

VISION WHAT TO LOOK FOR: FACILITATOR'S NOTES

TIME: Approximately 1-1 ½ Hours
USE POWERPOINT PRESENTATION

HANDOUTS:

- Powerpoint outline
- How Vision Affects Development
- How Vision Develops
- Cortical Visual Impairment
- Adapted CVI Matrix
- Resources for Children with Vision Impairment

REQUIRE:

- Bright, primary coloured paper, with large letters in varying colours to see contrasts
- Some blinders and glasses to emulate vision loss
- Handouts (outlined)
- Toys with light
- Sensory toys (with noise and lights)

1. THE EYE

- Nerve - takes the information from the eye to the brain
- Cornea - covers the iris, pupil and anterior chamber (helps focus)
- Iris - surrounds the pupil, allows light in and out of eye
- Lens - refracts light and visual images to the back of the eye (retina)
- Retina - rods and cones, colour and black and white
- Optic disc - optic nerve connects to retina

Some interesting facts (see Powerpoint)

2. DEFINITION OF VISION

- Sensory function relating to: light, form, size, shape and colour
- Distant sense (i.e. away from body)

Affects: cognition, communication, gross and fine motor development and social skills

(handout - How Vision Affects Development)

EXERCISE:

Have individuals be blinded or partially sighted (either with blinds or with adapted glasses)

Then have them:

Touch squishy materials

Move both fine and gross motor

Talk to a partner

Have them consider how they felt and to observe their communication style

Now imagine if they were to have an additional disability (affecting movement or cognition), how would they feel

3. VISION AND DEVELOPMENT

Vision is the most distant of the senses and it typically serves to stimulate, reinforce and pull together sensory information. Approximately 80% of incidental learning occurs through sight (with sighted children) and in children with restricted vision or blindness, the child's development is at risk for being delayed and/or fragmented.

Cognition

- Object knowledge - objects may be randomly encountered in a fragmented/incomplete form
- Object Permanence - restricted access limits development and building on interactions
- Cause and Effect - visual reward from toys and play activities is reduced and not as stimulating
- Spatial relations - visual comparison is lost with positional change dependent upon touch
- Concept development - direct interaction with real world objects needed with intervention required for the many things that sighted children observe and learn on their own

Communication

- Difficulties occur in deciphering nonverbal communication (gestures, expressions, body language) and social norms (eye contact, direct attention to person speaking)
- Delay in language acquisition is often present and due to lack of experience in seeing objects and interactions.
- Concepts and vocabulary need to be learned in real life context with opportunities for multi-sensory exploration and understanding
- Focus on self, as topic is common
- Children often imitate sections of speech in echolalic fashion with delay in progression

Gross motor development

- Infants with visual impairment are often passive and need intervention to purposefully explore
- The sequence of developmental milestones appears similar to sighted children with some fragmented delay (late on-set of unaided walking), which may be offset by intervention
- Generalized hypotonia, particularly in the trunk and upper extremities, with resistance to lying or pushing up from prone
- Delayed and/or immature protective and equilibrium responses are used
- Poor trunk rotation is often seen, resulting in fixed or abnormal movement patterns

Fine Motor

- Mouth remains a primary sensory organ for a longer period of time
- Generalized upper extremity weakness
- Tactile hesitancy - reduced use of hands for purposeful, structured exploration and interaction

- Often see delays in self-care and activities of daily living
- Vision skills - coordination difficulties occur in school, particularly associated with deskwork

Social-Emotional Development

- Bonding may be more difficult to establish due to delay in interpreting baby's non-verbal signals and frequent incidence of pre-maturity
- Child often more dependent upon caregiver to introduce and facilitate interaction in the world. Infants with visual impairment often passive and at risk for 'good fairy' syndrome
- Atypical behaviour (rocking, eye pressing, flapping) and lack of knowledge relating to social 'norms' (personal space) may restrict interaction with others.

4. INTERESTING FACTS

Population facts

30,000 children in Canada have some sort of vision loss.

