

The Importance of Cortical Hemispheric Dominance

By: Jan Bedell, PhD., M ND.

Neurodevelopmentalists have found the major factor in long-term retention of information is cortical hemispheric dominance. That is, one hemisphere of the brain is organized to be dominant or controlling and the other to be sub-dominant. The dominant hemisphere deals with logic, cognitive thought, and the long-term memory of information, including academics. The sub-dominant hemisphere specializes in emotionality, creativity and music. Outwardly, dominance is reflected in a dominant hand, eye, ear and foot all on the same side of the body (Orton, 1938/1989 p. 39; Levinson, 1980 p. 12). Therefore, the right-handed person should also be right-eyed, eared and footed. The left-handed person should be left-eyed, eared and footed. Dominance is the result of a long process of brain organization called lateralization.

Lateralization is developed from early cross pattern movements. Changing dominance is an important step in remediation of the learning and emotional difficulties that some children with dyslexia and other learning disabilities experience. Orton, as well as Kephart (prominent in LD history), indicated commonality of dyslexics in mixed dominance and laterality issues. Interviews with dyslexics have revealed the extra energy needed to navigate life as a result of being mixed dominant which requires high levels of coping and compensating skills.

Corso (1997) has an interesting analogy describing mixed dominance: "It appears that this mixed dominance is manifested by neither or both brain hemispheres trying to act on a command. It is like two people leaving for work in the morning, both knowing they need a loaf of bread but not definitely delegating who will stop and buy the loaf of bread. They either come home at night with two loaves of bread or no bread with each person thinking the other person was going to take on the responsibility." Neurodevelopmentalists continually find that individuals that have mixed dominance in eye, ear, foot, or hand do not test well and tend to have more difficulty regulating their emotions than their peers. These difficulties often cause them to under or overreact to stimulus (Bower & Parsons, 2003 p. 54). "Under stressful emotional conditions, the sensory input is blocked from entering the cortical areas of memory storage that lie beyond the amygdale" (Willis, 2007). Weiss (2000) explains it this way: "During high-stress situations, physiologically the information takes the primary pathway through thalamus and amygdala and then moves into the cerebellum, ...but higher order and creative thinking may be lost. If we have a sense of control or choice, information travels to the cortex directly.

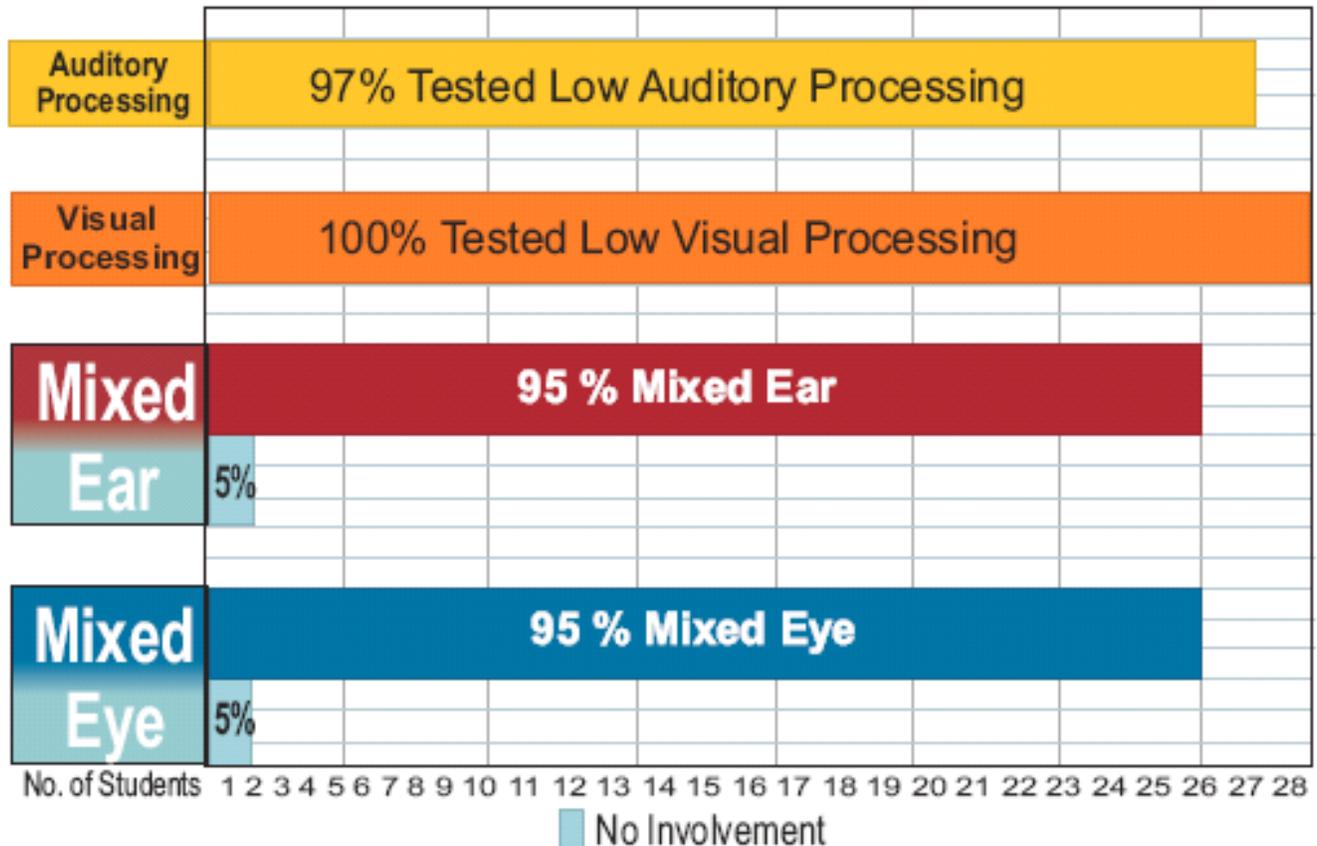
A dominant eye, which was referred to by Orton as "eyedness" has been a central theme of correction of dyslexic symptoms for Neurodevelopmentalists. The understanding of having the dominant eye on the same side of the body as the dominant hand has proven very advantageous. When Neurodevelopmentalists train parents to encourage the child's eye to become dominant in relation to the dominant hand, in addition to addressing other inefficiencies, dyslexic symptoms and other learning disability symptoms diminish and often go away entirely. Refer to Appendix A, a bar graph, which shows the percentage of dyslexic individuals (coming to the author labeled by other groups such as Scottish Rite) that had mixed dominance as well as low auditory and visual sequential processing. Orton (1938/1989), went on to say that "eyedness... is not so widely recognized as handedness, but it is probably of equal importance" (p. 30).

