BNCD Center for Biobehavioral Neurosciences in Communication Disorders

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Study Helps Deaf-Blind Children Communicate

In his first five years of life, Lance Roth spent his days in a quiet and mostly dark world.

Born totally deaf and nearly blind, with accompanying physical disabilities, the young boy was unable to tell his parents or teachers what he wanted or how he felt.

"At that time, he had no communication at all," said Lance's mother, Danette Roth, of Parkville. "He was not gesturing. He had nothing."

The Roths turned to a research project that advocates say offers evidence that methods of trying to communicate with deaf-blind children may have to change.

A changing field

Experts say techniques for communicating with deaf-blind children will have to evolve as medical advances save more low birth weight babies, who are more prone to vision and other disabilities.

Roughly 10,000 people in the U.S. between birth and 21 or 22 years have different levels of vision or hearing impairments. Of those, about 90 percent have additional disabilities.

The Kansas Deaf-Blind Consortium has records of 111 students in Kansas who are deaf-blind and Missouri's deaf-blind group counts 193 deaf-blind children in the state.

The recently completed five-year study, conducted through the Schiefelbusch Institute for Life Span Studies at Kansas University, adapted the gestures and noises used by typically developing infants to form a communication system for deaf-blind children.

"Kids don't just not communicate until one day they start talking," said Nancy Brady [BNCD investigator], a speech pathologist and principal investigator in the study. "In reality, they're communicating like crazy with gestures and vocalizations almost from birth."

The study adapted those movements and noises to overcome the obstacles deaf-blind children face when trying to communicate.

(Deaf-Blind Children Communicate, Continued on page 2)

In This Issue:

Study May Help Detect Autism Earlier

A recent KU research study may have found a clue to detecting autism in children at an earlier age. Early identification is considered important to provide intervention earlier in life and maybe prevent some of the behaviors associated with autism later during childhood.

John Colombo, professor of psychology, and doctoral student Christa Anderson showed different types of 4-inch-square images on a computer screen to three groups of children. By studying the response of the pupils in their eyes, they may have found a distinct marker for autism.

"We showed children's faces, animal faces, toys and landscapes. We looked at where exactly (the children) were looking and how much time they spent looking at them," Anderson said.

By looking at whether the child's pupils dilated or constricted, they could gauge the child's arousal or level of attention.

Study results showed that the children with autism spectrum disorder showed the strongest response to images of other faces, especially other children's faces.

"(They responded) with pupillary constriction, which suggests they may have found it

(Detect Autism, Continued on page 3)

(Deaf-Blind Children Communicate, Continued from page 1)

Ways to communicate

The researchers had to find a way to make the children want to communicate a need or desire, said Susan Bashinski, another principal investigator who is now an associate special education professor at East Carolina University.

For example, they made a child aware that a toy was nearby, by touch or using vibrating toys. Then, they would teach a gesture to indicate he or she wanted the toy.

"Eventually, they have an 'aha' moment where they understand that they are not just a passive member of the environment, 'I can do this action, then you can do this and interact with me,"' Bashinski said.

Learning such skills is critical for children who often just lie or sit in one place and do nothing, Bashinski said.

"The more severe the loss of hearing or vision, it's like they don't know there's a world out there," she said. "They don't know there are things outside their own bodies with which they can interact and have influence."

Many deaf-blind children barely communicate until they are old enough to start learning sign language. But they often struggle with that because they didn't learn the gestures and noises that are the foundation for communication in normally developing infants, Brady said.

Those gestures and noises have been adapted to help developmentally disabled children who can see and hear, a method called Prelinguistic Milieu Teaching. The study adapted that method for nine Kansas children with varying degrees of deaf-blindness.

Working at the children's schools, researchers sought to increase the number of times the child communicated per minute and the number of gestures. The results will be published this month in the journal Research & Practice for Persons with Severe Disabilities.

The study bolsters research on the importance of prelinguistic communication and emphasizes deaf-blind children need one-on-one work to begin learning communication, said Kat Stremel Thomas, project coordinator for the National Consortium of Deaf-Blindness, which supports states' work to communicate with deaf-blind children.

This article was written by Margaret Stafford and printed in the Lawrence Journal-World on April 18, 2009.

BNCD INVESTIGATOR HIGHLIGHT

Steven Barlow, Professor of Speech-Language-Hearing: Sciences & Disorders Department and Director of the Communication Neuroscience Laboratories, is an internationally recognized scholar in orofacial and laryngeal neurophysiology and biomedical aspects of speech sensorimotor processing across the life span.

Recently, Professor Barlow was honored for his superior research accomplishments as the recipient of Higuchi-KU Endowment Research Achievement Award in the field of Boimedical Sciences. The award, now in 27th year, honors outstanding accomplishments in research by faculty members at KU and other Kansas Board of Regents institutions.

His work with at-risk premature newborns led to inventions designed to assess the emergence of oromotor patterning and a new treatment to promote the development of a normal pattern of sucking behavior. This enables this fragile population to feed naturally before discharge from the neonatal intensive care unit.

Steven M. Barlow, Ph.D.

Baby Talk: Development of Language During the First Year of Life

Birth to 3 Months

Babies are born to listen. She spends the first months tuning in to the sounds of what will become her native tongue. She'll begin to associate sounds, linking the family dog to a bark, for example. Her first communication will be crying, but she'll soon begin to use her tongue, lips, and palate to make gurgles, oohs, and aahs.

