

Eyesight

by Robert B. Sanet, O.D., F.C.O.V.D. and Carl G. Hillier, O.D., F.C.O.V.D.
<http://www.osteopathiccenter.org/academic.html>

What is Eyesight? What is Vision?

Eyesight, which involves the ability of the eye to distinguish small details, is only one component of eye vision.

Guide to Classroom Vision Problems

Vision is the result of the child's ability to interpret and understand the information that comes to him through his eyes. Many children can demonstrate 20/20 sight and still have a critical and interfering vision problem! It has also been shown that the informed parent and/or teacher make the very best "screening instruments" for identifying those vision problems that tend to cancel the teacher's efforts in the classroom.

Vision and Learning

Many children and adults continue to struggle with learning in the classroom and the workplace.

It has been estimated that 75% of all classroom learning comes to the student via the visual pathways. If there is any interference with these pathways, the student will experience difficulty with learning.

Learning is accomplished through complex and interrelated processes. One of the key aspects is vision.

What Visual Skills Are Needed For School Achievement?

Vision is a fundamental factor in the learning process. People at risk for learning-related vision problems should receive a comprehensive optometric evaluation.

The role of the optometrist when evaluating people for learning-related vision problems is to conduct a thorough assessment of eye health and visual functions, and communicate the results and recommendations.

The three interrelated areas of visual functions are:

1. Visual pathway integrity including eye health, visual acuity, and refractive status;
2. Visual efficiency including accommodation (focusing), binocular vision (eye teaming), and eye movements;
3. Visual information processing including identification and discrimination, spatial awareness, memory, and integration with other senses.

Eye Movement Control (Eye Tracking Ability)

Eye movements require the highest level of movement precision. Well-integrated eye movements allow for rapid and accurate shifting of the eyes along the lines of print in a book, quick and accurate shifts from desk to chalkboard, and sure visual tracking in sports.

Inadequate eye movement control will cause an individual to lose their place when reading, have difficulty copying from the blackboard, and skip or omit small words when reading.

Accommodation - Focusing Ability

Rapid and automatic visual focusing is essential to efficient performance. Visual focus is also directly related to the ability to sustain visual attention.

Focusing deficiencies will increase the time necessary for copying from the blackboard, induce visual fatigue and/or avoidance of close work, and result in reduced reading comprehension. In addition, visual focusing difficulties will make it more difficult for an individual to focus their attention and will contribute to attention deficit hyperactivity disorder.

Binocular Integration - Eye Teaming Ability

The human visual system is designed so that the eyes and their reciprocating muscles can work to such a high degree of teaming that the two eyes perform as one. This skill is intimately related to eye movement control and focusing ability.

Deficiencies in eye teaming will cause an individual to use excess effort when focusing for reading and writing and will reduce their ability to sustain visual attention.

Visual-Motor Integration (Eye-Hand Coordination)

Skill in eye-hand coordination is essential to accurate and stress-free writing and to efficient performance in sports.

Deficiencies in eye-hand coordination will make handwriting more difficult or fatiguing, and may also affect overall sports performance.

Visual Form Perception

Form evaluation skills allow for immediate and accurate discrimination of likeness and differences and the ability to reproduce and generalize forms.

Deficiencies in visual form perception may result in difficulty recognizing or confusion of similar words.

Visual Intake - Visual Memory

Obtaining maximum visual information in the shortest possible time provides for optimal performance. The ability to retain this information over an adequate period of time is essential for reading comprehension and spelling.

Dysfunctions in visual intake and visual memory may cause difficulty recognizing the same word on the next page and reduced reading comprehension. It will also result in prolonged time copying assignments and difficulties transferring information from one place to another.

How Are Visual Problems Treated?

Unresolved visual deficits can impair the ability to respond fully to educational instruction. Management may require optical correction, vision therapy, or a combination of both. Vision therapy, the art and science of developing and enhancing visual abilities and remediating vision dysfunctions, has a firm foundation in vision science, and both its application and efficacy have been established in the scientific literature.

Optometric treatment for a vision dysfunction may include the use of lenses, prisms, visual training programs, and developmental vision guidance. In addition, specific recommendations may also be made concerning general health and nutrition.

What Are The Clues To Look For When A Visual Problem Is Suspected?

These symptoms may indicate that you or your child has a vision problem?

Physical Clues

- Red, sore or itchy eyes
- Jerky eye movements, one eye turning in or out
- Squinting, eye rubbing, or excessive blinking
- Blurred or double vision
- Headaches, dizziness, or nausea after reading
- Head tilting, closing or blocking one eye when reading

Performance Clues

- Avoidance of near work
- Frequent loss of place
- Omits, inserts, or rereads letters/words
- Confuses similar looking words
- Failure to recognize the same word in the next sentence
- Poor reading comprehension
- Letter or word reversals after first grade
- Difficulty copying from the chalkboard
- Poor handwriting, misaligns numbers
- Book held too close to the eyes
- Inconsistent or poor sports performance

Secondary Symptoms

- Smart in everything but school
- Low self-esteem, poor self-image
- Temper flare-ups, aggressiveness
- Frequent crying
- Short attention span
- Fatigue, frustration, stress
- Irritability
- Day dreaming

Labeled

- Lazy
- Dyslexic
- Attention deficit disorder
- Slow learner
- Behavioral problem
- Juvenile delinquent
- Working below potential

For further information concerning the prevention, early detection, and correction of learning-related vision problems, contact:

Osteopathic Center for Children
 4135 54th Place
 San Diego, CA 92105
 (619) 583-7611 / Fax (619) 583-0286
 San Diego Center for Vision Care
 7898 Broadway
 Lemon Grove, CA 91945
 (619) 464-7713/FAX (619) 464-7668

Parents Active for Vision Education (P.A.V.E.)
 National Headquarters
 9620 Chesapeake Drive, Suite 105
 San Diego, CA 92123
 (619) 467-9620 / FAX (619) 467-9624
 (800) PAVE-988

College of Optometrists in Vision Development (C.O.V.D.)
 P.O. Box 285
 Chula Vista, CA 91912-0285
 (619) 425-6191 / FAX (619) 425-0733

Optometric Extension Program Foundation (O.E.P.)
 1921 E. Carnegie Avenue, Suite 3L
 Santa Ana, CA 92705
 (714) 250-8070 / FAX (714) 250-8157