Infant Brains More Engaged When Playing with Interactive Toys: Study

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Most children watch TV before age two, typically starting at about five to nine months. That's despite the fact that recent guidelines from the American Academy of Pediatrics discourage television or video viewing by infants before the age of two. Encouraged by disputed claims that videos can benefit an infant or toddler's educational development, the infant digital video disc (DVD) business has become a $500 million industry in the U.S.

First Study to Look at Brain Chemistry in Infants

However, a new study conducted by investigators at Seattle Children's Research Institute suggests that video watching causes different brain reactions than simple interactive games, such as playing with building blocks. The purpose of the research was to test whether there are quantifiable differences in the levels of cortisol between a known beneficial and traditional type of play and one that is new and relatively understudied.

Cortisol is a hormone that can be measured not only in blood but also in saliva. "People think of cortisol as a stress hormone, but that's a simplified understanding," said Dimitri Christakis, MD, MPH, director of the Center for Child Health, Behavior and Development at Seattle Children's Research Institute. "We know that low and high levels of cortisol are associated with poorer performance. There is a healthy level that suggests intellectual engagement. Think of taking a test. If you are too stressed or too relaxed, you will not perform your best."

The study is the first to use an experimental design to assess brain chemistry or neuroendocrine responses comparing two activities—block play, which has been proven to be good for child development and DVD viewing. For both study arms, parents remained in the room with the child and were free to interact with the child as they normally would during play or TV viewing.

Cortisol Level Comparison

Researchers measured the cortisol levels of 49 children ages 8 to 14 months while they watched baby DVDs and again while they played with building blocks. They then compared the levels of cortisol to see if there was a difference in response while they participated in the two activities. The researchers found that children in the DVD group had significantly lower cortisol levels – nearly 1.5 times lower – than kids playing with the blocks, indicating their brains weren't as engaged when watching the DVDs.

"The fact that TV viewing produced differentially lower levels of cortisol than an activity that is demonstrably beneficial is significant," said Dr. Christakis. "Our research adds to the continued concerns we have about baby DVD viewing and infant brain development."

What this means for you and your child:

• Limit your child's screen time with TVs and videos, especially if he or she is under the age of two, as recommended by the American Academy of Pediatrics: http://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Pages/Media-and-Children.aspx

• Encourage your kids to play with interactive toys, such as nesting cups or building blocks, to stimulate brain development

• Instead of screens, opt for supervised independent play for infants and young children during times that a parent cannot sit down and actively engage in play with the child

Resources

• To read the study appearing in The Journal of Pediatrics, visit: http://www.jpeds.com/article/S0022-3476(12)01202-4/abstract

• "Overstimulation of newborn mice leads to behavioral differences and deficits in cognitive performance," *Nature Scientific Reports*, July 2012 (Dr. Christakis, Julian Ramirez, Dr. Nino Ramirez)

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