

AMERICAN ACADEMY OF PEDIATRICS

Committee on Children With Disabilities

The Treatment of Neurologically Impaired Children Using Patterning

ABSTRACT. This statement reviews patterning as a treatment for children with neurologic impairments. This treatment is based on an outmoded and oversimplified theory of brain development. Current information does not support the claims of proponents that this treatment is efficacious, and its use continues to be unwarranted.

ABBREVIATION. AAP, American Academy of Pediatrics.

Patterning has been advocated for more than 40 years for treating children with brain damage and other disorders, such as learning disabilities, Down syndrome, cerebral palsy, and autism.¹⁻⁵ A number of organizations have issued cautionary statements about claims for efficacy of this therapy,⁶⁻¹⁰ including the American Academy of Pediatrics (AAP) in 1968 and 1982.^{3,11} Media coverage,¹² inquiries from parents and public officials, the use of alternative forms of treatment by parents for their children,¹³ and the existence of a new generation of pediatricians who may be unaware of the programs that involve patterning have prompted the AAP to review the current status of this controversial treatment.

Patterning is a series of exercises designed to improve the "neurologic organization" of a child's neurologic impairments. It requires that these exercises be performed over many hours during the day by several persons who manipulate a child's head and extremities in patterns purporting to simulate prenatal and postnatal movements of nonimpaired children.¹⁴ Concern about patterning has been raised because promotional methods have made it difficult for parents to refuse treatment for their children without questioning their motivation and adequacy as parents.³ Moreover, dire health consequences for children are implied if parents do not make arrangements to have their child begin patterning.

Several treatment options are offered, ranging from a home program to an intensive treatment program, which states that each succeeding option "offers greater chance of success." Participation in the intensive treatment program requires completion of 3 of the 5 preceding programs, is by invitation only for the "most capable families," and potentially could deplete substantially a family's financial resources. The regimens prescribed can be so demand-

ing, time-consuming, and inflexible that they may place considerable stress on parents and lead them to neglect other family members.^{15,16(pp251-252)}

Patterning programs use a developmental profile designed by the Institute for the Achievement of Human Potential both to assess a child's neurologic functioning and to document change over time.^{16(p40)}¹⁷ However, the validity of using this profile for these domains has not been demonstrated, nor has it been compared with currently accepted methods of measuring a child's development. In addition to making claims that a number of conditions may be improved or cured by patterning, proponents of the program assert that patterning can make healthy children superior in physical and cognitive skills.¹⁸⁻²²

The aims of treatment programs include attainment of normality of physical, intellectual, and social growth in children with brain injuries. According to providers of patterning therapy,¹ the majority of children treated are claimed to achieve at least 1 of those goals. To our knowledge, however, no new data have been presented to support the use of patterning since the AAP reissued its policy statement in 1982. The lack of supporting evidence for the use of this therapy brings into question once again its effectiveness in neurologically impaired children.

THE THEORY

Neurologic organization, the principle central to the patterning theory of brain functioning, is an oversimplified concept of hemispheric dominance and the relationship of individual sequential phylogenetic development.^{16,23-25} This theory also states that failure to complete properly any stage of neurologic organization adversely affects all subsequent stages and that the best way to treat a damaged nervous system is "to regress to more primitive modes of function and to practice them."¹⁷ According to this theory, the majority of cases of mental retardation, learning problems, and behavior disorders are caused by brain damage or improper neurologic organization, and these problems lie on a single continuum of brain damage, for which the most effective treatments are those advocated by patterning.^{3,16}

Current information does not support these contentions. In particular, the lack of dominance or sidedness probably is not an important factor in the cause of, or the therapy for, these conditions.^{3,16,17} Several careful reviews of the theory have concluded that it is unsupported, contradicted, or without merit based on scientific study.^{16,17,23,25} Others have described the hypothesis of neuro-

The recommendations in this statement do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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logic organization to be without merit²³ and concluded that the theoretical rationale for the treatment is inconsistent with accepted views of neurologic development.^{24,27(pp207-235)28(pp207-247)}

STATUS OF CLAIMED THERAPEUTIC RESULTS

Results published on patterning have been inconclusive.²⁹⁻³¹ Although reports of improvement in reading ability after treatment have been heralded as support for the theory,^{32,33} statistical analysis revealed few demonstrable benefits.^{34,35} Controlled studies of reading skills have shown little or no benefit from treatment.^{16(pp333-352)36-38}

Some disabled children who purportedly benefited from treatment had been given a misdiagnosis or an unduly pessimistic prognosis. The course of maturation in children with neurologic impairments varies, which leads to unwarranted claims that improvements in their conditions were the result of a specific form of treatment.^{17,39} Some of the cases publicized involved children with traumatic brain injury or encephalitis, who may make substantial health improvements without special treatment.

