**Sensory Needs of Learners with**

**Optic Nerve Hypoplasia**

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**Overview of Optic Nerve Hypoplasia (ONH)**

* Third leading cause of Visual Impairment in children birth to 3
  + (CVI is first, ROP is second)
* Congenital condition characterized by the underdevelopment or absence of the optic nerve, paired with possible brain and endocrine abnormalities
* Ocular Visual Impairment, Spectrum Disorder, Hormonal impacts due to Hypothalamus
* Also known as Septo-Optic Dysplasia or De Morsier's Syndrome

**ONH Characteristics**

* Varying degrees of visual impairment to total blindness
* Problems with regulation of temperature
* Hunger and/or thirst
* Disrupted sleep cycles
* Mood regulation
* Hormone irregularities
* Abnormal appetite (overweight or underweight)
* Aversion to food textures-poor diet
* Diabetes Insipidus
* Pituitary gland dysfunction
  + adrenal fatigue, decrease in cortisol
  + decrease in thyroid hormones necessary for metabolism

*Dominique (age 6) is shown in 3 pictures showcasing her personality.*

*Dominique is shown in 4 more pictures, all of which she is laying down and coverning her ears.* **Do you recognize a common theme?**

**Concerns from Team**

* Dislikes loud sudden noises (covers ears)
* Moves very slowly during transitions
* Hesitant to touch new things
* Hands fidget/moves constantly, touching, grasping, poking
* Needs to move after 5-10 seconds of sitting still
* Fixates on sounds, echolalic at times
* Drops onto floor when walking at times, lies on stomach and will not move (turtling)
* Weak grasp on Adapted Mobility Device
* Overall low muscle tone
* Non-responsive at times or says “NO” to a request

**Information from Sensory Profile:**

**Under Responsive/Seeks Sensation:**

* doesn’t notice when fingers/hands are messy, clothes twisted
* seeks all kinds of movement that interferes with daily routines
* becomes overly excitable during movement activity
* jumps from one activity to another interfering with play
* bounces in standing, pounds hands and feet

**Low Energy/Weak:**

* seems to have weak muscles
* tires easily-poor endurance
* weak grasp
* can’t lift heavy objects
* props to support self

**Why do students with VI have**

**sensory-motor challenges?**

* Dynamic Systems Theory:All systems depend on, and interact with each other, and all systems need massive amounts of rich experience to build **ABILITY** and function.
* Tactile System: often used as the go-to for information for those with VI. But how much developmental experience has this system had to supply them information about the world?
* Vestibular and Proprioceptive Systems: provide knowledge of **SELF**; of motion to define orientation in space and of joint stress to recognize and define own movement.
  + The Forgotten Senses: “...we do know from experience that difficulties with vestibular and proprioceptive functioning, in particular, always need to be addressed first if the children are to make the best possible progress in using touch and residual vision and hearing effectively.”

*(David Brown, Dbl Review, 2006)*

**Why do students with VI experience**

**sensory-seeking /-avoiding behaviors?**

* Seeking? Rocking, rotating head, bouncing up and down = seeking vestibular information
* Seeking? Jumping, foot slapping, pounding, vibrating, flapping, fidgeting, chewing = seeking proprioceptive
* Avoiding? Fearful for feet to leave the ground, turtling = lack of vestibular information
* Avoiding? Loose grip, refusing to hold = lack of proprioceptive information

**The world can be frightening if:**

* Visual information about environment is limited
* Vestibular understanding of movement in space is limited
* Tactile ‘grounding’ is no longer available
* Proprioceptive knowledge of own movement is limited

**Fear + Fatigue + Frustration = Behavior ?**

**How do we stimulate the systems?**

* *Proprioceptive*: ‘Heavy Work’ - pushing, pulling, climbing, carrying heavy things, anything that puts pressure through the joints
* *Vestibular*: Spin, rock, swing, jump, roll, anything that causes movement of the head, i.e. vestibular system

**Things to remember about stimulation:**

1. Provide variety-children can accommodate to a repeated stimulation
2. Provide a little at a time-children can become overloaded-build up slowly to many times per day
3. Change method of stimulation (start/stop concept) Check with OT/PT or see the course/book
4. Simple activities are meant to ‘fill the bucket’ and feed the system, NOT become a task to be evaluated.

**Progress…**

*From lethargic patterns or fitful bouncing to secure ambulation:*

Dominique is pictured walking with her cane, lying face down on a desk, and standing with an instructor.

**Sensory Motor Schedule**

-A table is shown listing activities through a Monday-Friday week.

- examples such as bouncing ball, push heavy cart, jumping on trampoline, etc.

**Sensory Motor Activities**

* Students are pictured walking with assistance, crawling/playing, and owkring on a project with a teacher.

**RBLM Sensorimotor Checklist**

* A check list is shown which asks:

1. Desires/seeks out linear movement activities?

2. Desires/seeks out rotational movement?

3. Appears unbalanced?

**Ready Bodies, Learning Minds:**

**Meeting the Sensory Motor Needs for Students with Visual Impairments (DHH, ASD, MI)**

A student is pictured walking with a cane.

Checkout these sites for more:

readybodieslearningminds.com or rblm.teachable.com

**Main Ideas**

* Poor Proprioception + Poor Vestibular= Poor Body Awareness
* Consult with your OT/PT- Collaboration is key!
* Start early!
* Provide experiences!
* Provide variety!
* All systems are crucial for development; students with VI typically lack opportunity for sensorimotor experience.
* Behavior can be a representation of a sensorimotor need:
  + Fear, fatigue or frustration?
  + Showing a need for vestibular or proprioceptive stimulation?
* Simple activities can provide them with a wealth of ‘knowledge of SELF, leading to multifaceted ABILITY.

**References**

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