4 to 6 months

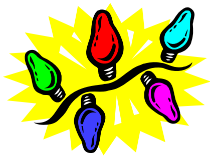
Sighs give way to random babbling. He won't get control of all the muscles that contribute to speech for several years, but he'll master the muscles toward the back of the tongue and the lips first. You'll hear back-of-the-tongue sounds, such as *g* and *k*, and lip sounds *m*, *w*, *p*, and *b*. He keys into your language's patterns and notices which syllables tend to go together, or which sounds are most common. He focuses on familiar words, his own name, or "mommy" and "daddy" as clues to help break up sentences.

7 to 12 Months

Her babbling will begin to sound more like words. She'll intentionally repeat sounds (e.g., "gaga") over and over. At about 9 months, she'll start to understand gestures, pointing and grunting to indicate her wants. At about 10 months, she'll gain more control and begin combining sounds. The first word often appears around 12 months. Common first words may be greetings ("Hi" or "bye-bye"). Or they might be very concrete: people ("ma, ma" or "da, da"), pets ("doggy" or "kitty"), or food ("cookie," "juice," or "milk").

Information taken from: http://www.parents.com/baby/development/intellectual/baby-talk-a-month-by-month-timeline/

Upcoming Events for Parents and Kids!



Winter Wonderland

View one million lights while winding through a two-mile scenic drive at Lake Shawnee.

When: 11/21—12/31

Time: 6pm—10pm

Where: Lake Shawnee Reynolds Lodge 29th & Croco Road, Topeka, KS

For more information: Call 785-232-0597 x340 or visit http://www.tarcinc.org/winter_promo.htm

Lawrence Old Fashioned Christmas Parade

Features exclusively horse drawn carriages, wagons and coaches decorated for the season. Santa is the parade's grand finale.

When: 12/05

Time: 11am

Where: Downtown Lawrence, Massachusetts Street, Lawrence, KS

For more information: 785-838-9400

Musical Fun For Kids

Enjoy holiday music for kids and families on three Saturdays in December, featuring Jim Cosgrove, Mr. Stinky Feet & The Hiccups (December 5), The Doo-Dads (December 12) and Dino O'Dell and the Veloci-Rappers (December 19).

When: 12/05, 12/12, & 12/19

Time: 12pm & 2pm

Where: Crown Center Shops, Level 1 Atrium, Kansas City, MO

For more information: 816-274-8444

Children's Railroad Activity Days!

Join us for our educational and fun Children's Railroad Activity Days. Railroad games, learning stations and interactive activities are just some of the fun. Santa arrives on the Union Pacific Train on December 6!

When: 12/06/2009

Time: 1—3pm

Where: Great Overland Station; 701 N Kansas Avenue, Topeka, KS

For more information: 785-232-5533

Family Art Session

All-aged children and their families are invited to explore exciting environments while they use art supplies and recycled materials to make their own amazing art! Each session lasts 40 minutes.

When: 10/3/2009 - 12/31/2009

Time: 9:30am—4:00 pm.

Where: 2500 Grand Blvd. Kansas City, Mo.

For more information: Call 816-274-8300 or visit http://www.hallmarkkaleidoscope.com/

(Detect Autism, Continued from page 1)

aversive," said Colombo, who also is the Director at the Schiefelbusch Institute for Life Span Studies. "They may not have been processing it at all, sort of avoiding it."

The constriction also may reflect the activation of another type of arousal system, one that works in opposition to the system that makes the child ready to receive input, he says.

The study included one group of children with some form of autism. A second group of children was developing typically but matched the first group in age and gender. The third group of children had some form of developmental delay other than autism and was the same mental age as the first group.

Anderson used a small camera with near-infrared radiation to illuminate the pupil and corneal reflection and then record and monitor the children's pupillary responses.

The other two groups tested did not show the same reaction as the children with ASD.

Colombo and Anderson say because the children with ASD reacted uniquely, and because the reaction is systemic, or bodily, they believe the pupillary constriction to face stimuli is a specific marker that could identify autism spectrum disorder earlier in life, possibly during infancy.

Colombo and Anderson say this discovery poses more questions to be answered in their next study: Which part of the brain is responsible for this response? Is the response inherent to that system or acquired over time?

The children with ASD also showed an unexpected response to the images of landscapes, such as water, a field of pebbles or grass.

The results were published in the October issue of the Journal of Clinical and Experimental Neuropsychology.

This article can be viewed online at:

http://www.oread.ku.edu/2006/september/25/autism.shtml

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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.

Winter puzzles!

Unscramble each word. Then use the marked letters to solve the second puzzle.

BTOSO — 8 25
JKATEC — 9 24
SVOLHE — 18 4 20
SDEL — 3 17
SMWONAN — 23 16 26 1 11 6
HDSYILAO — 10 21 2 22 15 7
LPIYESPR — 5 13 12 19 14

1 2 3 4 5 6 g   7 8 u   9   10 11 12 13 14   15 16 17   18 9 f 19
4 20 21 2 22 15 7   23 24 9 25 26 6 !

Created with Discovery Channel School's PuzzleMaker.