A well-controlled investigation⁴⁰ compared 3 groups of children, all of whom were severely mentally disabled and institutionalized. One group received patterning, a second was treated by motivational techniques, and a third received routine care. Using a wide variety of behavioral measures, the investigators found no significant differences among the 3 groups. On the basis of this study, the investigators found nothing to recommend patterning treatment over routine care.⁴⁰ They concluded that patterning cannot be considered superior to any other method of treatment for institutionalized mentally disabled children.

Other less well-designed studies^{41,42} also investigated the effect of patterning therapy on children with a heterogeneous range of disabilities. One showed a significant, but short-term, effect on developmental progress in comparison with that attained by children receiving traditional programs in New Zealand.⁴¹ The investigators disclosed that the relative success of the program was linked to the families' desire to take greater responsibility for their children's education. Another investigation demonstrated no significant progress in the development of mentally disabled children who had undergone patterning therapy.⁴² A review of the use of patterning to arouse children in a coma and for sensory stimulation in brain-injured children and adults also gave no scientific evidence or theoretical rationale for its use.⁴³

CONCLUSION AND RECOMMENDATION

Pediatricians need to work closely with the families of their patients with neurologic disabilities and ensure that they have access to all standard services available in their communities. After the proper diagnosis is made, physicians should discuss controversial treatments as part of the child's initial management plan. Pediatricians, therefore, need to be acquainted with routine and controversial treatments, schedule ample time for their discussion, and

explain to parents the placebo effect and the importance of basing treatment decisions on controlled research trials.

Treatment programs that offer patterning remain unfounded; ie, they are based on oversimplified theories, are claimed to be effective for a variety of unrelated conditions, and are supported by case reports or anecdotal data and not by carefully designed research studies. In most cases, improvement observed in patients undergoing this method of treatment can be accounted for based on growth and development, the intensive practice of certain isolated skills, or the nonspecific effects of intensive stimulation.

Physicians and therapists need to remain aware of the issues in the controversy over this specific treatment and the available evidence. On the basis of past and current analyses, studies, and reports, the AAP concludes that patterning treatment continues to offer no special merit, that the claims of its advocates remain unproved, and that the demands and expectations placed on families are so great that in some cases their financial resources may be depleted substantially and parental and sibling relationships could be stressed.

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REFERENCES

1. Institutes for the Achievement of Human Potential. *Informational Bulletin*. Available at: <http://www.iahp.org>. Accessed August 8, 1999
2. Golden GS. Nonstandard therapies in the developmental disabilities. *Am J Dis Child*. 1980;134:487-491
3. American Academy of Pediatrics, Committee on Children With Disabilities. The Doman-Delacato treatment of neurologically handicapped children. *Pediatrics*. 1982;70:810-812
4. Landman GB. Alternative therapies. In: Levine MD, Carey WB, Crocker

