

Part 2: Childhood Vestibular Disorders

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As discussed in [The Sense of Balance](#) there is an important sense that may not be part of our daily consciousness, but is integral to everything we do. The vestibular system plays a role in posture, balance and vision.

When something goes wrong with this system children and adults can experience:

- dizziness, reflex integration delays, nystagmus, nausea/car sickness
- developmental delay, falls, motor planning problems, clumsiness
- sound sensitivity, fatigue
- anxiety, fear of heights/difficulty on stairs and curbs
- eye control and eye-hand/eye-foot coordination problem

Adults with a vestibular problem are more likely to have dizziness as their primary complaint with a myriad of other symptoms that may occur at the same time or later on as the body tries to adapt. Children with vestibular problems are more difficult to identify as they can present with low muscle tone, craving movement, being fearful of movement, having delays in riding a

bicycle, climbing stairs or swimming. Other children will have more acute symptoms similar to that experienced by adults. This can be challenging for doctors to diagnose as it was thought in the past to be a rare occurrence and also because children may have difficulty describing their experiences. Vestibular disorders can mimic seizures due to the spinning sensation and eye movements, gastrointestinal disorders due to nausea and phobias due to avoidance of movement. Therefore it is important for specialists who treat children with these symptoms to be aware of childhood vestibular disorders to be able to rule out these problems.

Vestibular System & Container Kids

The vestibular system is a fluid based system that responds to head movements in different directions, stop and go acceleration, and movement against gravity. It is active in utero and you can imagine all of the stimulation to this system while the fetus is floating around in response to the mother's movement. Once children are born they receive most of the stimulation to this system by being carried. When the infant is held he experiences a great variety of movements- different speeds, the effects of gravity, and different positions. Although the child can't control his body against these effects, the fluid of the vestibular system is being "swooshed" around and giving the child's brain and body a lot of information. In response the child learns to connect their eyes to their environment and their movements. In contrast, a child who spends a lot of time in an infant carrier is being fully supported against gravity, no variation of position is occurring, and as a result less "swooshing" of the fluid is occurring. As a result, less vestibular-visual-postural development may occur. This can later present as deficits in sensory integration.

Vestibular Diagnoses in Children

- One vestibular diagnosis that can occur in children is Childhood Proxysmal Vertigo of Childhood. This is typically seen in children between 2 and 12 and presents with episodes of acute spinning, nausea

and vomiting.

- BPPV, or benign paroxysmal positional vertigo, can occur following trauma (concussions, birth trauma etc) or can occur without incident. BPPV causes spinning turning in bed, sitting up, or bending. It is frequently the worst in the morning after lying down all night long.
- Vestibular neuritis /labrynthitis is an inflammation to the vestibular nerve that results in dizziness, balance disturbances and possible hearing loss.
- Meneire's Disease or Endolymphatic Hydrops presents as episodes of spinning, tinnitus, ear pressure and hearing loss.
- There are drugs that are known to have vestibular ototoxicity, including gentamicin, streptomycin, chemotherapy and radiation treatment. The hair cells or the nerve can be destroyed and as a result the child will have difficulty focusing his eyes when their head is moving.
- Central problems can also cause vertigo. If a nystagmus (eye move to one side and rapidly bounces back) is present spontaneously the child should be assessed by a neurologist to rule out central causes.
- Congenital conditions can also cause dizziness, including Arnold Chiari malformations, enlarged vestibular aqueduct, spasmodic torticollis, and cerebral palsy. Systemic medical problems can also cause dizziness, including orthostatic hypotension, thyroid disorders, and anemia.

Now What?

Parents or physicians who suspect a vestibular disorder should express their concerns to a neurologist, ENT, developmental pediatrician or pediatric ophthalmologist. These disorders can be particularly challenging to diagnose but are responsive to vestibular rehabilitation programs for treatment. It can take several visits to different doctors and various tests to rule things in and out, but an accurate diagnosis can lead to treatment that reduces or eliminates symptoms and allows children to get on with being children.