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Fact Sheet

Functional Vision Assessment

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The topic for this May/June issue and the upcoming July/August issue of *Information Updates* is Functional Vision Assessment, written by guest author Irene L. Topor. Irene currently works as a consultant for TRACES - Teaching Research Assisting Children Experiencing Sensory Impairment Western States Training.

Ms. Topor earned her Bachelors degree from the University of Texas at Austin in 1974 where she graduated Summa Cum Laude. Ms. Topor earned her M. Ed., and her doctorate from the University of Arizona at Tucson in 1980 and 1990 respectively. In addition, she has certifications in Elementary Education/Deficient Vision, Elementary Education/Visually Handicapped, and Trained Screener - Scotopic Sensitivity Syndrome (A Visual Perceptual Disorder).

Ms. Topor acknowledges L. Penny Rosenblum of this issue. At the time of publication, Ms. Rosenblum was a doctoral student in Special Education and Rehabilitation with an emphasis in visual impairment.

What's Functional About A Functional Vision Assessment?

Being a parent is a daily challenge. As mothers and fathers watch their children develop, they ask many questions of medical and educational specialists, particularly when a child has one or more sensory impairments. When a child has visual loss, Parents are most concerned about how the child is learning and how he or she uses vision, in home and in educational settings. This is most easily explained and described for parents after an assessment of visual function is made.

The Function of Vision

Vision is functional if a child is able to utilize visual information to plan and carry out a task. For example, if a child sees a red ball lying in the green grass and can locate that ball and successfully pick it up, the child is using a vision functionally. Vision is responsible for 80 to 90% of what a child learns during the first six years of life. When the visual system (e.g. the eye and brain) is not working properly, then the child will need to be instructed how to use vision. The first step in helping a child to learn to use vision is determining how the child now uses the vision he or she has.

What is a functional vision assessment?

A functional vision assessment measures how well a child uses vision to perform routine tasks in different places and with different materials throughout the day. The functional vision assessment “paints a picture” of how a child uses vision and what visual skills the child needs to develop further.

A functional vision assessment may be conducted for a child with dual sensory loss and other physical disabilities. For this child, positioning is critical, as the child needs to be positioned so that his/her head, neck and trunk are stable to get the best use of vision.

Who conducts a functional vision assessment?

A functional vision assessment is typically conducted by a teacher certified in the area of visual impairment. The specialist is a certified teacher of the visually impaired, trained to evaluate how a child utilizes vision. The vision specialist will measure and observe the visual methods a child uses throughout a routine day and will speak with parents, teachers and other caregivers who know the child well. Information about how the child uses vision, the conditions and purpose of use, is essential and will be utilized in the functional vision assessment report. The vision specialist will review records and may talk to the eye doctor to learn more about the child’s visual condition.

Who should receive a functional vision assessment?

Children with visual impairment and children with dual sensory loss need a functional vision assessment. Before the assessment, if possible, the child should be seen by a pediatric ophthalmologist to determine the cause of the impairment. The physician can implement any necessary treatment, such as a “patching” program for children with amblyopia, a condition in which one eye is weaker than the other. The stronger eye is covered with a patch daily for a prescribed length of time until the condition improves. Glasses or contact lenses may be indicated. When the child’s medical needs are met, then the vision specialist can assess functional vision under the best conditions.

It is important to remember that the actual effects of any one child’s visual impairment, especially a child with a dual sensory loss, may be hard to determine. Each child’s experience and way of “seeing” is unique. Close observation in a variety of places and with a variety of materials is essential to evaluate the child’s effective use of vision.

How is a functional vision assessment conducted?

Many items need to be considered in the process of completing a functional vision assessment, but there is no standard way, since each child and every environment is different. It is crucial to assess the child in everyday settings, doing his or her usual activities and tasks.

Some general guidelines include:

Observation of the Child’s Use of Visual Skills

- *Visual Acuity at Near Distance* - (16 inches) with and without correction.
- *Visual acuity at Far Distance* - (10 feet) with and without correction
- *Visual Fields* - seeing objects to the sides, above or below the eye level

- *Localizing* - spotting or finding the visual stimulus.
- *Fixating* - maintaining gaze directly on the object, person or event.
- *Scanning* - systematically examining an area when completing a task.
- *Tracking* - following the movement of an object, person or event.
- *Shifting Gaze* - looking back and forth from one object or person to another.
- *Eye Preference* - using one eye more frequently than the other.
- *Eye-hand Coordination* - reaching out to touch something or to pick up an object.
- *Color Vision* - ability to perceive color out of the context of a functional task.

