

## AIT study: children improve markedly

A new study from Ireland concludes that auditory integration therapy (AIT) is "well worth exploring" as a treatment for autistic children.

Mark Morgan Brown used AIT with two autistic children, a five-year-old boy and his three-year-old sister. Intended to reduce sound oversensitivity and other autistic symptoms, AIT involves having subjects listen to electronically-modified music through headphones. Each child participated in two half-hour sessions per day, for 10 consecutive days. Follow-ups were conducted three and six months after the therapy.

Brown says that the two children showed marked improvement in a number of autistic symptoms following therapy. The boy became calmer, less sensitive to sound, and less "switched off," and his language skills and eye contact improved. Brown notes that before AIT the boy had to be kept separated from his sister because of his aggression toward her, but "he now interacts with her and recognizes her as part of his family." Interestingly, he lost one peculiar skill, the ability to tear pages in an unusually precise manner. (*Editor's note: The loss of "savant" skills is not uncommon in autistic children who suddenly make strides in normal skills.*)

The girl also improved significantly, interacting more with others and growing more confident. Her balance and eye contact improved, and she began making more types of sounds. In addition, she learned to eat solid foods, something she was unable to do before the therapy.

"Before the intervention," Brown says, "[the girl] became physically sick when she heard loud mechanical sounds such as motorbikes and roadwork drills. During the last two days of the training, she was able to cope with the loud noises of various airplanes flying closely overhead at the local air show. She was also able to cope with the visual and auditory stimulation of the large crowds at this show and, for the first time ever, turned her head to look at... noises of interest in the crowds."

Brown notes that his study was not controlled, and that other factors could have influenced the children's improvement. However, he notes that most of their behavioral changes began during the therapy, and that their spurt in improvement following AIT therapy was far greater than any of their previous gains.

"Auditory integration training and autism: two case studies," Mark Morgan Brown, *British Journal of Occupational Therapy*, Vol. 62, No. 1, January 1999, pp. 13-18. Address: Mark Morgan Brown, Arderry, Corrawallen PO, Via Cavan, County Leitrim, Republic of Ireland.

## Is classical autism linked to depression?

Duke researcher G. Robert DeLong recently reported (see ARRI 12/4) that Prozac (fluoxetine) causes remarkable improvement in many autistic children with a family history of depressive disorder. In a new report, DeLong suggests that classical autism may in fact be a severe variant of familial depressive disorder, beginning early in life.

DeLong suggests that there are two distinct subgroups of autism. One, he theorizes, is caused by bilateral brain damage early in life (caused, for instance, by congenital rubella or herpes infection) and results in low-functioning autism. The other, he speculates, "is not associated with brain damage, neurologic findings, or biological markers using standard techniques, and may have familial (presumably genetic) roots." This more classical form of autism, DeLong says, is marked by regression during the second year of life, higher functioning in later life, islands of normal functioning, some development of language, a better prognosis, and notable symptoms akin to depression.

DeLong says his hypothesis that this second form of autism is linked to depression is based on several observations:

1. Autistic children's families have a high rate of major affective disorder. DeLong notes, "In three separate studies involving 241 probands, we found 71% of idiopathic autistic children [children with no identifiable cause for their autism] to have a family history among first- and second-degree relatives of major affective disorder."

2. Autistic symptoms often include marked depressive symptoms including tantrums, irritability, anxiety, social withdrawal, restricted interests, and loss of "joie de vivre."

3. Many autistic children respond to Prozac, a drug designed to treat depression. Moreover, DeLong notes, response to the drug correlates with a family history of affective disorders, rather than with the severity of the children's autistic symptoms.

DeLong notes that PET studies suggest low serotonin synthesis in the left hemisphere of classically autistic subjects, and that neuropsychological studies also suggest left hemisphere deficits. Similarly, he says, on the Wechsler IQ scale, "we found children and adolescents with bipolar disorder [manic depression] to have high right-hemisphere abilities and substantially lower left-hemisphere abilities, the differences commonly being 20 to 40 points."

Another intriguing finding, DeLong says, is that chromosomes 18, 15, and 7 contain

sites tentatively linked to both autism and bipolar disorder (manic depression). "The proximity of links for autism and bipolar disorder is provocative," he says.

DeLong suggests that while serotonin deficiency in later life may cause depression, a left-hemisphere serotonin deficit early in

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DeLong notes that autism is common in families with histories of depression and that Prozac, an antidepressant, causes dramatic improvement in many autistic children.

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development may lead to autism by altering the growth of neurons and the development of synapses between them. In particular, he says, a serotonin shortage during early development may lead to abnormalities in the dentato-thalamo-cortical pathway from

the cerebellum to the cerebral cortex. He theorizes that low serotonin activity in the left hemisphere early in development results in impaired left-hemisphere language skills and a lateralization of learning and memory in the right brain, noting that "such memory is known, from split-brain studies, to be itemwise, hyperspecific, and rote, as found in autism."

### New study links depression, autism

A new study bolsters DeLong's contention that autism and depression share genetic links. Its authors, Joseph Piven and Pat Palmer, report evidence that "relatives of autistic individuals have high rates of major depression and social phobia," and that these problems cannot be explained by the stress of raising an autistic child.

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## New research on Pepcid® for autism

Linda Linday et al. have been studying the effects of the over-the-counter drug Pepcid® on autism (see ARRI 13/1, 11/3). The researchers recently presented a New Research Poster, "Famotidine treatment of young children with autistic spectrum disorders," at the 152nd Annual Meeting of the American Psychiatric Association on May 18, 1999, in Washington, D.C. Four of the nine children (44%) enrolled in this study experienced behavioral improvements during treatment with famotidine (Pepcid®). Improvements noted by parents included increased affection and increased relatedness. The study was a 10-week, randomized, double blind, placebo-controlled, cross-over study.

For further information, you may visit Dr. Linday's web site ([www.drilinday.com](http://www.drilinday.com)), call the Famotidine/Autism Information Line (1-900-AUTISM-6 which is 1-900-288-4766), or write to Dr. Linday at P.O. Box 296, Radio City Station, New York, NY 10101-0296.