

STUDY MAY HELP DETECT AUTISM EARLIER: RESPONSE OF PUPILS COULD BE INDICATOR

by Brandis Griffith

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 BNCD investigator], 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



Examples of images used in the study

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 aversive," said Colombo, who also is associate director for cognitive neuroscience 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.

(Autism, Continued on page 2)

In This Issue:

Detecting Autism	
Earlier	1
Parents Can Impact Kids'	
Reading	1
BNCD Investigator	
Profile	2
Tips for Reading	
with Children.....	2
Upcoming Events	3
About this Newsletter.....	4
"Classic" Books for	
Parents and Children	4

PARENTS CAN IMPACT CHILDREN'S READING HABITS

Earlier this year, Scholastic, the global children's publishing and media company, and Yankelovich, a leader in consumer trends tracking, published *The Kids and Family Reading Report™*, a national survey of children ages 5-17 and their parents. Five hundred parent-child pairs were interviewed for the study. They found that the amount of time children spend reading for fun drops off after age 8. They also found that parents can have a direct impact on their kids' reading attitudes and behaviors, especially by reading more frequently themselves and by helping kids find books they like.

"Parents excel when it comes to introduc-

ing their very young children to beautiful picture books and bedtime stories, but when their kids start reading independently, parents need to become more, not less, involved," stated Lisa Holton, President Scholastic Book Fairs and Trade Publishing. "As kids get older, the role parents play changes. We found that not only do parents need to be reading role models, but that they must play a key role in helping their older children select books that capture their imagination and interest."

The importance of parents as reading role

(Reading Report, Continued on page 3)

DETECT AUTISM EARLIER...

(Autism, Continued from page 1)

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. The second and third groups were included so that researchers could conclude whether the marker was specific to autism.

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 children with autism tended to look at it, and then kind of look away," says Anderson.

"We found that it did not hold their attention," Colombo says. "It's sort of as if they did not see anything there to look at."

He says this reaction is consistent with some theories claiming that children with autism process visual content more quickly when there is no clear or coherent focal object in an image or visual scene.

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

This article was originally published September 12, 2006 by University Public Relations. You can read the original article at <http://www.news.ku.edu/2006/september/12/autism.shtml>. Brandis Griffith can be contacted at brandis1@ku.edu, or (785) 864-8855.



Tips for Reading With your Children!

1. **Spend time with your children talking, telling stories and singing songs.** These are fun and important activities that help children get ready for reading.

2. **Read to and with your children every day.** This shows that daily reading and spending time together is important.

3. **Let your children help choose the books you read together.** This will help keep your children's interest.

5. **Change your voice and the pace that you read to fit the story.** This makes the story more interesting for your children.

6. **After reading a book, talk about the story.** Discussing the pictures and the main ideas in a book helps develop understanding.

7. **Let your children see you reading books, newspapers, and magazines.** This sets an example for children that you enjoy and value reading.

8. **Take your children to the library regularly.** Libraries are a wonderful place to find books and so much more.

This list was reprinted with permission from the Minnesota Humanities Commission (For more information, visit <http://www.minnesotahumanities.org>)



INVESTIGATOR PROFILE: JOHN COLOMBO

John Colombo is the Scientific Director of the Participant Recruitment and Management Core of the BNCD, the Associate Director for Cognitive Neuroscience in the Institute for Life Span Studies, and a professor in the Department of Psychology. Dr. Colombo's research interests include the developmental cognitive neuroscience of visual attention, recognition memory, and learning in infancy and early childhood. Special focus on early individual differences in these areas and how they relate to mature intellectual



function and developmental status. This interest has evolved into several different research programs.

One program of work is concerned with the developmental cognitive neuroscience of attention in typically-developing infants and toddlers. Another line of work seeks to apply measures of early cognition for the early identification of infants and children at risk for cognitive and/or language delays or psychopathology (e.g., autism). Finally, a third focus highlights the use of these measures as short-term outcomes for evaluating the effectiveness of environmental conditions (e.g., SES, maternal interactive style) or early interventions (e.g., nutritional supplements).

Upcoming Events for Parents and Kids!



Child Safety Seat Check Lanes

On Nov. 11th and Dec. 9th. Held at Bill Kobach Buick in Topeka. Contact United Way for more information.

Call: (785) 228-5110

Tales of a Fourth Grade Nothing

Enjoy the masterful sense of humor of Judy Blume's in this theatre presentation. Located Near Crown Center at The Coterie Theatre. Shows running from Nov. 14th to Dec. 29th.

Call: (816) 474-6552 or

See: www.thecoterie.com

Gingerbread Homes for the Holidays

Nov. 17th - Nov. 19th, from 8 a.m. to 7 p.m., come make your own gingerbread home and enjoy the festivities.

