

Biomedical Update:

Autistic guinea pigs?

AIDS researchers use monkeys, and cancer researchers use rats, but researchers investigating autism have been handicapped by the lack of an animal model for the disease—until now.

French researchers J. Caston et al. recently evaluated a strain of guinea pigs known as "GS" guinea pigs. These animals are partially inbred and have cerebellar and corticocerebral abnormalities similar to those seen in humans with autism.

According to Caston et al., the GS guinea pigs exhibit stereotypic behavior and are "less influenced by environmental stimuli" than other guinea pigs. The GS animals exhibited significantly less exploratory behavior in new environments, and were less responsive to tones, than other strains. In social interactions, the researchers say, the GS guinea pigs interacted much less frequently with each other or with other guinea pigs than did other strains.

"GS behavior thus exhibits autistic-like behavior patterns: motor stereotypy, lack of exploration and response to environment, and poor social interaction," the researchers note. Therefore, they say, the GS guinea pig may be a valuable animal model for autism.

"An animal model of autism: behavioural studies in the GS guinea-pig," J. Caston, E. Yon, D. Mellier, H. P. Godfrey, N. Delhaye-Bouchaud, and J. Mariani; *Supplement to the European Journal of Neuroscience*, Vol. 10, No. 8, August 1998, pp. 2677-2684. Address: J. Caston, Université de Rouen, Faculté des Sciences, Laboratoire de Neurobiologie de l'Apprentissage, 76821 Mont-Saint-Aignan Cedex, France.

Anxiety common in children with PDD

A new study suggests that the majority of autistic and autistic-like children suffer from disabling anxiety disorders.

Dutch researcher Peter Muris and colleagues studied 44 children ranging in age from 2 to 18. Fifteen of the children were autistic, and 29 children were categorized as having pervasive developmental disorder. The researchers interviewed the children's parents, using the Anxiety Disorders section of the Diagnostic Interview Schedule for Children (DISC).

"Results indicated that severe anxiety symptoms are highly prevalent in children with [autism and other] pervasive developmental disorders," the researchers say. They found that 37 of the children, or 84 percent, "met the full criteria for at least one anxiety disorder." Simple phobias (such as fear of

dogs) were most common, followed by agoraphobia. Muris et al. say their study results are similar to those of an earlier study by Rumsey et al., who found a high rate of anxiety in men with autism.

The researchers suggest that the anxiety of children with autism or PDD may stem from their difficulty in integrating the input from their environment. "As a result," they say, "PDD children would experience many everyday situations as chaotic, obscure, and thus frightening."

Muris et al. say the percentage of autistic and autistic-like children suffering from anxiety differs markedly from the percentage of non-disabled children experiencing this problem. They cite research suggesting that only about 9 percent of pediatric patients in general suffer from significant anxiety problems.

The researchers note that anxiety disorders were more common in children with PDD than in children with classical autism. However, they note that their sample size was small, and that the autism and PDD groups differed with respect to age and IQ.

"Comorbid anxiety symptoms in children with pervasive developmental disorders," Peter Muris, Pim Steerneman, Harald Merckelbach, Irit Holdrinet, and Cor Meesters; *Journal of Anxiety Disorders*, Vol. 12, No. 4, 1998, pp. 387-393. Address: Peter Muris, Department of Psychology, Limburg University, P.O. Box 616, 6200 MD Maastricht, The Netherlands.

Some cases of autism tentatively linked to extra Y chromosome

An extra Y chromosome may sometimes be associated with autistic-like behavior, according to a case report by Rob Nicolson and colleagues.

The physicians note that of 40 males with pervasive developmental disorder (PDD) referred to their clinic during a single year, two had an extra Y chromosome. Noting that some males with an extra Y chromosome exhibit symptoms common in PDD (including low IQ, language deficits, and social and behavioral problems), the researchers speculate that "the extra Y chromosome in vulnerable males, when combined with other genetic and environmental insults, results in aberrant brain development and PDDs."

"47,YYY karyotypes and pervasive developmental disorders," Rob Nicolson, Shree Bhalerao, and Leon Sloman; *Canadian Journal of Psychiatry*, Vol. 43, August 1998, pp. 619-622. Address: Rob Nicolson, Child Psychiatry Branch, NIMH, Bldg. 10, Room 3N202, 10 Center Drive MSC 1600, Bethesda, MD 20892-1600.

More good news about ear infection preventive

Antibiotics are the standard (though rarely effective) treatment for ear infections, a common problem for autistic children. However, overuse of antibiotics can cause yeast infestation, which appears to cause or exacerbate autistic symptoms in some children.

A 1996 Finnish study suggested a better solution to the problem of ear infections: prevention. Matti Uhari and colleagues reported that simply by chewing gum sweetened with the natural sweetener xylitol, children could reduce their incidence of ear infections by up to 40 percent. Recently, Uhari and colleagues reported additional evidence that xylitol can prevent attacks of acute otitis media.

The researchers studied 857 children in day care centers, dividing them into five groups of roughly 170 children each. Three of the groups received xylitol (in chewing gum, syrup, or lozenge form), while two received placebos (in gum or syrup form). The daily dose of xylitol ranged from 8.4 to 10 grams.

Uhari et al. followed the children for three months, keeping track of the number of ear infections they suffered. The researchers report that of the children chewing gum containing xylitol, only 29 developed ear infections, and only 44 ear infections occurred overall (with some children suffering more than one). By comparison, 49 of the children using the placebo gum developed ear infections, and a total of 72 infections occurred in this group. Xylitol lozenges and syrup also reduced the incidence of ear infections.

Overall, the researchers say, the xylitol gum group had 40 percent fewer ear infections compared to controls, the syrup group had 30 percent fewer, and the group using lozenges 20 percent fewer. "Thus," they say, "the occurrence of acute otitis media during the follow-up period was significantly lower in those who received xylitol syrup or gum, and these children required antimicrobials less often than did controls." They add that xylitol was well tolerated by the children.

In earlier laboratory experiments, Uhari and colleagues found that xylitol inhibits the growth of the *Streptococcus pneumoniae*, a common cause of ear infections. They believe that xylitol inhibits the bacteria's ability to attach to mucus and travel from the mouth and throat to the ears where it can cause an infection.

"A novel use of xylitol sugar in preventing acute otitis media," M. Uhari, T. Kontiokari, and M. Niemela; *Pediatrics*, Vol. 102 (4 Pt 1), October 1998, pp. 879-884. Address: M. Uhari, Department of Pediatrics, University of Oulu, Oulu, Finland.