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ABSTRACT

Research into visual, perceptual, and motor coordination suggests that the kind of physical activity and coordination involved in swimming might prevent some cases of dyslexia and improve the academic performance of many learning disabled children. Early neurological development shows a relationship among the creeping period, later communication skills, and visual coordination. Failure to develop bilaterality during the creeping stage may be related to eventual reading problems. Swimming demands of the child the mastery of neurological activities he may have missed earlier. Swimming provides the patterning experiences suggested by Carl Delacato and Glenn Doman in an atmosphere of fun. Improved swimming skills have been observed to parallel academic improvement. Instructional pools should be constructed in all elementary schools. (DB)

SPLASH

BY

Amy T. Hoopes

SPLASH DOWN TO READING

SPLASH! That was Tom. He just jumped in the water and is doggie paddling. One look and it appears Tom is just goofing off, getting wet behind the ears. Could it be that Tom will be a better reader just because now he's all wet?

Tom is five, a runabout with his kindergarten debut right around the corner. There are lots of Toms, but too many of them will later face a reading problem that becomes life's stumbling block.

Can swimming be the solution to numerous reading problems? First let us examine the very young child. Carl H. Delacato has studied the neurological stages of development in terms of audition, vision and movement.[1] The earliest crawling movements are one-sided; the child moves on his stomach using the arm and leg on the same side of his body. At this stage he is using just one eye at a time or biocular vision. He cannot place sounds in space.

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[1] Carl H. Delacato, A New Start for the Child With Reading Problems (New York: David McKay Company, Inc., 1970), pp. 64-65.

Delacato points to the second stage between six months and one year when the child creeps in a cross pattern as the time the eyes begin to work together, the time when binocularity is established. The two ears work together and begin to locate sounds in space. With each movement the infant also turns his head toward the forward hand and by alternating sides his eyes and ears are forced into new patterns of perception.[2] Here we see the relationship between the creeping period and later communication skills.

At the end of the third stage the child is walking and saying a couple of words and has mastered both the specialized and simultaneous use of his brain and body. Between eighteen months and two years he moves into the final stage when one of the two halves of his brain become dominant. This final stage is usually complete at six or seven years of age.[3] According to Delacato symptoms of reading and language difficulty appear when there is a conflict between one side of the brain and the other to gain language dominance.

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[2] Ibid., p.66.

[3] Ibid., p.69.

Creeping and crawling are considered to be crucial to vision, according to Robert A. Kraskin, O.D. He states, "Babies who have been restricted by lack of space or excessive germ-consciousness on the mother's part are likliest to have developmental visual problems - crossed eyes, amblyopia, imbalance of the two eyes."[4] In his book You Can Improve Your Vision, Dr. Kraskin explains that visual training aims at integrating eyesight, mental development and control of the nervous and muscular systems.[5] It does not eliminate what is wrong but develops a more efficient system. (This theory should not be confused with the theory set forth in Sight Without Glasses by William H. Bates). Dr. Kraskin sees difficulty in motor activities as a signal to improve motor development in order to spare the child a rough road throughout school years.[6]

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[4] Robert A Kraskin, You Can Improve Your Vision (New York: Doubleday & Co., 1968), p.42.

[5] Ibid., p.16.

[6] Ibid., p.49.

Vision, once thought of solely in terms of the eyes, is considered by those in the visual training area as pervading a person's whole make-up.[7] "The retina of the eye is an extension of the brain," Gesoll Instituto's Dr. Streff points out. We see not just with out eyes, but by combining all the sensations from the balls of the feet on up.

The classical view concerning vision is that the eyes are like two cameras - each with an aperture, lens and retina - having a shape and focusing ability that is predetermined by our genes before birth. Visual training proponents see that focusing ability responds to circumstances - that the flexibility which caused the system to develop the problem will work to resolve the problem when conditions are changed.[8]

Most visual training is not for children with specific visual defects but for those who are chronic underachievers falling below the performance of their schoolmates. Some of these children have 20/20 eyesight.

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[7] Charles A. Cerami, "Your Child's Vision Can Be Improved," Woman's Day, April, 1966.

[8] Kraskin, op. cit., p.2.

What do eye authorities say about reading problems? A joint organizational statement on "The Eye and Learning Disabilities" adopted by the American Academy of Pediatrics, the American Academy of Opthalmology and Otolaryngology and the American Association of Opthalmology states: 1) Eye care should never be instituted in isolation when a patient has a reading problem, and 2) ...there is no peripheral eye defect which produces dylexia and associated learning disabilities.[9] Eye defects do not cause reversals of letters, words, or numbers.

