







VALUE OF STANDARDIZED ASSESSMENTS

- Most standardized assessments are great at answering the "WHAT, HOW and WHICH" questions:
 - **What** is the main area of deficit for my clients and how can I collect more data about their challenges
 - **What** are their scores and do they qualify for OT services based on information obtained
 - **How** do their scores compare to the normative sample
 - **Which** is the best service to address their needs? Do they need OT, PT, or social skills groups, etc.



VALUE OF CLINICAL OBSERVATIONS

- In many cases clinical observations answer the "WHY" questions:
 - Why is this child having challenges in one or many areas of function
 - Why do they exhibit undesirable behaviors in one setting vs another setting
 - Why do they complete a particular skill, but can not generalize that same skill to a different functional task
 - Why is their skill performance in one setting better than in a different setting
 - Why do behavioral reinforces work in certain situations and not in others



INITIAL DATA COLLECTION PROCESS

- Clinical intake form received from the parent
 - Family history
 - Medical and developmental history
 - History of services provided for this child
 - Teacher questionnaire
 - Phone conversation with a caregiver



FIRST TRANSITION

- Can they separate from their parent or do they need parental support to transition?
 - What happens after the "warm up" period
 - How do they engage with you
 - Eye contact
 - Exploration of the environment



CHANGES IN AROUSAL LEVEL

- Observable changes in behavior
 - Hyperactivity / hypoactivity
 - Behavior appears scattered
 - Change in voice volume
 - Disorganized thought pattern
- ANS Response
 - Changes in respiratory rate and rhythm
 - Yawning
 - Pupil Dilation
 - Body Temperature Change



POSTURAL CONTROL

- Postural Control is an automatic response that requires efficient muscle activation to sustain upright posture when working against gravity
 - Subtle muscular activation required with changes in supporting surface area
 - Feedback from environment needs to be integrated for adjustments in postural control
 - Changes in postural control should be anticipated when preparing for initiation of voluntary movement



POSTURAL CONTROL IN SENSORY INTEGRATION FRAME OF REFERENCE

- ❑ Sensory systems that impact postural control
 - Proprioceptive System
 - Vestibular System
 - Visual System



CLINICAL SIGNS OF IMPACTED POSTURAL CONTROL

- ❑ High guard posture during ambulation on uneven surfaces
- ❑ Seeking support from the external structures when positioned on unstable surface
- ❑ Do not use alternate step pattern when ambulating stairs
- ❑ More difficulty walking down then up the stairs
- ❑ Limited midrange control
- ❑ Lock joints for stability
- ❑ Difficulty sitting in chair for an extended period of time



EXTENSION MOVEMENT PATTERNS



- Poor postural extension is related to impacted vestibular and proprioceptive systems
- Visual system may also be impacted
- Low muscle tone
- Sitting- Frequently rounded shoulder (kyphosis) and sacral sitting are observed
- Standing- Frequently anterior pelvic tilt (lordosis) and protrusion of the abdominal area is present



FLEXION MOVEMENT PATTERNS



- Impacted flexion is mostly indicative of limited abdominal strength
- Tactile discrimination skills may be impacted as well if a child was not able to explore hands on feet or feet in mouth as an infant
- Activation of hip flexors and hip adduction is often used as a compensatory strategy



FUNCTIONAL IMPLICATIONS

- ❑ When there is limited control of flexion and extension musculature, complex movement patterns such as trunk rotation are hard to achieve
- ❑ Straight plane movements are used primarily for movement
- ❑ If a child does not have adequate postural control and along with an impacted vestibular and proprioceptive system, what behaviors may they exhibit?
 - Avoid playground activities
 - Avoid dynamic peer play
 - May prefer sit down tasks over movement tasks



CLINICAL OBSERVATIONS OF THE VESTIBULAR SYSTEM FUNCTION



INTERNAL GPS



- Vestibular system is an ongoing monitoring system
- It's our spatial-temporal system. We have to know where we are in relation to gravity to navigate dynamic environment
- Vestibular system guides development of visual system in the first years of our lives

BALANCE

Systems Responsible for Balance

- Vestibular System
- Proprioceptive System
- Visual System



SINGLE LEG STANCE - EYES OPEN

- Quick way to assess child's vestibular function and postural stability
- Look for compensatory strategies
 - putting hands into pockets
 - hooking of feet behind the knee
 - increased body swaying or use of ankle strategies to maintain stability
- Developmental Milestones for Balance
 - 3 years = 3 seconds
 - 4 years = 6 seconds
 - 4.5 years = 10 seconds

