

Stephen Garlington

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Sent: Monday, December 8, 2008 4:47 PM
To: Stephen Garlington
Subject: Poverty Article

Thought you might interested in the article below.

Study: Poverty dramatically affects children's brains

By Greg Toppo, USA TODAY

A new study finds that certain brain functions of some low-income 9- and 10-year-olds pale in comparison with those of wealthy children and that the difference is almost equivalent to the damage from a stroke.

"It is a similar pattern to what's seen in patients with strokes that have led to lesions in their prefrontal cortex," which controls higher-order thinking and problem solving, says lead researcher Mark Kishiyama, a cognitive psychologist at the University of California-Berkeley. "It suggests that in these kids, prefrontal function is reduced or disrupted in some way."

BETTER LIFE: Kids cut, embed metal in their bodies

The study adds to a growing body of evidence that shows how poverty afflicts children's brains. Researchers have long pointed to the ravages of malnutrition, stress, illiteracy and toxic environments in low-income children's lives. Research has shown that the neural systems of poor children develop differently from those of middle-class children, affecting language development and "executive function," or the ability to plan, remember details and pay attention in school. Such deficiencies are reversible through intensive intervention such as focused lessons and games that encourage children to think out loud or use executive function.

"It's really important for neuroscientists to start to think about the effects of people's experiences on their brain function, and specifically about the effect of people's socioeconomic status," says Martha Farah, director of the Center for Cognitive Neuroscience at the University of Pennsylvania.

Among the most studied: differences in language acquisition between low- and middle-income children. The most famous study, from 1995, transcribed conversation between parents and children and found that by age 3, middle-class children had working vocabularies roughly twice the size of poor children's.

For the new study, researchers used an electroencephalograph (EEG) to measure brain function of 26 children while they watched images flashing on a computer. The children pressed a button when a tilted triangle appeared.

The researchers found a huge difference in the low-income children's ability to detect the tilted triangles and block out distractions — a key function of the prefrontal cortex.

"It's just not functioning as efficiently as it could be, or as it should be," Kishiyama says.

Though the effects of poverty are reversible, children need "incredibly intensive interventions to overcome this kind of difficulty," says Susan Neuman, an education professor at the University of Michigan.

The study appears online in the *Journal of Cognitive Neuroscience* and will be published early next year.

Find this article at:

http://www.usatoday.com/news/health/2008-12-07-childrens-brains_N.htm

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