

## Biomedical/Educational Update:

### Self-management helps students vary behavior

Autistic students can be taught to "self-manage" behaviors ranging from communication to self-injury, and new research shows that self-management can help individuals with autism learn to increase their behavioral repertoire as well.

Bobby Newman and colleagues worked with two six-year-olds and one preschool student, all diagnosed as autistic and mildly retarded. Behaviors targeted for intervention included toy play for one child, communication for a second, and picture-drawing for the third.

During the baseline sessions, students were asked to vary their behavior (e.g., "Can you draw a different picture?", "Did your robot do anything else?") Each student was given ten opportunities to respond.

Intervention consisted of instructing the students to give themselves tokens each time they varied their target behaviors—for instance, by using a different social greeting, or drawing with a different colored marker. Initially, the researchers prompted the students to take tokens when they earned them, or corrected them if they took tokens incorrectly. After the first six days, the prompts were eliminated.

"All three students were able to self-manage their behavior," Newman et al. note, saying, "the effects of the procedure were fairly powerful." This was true even though the students rewarded themselves with tokens less than 60 percent of the time when they successfully varied their behavior.

"Self-management of varied responding in three students with autism," Bobby Newman, Dana R. Reinecke, and Deborah L. Meinberg, *Behavioral Interventions*, Vol. 15, 2000, pp. 145-151. Address: Bobby Newman, AMA, 25 West 17<sup>th</sup> Street, New York, NY 10011.

### Behavior problems in girls often PMS-related

Behavior problems related to menstrual cycles are common in female patients with developmental disabilities, according to E. H. Quint and colleagues.

Studying developmentally disabled women of childbearing age who were referred to a clinic for reproductive healthcare, the researchers found that 93 of 522, or 18 percent, experienced cyclical behavior changes including increased aggression and self-injury. Treatment with nonsteroidal anti-inflammatory drugs (NSAIDs) caused im-

provement in 65 percent, birth control pills reduced symptoms in 40 percent (while worsening symptoms in 20 percent), and Depo-Provera injections caused improvement in six of nine patients.

The researchers conclude, "Cyclical behavioral change in women with mental retardation is a common problem and may be related to pain—possibly due to menstrual cramps, since 65 percent of the patients responded to NSAIDs." They recommend careful documentation of aggression and self-injury, in order to detect cyclical patterns.

**Editor's Note: Many studies show vitamin B6 to be safe and effective for PMS.**

"The treatment of cyclical behavioral changes in women with mental disabilities," E. H. Quint, T. E. Elkins, C. A. Sorg, and S. Kope, *Journal of Pediatric and Adolescent Gynecology*, Vol. 12, No. 3, August 1999, p. 139-142. Address: E. H. Quint, Department of Obstetrics and Gynecology, University of Michigan Health System, Ann Arbor, MI 48109-0276.

### Rare case offers more evidence of autoimmune disorder in autism

More evidence that some cases of autism involve autoimmune processes (in which the body attacks itself) comes from a new case study by S. Shenoy and colleagues.

The researchers report on a patient suffering from autoimmune lymphoproliferative syndrome (ALPS), who also exhibited autistic symptoms. ALPS is a rare autoimmune disease in which lymphocytes, which normally die off after successfully fighting off an infection, continue to proliferate and begin to attack the organs of the body.

Shenoy and colleagues report that when they treated their patient with low-dose steroid therapy, the ALPS went into remission, the child's speech improved, and he began to catch up developmentally.

"Response to steroid therapy in autism secondary to autoimmune lymphoproliferative syndrome," S. Shenoy, S. Arnold, and T. Chatila, *Journal of Pediatrics*, Vol. 136, No. 5, May 2000, pp. 682-687. Address: S. Shenoy, Department of Pediatrics, Washington University School of Medicine, St. Louis Children's Hospital, St. Louis, MO 63110.

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### Valproic acid and the autism/cerebellum connection

A new study indicates that exposure to anticonvulsants in utero, long known to be a risk factor for malformations and developmental delay, may also cause autism.

S. J. Moore and colleagues studied 57 children with physical or developmental problems due to maternal anticonvulsant use during pregnancy. Of the children, they say, 46 had behavior problems, and 34—or 60 percent of the entire sample—reported two or more autistic features. Four of these were diagnosed as autistic, and two as having Asperger syndrome. Other problems identified in the group as a whole included hyperactivity and attention problems, learning disorders, speech delays, motor delays, "glue ear," joint laxity, and myopia.

The researchers conclude that "autistic features and hyperactivity form part of the behavioral phenotype" of abnormalities due to fetal anticonvulsant exposure.

#### A cerebellar link?

In a related study, J. L. Ingram and colleagues offer a clue as to why anticonvulsant exposure before birth may cause autism in some children.

The researchers exposed rats to valproic acid, an anticonvulsant, and found that rats exposed to a single dose of the drug on a specific day of fetal development exhibited decreases in Purkinje cells in the cerebellar vermis. The diminished numbers of cells, they say, "reflect reductions in tissue volume throughout the cerebellum."

"The results," the researchers say, "parallel those reported for human cases of autism," in which cerebellar under-development is a consistent finding of MRI and post-mortem studies (see ARRI 11/1, 3/1, 1/1, and article on page 4 of this issue).

"A clinical study of 57 children with fetal anticonvulsant syndromes," S. J. Moore, P. Turpenney, A. Quinn, S. Glover, D. J. Lloyd, T. Montgomery, and J. C. Dean, *Journal of Medical Genetics*, Vol. 37, No. 7, July 2000, pp. 489-497. Address: S. J. Moore, Department of Medical Genetics, Medical School, Foresterhill, Aberdeen AB25 2ZD, U.K.

—and—

"Prenatal exposure of rats to valproic acid reproduces the cerebellar anomalies associated with autism," J. L. Ingram, S. M. Peckham, B. Tisdale, and P. M. Rodier, *Neurotoxicology and Teratology*, Vol. 22, No. 3, May-June 2000, pp. 319-324. Address: J. L. Ingram, Department of Obstetrics and Gynecology, University of Rochester School of Medicine and Dentistry, Rochester, NY 14642.