Observation of the Child in a Variety of Settings

The vision specialist will observe the child in his or her usual surroundings to learn how the child uses vision. These observations can take place at home, school, or in the community. Observations can also be specific to what parents or teachers want to know about a particular task that they find critical to the child's visual functioning.

Environment Considerations

The child's environment needs to be assessed along with the child's behaviors. Environmental considerations which the teacher certified in the area of visual impairment will evaluate include:

- *Illumination* - Is adequate lighting available? How much lighting does the child need given the eye condition? What kind of lighting is of the greatest help for the child to utilize his or her vision?
- *Color and Contrast* - Is there good contrast between the background and the object, person or event the child looks at?
- *Size* - If a smaller or larger object is used, will the child perform the task more easily?
- *Distance* - If the visual task is moved closer or further away, will the child see it better?
- *Time* - If the child were given more time, would it be possible for him/her to complete the task better?

Interviews

Information from parents, teachers and other professionals can be gathered to learn about how the child uses vision during the day. Caregivers can describe the way the child grasps utensils, pencils and toys and how he or she moves indoors and outdoors. This information will give the vision specialist many insights which can be only available from those who are with the child daily.

**School Data
Medical Report
Eye Examination Reports
and Other Written Information**

Written information describing the child's medical condition, treatment and anything else that is relevant to overall functioning are reviewed here. Often this information will suggest direction for further testing. This information can also serve as a guide for selecting functional vision assessment procedures.

Commercial Tests to Measure Visual Acuity

There are many commercial tests available which can assist the vision specialist in determining a child's visual acuity. Visual acuity is a measure of how clearly a child can see an object at given distance. Everyone has probably experienced such a test, the Snellen E (See sample chart above). When this chart is placed at 20 feet from the person who is being tested, the eye doctor can measure visual acuity based on which lines of letters the patient can read. If the patient can read the big E at the top of the chart, he or she sees at 20/400. A patient who sees the smallest row of letters at the bottom has 20/15 acuity (see diagram below).

For children who do not know how to read letters, there are other ways to assess acuity. These methods include:

- *The New York Lighthouse Symbols Test (LH)* - a set of cards of varying sizes, each containing one of four symbols: circle, heart, or apple, house and square. Three cards can be used to assess near and distance acuity. The child identifies the symbol on the card by pointing, matching or naming.
- *The Forced Preferential Looking Tests (FPL)* - a set of cards with a variety of pattern lines based at different distances within a square. The child looks toward the square with the lines on it. The smallest pattern of lines the child can see provides a measure of near visual acuity.
- *Stycar* - a set of balls placed at varying distances from the child. Distance acuity is measured by determining the smallest ball the child sees at the greatest distance.
- *HOTV Charts* - a chart with lines composed of the letters H, O, T, and V in varying combinations and in different sizes. The smallest line of print the child can read at 10 feet provides a measure of distance acuity.

What can be learned from a review of the records?

From medical records it can be learned if the child takes medication for seizures. The effects of anti-seizure medication on visual function can be hard to measure since the medication can have different effects on the way a child sees throughout the day.

The eye report, which should always be available before a functional vision assessment, is one of the most important records. It provides the vision specialist with an expected level of vision functioning. Don't be discouraged if the eye report provided different information from what is known about how the child uses vision functionally. A functional vision assessment may provide information that will justify a visit to the eye doctor for a child with dual sensory impairment.

When there is no eye report in the records, a functional vision assessment can be the first step toward pointing out the necessity for an examination by an eye doctor.

What’s going on when the child functions differently in different settings?

During the course of the functional vision assessment the child’s functioning may be very different in informal settings (the backyard) than it is in formal settings (the classroom). This may be due to the differences in expectations for the child, the task itself, the motivation for the task and environmental conditions. That is why what is known about the child, how the child uses vision and other information is necessary before beginning a functional vision assessment.

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