Eyesight to Insight: Visual vestibular Assessment and Treatment by Carl Hillier OD, FCOVD and Mary Kowar MS, OT/L

SINGLE LEG STANCE - EYES CLOSED

- ❑ Isolating vestibular function and postural control.
- ❑ Is there heavy vision reliance for balancing activities?
- ❑ Developmental Milestones for Balance with Eyes closed
 - 5 years = 3 seconds
 - 6 years = 8 seconds

Eyegight to Insight: Visual vestibular Assessment and Treatment by Carl Hillier OD, FCOVD and Mary Kowar MS, OT/L



DYNAMIC BALANCE

- ❑ How does a child navigate uneven surfaces
- ❑ Do they fall frequently
- ❑ Do they avoid obstacles and move around them (avoidance or fear)
- ❑ Do they lock their joints for stability
- ❑ Do they seek support from external environment (wall, railings, etc.)
- ❑ Do they prefer to crawl when unsure if the surface is steady
- ❑ Do they avoid elevated surfaces



OVER-REACTIVE VESTIBULAR SYSTEM

Body becomes easily overwhelmed by movement experiences, especially movement of the head when it is positioned out of midline

- Holds head upright when bending over to pick up objects
- Turns whole body to look at you instead of just head
- Does not like or becomes disorganized when bending over the sink during tooth brushing
- Overall insecurity about movement experiences



UNDER-REACTIVE VESTIBULAR SYSTEM

Body does not fully register movement experiences and may crave or need those experiences for optimal functioning

- Appears tired and unmotivated
- Easily fatigues with movement
- Rocks self in a chair or in bed



CASE STUDY- J



VISION AND VESTIBULAR CONNECTION

Vestibular-Ocular-Reflex (VOR) controls eye movements to stabilize images during head movements

□ Dysfunction of VOR

- Head movements cause discoordination of the entire body
- Decreased eye hand coordination
- Adverse reaction to movement such as car sickness, motion sickness



POST ROTARY NYSTAGMUS (PRN)

- ❑ It's a VOR and a window into how the vestibular system is processing movement
 - ❑ How to elicit PRN
 - **Equipment:** spinning board
 - **Minimum testing:**
 - 1) Position the child in sitting cross legged on the spinning board with head flexed at 30 degrees
 - 2) Rotate the child 10 times in counterclockwise direction. Sudden stop. Observe PRN
 - 3) Rotate the child 10 times in clockwise direction. Sudden stop. Observe PRN
- ♦Note: 10 rotations should take about 20 seconds



PRN – WHAT AM I LOOKING FOR?

- ❑ Consistency in response in positions and in all directions
- ❑ Eye excursion movement is smooth and steady
- ❑ The duration of the PRN lasts between 8-12 seconds
- ❑ Observe postural control while rotating
- ❑ Observe postural stability after rotations are completed
- ❑ How does a child recover
- ❑ What behavioral changes do you see after completion of all rotations

♦Note of caution: Rotary input can be very overwhelming! Observe carefully for obvious and subtle changes in the ANS



VISUAL-VESTIBULAR DEFICITS IMPACT FUNCTION

- ❑ If the vestibular system is not processing movement efficiently, how does it affect child's behavior
- ❑ How does a child manage elevated surfaces
- ❑ Are reflexes fully integrated, and how does that impact functional activities
- ❑ Does the child disassociate between head and eye movement?
- ❑ What happens to postural control when a child is asked to sit for an extended period of time
- ❑ What happens to child's arousal level when sitting for an extended period of time



SUMMARY

- ❑ Subtle clinical data is frequently obtained through informal observations
- ❑ As children grow they develop compensatory strategies for their weaknesses
- ❑ There is a difference between a true skill and a splinter skill
- ❑ If you are unsure where to start, ask yourself these questions...
 - What skill deficits are impacting this child's life? (top of the pyramid)
 - What sub-skills are required to be successful in this skill area? (middle of the pyramid)
 - What foundational blocks are needed to develop those sub-skills? (bottom of the pyramid)



KIDLINK THERAPY MENTORSHIP PROGRAM

- Do you want to truly understand how to best support the children on your caseload?
- Do you want to continue to sharpen your clinical skills?

KidLink Therapy developed a mentorship program that fosters growth of clinical skills necessary to promote functional outcomes in neuro-diverse pediatric population.

Mentorship program is designed based on individual needs and can take place via videoconferencing, phone consultations and in our clinic

KidLink motto: treat the cause, and NOT the symptoms

Check out our website www.kidlinktherapy.com (Specialties tab) to learn more about our Mentorship program



THANK YOU FOR LISTENING!