The statement goes on to say that there is no known scientific evidence which supports claims for improving the academic abilities of learning disabled ~~disabilities~~ or dylexia children with treatment based solely on: a) visual training (muscle exercises, ocular pursuit, glasses), and b) neurologic organizational training (laterality training, balance board, perceptual training).

The statement terms the teaching of learning-disabled and dylexia children "a problem of educational science," noting that no one approach is applicable to all children.

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[9] Ad Hoc Committee of the American Academy of Pediatrics, The American Academy of Opthalmology and Otolaryngology, and the American Association of Ophthalmology, "The Eye and Learning Disabilities," 1972.

"Since remediation may be more effective during the early years, it is important for the physician to recognize the child with this problem and refer him to the appropriate service, if available, before he is of school age."[10]

What happens to the child who is not recognized? What happens?

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10 Ibid.

LEFT RIGHT

As with any problem the answer depends upon a clear definition. To date there have been myriad answers but no concise statement of the reading problem. If it is a matter of poor teaching, then programs and methods must be checked. But these have been scrutinized ad nauseam.

A look at the human body may offer a crucial clue. Man's external form is bilateral.[1] Internally there is much asymetry. Bilaterality is discussed by G.N. Getman, O.D. who states that many chronic ailments result from the lack of freedom in bilaterality.[2] Harmon has shown that dental problems and communicable illnesses (as well as visual problems) are more prevalent in the children who lack full freedom of movements in both halves of their body.[3]

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1 James Tanner et al. Growth (New York: Time Inc., 1965), p. 119.

2 G.N.Getman, How to Develop Your Child's Intelligence (Wayne:Pennsylvania: Research Publications, 1962), p. 62.

3 D.B. Harmon, "Some Preliminary Observations on the Developmental Problems of 160,000 Elementary School Children, "Medical Women's Journal (March, 1942).

Even in an eyeless animal the division of his body into right and left halves is crucial to his existence as he is capable of light oriented movement only if this division exists.[4]

Is it possible that THE LACK OF BILATERALITY IS AT THE CRUX OF MOST READING PROBLEMS?

The link between the world of sense, the brain's control center, and movement are discussed by Rick Gore in his article "The Neuron:"

> Movement of all sorts so affects our perception that many scientists are beginning to think we have a separate visual system devoted to it-centered in two little mounds, the superior colliculi, buried deeply in an old part of the brain. [5]

Newell Kephart, noted for his work in the field of special education, refers to motor and kinesthetic orientation as necessary for ocular movement.[6]

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[4] Wolfgang von Buddenbrock, The Senses (Ann Arbor: Michigan: The University of Michigan Press, 1958), pp.70-71.

[5] Rick Gore, "The Neuron," LIFE, October 22, 1971

[6] N.C.Kephart, The Slow Learner in the Classroom (Columbus:Ohio: Charles E. Merrill Publishing Company, 1971), p. 140.

The link between movement and vision becomes even more plausible when we look at a study of 160,000 children in Texas schools. Forty per cent of these children had vision problems by the age of eight. Since only about two and one-half per cent of infants have defective eyes to begin with, the study indicated that the early learning years must cause dreadful disturbances to the visual system.[7]

Are the early learning years providing movement experiences which correlate with what we now know of growth patterns within the child? Are children involved in experiences which will ensure that they are neurologically organized? If a child has bypassed certain neurological activities, then he must be placed in a situation which demands that he master the activities he has missed. SWIMMING MAKES THIS DEMAND.

Patterning has been a subject of much controversary. Delacato, known for his work with brain damaged children, suggests re-imprinting the early stages of brain dominance by repeating in the brain the early stages in creeping and crawling that develop the receptivity of the language area of the brain.

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[7] Cerami, op. cit.

The American Medical Association, critical of the patterning therapy as performed by Doman-Delacato at The Institues for the Achievement of Human Potential at Philadelphia, cites two main objections of "undocumented claims" and "extreme demands placed upon parents." [8]

The child patient under the Doman-Delacato theory goes through daily routine of creeping and crawling as well as a series of limb manipulations. According to the theory such exercises produce permanent neurological changes and improve the child's condition. The statement by joint medical authorities concludes:

> There is no empirical evidence to substantiate the value of either the theory or practice of neurological organization ... If the theory is to be taken seriously ...its advocates are under an obligation to provide reasonable support for the tenets of the theory and a series of experimental investigations, consistent with scientific standards, which test the efficacy of the rationale.
> To date, we know of no attempt to fulfill this obligation. [9]

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[8] Committee on the Handicapped Child with approval from the Executive Board of the American Pediatrics, "A Statement on the Doman-Delacato Treatment of Neurologically Handicapped Children," (Chicago: American Medical Association, 1972).

