

THE ROLE OF THE BEHAVIOURAL OPTOMETRIST.

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Vision and Learning

Your eyes and the visual system grow and develop from the brain, making vision a fundamental factor in thinking and learning. Advances in information technology have increased the demands placed on people to wade through a great deal of written information presented to them each day. Optometry can be of help ensuring that the issues regarding vision and learning are well understood.

Not all children with learning problems will have visual difficulties. Likewise, not all children with visual difficulties will be classified as educationally delayed. The visual problems may be primary in the development of the reading or learning difficulty, but more frequently they are contributory. (1)

Vision can be defined as the mental process of deriving meaning from what is seen. There are three inter-related areas of visual function:

- Visual pathway integrity including eye health, clarity of sight and refractive status;
- Visual efficiency including accommodation (focusing), binocular vision (eye teaming) and eye movement control (tracking);
- Visual information processing including spatial awareness, identification and discrimination, and integration with other senses.

Vision continues to develop after birth and is influenced by the visual environment and the individual's experience. If a person's visual system has not developed adequately, visually demanding activities may lead to inefficient or uncomfortable vision. Good visual acuity (clarity of sight) and healthy eyes are no assurance that an individual does not have a vision problem.

i) Managing Learning Related Vision Problems

The purpose of behavioural optometric intervention in the management of children and adults with learning disabilities is to eliminate any vision problem that may obstruct learning.

- Vision problems can and often do interfere with learning.

- People at risk for learning-related vision problems should be evaluated by an optometrist who provides diagnostic and management services in this area.
- Problems in identifying and treating people with learning-related vision problems arise if the definition of vision is limited to clarity of sight and healthy eyes.
- The goal of optometric intervention is to improve visual function and alleviate associated signs and symptoms. Prompt remediation of learning-related vision problems enhances the ability of children and adults to perform to their full potential.
- People with learning problems require help from many disciplines to meet the learning challenges they face. Behavioural optometric involvement constitutes one aspect of the multi-disciplinary management approach.

ii) Vision and Reading

The role of behavioural optometric intervention is to identify and treat vision problems that affect all aspects of learning, including reading. Much of the way we learn, both at school and in the workplace, is by reading printed information. Processing of visual information (books, newspapers, manuals, e-mail and websites, to name a few) is the dominant player, in the acquisition of information.

Individuals with reading difficulties may experience difficulty in 'learning to read' or difficulty in 'reading to learn'.(2, 3) Perhaps that person lacks concentration or comprehension, or is slow to complete the task, or experiences headaches or sore eyes or not performing as well as expected. All of these cases suggest a vision examination is required.

Individuals should receive a comprehensive optometric evaluations at 6 months, at 3.5 years of age and again in the first, third and final year of primary school and in the last year or two of high school. This covers the major times in school life when the eyes or visual demands on the individual changes. After school generally every two years re-examination is recommended.

iii) Comprehensive Behavioural Visual Examination

A comprehensive vision evaluation includes an assessment of:

- Visual pathway integrity including eye health, visual acuity and refractive status (for example, long-sightedness, astigmatism).
- Visual efficiency including accommodation (focusing), binocular vision (eye alignment and teaming).
- Visual information processing including visual spatial skills (right/left discrimination), visual analysis skills (matching and discrimination skills), visual motor skills (required for drawing and handwriting), eye movement control skills and visual imagery skills.

Treatment strategies may include the prescription of spectacles for part time, or sometimes full time wear. Advice may be given on how to adapt the environment and alter work habits to reduce the load on the visual system. Vision therapy may be prescribed to aid visual efficiency and/or visual information processing. (4, 5) Referral to another professional may be suggested. The expected outcome of optometric intervention is an improvement in visual function with the reduction of associated signs and symptoms. (6) Optometric intervention does address physical and developmental barriers to learning.(7, 8). The earlier the problem is addressed the better the long term results usually are.

iv) Vision Therapy for Children and for Learning Difficulties

Vision can be trained or learned through appropriate structured vision therapy. Your child's vision may be clear enough but they may not have developed the appropriate visual skills for reading. When reading, it is necessary for a child to keep their place along a line of text (tracking skills) as well as keeping the page in focus at the same time (focusing skills). A child with tracking or focusing difficulties is therefore more likely to have difficulty with reading. To read left to right partly requires tracking skills but also involves adequately organized visual-spatial skills. Primary visual skills required for reading are listed as follows:

Tracking and Saccades:

Scanning from letter to letter, word to word, looking ahead and predicting text, moving from one line to the next.

Visual Memory:

Skills required for word recognition and copying tasks, for example in writing, spelling and reading.

Short Term Visual Memory:

Recalling information presented quickly.

Sequencing:

Recognizing the order of number or letters in words. Left to right progression when reading and writing.

Visual Discrimination:

Recognizing subtle visual differences, i.e. between letters (b/d) and words (was/saw or big/dig).Reversals are common in younger children. However, if a child has persisting reversal issues a Behavioural Optometric assessment should be considered.

Focusing Skills:

The ability to maintain clear focus at a particular point (a word on a page) and the ability to rapidly change focus from one point to another (copying from the board to the book).

Vision Therapy can assist, overcome or minimise some learning difficulties by reducing visual inefficiencies.

References

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