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Language Impairment and Reading Ability

Michelle's parents say that, "She was late to talk and when she did talk, her speech was immature." In first grade, Michelle was placed in remedial reading. In the upcoming years, she battled with what seemed to be an insurmountable challenge of learning to read. Now a college graduate, she looks back and remembers how she always hated reading in front of other people because she was so slow and made so many mistakes. Over the course of her schooling Michelle was lucky enough to have several teachers and therapists that worked with her. Reading became easier, though she says, "Even today, I have to take a little more time to read and understand the same things as my coworkers."

Learning to read opens up new worlds to a child, unfortunately there are always kids like Michelle who experience trouble with

it. Among those that struggle, are children with developmental language impairments. It has been established that language development prepares the way for future reading success. Furthermore, BNCD investigator Hugh Catts has demonstrated that children with language impairment (LI) find learning to read difficult. To measure reading ability, his studies have evaluated word recognition (the ability to recognize written words) and reading comprehension

(Language Impairment Continued on page 2)



Image KU University Relations

Study Shows HIV-Exposed Children at High Risk of Language Delay

Children exposed to HIV before birth are at risk for language impairments, according to a study by researchers at the University of Kansas, the National Institutes of Health and other institutions.

Moreover, those children may benefit from routine screening for language impair-

ment, even if they don't have any obvious signs of a language problem, the researchers said.

The researchers found that 35 percent of a group of school-age children born to women with an HIV infection during pregnancy have difficulty understanding spoken words and expressing themselves verbally. On a standard series of tests of language ability, children exposed to HIV before birth scored, on average, within the lowest 21 percent of all children who have taken the test.

Children exposed to HIV before birth tended to have language delays, regardless of whether they later became infected with HIV.

(HIV continued on page 3)



Image by bigjom
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Investigator Highlight



Kristine Williams

A faculty member since 2001, Dr. Williams' research program focuses on improving nursing care for older adults in assisted living, long term care or adults with dementia that live at home. She is specifically focused on communication, cognition, and caregiving issues.

Her current research project aims to determine the impact of nursing home caregivers' speech on patient's behavior. They have been training nursing home staff to avoid 'elder speak'. Elder speak is a simplified or even slow way of talking that some people use when speaking to older adults, almost like baby talk. Often times patients at nursing homes can react negatively toward 'elder speak.' Dr. Williams group has been video taping interactions between the patients and staff before and after communication training. The goal is to determine if the behavior of the patients improves as the communication skills of the caregivers change.

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(understanding of written words). He has found that the abilities of children with LI were significantly less than their non-impaired peers in word recognition and reading comprehension in both 2nd and 4th grades. In fact, about 50% of them could be considered to have a reading disability. Not only do these children initially start reading at a lower level, they continue to perform at a lower level than their peers through at least 10th grade. The children with LI get better at word recognition and reading comprehension at a parallel rate to their typical peers, but they consistently remain at a lower level. Unfortunately, they do not show accelerated reading achievement at some point to catch up to their typical classmates. However, it is important to note that not all children with LI will start out as poor readers.

Catts' research found other factors within the language impaired subgroup that could indicate even further trouble with reading. In kindergarten, one such factor was poor letter identification. However, stronger predictors were exhibited in 2nd and 4th grade. The study showed that "measures of reading comprehension and word recognition in 2nd grade"¹ predicted reading ability in 4th grade. Or in other words, if a child in 2nd grade attains a certain level of success in reading; they will likely have success in 4th grade reading as well, or vice versa. Sadly, those children who continue to show language impairment over the years also continue to show poor reading ability, too.

Because Catts' research supports the idea that language impaired children often "start out as poor readers and remain poor read-



Hugh Catts

ers, it is critical to identify these children early and provide appropriate intervention to reduce the long-term consequences of reading problems²." The research indicates that children with developmental language impairment should be identified as high risk students for reading disabilities.

Dr. Catts current research involves a project that is aimed at helping children to overcome the hurdle of reading comprehension. Along with over 130 other scientists from across the country, he has begun a five-year, \$120 million Reading for Understanding initiative funded by the federal Institute of Education Sciences. In the past, a bulk of research has been dedicated to word reading skills and not to comprehension of those words. In fact, the United States lags behind other developed countries in reading comprehension. The goal of their project is to give students the mental tools to be successful in reading comprehension. Hopefully, an end result of the project will be instructional programs designed to teach reading comprehension to students through their senior year of high school, including those with LI.



¹Catts et al., 2002. & ² Catts et al., 2008.

(HIV from page 1)

Mabel Rice, the Fred and Virginia Merrill Distinguished Professor of Advanced Studies at KU, was the lead investigator in the Pediatric HIV/AIDS Cohort Study, which was supported by eight NIH institutes. The findings appear in the Journal of Development and Behavioral Pediatrics.

