

## GUEST EDITORIAL

# AUTISM: ASKING THE RIGHT QUESTIONS TO FIND THE RIGHT ANSWERS

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In the May 2008 issue of *Autism Advances*, I authored an article entitled "Functional Medicine: The Way to Treat Autism Now." In the article I proposed that autism is not a singular disease but rather a name describing a series of signs and symptoms that may result from several different causes. The outcome that we call autism in this model is the result of a unique connection between genes and environment in a given child. In order to understand the origin of what we call "autism" in a specific child, we need to know both the genetic susceptibility factors and the environmental modulators that result in the expression of the affect that results in the diagnosis. This approach is consistent with the functional medicine model of disease, where knowing the origin of the physiological disturbance is more important than what it is called.

As I reflected on this model for the origin of autism over the past few months, I recognized that this concept is consistent with the underlying concepts that have guided the development over the past 60 years of the therapeutic program found at the Institutes for the Achievement of Human Potential in Philadelphia. The Institutes has worked with brain-injured children and their families from around the world. Many of the children they have helped have had what they call "mid-brain injuries." From the traditional medical diagnostic perspective, the majority of these children would be defined as "autistic." The Institutes, under the leadership of Glenn Doman, pioneered the development and application of 5 core principles for the treatment of children with brain injuries based upon the gene-environment interaction model<sup>1</sup>:

1. Therapy should supply basic discrete bits of information to the brain for storage.
2. Therapy should challenge the brain to provide an immediate response to a basic discrete bit of information that has been supplied.
3. Therapy must assist in the programming of the brain for improved functional response.
4. Therapy must be iterative in nature to allow reinforcement of a functional response.
5. Therapy must harness all stimuli that influence brain

function, including sight, sound, touch, kinesis, nutrition, oxygen, hydration, cardiopulmonary function, and immune status.

This model has been translated into a clinical program that is taught to parents and reinforced in their children through daily practice. It is time-consuming and at times demanding of parents, but in many cases the results are remarkable.

In 1960, Doman et al authored a paper in *JAMA* in which they described the application of this concept to 76 children who had brain injuries.<sup>2</sup> No children were eliminated from this study despite the severity of their brain injuries. These children were brain-injured to the extent that the prevailing medical opinion was that it was unlikely that they would regain significant motor function. The children were neurologically evaluated before and after 2 years of therapy with the Institutes' program. The outcome was remarkable. There was marked functional improvement in all indices of performance, both physical and mental. The results far exceeded those that would be expected of a traditional medical approach focused on treating the individual symptoms. This result is a "proof of concept" of the model described by Gesell in the 1940s to use an enriched environment that allows a child to use and exploit uninjured regions of the brain.<sup>3</sup>

More recently, Pelligra et al described the treatment at the Institutes of 2 young girls who had been diagnosed with Rett Syndrome.<sup>4</sup> This progressive degenerative neurological condition, seen exclusively in girls, is characterized by autism, akinesia, and later, seizures and respiratory disorders. The condition is associated with mild changes in the functional EEG, but otherwise the laboratory findings are usually normal. More recently it has been found that children with Rett Syndrome have associated disorders of the noradrenergic, serotonergic, and dopaminergic systems in the locus ceruleus, raphe nucleus, and substantia nigra. The application of the Institutes' program, which included a respiratory patterning component employing structured oxygen-carbon dioxide inhalation, resulted in marked improvement of the 2 girls with Rett Syndrome and a shift toward normalization of their metabolite patterns indicating improvement in their noradrenergic, serotonergic, and dopaminergic functions. This raises the proposition that in some forms of neurological dysfunction, brain oxygen may be the "limiting nutrient," and therapies designed to deliver improved brain oxygenation can be of value. It is well known that brain ischemia is associated with a significant increase in neurological oxidative stress that in turn

alters central nervous system bioenergetic potential, which then can result in altered neurotransmitter activity.

In 1942, Temple Fay, a professor and head of the Department of Neurology and Neurosurgery at Temple University School of Medicine, suggested that seizures were the natural response to specific regions of the brain lacking proper oxygenation and that the seizure provided oxygen to these regions.<sup>5</sup> Therapies such as those developed by the Institutes improve oxygen delivery to the brain and are associated with decreased seizure activity in children who are engaged in the program.<sup>6</sup> In a recent paper, Doman and Pelligra proposed that efforts to prevent and control seizures should be directed away from pharma-chemical suppression and toward removing the causes of the disturbed neuronal energy production that promote an optimized physiological milieu within the brain.<sup>7</sup> The success the Institutes for the Achievement of Human Potential has had with eliminating brain-injured children's seizures demonstrates the clinical utility of this approach. It uses all therapeutic tools directed toward the improvement of the child's neurological environment, including movement, respiratory patterning, programmed kinesthetics, nutrition and nutrient therapy, and tactile and auditory stimulation.

It seems a long way from Rett Syndrome and children with seizures to the discussion of children with autism. But is it really a long way? Possibly the concepts that underlie the Institutes' program are applicable to children with various forms of autism spectrum disorders. In 1994, Glenn Doman was the first recipient of the Linus Pauling Functional Medicine Award. The award was given to him in recognition of the 50 years of work he has dedicated to finding ways to help children with various brain injuries. Many of the hundreds of thousands of children that have benefitted from the Institutes' program have been diagnosed as "autistic." There are few things that have made more an impact on me than the benefit I have had of witnessing transformations in many of these children over the past 15 years through my visits to the Institutes and my getting to know many of the children, their parents, and the clinical staff. I have even witnessed the improvement in function of a child diagnosed with autism spectrum disorder in my own extended family after his parents applied the Institutes' program. The most powerful "proof concept" is witnessing the change in a child with limited function who "graduates to life" with full functional capability after years of being involved in the Institutes' program. I have had this remarkable experience time and time again at my visits to the Institutes.

Upon reflection, I recognize that the program at the Institutes for the Achievement of Human Potential is the quintessential functional neurology program. It shares all the concepts that underlie the principles of the Institute for Functional Medicine. Within its formalization and therapies may lie the solution to autism. It is not that these children's brains are injured but rather that the interaction between their genetic uniqueness and their environment is suboptimal. The Institutes' program may provide the missing ingredients necessary for children to achieve their potential. I would encourage any clinician

who is interested in a functional medicine approach to the management of complex neurological conditions in children to visit the Institutes for the Achievement of Human Potential. It will provide a powerful reminder of what is possible in this challenging clinical area.

#### REFERENCES

1. Doman G. *Fundamental Principles for the Management of Brain Injured Children*. Philadelphia, Pennsylvania: Institute for the Achievement of Human Potential; 2005.
2. Doman RJ, Spitz EB, Zucman E, Delacato DH, Doman G. Children with severe brain injuries. Neurological organization in terms of mobility. *JAMA*. 1960 Sep 17;174:257-262.
3. Gesell AL. *Infant and Child in Culture of Today: Guidance of Development of Home and Nursery School*. New York, NY: Harper and Row; 1943.
4. Pelligra R, Norton RD, Wilkinson R, Leon HA, Matson WR. Rett syndrome: stimulation of endogenous biogenic amines. *Neuropediatrics*. 1992;23(3):131-137.
5. Fay T. The other side of a fit. *Am J Psychiatry*. 1942;99(2):196-200.
6. Doman G, Pelligra R. Ictogenesis: the origin of seizures in human. A new look at an old theory. *Med Hypotheses*. 2003;60(1):129-132.
7. Doman G, Pelligra R. A unifying concept of seizure onset and termination. *Med Hypotheses*. 2004;62(5):740-745.