

Self-stimming: Search for cause continues

Stereotypical behaviors – rocking, spinning, and other forms of self-stimulating behavior – occur frequently in autistic and retarded individuals. The causes of stereotypies, and the reasons why such behaviors are so difficult to control, are still under debate, with recent reports in the *Journal of Applied Behavior Analysis* advancing differing theories.

Researcher Ivar Lovaas and colleagues theorize that stereotypies are a learned behavior, reinforced by the perceptual stimuli – sights, sounds, vestibular stimulation, etc. – such activities automatically produce.

Lovaas speculates that the behaviors are so hard to eradicate because:

– Autistic children often have a repertoire of “self-stimulating” behaviors and switch from one to another, varying their perceptual reinforcement so they do not become satiated with the stimulation provided by a particular behavior. Also, a single stereotypy, such as repetitively hitting an object against a table, may provide a variety of external and internal perceptual stimuli.

– Stimulation occurs at the exact time the stereotyped behavior occurs, and thus is a powerful and consistent reinforcer.

– While the stereotyped behaviors of normal infants disappear or are replaced by socially acceptable behaviors (toe-tapping, etc.) autistic and retarded children have a limited repertoire of alternative activities such as speech and social interaction. With fewer avenues of stimulation they may find self-stimulating behaviors far more satisfying than doing nothing at all.

Lovaas notes that there is strong evidence that perceptual stimuli such as shapes, colors, patterns of lights, and music can be very reinforcing, and can be used in laboratory settings to train responses in non-disabled individuals as well as retarded and autistic people. He also points out that stereotypical behavior can be reduced by removing perceptual feedback – for instance, by masking the sound made by spinning objects – indicating that perceptual reinforcement is the goal of the retarded or autistic child with stereotyped behaviors.

Sesame Street helpful?

If an autistic child under your care has benefited from watching Sesame Street, please write to ARRI with details (alphabet? numbers? body parts? dressing? etc.) An effort is being made to compile special Sesame Street videotapes which might be of help in teaching autistic children.

He believes that “everyone, handicapped or not, both requires and can be rewarded by certain amounts and kinds of stimulation . . . The major difference between normal and handicapped persons lies in how the stimulation is obtained: normal individuals obtain their stimulation primarily through normal, verbal, social,

Lovaas believes that stereotypies are learned behaviors resulting in powerful reinforcement; Lewis feels they are caused by defects in brain structure and chemistry.

work and recreation/leisure behaviors, whereas retarded and autistic persons obtain theirs through simpler behaviors, many of which are repetitive and stereotyped.”

Lovaas theorizes that “in the absence of intensive intervention, high levels of self-stimulatory behavior and the lack of alternative behavior interact to exacerbate each other. High-rate self-stimulatory behavior may prevent or delay learning of alternative behaviors . . . and the continued absence of alternative behaviors renders perceptual reinforcers continually powerful, maintaining high rates of self-stimulatory behavior.”

Mark H. Lewis and fellow researchers argue that stereotyped behavior is *not* adaptive or functional, rather “represents the behavioral output of dysregulated neuronal systems.

“The position we have adopted,” they say, “is that stereotypies commonly observed in autistic and severely retarded persons are the behavioral output of neuronal systems seriously disturbed during early development. Developmental insult results in alterations in neural [structure] . . . which in turn disturbs chemical transmission, causing subsequent neural changes and alterations in behavior.”

Lewis et al. believe that alterations in the activity of brain areas using the substance dopamine may be a major cause of excessive stereotyped behavior. They have studied monkeys who developed stereotyped behaviors after being raised in isolation, and found “evidence of profound, long-term alterations in dopamine receptor sensitivity” in the animals. In addition, they note that the behavior of both humans and animals following administration of drugs that activate dopamine systems is “highly repetitive, rhythmic, and topographically invariant.”

They add that other neurotransmitter pathways in the brain are “almost certain-

ly involved” in stereotyped behavior, and note that there is evidence (Gillberg et al.) linking stereotyped behaviors to high levels of opioids in the cerebrospinal fluid of autistic and psychotic children (see related story in ARRI 1, #2, 1987).

Environmental demands may be factor

According to V. Mark Durand and Edward G. Carr, some people's self-stimulating behaviors may be a response to environmental demands. Durand and Carr found that the stereotypies of the four developmentally delayed individuals in their study increased dramatically when difficult tasks were introduced, and that self-stimulating behavior increased still more when the students' “stimming” resulted in time-out and thereby in removal of task demands.

Durand and Carr then taught the students to say “help me” when they needed assistance with difficult tasks, and found that all four students' rates of stereotypy dropped significantly. The researchers conclude that “the communicative responses presumably served the same function as the stereotyped behaviors; that is, both served to reduce the aversiveness of the demand situation.”

For a list of the four references cited in this article, please send a self-addressed, stamped envelope to ARRI, 4182 Adams Avenue, San Diego, CA 92116, and specify that you are requesting references for the article on stereotyped behaviors.

HELP NEEDED!

ICBR is attempting to evaluate various forms of treatment for autism by collecting assessments of the effectiveness of these treatments. Right now we are seeking contact with parents whose children have been given any of the following treatments:

**Auditory Training (Berard, Tomatis)
Holding Therapy
Options Program
Sensory Motor Integration**

If your child has been treated with any of the above therapies, please send us a letter listing your name, address, phone number (optional), and the name of the treatment. We will send you a one-page questionnaire.

ALL DATA WILL BE CONFIDENTIAL. Your help is appreciated!