“Our results show that children exposed to HIV have more than twice the chance of having a language impairment than do children in the general population,” said Rice, an international authority on language disorders in children and the genetics of language acquisition.

The study could not determine whether the high rates of language impairment in the HIV-exposed children can be attributed to HIV exposure or to other unidentified factors.

The 468 children in the study were 7 to 16 years old. A total of 306 were HIV-infected, while the remaining 162 were exposed to HIV during pregnancy but did not become HIV-infected. In addition to evaluating the children’s language ability, the researchers analyzed their medical records, tested their hearing and evaluated their general cognitive development.

Based on the results of this analysis, the children were classified into three groups:

- Those with no language impairment – 65 percent
- Those with a concurrent language impairment (also having a hearing or cognitive impairment) – 24 percent

- Those with a primary language impairment (no hearing or cognitive impairment) – 11 percent.

Among HIV-positive students, those with a severe or poorly controlled HIV infection were about three times more likely than students with HIV who responded to treatment to experience language delays associated with cognitive impairments or hearing loss.

“We encourage those caring for children exposed to HIV in the womb to provide early treatment for language impairments,” Rice said. “Children who don’t use language well not only are at risk for school failure, but may have difficulty communicating with their peers and establishing friendships. Signs of potential language impairment include difficulty following instructions, appearing distracted or uninterested, difficulty understanding puns and plays on words, and difficulty with rhyming.”



Mabel Rice

Research Participation Opportunities

Input Sources of Grammatical Deficits in Specific Language Impairment (SLI)

Preschoolers with SLI often make grammatical errors involving pronouns and verbs (e.g., *him running* or *he running* to mean *he is running*). In this NIH-sponsored study, we are testing the possibility that some of these errors are due to children’s incomplete understanding of certain types of sentences that adults commonly use to talk to children. For example, a child who hears sentences like, *I see him running*, may think that it’s okay to say sentences like, *Him running*.

Ages: 4- and 5-year-olds with SLI

Time commitment: Four 1-hour testing sessions and ten 15-minute experimental sessions. These can occur at KUMC or in your home.

Benefits: Free language evaluation; \$10 per visit to KUMC; \$15 gift card for participating in preliminary testing session; \$75 gift card for completing all experimental sessions. Gift cards are good for new books.

Contact: Marc Fey, Ph.D. (913) 588-5937 mfey@kumc.edu or Shelley Bredin-Oja (913) 588-0574 sbredin-oja@kumc.edu

Help us learn how toddler nutrition affects children's immediate cognitive performance.

The purpose of this study is to determine if a low glycemic beverage benefits short-term cognitive performance in children.

Age: 3-year-olds (between 33 and 39 months)

Time Commitment: Children will complete 3 visits over approximately 2 weeks. At the 1st visit, information about the study will be provided and children will complete two short tasks; the session will last about 45 minutes. During the 2nd and third visits, children will receive either a high or low glycemic drink, children will then participate in a series of short play sessions and complete several cognitive tasks; these sessions will last about 2.5 hours each. All sessions are completed at the KU Edwards Campus (126th & Quivira in Overland Park, KS).

Benefits: Your child's participation can help further our understanding of the affects of toddler nutrition on cognitive performance. Families will also receive up to \$75 for completing this study (\$15 at the first visit and \$30 each at the 2nd and 3rd visits).

Contact: KU Infant and Early Cognition Lab; babylab@ku.edu; 913-897-8590

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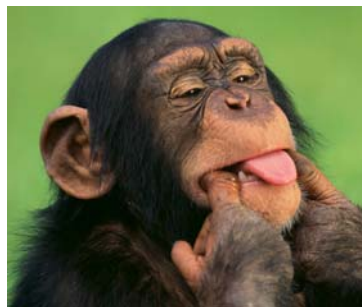
About this Newsletter:

The BNCD newsletter is designed to keep you informed about the ongoing research projects that are being conducted by BNCD researchers at the University of Kansas. Participants who have been part of recent research projects conducted by BNCD researchers, parents who have expressed interest in participating in future research, and individuals from organizations such as schools and daycare centers that have an interest in BNCD studies will receive this newsletter from time to time to keep them up-to-date about the research activities at the BNCD. If you do not wish to receive future newsletters, please call or e-mail the BNCD to have your name removed from our list. Research at the BNCD is supported in part by grant number 5 P30 DC05803 from the National Institute on Deafness and other Communication Disorders (NIDCD) at the University of Kansas.

Just for Fun

Use numbers between 1 and 10 to fill in the spaces in the grid .

The numbers in each horizontal row total the numbers to the right of each row. The numbers in each vertical column total the numbers at the bottom of each column. Two diagonal lines across the entire grid total the numbers in the top right box and the lower right box.



				19
6	5	3		16
		4	2	23
8		9	2	27
5				15
26	24	23	8	27