[9] "Doman-Delacato Therapy Termed 'Without Merit' The American Medical Association News, May 27, 1968.

This author suggests not Doman-Delacato methods, but the theory has implications for educators -- those who seek preventative rather than remedial approaches to reading problems.

Can this technique of patterning be beneficial to the slow learner and to the child with a developmental lag? Can it be accomplished in good fun?

YES. Swimming for the young child is a form of patterning -- it reiterates the creeping crawling stages. Inherent in swimming is the "look - reach" prescription which was used as part of the therapy for a "retarded" little four year old girl named Virginia and found to be successful.

Nature has set her own sequential priorities as seen by growth studies of Jesse L. Conel, who found that motor cells controlling the upper arm develop interconnections prior to those that control the hands.[10] Growth proceeds from the head down. The feet lag behind the hands in development.

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[10] James Tanner et al. Growth, (New York: Time Inc., 1965. p.

A comment by Carl Rogers is applicable here. Rogers writes, "A meticulous statistics and sophisticated research seem to carry more weight than significant observations of significant problems."[12] The very heart of this research lies in what what the author feels is a"significant observation."

As a Water Safety Instructor, I observed that improved swimming skills of the young child paralleled increased academic improvement. It was as if"readiness" took a giant step on tiptoe.

I began to visit swimming classes for neurologically and perceptually impaired children nine and ten years of age, whose problems were manifest. What would these children be like today if they had been patterened in a pool when they were four, five or six years of age, not now when the world has labeled them "slow learners, dylexia and underachievers? I saw a swimming class of boys labeled "behavioral problems" and tensions seemed to have dissolved, at least at poolside.

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12 Carl R. Rogers, Freedom to Learn (Columbus: Ohio: Charles E. Merrill Publishing Co., 1969), p.180.

How many children must falter through the grades labeled as underachievers, later as behavioral problems and then as delinquents before parents, curriculum planners, boards of education and all those concerned with the quality of education INSIST that instructional pools be constructed in all elementary schools?

There has been recent interest in swimming for the [13] -toddler which focuses on making the child water-safe. Will these children possess a reading readiness beyond that of their peers from the same environment? The answer would be of value to educators.

Glenn Doman states, "The fact is that neurological growth, which we had always considered a static and irrevocable fact, is a dynamic and ever changing process."[14] Doman stresses that this process can be speeded as well as delayed.

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[13] "Water Babies," LIFE, August 6, 1971.

[14] Glenn Doman, How to Teach Your Baby to Read (New York: Random House, 1964) forward xx.

Required swimming -- why not? The idea is now new; in fact, in Greece in the sixth century B.C. Solon included in his regulations the requirement that parents had to see that their sons learned to read, write and swim.[15] At this time in Athens, schools were private and it was the parents' responsibility to decide how and when the children were taught. Swimming was not one of the contests but rather a way of life. 'He can neither read nor swim' was a common way of describing a nitwit.'[16]

Did the Greek intuitively link swimming with learning? One can only surmise. It is interesting to note that modern day memory experts rely on techniques the Greeks discovered -- the technique of storing images which is more effective than the brain's capacity for handling words or ideas.[17]

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15 S.E. Frost, Jr., Historical and Philosophical Foundations of Western Education. (Columbus:Ohio: Charles E. Merrill Publishing Co., 1964),, p. 50.

16 George Lamb (trans.), H.I. Marrou: A History of Education in Antiquity (New York: The American Library, 1964), p. 168.

17 Will Bradbury, "The Mystery of Memory," LIFE, November 12, 1971.

Greek sculpture tells us something about their knowledge of the human body. The Greeks had mastered the problems of naturalistic representation and also had calculated that bodily elements are comensurates of a mathmatical ratio. The statue "The Dorphoros" or "Spearbearer" depicts an extensive and rather accurate knowledge of human anatomy.[18] There is a balanced cross-relationship of tense and relaxed muscles which suggests that the figure has perfect freedom of movement.

The word "orthoptics" which pertains to binocular vision and means "straight eyes" is derived from Greek origin.[19] Is it possible that the Greeks were aware that inner balance was basic to facilitate all later learning?

Could the ancient Athenians be only 2600 years ahead of our time?

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[18] David Robb and J.J. Garrison, Art in the Western World (New York: Harper & Brother Publishing Co., 1962), p. 421.

[19] Philip Pollack, The Truth About Eye Exercises Philadelphia: Chilton Co., 1965), p. 79.

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