

Visual Information Processing Evaluation

Yr Mo Day
 Dates of testing: 2017 02 23
 Date of birth: ■ ■ ■
 Chronological age: 58

Name: ████████████████████

<u>Category</u>	<u>Test</u>	<u>Age Equivalent or Grade Level</u>	<u>Percentile</u>	<u>Inadequate</u>	<u>Adequate</u>
<u>Visual Efficiency</u>	Pursuits ("Smooth eye tracking")			X	
	Binocularity ("Eye teaming")			X	
	Accommodation ("Eye focusing")				X
<u>Tracking</u>	Developmental Eye Movement Test				
	Vertical		25%	X	
	Horizontal		24%	X	
	Ratio		55%		X
	Errors		35%	X	
<u>Visual- Spatial</u>	Angels (Bilateral Integration)	7 years		X	
	Piaget Right/Left	9 years		X	
	Reversal Frequency Test				
	Unknown		59%		X
	Execution/ Reversed		68%		X
	Recognition		32%	X	
<u>Visual- Analysis</u>	TVPS-3				
	Visual Discrimination	6-11	1%	X	
	Visual Memory	5-3	<1%	X	
	Visual Sequential Memory	9-10	16%	X	
	Visual Figure Ground	>18-11	84%		X
	Visual Closure	14-0	37%		X
<u>Visual- Motor</u>	VMI (Beery)	10-10	5%	X	
	Visual Motor Speed (DTVP)		95%		X
	Sentence Copy (Wold)	>8 th grade			X
<u>Auditory</u>	TAAS	2 nd grade		X	
<u>Reading/Spelling Strategies</u>	DESD		Percent		
	Decoding Level	College			
	% Eidetic	Normal	60%		X
	% Phonetic	Moderately Below	10%	X	

Observations:
 Visual- Motor Ergonomics
 Inappropriate letter formation
 Inability to stay on line
 Sub-vocalization/tongue support

Observations:
 - Little Eye Contact

Results of the Functional Vision Examination

When we examine an individual who is experiencing difficulty with their visual system, we follow an optometric examination that consists of two parts. The first part is the visual efficiency evaluation, which consists of a variety of tests designed to determine if the individual can see clearly and comfortably for extended periods of time (how efficiently one takes in information). The second part of the assessment is the visual information processing evaluation, which probes the ability to analyze and interpret visual information (one's ability to process information).

Skills Tested During the Visual Efficiency Evaluation

Visual Acuity

Visual acuity is a measure of sharpness of sight. This relates to the ability to identify a letter of a certain size at a specified distance. This refers to the Snellen fractions of 20/20, 20/30, etc., which give no information as to whether meaning is obtained from visual input, how much effort is needed to see clearly or singly, and whether vision is less efficient when using both eyes as opposed to each eye individually.

Visual acuity was found to be adequate with glasses.

Eye Tracking (Oculomotor Skills)

Eye tracking is the ability to track a moving object or switch fixation from one target to another. This skill permits easy shifting of the eyes along the line of print in a book, a rapid and accurate return to the next line, and quick and accurate shifts between a desk and a chalkboard, or from one distance to another. Inadequate eye movement control may cause a person to lose place when reading, have difficulty copying from the blackboard, and skip or omit small words when reading. The Developmental Eye Movement Saccadic Fixation Test and the Visagraph II Computerized Eye Movement Recording were administered.

Eye tracking skills were found to be deficient.

Focusing (Accommodation)

Focusing is another skill that is important for school and work performance or when reading. This skill allows rapid and accurate shifts with instantaneous clarity from one distance to another, such as from desk to chalkboard. It also permits a person to maintain clear focus at the normal reading distance. Symptoms of a focusing problem may include blurred vision while reading, inability to clear vision at distance after reading, and fatigue or headaches while reading.

Eye focusing skills were found to be adequate with glasses.

Eye Teaming (Binocular Vision)

Eye teaming is the ability of the two eyes to work together in a very precise and coordinated fashion. If this does not occur, it may result in double vision, frequent loss of place when reading, headaches or eyestrain, and the inability to sustain a visual task for any prolonged period of time. There are several different types of eye-teaming problems that can occur. The most common form of an eye-teaming problem occurs when the eyes have a tendency to turn out, in, up, or down and the ability to compensate for this tendency is inadequate. One eye may actually turn in or out intermittently, or all of the time.

Eye teaming skills were found to be severely deficient due to convergence insufficiency. This condition is likely to result in intermittent double vision, headaches, eye strain and difficulties with reading.

Skills Tested During the Visual Information Processing Evaluation

Visual-Spatial Skills: These skills allow the individual to develop normal internal and external spatial concepts, such as right, left, back, up, and down. Sub skills that are evaluated include laterality and directionality.

Laterality is the ability to differentiate right from left on one's own body. A person who confuses right and left may have difficulties with laterality. *Directionality* is the ability to project laterality into space. When applied to reading, confusion in the area of directionality may result in reversals of forms- letters such as "b" and "d" and words such as "on" and "no" and "was" and "saw". To test directionality, we administer the Gardner Reversal Frequency Test.

Please refer to the Visual Information Processing Evaluation form for these scores.

Visual Analysis Skills: These skills contribute to the individual's ability to analyze and discriminate visually presented information. We subdivide this area into four categories, including visual discrimination, visual memory, visual figure-ground, visual closure, visual sequential memory. The Test of the Visual Perceptual Skills-Third Edition (TVPS-3) is used to test these areas of visual information processing.

Visual discrimination is the ability to be aware of the distinctive features of forms, including shape, orientation, size and color. This ability is necessary in determining same from different. Visual discrimination problems may result in the person confusing words with similar beginnings or endings and even entire words.

