

VISION AND DYSLEXIA

Children and adults with dyslexia usually have normal healthy eyes. However, a substantial number of individuals with dyslexia have other visual problems. These problems may include inadequate development of function in the visual system, associated pathways, and brain.

Margaret Livingstone and her colleagues from the Department of Neurobiology, Harvard Medical School and the Dyslexia Research Laboratory, Beth Israel Hospital in Boston have defined dyslexia as follows: “Developmental dyslexia is the selective impairment of reading skills despite normal intelligence, sensory acuity, and instruction. Several perceptual studies have suggested that dyslexic subjects process visual information more slowly than normal subjects. Such visual abnormalities were reported to be found in more than 75% of the reading-disabled children tested.”

Although dyslexia is a reading disorder, it is not limited to language. Recent research has demonstrated the significance of visual information processing in dyslexia. The visual factors associated with dyslexia include spatial perception, timing, and rhythm. These problems may also be manifested when catching a ball, maintaining orientation for balance, tying shoelaces, and in tendencies to be accident prone, distractible or absent minded.

The teams of researchers at Harvard University and Beth Israel Hospital also reported that information in the two major processing pathways (transient and sustained systems) arrive at the visual brain centers out of sequence. As a result, for most dyslexics, words on a printed page seem to move chaotically and appear as reversals. In essence, this is a visual problem of timing and coordination. Research has shown that transient visual system deficits impact upon reading skills.

The College of Optometrists in Vision Development recommends a comprehensive evaluation which includes a thorough “eye” examination of structure and health, and a thorough “vision” examination of functions which are necessary to process visual information meaningfully. This comprehensive evaluation of vision leads to recommended management strategies including vision therapy, the application of lenses and prisms, and/or appropriate referral to other professionals. The strategies of a therapy program might emphasize:

- Development of neurological timing within the visual system
- Binocular coordination with flexibility
- Ocular movement controls with rhythm
- Visual-vestibular coordination
- Development of visual information processing
- Integration of vision with other systems in the brain

Members of the College of Optometrists in Vision Development (COVD) have a special interest in the relationship between vision and learning. Fellows of the College are certified in the diagnosis and management of learning related vision problems. For further information contact COVD or consult with a COVD member optometrist.

This informational paper was produced by the College of Optometrists in Vision Development, which board certifies qualified optometric physicians in vision therapy. For further information, see our website, www.covd.org. WP7 Rev 1/2/08 ©2008

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