

## Incidence of eye disorder high in autism

A new study indicates that strabismus, an eye problem in which one or both eyes turn either inward or outward, is much more common in autistic individuals than in the general population, and may contribute to some autistic symptoms.

Melvin Kaplan, Bernard Rimland, and Stephen M. Edelson examined data from two sources. The first, an optometric evaluation of 34 autistic individuals between the ages of 7 and 19, found that 17 (50 percent) had strabismus. (Of these, 65 percent had exotropia, the outward turning of one or both eyes, while 35 percent had esotropia, the turning-in of one or both eyes.) The problem was more common in older subjects, with 68 percent of subjects over the age of 13 exhibiting strabismus compared to only 27 percent of those aged 13 or younger. Only one of the subjects was taking a medication that could cause strabismus.

The second source of information for Kaplan et al.'s study was the Autism Research Institute database, which included data gathered on nearly 20,000 autistic individuals. Limiting their subjects to individuals with classical autism or autistic spectrum disorder (a total of 7,640 subjects), the researchers found that 20 percent of these individuals were identified by their parents as having "crossed eyes." There was a higher prevalence of the problem in girls than in boys, and a higher prevalence in classically autistic individuals than in those with autistic spectrum disorder.

"As milder cases of strabismus often cannot be detected by simple observation," the researchers say, "the finding of a 20% prevalence rate is undoubtedly a conservative estimate." They also note that the children in this portion of the study were younger (an average age of 7) than those who received optometric evaluations.

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An optometric evaluation of 34 autistic individuals revealed that 50 percent exhibited strabismus, and 20 percent of parents in a large survey said their autistic children had "crossed eyes."

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Kaplan et al. note that their data reveal a far higher prevalence of strabismus in autistic subjects than the two to four percent prevalence reported in the general community. Other studies, they note, have reported a prevalence rate of strabismus in autistic subjects of between 21 and 84 percent.

The researchers note that strabismus can interfere with visual orientation, movement in space, balance, and learning, by preventing the brain from receiving integrated visual input. An analysis of the ARI database information showed that children with strabismus had a higher incidence of symptoms that could be related to vision problems—for instance, poor coordination, delay in walking, and poor fine-motor control.

"Researchers who have studied the effects of strabismus on behavior have noted that improvement can often be achieved using visual training techniques," Kaplan et al. note. "Transitional lenses and yoke prisms have been reported to shift the boundaries of vision to correct strabismus and have produced a significant reduction in many autistic symptoms."

"Strabismus in autism spectrum disorder," Melvin Kaplan, Bernard Rimland, and Stephen M. Edelson, *Focus on Autism and Other Developmental Disabilities*, Vol. 14, No. 2, Summer 1999, pp. 101-105. Address: Melvin Kaplan, Center for Visual Management, 150 White Plains Road, Suite 410, Tarrytown, NY 10591.

## Teaching speech: computer outdoes traditional method

Nonverbal autistic children vocalize more when they receive computerized feedback than they do in traditional training sessions, according to a recent study by Vera Bernard-Opitz and colleagues.

The researchers conducted ten training sessions with ten autistic subjects ranging in age from 3 to 7. For part of each session, the children worked with the IBM SpeechViewer, a computer program that responds to correct verbalizations with changing graphics. (For instance, the program can respond to correct vocalizations by activating a kaleidoscope, showing a balloon enlarging, or showing a monkey climbing higher in a tree, each time the child makes a targeted sound.) For the remainder of each session, trainers or parents used a traditional play setting, in which they showed the children interesting toys to encourage them to vocalize.

The researchers report that the children vocalized significantly more in response to the computer feedback than they did in the standard play condition, and that the rate of learning was far greater during sessions using the computer than in sessions using the play setting. Nine of ten children responded well to the computer sessions, they say, and "seven children with vocal imitation rates below 20 percent at the outset of the study increased their performance to 80 percent and above in the computer condition."

The researchers suggest several reasons for the success of the computer training. One, they say, is that autistic children are known to have better visual than verbal skills, and thus may find the computer's visual feedback more helpful than a human participant's verbal feedback. Also, they say, "the consistency, regularity and on-demand stimulation provided by computers... may satisfy the need of children with autism for predictability." The researchers doubt that the children responded merely because of the novelty of the computer; in fact, they note, responses increased with time for most children, even as the novelty of the computer program wore off.

Bernard-Opitz et al. also note that the children in their study ranged in mental age from below 30 to 128, indicating that computer training may be useful for children with a wide range of ability levels.

"Enhancing vocal imitations in children with autism using the IBM SpeechViewer," Vera Bernard-Opitz, N. Sriram, and Sharul Sapuan, *Autism*, Vol. 3, No. 2, 1999, pp. 131-147. Address: Vera Bernard-Opitz, Department of Social Work and Psychology, The National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260, Singapore.

ARI maintains a list of schools and other resources for autistic persons. If you provide a service that should be on our referral list, send a self-addressed, stamped envelope with a request for our "Services/School Referral List Questionnaire."

ARI also has a list of nutritionally-oriented physicians who use drugs only as a last resort with their autistic patients, and who are interested in the DAN! approach to diagnosis and treatment. If you are a physician who should be on that list, send a self-addressed, stamped envelope with a request for our "Doctor Referral List Questionnaire."

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