

EDITOR'S NOTEBOOK/Bernard Rimland, Ph.D.

Sound sensitivity in autism

Remember the kitchen scene in *Rain Man*? Food had been left heating on the stove. Before long—smoke. Then the smoke alarm. Raymond Babbitt (Dustin Hoffman) couldn't tolerate the shrieking of the alarm. He covered his ears and went berserk until his brother came rushing to his rescue. That scene, like the rest of *Rain Man*, was a very authentic depiction of autism. We are all aware of sound sensitivity as a symptom of autism, but few of us have given it much thought and attention. Might sound sensitivity be, in at least some cases, a *cause* rather than merely a *symptom* of autism?

Starting in 1964, in the questionnaire which appeared as the appendix to my book *Infantile Autism*, I began asking parents of autistic children to answer questions intended to shed some light on the nature, the diagnosis, and perhaps the possible cause of autism. Several questions concerned sound sensitivity. Now, in late 1990, with nearly 12,000 such questionnaires in our computer files, it is very evident that sound sensitivity is a salient feature of close to 40% of all cases of autism. In many cases the problem is so acute that the parents have phoned or written the Institute for Child Behavior Research in desperation, seeking some means of alleviating the problem. One infant screamed in pain unless his mother closed the drapes very slowly and silently.

In his book *Autism: The Ultimate Stranger*, Carl Delacato devoted several pages to the problem of hyperacute hearing (as well as other hyperacute senses). Philip Ney, a Canadian psychiatrist, had written several papers over a decade ago in which he proposed that hyperacute hearing might be a cause, and not just a symptom, of many cases of autism. More recently, in *Emergence: Labeled Autistic*, Temple Grandin vividly describes the pain caused by her hypersensitive hearing. To her, speech sounded "like an onrushing freight train."

What can be done?

Delacato suggests the use of earplugs as a means of diminishing the discomfort of autistic children who cannot tolerate loud sounds or certain frequencies. Earplugs, cotton, rubber, or plastic, have been helpful in some cases, as have been the kinds of heavy-duty industrial protective ear covers worn by workers who must work around jet engines or in other noisy environments. However, many autistic children refuse to wear these devices, and of course muffling the sounds diminishes the child's ability to hear speech and receive other important auditory information.

One mother of an autistic child with hyperacute hearing, an engineer, designed a small soundproof (anechoic) chamber, which was reportedly extremely effective in excluding environmental noise, so her son

could sleep. She constructed the soundproof mini-chamber from a card table, some velcro fastening tape, and the foam mattress pads that are corrugated in several directions, like an egg crate. The foam was secured to the bottom surface of the card table, and to the legs of the table, so the table could be placed, cave-like, on the child's bed while he slept.

One cause of sound sensitivity is a deficiency of the mineral magnesium. We all need several hundred milligrams of magnesium each day. Unfortunately our food supply can no longer be expected to provide that much. One symptom of magnesium deficiency is hypersensitive hearing, and hyperirritability in general. Magnesium supplements are readily available, and an appropriate amount would be about 20 milligrams for each 10 pounds of body weight, per day. (Thus, 100 mg of magnesium for a 50 pound child.)

If magnesium deficiency is the cause of the sound sensitivity, improvement will be seen in a very few days.

Auditory Training

Can autistic individuals with hyperacute hearing be trained to overcome the hypersensitivity? Possibly so. Two French physicians, Alfred Tomatis and Guy Berard, have independently pioneered approaches which involve the use of electronic devices to modulate sounds in such a way that hypersensitive hearing, and certain other hearing problems, can be remedied.

Tomatis Listening Centers, which administer sound treatment in accordance with Tomatis' teachings, are found in many cities in Europe and North America.

Unlike Tomatis, Berard has conducted his work only from his clinic in Annecy, although the electronic sound modulating device he has developed is being used by a few practitioners elsewhere.

Although both Tomatis and Berard treat a variety of problems, dyslexia in particular, which they attribute, at least in many cases, to faulty auditory processing, autistic patients represent only a small part of the practices of the Tomatis Centers, and of Berard. Nevertheless, a number of families with autistic children have had their children treated by Tomatis or Berard with what are surprisingly often positive evaluations.

The Berard treatment consists of 10 hours of listening to music which has been played through Berard's electronic modulating device. The patient is first given a careful audiogram by Berard to ascertain the peaks on the audiogram. Berard points out that audiograms are typically concerned with the valleys—the areas of impaired auditory acuity—with very little attention paid to the peaks which represent the frequencies at which the hearing is hyperacute, and therefore quite possibly a source of pain or discomfort.

Based on the results of the audiometric testing, Berard sets the frequency filters on his device so that the patient is protected from hearing the sounds to which he or she is hypersensitive. Specially-selected music is played through earphones into both ears. The electronic circuitry has been designed so that the music entering each ear is briefly interrupted and restarted in an unpredictable pattern. One might say that the entire hearing apparatus is thus exercised by the electronically modified music, which is played rather loudly, but not loudly enough to be painful or uncomfortable.

The 10 hours of Berard's treatment are usually divided into 20 half hour sessions, given over 10-day period. A second audiometric test is generally conducted at the end of a fifth day, so that the filters may be reset, depending on the effects of the first five days (10 sessions) of auditory training.

The Tomatis approach, which is based on

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"What's holding up the aversives report?"

This headline appeared over an investigative report in a recent *Science* (August 31), based on an inquiry into the unprecedented delay in publishing the report of the September 1989 NIH conference on the treatment of self-injurious and aggressive behavior. The conference panel concluded that aversives are sometimes needed in dealing with destructive behavior.

ARRI had announced (3/4) that the final report would be published by NIH in January 1990, but as of late November 1990 it is still not available. NIH had gone to great lengths to assure that its blue ribbon panel of highly qualified and respected professionals consisted only of persons who had never taken a partisan stand on the issue

of aversives. Nevertheless, the *Science* article observes, certain officials within HEW, NIH's parent organization, committed to the anti-aversive ideology, insist that the report is biased. They appear to be resorting to political pressure to suppress the report.

ARRI urges the anti-aversive activists to acknowledge that regardless of how noble they feel their cause to be, they do not have the right to deny the rest of us our right to read and consider the findings of the panel of respected scientists who have studied and discussed the aversives issue. Advocacy, even for a misguided cause, is acceptable in this country. Censorship and suppression of information are not.

—B.R.