- 40-70% have additional disabilities
- 42-90% of kids with severe disabilities have visual impairment
- Most with vision loss in addition to a disability, are diagnosed with low vision
- Very small number of kids are functionally blind and learn through touch and hearing
- 50% of infants with additional disabilities have CP seizures or other neurological problems
- Combination of visual impairment with another disability has significant developmental consequences.

5. VISUAL MATURATION OCCURS IN A DEVELOPMENTAL FASHION (handout - How Vision Develops)

6. VISION IMPAIRMENT

- Any partial or total impairment affecting someone's ability to learn or perform the usual tasks of daily life. Visual impairment cannot be completely corrected with glasses or contact lenses.

Total Blindness

- Complete absence of vision, often referred to as 'no light perception'.

Low Vision

- A visual impairment severe enough, even with correction, to impede a person's ability to learn or perform everyday tasks but that still allows the person to gather some useful information through the use of his eyes. This ranges from mild to severe and does not mean full loss of functional vision. Low vision is 20/70 - 20/400 and may be similar to:
 - Looking through a keyhole
 - Wearing glasses that have been covered with black paint so that you can only see from the sides
 - Looking through a fogged window

And can be addressed by ophthalmologist/optician and teacher of the visually impaired

7. CVI (CORTICAL VISUAL IMPAIRMENT)

Below is some background information that the instructor may wish to discuss with the group (this is optional and is designed as background information for the instructor)

*There is a move underfoot to take the realm of CVI from the medical model and assess this type of visual impairment using the WHO International Classification of Function. This uses **function** as the primary criteria for definition of CVI, i.e. visual perception plays a critical role for defining and diagnosing a child with CVI.*

To diagnose a child with any form of visual processing that impedes that child's function, can label them with CVI; including:

- *Decreased visual acuity or field*
- *Light sensitivity*
- *Poor shape recognition*

Diagnosis can be anecdotal and not necessarily have a medical component.

In addition, there is some consideration to changing the name of Cortical Visual Impairment to Cerebral Visual Impairment. This reduces the requirement for diagnosis from one of an organic basis to one of function, which may include idiopathic causes or causes that are purely based on perception.

Using the ICF definition of CVI, potentially (and in some areas) the incidence of diagnosis is 1/20.

Christina Roman suggests that the diagnosis of CVI should be addressed by educators and not the medical field. While this has some basis in fact (given that over time the child is 'taught' to use his/her vision more functionally in the school system or by community teams rather than by a medical team), there is also some concern that 'anyone' can diagnose. The concern by the medical profession is that there may be some underlying undiagnosed medical cause for the visual impairment.

It may also suggest by this definition that most all cognitively delayed individuals would have some type of CVI.

However, the symptoms outlined by Christina Roman are generally a good overall list of functional symptoms. Treatment of those symptoms often require adaptations, alternate positioning, contrasts, time etc. However, it is noted that younger children who are diagnosed with CVI do show improvement in their visual interest in the world around them (with some intervention).

Gordon Dutton, in describing Cerebral Visual Impairment has diagnosed the area of the:

Dorsal stream

- Perception
- Complex images
- Guided movement

- Attention
- Behaviour (spastic CP kids)

Ventral Stream

- Free recognition
- Object recognition
- Orientation
- Colour
- Shape
- Letter recognition

CVI affects: perception, recognition/ visual processing/ motor response
(Handout - CVI)

Discuss: CVI strategies as per handout

Demonstrate: background strategies, clutter difficulties, peripheral vision strategies, seeing whole picture concepts

8. POSITIONING

Positioning is also very important

EXERCISE (examples):

- *Have the participants use their vision in a variety of positions*
- *What do they see in a seated position*
- *What if they could not lift their heads up*
- *Position as a person with a scoliosis. How does this affect what you see???*

9. THINGS TO REMEMBER:

Things to remember: Before showing the slide.....

Question (to participants):

What do you need to remember when working with your student with visual impairment ????

- Brainstorm -
Then show summary slide

Slide:

- Make no assumptions
- Positioning
- Processing time
- Attention
- Etc.

Demonstrate toys with multi sensory components.