Educational/Biomedical Update:

Large handwriting common in autism

Autistic children often have unusually large handwriting, according to researchers who suggest that this phenomenon may reflect cerebellar abnormalities.

David Beversdorf and colleagues compared the handwriting of ten high-functioning adults with autistic spectrum disorder to that of 13 control subjects. The subjects were matched for age and verbal and performance IQ. In addition, the researchers controlled for the effects of education level.

"Observation of the subjects' handwriting revealed an obvious tendency for larger handwriting among individuals with autism spectrum disorder," the researchers say. They note that large handwriting, or macrographia, is seen in some patients with cerebellar lesions or basal ganglia dysfunction. Cerebellar abnormalities in autistic individuals have been reported by many researchers.

Kerry Hogan, a teacher at the Chapel Hill TEACCH Program in North Carolina, notes that handwriting in general is frequently difficult for autistic students. "Many people with high functioning autism have poor handwriting and their handwriting skills do not seem to improve with practice," she says. "It has been helpful to teach these clients keyboarding skills at as early an age as possible. Once these are mastered many children with autism have found it easier to complete homework assignments, take notes in class, and complete long-term projects."

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"Brief report: macrographia in high-functioning adults with autism spectrum disorder," David Q. Beversdorf, Jeffrey M. Anderson, Susan E. Manning, Sheri L. Anderson, Richard E. Nordgren, Gretchen J. Felopulos, and Margaret L. Bauman, Journal of Autism and Developmental Disorders, Vol. 31, No. 1, February 2001, pp. 97-101. Address: David Beversdorf, Dept. of Neurology, Ohio State University Medical Center, 1654 Upham Drive, Columbus, OH 43210, beversdorf.2@osu.edu.

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"Recommendations for students with high-functioning autism," Kerry Hogan, TEACCH web site, http://www.teacch.com/hfa.htm.

Snoezelen rooms have modest, temporary effect on stereotypy

Snoezelen rooms, invented in the Netherlands in the 1970s, are "sensory stimulation" rooms containing rocking chairs, mirror light balls, vibrating floor mats, aromatherapy oil, tapes of nature sounds, and similar equipment. A recent study suggests that while these rooms can temporarily reduce stereotyped behaviors in mentally retarded subjects, the changes are modest and similar results can be achieved through less expensive techniques.

Anthony Cuvo and colleagues evaluated the hand-flapping, body rocking, and other stereotypic behaviors of three profoundly mentally retarded adults before, during and after sessions in a Snoezelen room. (Comparison sessions were held in the living room of the subjects' residential program.) The researchers report that "there tended to be a reduction in stereotypy and increase in engagement when participants went from their living room to the Snoezelen room," but that these improvements did not last when the participants returned to the living room.

In a second experiment, Cuvo et al. compared the effects of the Snoezelen room to the effects of a session of outdoor activity including walking and swinging. They found that "the outdoor condition was superior, the Snoezelen condition intermediate, and the living room least effective" in controlling stereotypy.

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"Effects of living room, Snoezelen room, and outdoor activities on stereotypic behavior and engagement by adults with profound mental retardation," Anthony J. Cuvo, Michael E. May, and Tiffany M. Post, *Research In Developmental Disabilities*, Vol. 22, 2001, 183-204. Address: Acuvo@siu.edu.

New email program for the disabled uses audio, pictures

A new software program, developed by AbleLink Technologies with funding from the U.S. Department of Education, allows autistic and other disabled individuals to send emails without typing messages.

The program, called Web Trek Connect, allows the user to open an inbox that contains received emails, each attached to the picture and name of the person who sent the email. When the display opens, an audio message prompts the user to "Click on the email that you'd like to read, or click the button with the yellow envelope on it to send an email to someone."

If the user opts to read an email, the program converts the email's message to speech. To reply, the program's user can go to the program's address book, click on the picture of the intended recipient, and speak a message. The program records, compresses, and sends the message as an audio file. The entire process of composing and sending an email requires only the ability to identify a name or picture, the ability to speak, and a total of four mouse clicks. (Messages can also be read or sent using a text format, if desired.)

Daniel Davies, president of AbleLink, says the program "enables[s] individuals who have limited cognitive ability to really communicate in the same way the rest of us do with email."

Web Trek, currently undergoing field testing, is expected to be on the market shortly and will cost approximately $199.

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"System helps mentally retarded use email," UPI, June 8, 2001. For additional information, see www.ablelinktech.com.

Seizure drug may reduce symptoms

A retrospective pilot study of the drug divalproex sodium (Depakote) suggests that the anticonvulsant drug may reduce autistic symptoms.

Eric Hollander et al. evaluated the effects of the drug on 14 subjects with autism spectrum disorder, and report that 10 exhibited a "sustained response" including improvement in core autism symptoms and reductions in emotional instability, impulsiveness, and aggression. All individuals with abnormal EEGs and/or a history of seizures were rated as responders.

While the subjects in this study appeared to tolerate the drug well, divalproex sodium can cause indigestion, abdominal pain, constipation or diarrhea, sedation, aggression, hyperactivity, tremor, dizziness, blood abnormalities, and other side effects.

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"An open trial of divalproex sodium in autism spectrum disorders," E Hollander, R. Dolgoff-Kaspar, C. Cartwright, R. Rawitt, and S. Novotny, *Journal of Clinical Psychiatry*, Vol. 62, No. 7, July 2001, 530-4. Address: Eric Hollander, Department of Psychiatry, Mt. Sinai School of Medicine, New York, NY 10029-6574.