- AC, eds. *Developmental/Behavioral Pediatrics*. Philadelphia, PA: WB Saunders Co; 1992:754–758
5. Nickel RE. Controversial therapies in young children with developmental disabilities. *Infants and Young Children*. 1996;8:29–40
 6. American Academy for Cerebral Palsy. Doman-Delacato treatment of neurologically handicapped children. Statement of Executive Committee. Rosemont, IL: American Academy for Cerebral Palsy; February 15, 1965
 7. United Cerebral Palsy Association of Texas. *The Doman-Delacato Treatment of Neurologically Handicapped Children* [information bulletin, undated]. Austin, TX: United Cerebral Palsy Association of Texas
 8. Canadian Association for Retarded Children. Institutes for the Achievement of Human Potential. *Ment Retard*. Fall 1965:27–28
 9. American Academy of Neurology and American Academy of Pediatrics. Joint Executive Board Statement. The Doman-Delacato treatment of neurologically handicapped children. *Neurology*. 1967;17:637
 10. American Academy of Physical Medicine and Rehabilitation. Doman-Delacato treatment of neurologically handicapped children. *Arch Phys Med Rehabil*. 1968;49:183–186
 11. American Academy of Pediatrics. Doman-Delacato treatment of neurologically handicapped children. *AAP Newsletter*. June 1, 1968(suppl)
 12. Sharpe R. Better babies. *Wall Street Journal*. July 18, 1994;col 1, p 1, sec A
 13. Spigelblatt L, Laine-Ammara G, Pless IB, Guyver A. The use of alternative medicine by children. *Pediatrics*. 1994;94:811–814
 14. Zigler E. A plea to end the use of the patterning treatment for retarded children. *Am J Orthopsychiatry*. 1981;51:388–390
 15. Freeman RD. Controversy over “patterning” as treatment for brain damage in children. *JAMA*. 1967;202:385–388
 16. Cummins RA. *The Neurologically Impaired Child: Doman-Delacato Techniques Reappraised*. New York, NY: Croom Helm; 1988
 17. Chapanis NP. The patterning method of therapy: a critique. In: Black P, ed. *Brain Dysfunction in Children: Etiology, Diagnosis, and Management*. New York, NY: Raven Press; 1982:265–280
 18. Doman G. *How to Teach Your Baby to Read: The Gentle Revolution*. Garden City Park, NY: Avery Publishing Group; 1994
 19. Doman GJ. *Teach Your Baby Math*. New York, NY: Simon and Schuster; 1979
 20. Doman G, Doman J. *How to Multiply Your Baby's Intelligence*. Garden City Park, NY: Avery Publishing Group; 1994
 21. Doman G, Doman J, Aisen S. *How to Give Your Baby Encyclopedic Knowledge*. Garden City Park, NY: Avery Publishing Group; 1994
 22. Doman G, Doman D, Hagy B. *How to Teach Your Baby To Be Physically Superb: More Gentle Revolution*. New York, NY: Doubleday; 1988
 23. Robbins MP, Glass GV. The Doman-Delacato rationale: a critical analysis. In: Hellmuth J, ed. *Educational Therapy*. Seattle, WA: Special Child Publications; 1968
 24. Cohen HJ, Birch HG, Taft LT. Some considerations for evaluating the Doman-Delacato “patterning” method. *Pediatrics*. 1970;45:302–314
 25. Silver LB. Controversial therapies. *J Child Neurol*. 1995;(suppl 1): S96–S100
 26. Zigler E, Seitz V. On “an experimental evaluation of sensorimotor patterning”: a critique. *Am J Ment Defic*. 1975;79:483–492
 27. Molfese DL, Segalowitz SJ. *Brain Lateralization in Children: Developmental Implications*. New York, NY: Guilford Press; 1988
 28. Springer SP, Deutsch G. *Left Brain, Right Brain*. New York: WH Freeman; 1989
 29. Institutes for the Achievement of Human Potential. *A Summary of Concepts, Procedures, and Organization*. Philadelphia, PA: Institutes for the Achievement of Human Potential; 1964
 30. Doman RJ, Spitz ER, Zucman E, Delacato CH, Doman G. Children with severe brain injuries: neurological organization in terms of mobility. *JAMA*. 1960;174:257–262
 31. Freeman RD. An investigation of the Doman-Delacato theory of neuropsychology as it applies to trainable mentally retarded children in public schools. *J Pediatr*. 1967;71:914–915. Book review
 32. Delacato CH. *The Diagnosis and Treatment of Speech and Reading Problems*. Springfield, IL: Charles C. Thomas Publishers; 1963
 33. Delacato CH. *Neurological Organization and Reading*. Springfield, IL: Charles C. Thomas Publishers; 1966
 34. Neman R, Roos P, McCann RM, Menolascino FJ, Heal LW. Experimental evaluation of sensorimotor patterning used with mentally retarded children. *Am J Ment Defic*. 1975;79:372
 35. Money J. Reading disorders in children. In: *Brenneman-Kelly Practice of Pediatrics, IV*. Hagerstown, MD: Paul B. Hoeber Inc; 1967;chap 14A:1–14
 36. Robbins MP. A study of the validity of Delacato’s theory of neurological organization. *Except Child*. 1966;32:517–523
 37. Robbins MP. Creeping, laterality and reading. *Acad Ther Q*. 1966;1: 200–206
 38. Robbins MP. Test of the Doman-Delacato rationale with retarded readers. *JAMA*. 1967;202:389–393
 39. Masland RL. Unproven methods of treatment. *Pediatrics*. 1966;37: 713–714
 40. Sparrow S, Zigler E. Evaluation of a patterning treatment for retarded children. *Pediatrics*. 1978;62:137–150
 41. Bridgman GD, Cushen W, Cooper DM, Williams RJ. The evaluation of sensorimotor-patterning and the persistence of belief. *Br J Ment Subnormality*. 1985;31:67–79
 42. MacKay DN, Gollogly J, McDonald G. The Doman-Delacato methods, I: the principles of neurological organization. *Br J Ment Subnormality*. 1986;32:3–19
 43. Cummins RA. Coma arousal and sensory stimulation: an evaluation of the Doman-Delacato approach. *Aust Psychol*. 1992;27:71–77

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