Call: (785) 234-2787

Suessical, The Musical

Enjoy the witty, wild, and whimsical world of Dr. Suess as it has never been seen before! Presented in Nov. and Dec. by the Lawrence Community Theatre. For dates and prices:

Call: (785) 843-7469 or

See: <http://community.lawrence.com/CommunityTheatre>

Family Science Discovery Class:

Dinos Alive!

December 2nd at Union Station from 11:00 a.m. & 2:00 p.m. Admission is \$29.95 for one adult/one child, and \$7 per additional person.

Call: (816) 460-2020 or

Visit: www.unionstation.org

Lawrence Holiday Parade

Dec. 2nd at 11 a.m. in Downtown Lawrence, at 7th and Mass. Features horse-drawn carriages, wagons, and coaches decorated for the season.

January Kids Day Off

Start the new year off right by participating in fun activities at Holcom Park Recreation Center. Enjoy arts and crafts, games, swimming, watching movies and more for two days (Jan. 2nd & 3rd) before heading back to school. Ages 5 - 12. Cost is \$35.

Call: (785) 832-7940

Lily Plants a Garden

KU Theatre for Young People presents this staged performance for children in grades 1 - 3. This contemporary play is an inspiring and timely allegory about a child who brings hope to troubled times. Performances throughout Feb. Admission is \$10 for the public, \$5 for students, and \$9 for seniors.

Call: (785) 864-3982

See: www.kutheatre.com



(Reading Report, Continued from page 1)

models is evidenced by the fact that children of high frequency readers (reading for fun daily) are far more likely to read for fun every day than children whose parents are not high frequency readers. The study found that 53% of children whose parents are high frequency readers are reading books for fun every day; however, among children whose parents are low frequency readers (reading 2-3 times a month or less), only 15% read for fun daily. Parents who are high frequency readers are more likely to see themselves as primarily responsible for encouraging their children to read than parents who are low-frequency readers (60% vs. 46%).

Whether or not parents are high frequency readers themselves, they can posi-

tively impact kids' reading habits. Kids who are high frequency readers are more than twice as likely as low frequency readers to cite their parents as a top source of ideas for good books to read (21% vs. 8%). Kids who are low frequency readers are more inclined to rely on their teachers, friends, librarians and television to help them find books to read than on their parents.

While nearly all kids surveyed enjoy reading books for fun, kids report that the number one reason they do not read more is that they cannot find books they like. Parents, on the other hand, say they think kids, especially the older ones, are not reading more because of too much homework.

"With all the media that today's youth are faced with day in and day out, the truth is kids really do enjoy reading

books for fun," stated Dr. Hal Quinley from Yankelovich. "Parents may be underestimating the difficulty kids have finding books they like. Although kids value their independence, they seek guidance from parents and that includes the suggestion of a great book to read."

The Scholastic Kids and Family Reading Report™ is available online at www.scholastic.com/readingreport.

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For more information about other findings from the report please read the full June, 14, 2006 press release available at the Scholastic website.

http://www.scholastic.com/aboutscholastic/news/press_06142006_CP.htm

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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 done 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 Institutes of Health (NIH) at the University of Kansas.

"All-Time Classic" Books for Parents and Children

Preschool to Age 8

- * *Why Mosquitoes Buzz in People's Ears*. Verna Aardema, 1975
- * *Mad About Madeline: the Complete Tales*. Ludwig Bemelmans, 1993
- * *The Runaway Bunny*. Margaret Wise Brown, 1942.
- * *The Very Hungry Caterpillar*. Eric Carl, 1970.
- * *Abuela*. Arthur Dorros, 1991.
- * *The Snowy Day*. Ezra Jack Keats, 1962.
- * *George and Martha: the Complete Stories About Two Best Friends*. James Marshall, 1997.
- * *Make Way for Ducklings*. Robert McCloskey, 1941.
- * *Where the Wild Things Are*. Maurice Sendak, 1963.
- * *Timothy Goes to School*. Rosemary Wells, 1981.
- * *A Chair for My Mother*. Vera Williams, 1982.

Ages 8 to 12

- * *Ramona Quimby, Age 8*. Beverly Cleary, 1981
- * *The Watsons Go to Birmingham: 1963*. Christopher Paul Curtis, 1995.
- * *James and the Giant Peach*. Roald Dahl, 1961.
- * *Julie of the Wolves*. Jean Craighead George, 1972.
- * *The Lion, the Witch, and the Wardrobe*. CS Lewis, 1950.
- * *Mrs. Katz and Tush*. Patricia Polacco, 1992.
- * *Tar Beach*. Faith Ringgold, 1991.
- * *Grandfather's Journey*. Allen Say, 1993.
- * *Where the Sidewalk Ends*. Shel Silverstein, 1974.
- * *Roll of Thunder, Hear My Cry*. Mildred Taylor, 1976.
- * *Charlotte's Web*. EB White, 1952.

For more information or reading lists visit the American Library Association's Webpage at <http://www.ala.org/>