Visual memory is the ability to retain written information over an adequate period of time. This is essential for reading comprehension and spelling. Dysfunctions in visual memory may cause prolonged time in copying assignments, difficulty recognizing the same word on the next page, and difficulty retaining what is seen or read.

Visual figure-ground is the ability to concentrate on a specific feature or form while maintaining awareness of the relationship of this form to background information. Deficiencies in this area will be manifested as problems working with puzzles, copying from the board, working on visually cluttered worksheets, and keeping place while reading or doing work with numbers.

Visual closure is the ability to be aware of the clues in the visual stimulus that allow a final perception to be determined without the necessity of having all the detail present. An example of this would be a dotted line in the shape of an "s". People with a deficiency in visual closure may not be able to determine that the dotted line is an "s" without actually connecting the lines together by drawing on them. A deficiency in this area would affect the ability to fill in a blank, to complete a word or sentence, identify something that could be missing in a group of objects or complete a thought.

Please refer to the Visual Information Processing Evaluation form for these scores.

Visual-Motor Skills: These skills are commonly referred to as hand-eye coordination skills, which are essential for good handwriting. These abilities are used to space words evenly, stay on a line, and write with a minimum amount of erasures. The individual's ability to complete written work within an allotted period of time may also be affected.

Visual analysis skills are also needed to accurately reproduce a visual stimulus. A person must be able to see that a pattern is made up of a finite number of parts and that these parts interrelate in a very specific manner. To reproduce the pattern, the individual must call upon these skills,

integrate the information with other systems, and generate a motor response. The Developmental Test of Visual-Motor Speed and the Wold Sentence Copy are utilized to assess these skills.

Please refer to the Visual Information Processing Evaluation form for these scores.

Auditory Skills:

Visual difficulties impact other areas of reading and function. The Test of Auditory Analysis Skills (TAAS) is a screener for phonemic awareness skill, or the ability to break down sounds/manipulate sounds.

Please refer to the Visual Information Processing Evaluation form for this score.

Reading/Spelling Strategies:

The Decoding-Encoding Screener for Dyslexia (DESD) is a screening test that allows assessment of an individual's specific reading difficulty and if a dyslexic tendency is present. The test consists of decoding (sight word recognition) and encoding (related to phonetic analysis). Many children with visual processing difficulties may show a dyslexic tendency, which improves after the visual problems are treated.

No frank dyslexic pattern was found.

SUMMARY

The following conditions are present:

- Myopia (H52.13)
- Regular Astigmatism, right eye (H52.221)
- Presbyopia (H52.4)
- Vertical Heterophoria (50.53)
- Oculomotor Dysfunction in Pursuits (H55.89)
- Convergence Insufficiency (H51.11)
- Binocular Dysfunction (H53.0)
- Oculomotor Dysfunction in Saccades (H55.81).
- Vision Discomfort, Eye strain, Asthenopia (H53.143)
- Intermittant Alternating Exotropia (H50.34)

IMPRESSIONS:

Testing revealed difficulties in:

- 1) Visual efficiency (eye movement control and eye teaming skills)
- 2) Visual information processing skills. This relative disparity may create frustration and avoidance of tasks.

These weaknesses are likely to contribute to reading difficulties, as they are foundational to the learning process. It is more likely to exert additional effort and compensatory strategies to complete work and activities of daily living. Fortunately, many of the above skills can be greatly improved with treatment, which is expected to make learning easier and more efficient. Vision therapy does not replace academic instruction or other therapies like vestibular rehabilitation, but improves the skills needed to absorb and process information with less effort.

RECOMMENDATIONS

- 1) In addition to the program of therapy outlined below, lenses are recommended to reduce the visual stress of close work and help bring the focusing and pointing of the eyes into balance. This prism will be revisited at the progress evaluation.

- 2) An individualized program of Optometric Vision Therapy is recommended to provide the opportunity to develop the necessary visual abilities for academic achievement. The vision therapy program consists of a 45-minute office visit per week combined with a prescribed home vision therapy program of approximately 15 minutes per day. The initial estimated treatment time consists of 6 to 7 months of weekly office visits. Monthly sessions (1-3) will likely be necessary to further develop and make the newly acquired skills automatic. Additional sessions may be necessary based on home practice and individual response. Progress evaluations will be performed to ensure that success is being made during the program.

The individualized Optometric Vision Therapy program will emphasize the following:

- Monocular activities designed to equalize the focusing, tracking and pointing of each eye.
 - Binocular work to improve eye-teaming efficiency.
 - Visual-spatial tasks to develop integrated sequential and directional concepts.
 - Form training stressing: visual discrimination, spatial relationships, form constancy, figure-ground relationships and visual closure.
 - A visualization program to improve the speed and span of visual recognition as they pertain to short and long-term visual memory.
 - Visuo-motor tasks to improve body awareness and control and visually directed fine motor skills.
 - Inter-sensory integration skills through visual-auditory-verbal matching.
- 3) We recommend that you explore the information on the COVD website (www.covd.org) and the Vision Help blog (www.visionhelp.wordpress.com) to learn more about how vision can impact learning, attention and behavior.
 - 4) A comprehensive vision evaluation should be completed annually to ensure that the eyes are healthy and that the prescription remains appropriate.

Thank you for allowing us to evaluate [REDACTED]. Please call if you have further questions, would like more information or would like to move forward with treatment. We look forward to helping Elizabeth reach her full potential and improve her function.

Sincerely,

Jill K. Schultz, O.D., FAAO, FCOVD, FNORA
Clinical Director
Pediatric/Neuro-Rehabilitative Optometry