

Educational/Biomedical Update:

'Talking head' used to teach speech, language skills to autistic children

"Baldi," currently being tested by the Perceptual Science Laboratory at UC Santa Cruz, may play an important role in speech and language training of autistic students in the future.

The computerized talking head produces realistic speaking movements and emotional expressions that can be synchronized with either synthesized or natural speech. "The quality and intelligibility of the talking head have been repeatedly modified and evaluated to be as realistic as possible," researchers Dominic Massaro and Alex Bosseler say. Their language-training program uses Baldi to guide students through a series of exercises that teach language and listening skills.

In addition to using Baldi as a training device, the researchers are using the program to explore how autistic children process language and emotions during face-to-face conversations. A video demo of "Baldi" is available at the Perceptual Science Laboratory web site, <http://mambo.ucsc.edu>.

"Development and evaluation of a computer-animating talking head for research and tutoring of children with autism," D. W. Massaro and A. Bosseler, presentation to the International Meeting for Autism Research (IMFAR), November 2001, San Diego, CA. Address: Dominic W. Massaro, Department of Psychology, Social Sciences II, University of California at Santa Cruz, Santa Cruz, CA 95064.

Twin births surprisingly high in 'autism families'

Twins may be more vulnerable to autism than other children, a new study by D. A. Greenberg and colleagues suggests.

Studying families with two autistic children, Greenberg and coworkers noted that a high proportion of these children were identical or fraternal twins. To investigate this phenomenon, they collected information on 166 families with two children diagnosed with autism or Asperger syndrome, comparing them to 649 families with two children who have insulin-dependent diabetes mellitus (to control for the influence of the children's disorders on their parents' child-bearing patterns).

The researchers found 30 twin pairs among the 166 families with autistic children, compared to only 15 among the 649 families with diabetic children. This high proportion of twins in autism families may stem in part from "stoppage," or the decision of parents

of a severely disabled child not to have additional children, which would limit the number of non-twin siblings. However, the researchers suggest that risk factors related to twinning, or genetic or non-genetic factors involving the autistic children's parents, may also contribute to autism.

Earlier research has shown that twins are more vulnerable to neurological disorders in general than are other children, because they often have lower birth weights and are more likely to suffer complications *in utero*.

"Excess of twins among affected sibling pairs with autism: implications for the etiology of autism," D. A. Greenberg, S. E. Hodge, J. Sowinski, and D. Nicoll, *American Journal of Human Genetics*, Vol. 69, No. 5, November 2001, 1062-7. Address: D. A. Greenberg, Division of Statistical Genetics, Department of Biostatistics, Columbia University, New York, NY 10032.

New figures: Tourette, tic disorders far more common than thought

Tourette syndrome and other tic disorders are far more common than previously believed, according to a new study.

Roger Kurlan and colleagues evaluated 1,596 children in Rochester, New York. The researchers found that 3 percent had Tourette's—a figure 50 to 75 times higher than accepted rates—and 20 percent exhibited some form of tic disorder. Among children enrolled in special education classes, 8 percent met the criteria for Tourette's, and approximately a quarter had some form of tic disorder.

Tourette syndrome, which sometimes occurs with autism, causes vocal and physical tics, and can be associated with obsessive-compulsive symptoms, depression, and behavioral problems.

Editor's note: While Kurlan's earlier research indicates that tic disorders have long been under-identified, we may be seeing a dramatic increase in the incidence of Tourette's, similar to the dramatic increase in the incidence of autism.

"Prevalence of tics in schoolchildren and association with placement in special education," R. Kurlan, M. P. McDermott, C. Deeley, P. G. Como, C. Brower, S. Eapen, E. M. Andresen, and B. Miller, *Neurology*, Vol. 57, No. 8, October 23, 2001, 1383-8. Address: Roger Kurlan, Department of Neurology, University of Rochester School of Medicine and Dentistry, Rochester, NY 14642-8673.

"Rate of Tourette's much higher than had been thought," *Daily University Science News (UniSci)*, November 1, 2001.

Risperidone: new study positive, more concerns about weight gain

A recent open trial of risperidone (Risperdal) indicates that low doses of the drug can reduce young autistic children's symptoms.

Italian researcher G. Masi and colleagues tested risperidone on 24 children ranging in age from 3 to 6. Two children did not complete the trial because they experienced side effects including irregular heartbeat, flushing, fever, and appetite problems. Of the remainder, the researchers say, "eight subjects were considered responders." In particular, improvements were seen in behavioral control and mood regulation. The optimal dosage was 0.5 mg/day, and no serious side effects were seen in children who finished the study.

In this study, only three subjects experienced a weight gain of more than 10 percent. However, a new study adds to evidence that risperidone can cause significant weight gain.

J. A. Helligs and colleagues conducted a double-blind, crossover study of 19 individuals with mental retardation and autism, ranging in age from 6 to 65 years. The researchers weighed each subject regularly, comparing the weight of those on risperidone to that of the individuals taking the placebo.

They report, "Over approximately a year, children aged 8-12 gained a mean of 8.2 kg [18 pounds]; adolescents aged 13-16 gained a mean of 8.4 kg [18.5 pounds]; adults aged 21-51 gained a mean of 5.4 kg [nearly 12 pounds]." When the drug was stopped, the subjects' rate of weight gain diminished rapidly.

A previous study (see ARRI 13/3) indicated that risperidone and other antipsychotics may increase the risk of type 2 diabetes, because of their effects on metabolism and weight gain.

"Weight gain in a controlled study of risperidone in children, adolescents and adults with mental retardation and autism," J. A. Helligs, J. R. Zarccone, K. Crandall, D. Wallace, and S. R. Schroeder, *Journal of Child and Adolescent Psychopharmacology*, Vol. 11, No. 3, Fall 2001, 229-38. Address: J. A. Helligs, Department of Psychiatry and Behavioral Sciences, University of Kansas Medical Center, Kansas City, KS 66160, jhelling@kumc.edu.

—and—

"Open trial of risperidone in 24 young children with pervasive developmental disorders," G. Masi, A. Cosenza, M. Mucci, and P. Brovedani, *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 40, No. 10, October 2001, 1206-14. Address: G. Masi, Division of Child Neurology and Psychiatry, University of Pisa, Pisa, Italy, masi@inpe.unipi.it.