Yes, we see with both eyes. As ophthalmologists know, the image is directed to both hemispheres but the brain chooses one for the storage and retrieval of information. Even Orton in the 1920s hypothesized that "we learn to understand, to read, to speak, and to write words from sensory records or engrams of one hemisphere only" (Orton, 1938/1989 p. 203.; Hannaford, 1995 p. 190).

Occluding one eye for a total of four hours a day has proven beneficial in changing the eye dominance to match the dominant hand. It also allows for more efficient storage and retrieval of information. Stein (1997) found that: "...dyslexics make fewer visual reading errors if one eye is occluded and they read, with only one eye. Reading with only one eye not only reduces the visual errors made by many dyslexic children, but the majority of 8-10 year old dyslexic children with unstable binocular control who use only the right eye for all reading and number work for a few months can improve their fixation permanently."

Note: a Neurodevelopmentalist would instruct the child to read with the eye that is on the same side as their dominant hand. So in Stein's example, a left-handed child would occlude their right eye and read with their left.

Appendix A Neurodevelopmental Test Results In Dyslexic-labeled Children



References

- Bower, J. M., & Parsons, L. M. (2003). Rethinking the Lesser Brain". *Scientific American*, August, p. 50-57.
- Corso, M. (1997, April). Paper presented at the Annual International Conference of the Association for Children's Education (Portland, Or.) ED 402 549, CS 012 660
- Delacato, C.H. (1963). *The Diagnosis and Treatment of Speech and Reading Problems*.
- Diamond, M., & Hopson, J. (1998). *Magic Trees of the Mind*. New York, NY: A Plume Book.
- Doman, G., & Doman, J. (2001). *How to Multiply Your Baby's Intelligence*.
- Doman, G., Doman, D., & Hagy, B. (2006). *How to Teach Your Baby to be Physically Superb*.
- Hannaford, C. (1995). *Smart Moves*.
- Levinson, H.N. (1980). *A Solution to the Riddle Dyslexia*.
- Ness, K. (1999). *Teaching Babies* article.
Web site: http://www.littlegiantsteps.com/teaching_babies_article.php
- Orton, Samuel T. (1989) *Reading, Writing, and Speech Problems in Children*. Austin, TX: Pro-ed. (original work published 1937)
- Stein, J., & Walsh, V. (1997). "To see but not to read; the magnocellular theory of dyslexia." *TINS*, 20, No 4, 147-152.
- Weiss, R.P. (2000). "Brain-based learning." *Training and Development*, JI, 54 no7, 20-4.
- Willis, J. (2007). "Preserve the child in every learner." *Kappa Delta Pi Record*, Fall, 33-37.
- Wolf, J.M. (1968). *Temple Fay, M.D.*. Springfield, IL: Charles C. Thomas Publisher.

Little Giant Steps

Jan Bedell, Certified Neurodevelopmentalist
 P.O. Box 863624, Plano, TX 75086
 Phone (972) 758-1260 Fax (972) 325-4119
 Website: www.littlegiantsteps.com Email: office@littlegiantsteps.com