

Editor's Column

Physical exercise and autism

By Bernard Rimland, Ph.D.

Vigorous physical exercise. Great stuff! We all know it's good for us. Helps our hearts, lungs, muscles, joints. No doubt it's good for autistic children too, although most of them are as healthy as bears already. Hold on! You're saying it helps the behavior of autistic children? Really? How strange!

In this issue of the ARRI, I would like to review a research area which first piqued my curiosity in the mid-1960s, when several parents mentioned, in letters and phone calls, that they had noticed periods of good behavior tended to occur in their autistic children quite consistently after vigorous exercise.

I began receiving these letters and phone calls from parents soon after my book *Infantile Autism* was published in 1964. Some of the information gained from these communications has provided valuable research leads. Our work on vitamin therapy for autism, confirmed by a dozen research studies, began in just that way.

Intrigued by the reports of improved behavior following physical activity, I included a question about the effects of "vigorous exercise" in the questionnaire (Form E-3) I designed as a means of collecting systematic data from the many hundreds of parents who had written or called me. The first E-3 questionnaire was mailed to parents in 1967; our most recent analysis was based on nearly 3500 completed forms. Of the 1286 parents who responded to the question about "vigorous exercise":

48% reported improvement
45% reported no effect
7% reported worsening of behavior.

These are very good results, compared to parent ratings of the average effectiveness of the 12 most popular drugs used in autism:

28% reported improvement
42% reported no effect
30% reported worsening of behavior.

Among the types of therapy rated by parents responding to our Form E-3 questionnaire is "patterning," the hands-on, systematic exercising of autistic children by their parents and (usually) teams of volunteers, as advocated by Glenn Doman and Carl Delacato. While the treatment is not identical to vigorous voluntary exercise by the unassisted child, the results (based on 255 parent reports) are quite similar:

53% reported improvement
43% reported no effect
4% reported worsening.

While many schools for autistic children recognize that these children, like non-disabled children, need exercise, probably none have placed as much emphasis on *vigorous* exercise as an integral part of the curriculum as has Dr. Kiyoko Kitahara's Higashi School. On visiting the school in Tokyo in early 1987, and later in Boston, I was impressed with the energy output expected of both the students and their teachers. That may be part of the reason the Higashi School seems to do so well with its autistic students (see ARRI Volume 1, Number 2; also this issue, page 6).

Holding as exercise

Another form of therapy usually evincing vigorous large muscle responses from autistic children is holding therapy. The usual reaction of a child to being physically enveloped and restrained by a larger person is enraged, physically exhausting struggle. Although controlled studies of holding therapy have not been done, and in fact are probably impossible to conduct, there is a surprising amount of evidence, converging from a variety of American and European sources, which suggests that holding therapy may in fact be helpful to some, perhaps many, autistic children. Psychiatrist Martha Welch, the foremost proponent of holding therapy, feels that autism represents a failure of normal mother-child bonding to take place, and

It is possible that holding does not restore maternal-infant bonds, but rather stimulates the brain's production of endorphins.

believes that holding stimulates the development of the bond. Like most others in the autism field, I do not subscribe to the failed maternal bond theory. In my article on holding therapy (Volume 1, Number 3) I propose a number of biological explanations which could account for the efficacy of holding therapy, if it in fact proves to be efficacious. To her credit, Dr. Welch recognizes in her new book *Holding Time* that alternate explanations, such as the release of endorphins by vigorous exercise, offer competing hypotheses to her maternal bonding concept. (Another physiological consequence of holding therapy, as well as of most other forms of teaching/therapy, is the demand placed on the child to pay attention. This may be the most important aspect of any treatment for autism, and will be addressed in a forthcoming issue of ARRI.)

Assume for the moment that vigorous physical exercise does in fact bring about significantly improved behavior in the autistic person. What are the implications?

1. Obviously, ensure that vigorous exercise is available to—better yet, required of—all autistic persons. (Interesting legal points: does the term "least restrictive" environment excuse a sedentary self-stimulating autistic person from being required to run laps around the gym? Can requiring a person to exercise be legally deemed aversive?)

2. Conduct research to find why vigorous physical exercise improves behavior, so that its effects can be enhanced and amplified. The words are simple; the problems are not. Some of the ways in which vigorous physical exercise may produce benefits include:

- increased oxygenation of the blood and hence the brain
- production of endorphins or other beneficial substances
- stimulation of the cerebellum and other areas of the brain through increased vestibular and proprioceptive neural impulses.

So far as I know, no researchers are currently exploring these ideas. Biochemists could probably develop drugs, or better, nutrients, which would multiply the effects of exercise. Equipment could be developed, both mechanical and electronic, which could maximize the benefits that exercise confers. (Have you seen the ads for the lazy man's exercise equipment which develops your muscles with mild electric current applied to your arms and legs while you doze or watch TV?) Physical and occupational therapists have made remarkable progress in recent years in devising some of the equipment and techniques required.

Vigorous physical exercise is certainly not the cure for autism, but it deserves a great deal more attention than it has been given to date. The next issue of the ARRI will contain a review of recent studies of the effects of physical exercise on autistic and other severely developmentally disabled individuals.

A final note . . .

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