ONE KIDS PLACE
LA PLACE DES ENFANTS
CHILDREN'S TREATMENT CENTRE
CENTRE DE TRAITEMENT POUR ENFANTS

**Occupational Therapy Tip Sheet**

# THE VESTIBULAR SYSTEM

## What is the vestibular system?

- The vestibular system is fundamental to our actions.
- It is a sensory system that provides the brain with information about body movements, head position and gravity.
- It is our body's sense of movement and lets us know if our bodies are moving, how fast and in what direction we are heading.

## How does the vestibular system work?

- It helps us maintain awareness of head position during movement (e.g. walking, running, riding in a vehicle).
- The visual and vestibular systems work together to coordinate vision with head movement and stop objects from blurring when our heads move.
- Sensory receptors in the inner ear send information about the position of the head to the brain, which then directs the muscles to make any postural adjustments required to maintain balance.
- These sensory receptors become activated or "turned on" by movement and changes in head position; some movements can have a calming effect, while other movements can have an energizing effect.

## Why is it important to understand the vestibular system?

- Balance, coordination, fine motor skills and self-regulation all rely on the vestibular system.
- Some children are over or under responsive to vestibular input, which can affect their ability to attend to learning.
- When creating a universally designed classroom, consider options for vestibular input to help optimize participation for all students (active seating, bouncy bands, movement breaks, yoga stations, etc.).

## What are the benefits of incorporating vestibular input for students?

- When vestibular input (e.g. rocking, bouncing, bending, rolling) is provided, it can have a calming or alerting effect on students who are over stimulated or under stimulated.
- When in a calm and alert state, students can pay attention to what they see and hear and are more prepared to learn.
- Vestibular input helps students with sensory processing difficulties to feel comfortable and secure, function effectively and be more open to learning and socialization.

## A child experiencing difficulty with their vestibular system may do the following:

- Have emotional outbursts (e.g. tears or anger), especially as the day progresses
- Feel movement too intensely (e.g. get car sick, fearful when feet are not on the

ground)
- Appear to need or crave movement (e.g. constant wiggling, a need to move more than other students)

## How can Occupational Therapists (OTs) help?

- OTs have experience working with students who have difficulty processing sensory information. They can teach strategies that will help students maintain a balanced vestibular system so they can be ready for learning in the classroom and other environments.
- OTs can also help create individualized programs for students when necessary.

## Practice some of the following activities to provide vestibular input:

- Movement breaks throughout the school day (e.g. short walks or brief exercises as transition activities)
- Movement breaks that incorporate changes in head position (e.g. curl into a ball then stretch tall and straight or bend to touch your toes)
- Variable working positions (e.g. using standing desks or wiggle stools, lying on stomachs or kneeling)
- Active recess play (e.g. walking, running or climbing)
- Yoga (especially poses that encourage a change of head position such as bending forward and leaning to the side)
- Gentle rocking (can be achieved through use of air cushions, wobble stools, rocker seats, etc.)

**Precautions:**

- Vestibular experiences can have a significant impact on the nervous system.
- Students who have difficulty processing information from the vestibular system must be closely monitored for negative responses, such as excessive yawning, hiccupping, changes in breathing, colour change, atypical sweating, motor agitation, increased anxiety, pupil dilation or falling asleep.
- Students who demonstrate these signs of distress should stop the activity immediately and be closely monitored.