baylor College of Medicine, for

example, have found that children who don't play much or are rarely touched develop brains 20% to 30% smaller than normal for their age. Laboratory animals provide another provocative parallel. Not only do young rats reared in toy-strewn cages exhibit more complex behavior than rats confined to sterile, uninteresting boxes, researchers at the University of Illinois at Urbana-Champaign have found, but the brains of these rats contain as many as 25% more synapses per neuron. Rich experiences, in other words, really do produce rich brains."[4]

But television provides too much stimulation. Says Dr. Christakis: "In contrast to the pace with which real life unfolds and is experienced by young children, television portrays rapidly changing images and scenery. It's unnaturally stimulating."[3]

How much television do children watch?

"The American Academy of Pediatrics (AAP) recommends that children two years and older watch less than two hours of television per day and that children younger than two years watch no television." However, a study of viewing habits found that 17% of 0- to 11-month-olds, 48% of 12- to 23-month-olds, and 41% of 24- to 35-month-olds were reported to watch more television than the AAP recommends.[5] Another comprehensive study found that "television viewing starts quite early (2-4 year-olds view 2 hours daily)," and "over a quarter of 2-4 year-olds have televisions […] in their bedrooms."[6]

What can you do to reduce your child's risk of developing attention problems?

Dr. Christaki suggests: "A lot of the activities that parents would otherwise do with their children [instead of having them watch television] are all very constructive – reading to your child, drawing with your child, cooking with your child. Any of the sorts of activities that represent real-life experiences probably are productive and helpful in terms of prolonging attention."[3]

Other recommendations for promoting rich, positive brain connections:[4]

- Offering loving care provides a baby's brain with the right kind of emotional stimulation.
- Talking to a baby a lot, researchers have found, significantly speeds up the process of learning new words.
- Giving babies as much freedom to explore as safety permits. Just reaching for an object helps the brain develop hand-eye coordination. As soon as children are ready for them, activities like drawing and playing a violin or piano encourage the development of fine motor skills.

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For more information or for other Practice Prevention columns, visit the Institute for Children's Environmental Health online at www.iceh.org or call 360-331-7904.

Sources

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[3] "Talk of the Nation Friday, National Public Radio. Interview: Dr. Dimitri Christakis discusses attention disorders and TV." Office of Faculty Enhancement. 9 April 2004. The University of North Florida. Accessed 30 June 2004 <http://www.unf.edu/dept/ofe/build/2004/wednesday/rutledge.pdf>

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