

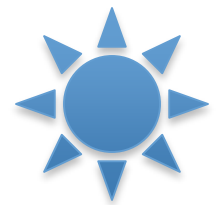


*OUR
SENSES*

*THE
VESTIBULAR
SYSTEM*

Learning Objectives

- Gain an understanding of the vestibular system and how it works.
- Understand the components and function of the vestibular system.
- Describe several strategies that you can use when playing with your children to provide needed sensory input.



SEVEN SENSES?

Most children and adults are taught that we have five senses: taste, touch, smell, sight and hearing.

However, we have two additional senses that are often not discussed. What are they?

MOVEMENT

Proprioception (body awareness).

This helps us know where our body is in space.

Vestibular (movement).


Sensory Experiences




“Exploration through all senses lays the foundation for all development.”

MOVEMENT

The first sensory system to fully develop by six months after conception is the vestibular system.



Our vestibular system
tells us where our
heads and bodies are
in space.



The vestibular system
is housed in our inner
ear and contributes to
our balance and
spatial orientation.




The vestibular system
influences everything we
do!

It is the unifying system in
our brain that modifies
and coordinates
information received from
other systems.

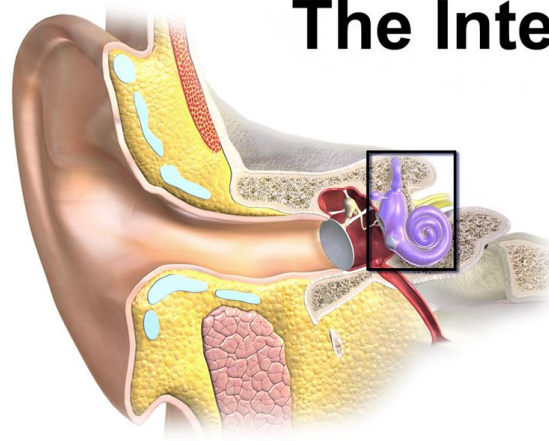
It functions like a traffic cop telling each sensation where and when it should go or stop.





Our vestibular
system contributes
to our balance and
sense of spatial
orientation.

The Internal Ear



Semicircular ducts

Anterior
Lateral
Posterior

Cristae within ampullae

Utricle

Vestibulocochlear nerve

Saccule

Vestibular duct

Cochlear duct

Tympanic duct

Cochlea



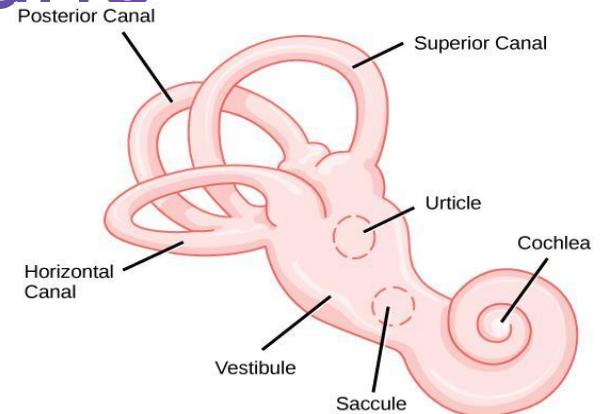
Bony labyrinth

Membranous labyrinth

Two components of our vestibular system are:

Otoliths-which indicate side to side movement

Otoliths= Saccule and Utricle



Posterior Canal

Superior Canal

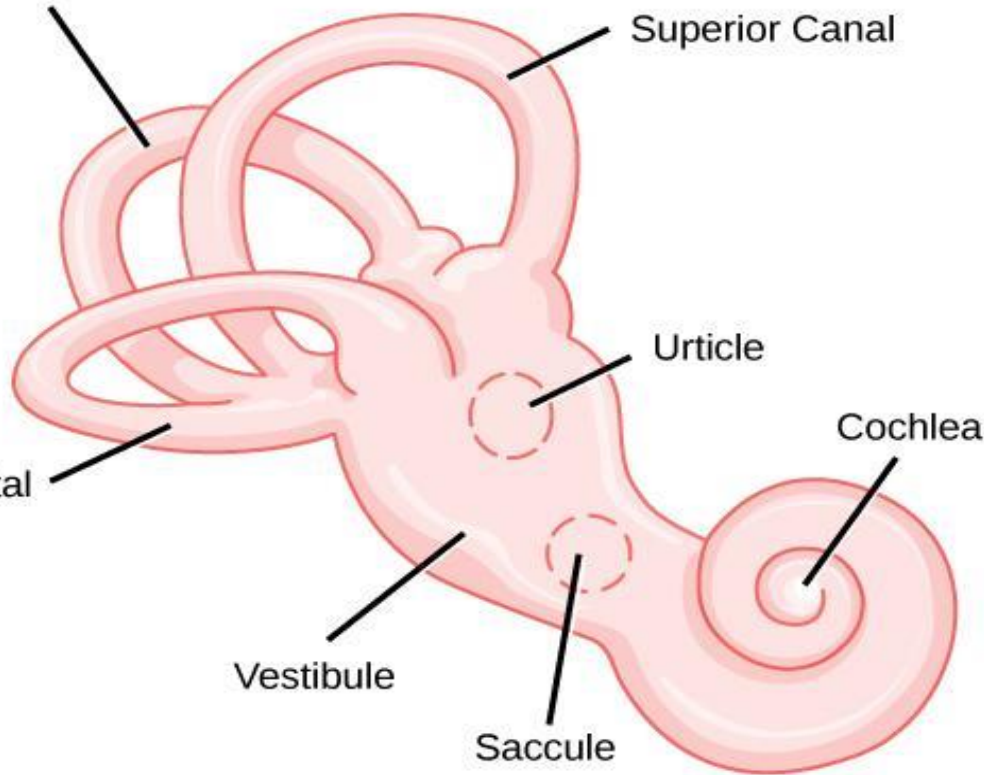
Utricle


Cochlea

Horizontal
Canal

Vestibule

Saccule





Both the utricle and the saccule within the vestibule respond to changes in the position of the head with respect to gravity. It provides information about acceleration.



Utricle= Sensitive to
horizontal acceleration

Sacculle= sensitive to
vertical acceleration

Semi-circular canals-which
indicate circular movement.

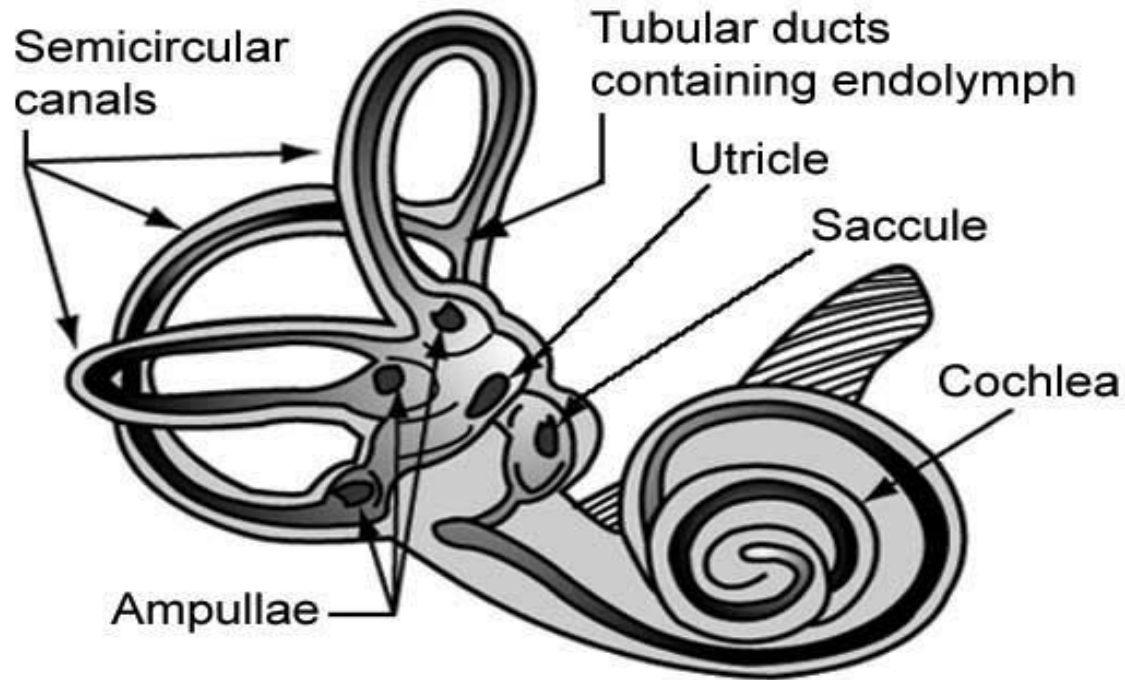




Figure 2: The Vestibular System - semicircular canals and otolith organs




Each time we move our head, there is a corresponding movement of the fluid in the vestibular system for each ear.


This then allows us to sense how far our head has moved and at what speed.




Research validates
the importance of
movement for
stimulating the inner
ear and the
vestibules.



Children who experience challenges with their vestibular system have difficulty integrating information about movement, gravity, balance and space.



Often children with
hearing loss crave
vestibular input.




Sensory play should
incorporate all seven of
our senses.


Here's how!

GET MESSY!





During meal times invite your child to explore food with his or her hands and sense of smell before tasting it.




Resist the temptation to immediately wipe your child's hands.


The tactile information from the mess provides your child's brain with tons of useful information.

MOVE!






Expose your child to
movement early.
Movement helps to
develop your child's
sense of body awareness,
balance and
coordination.



Movement is also great
for emotional regulation.
Always start with slow
movements and
remember to keep the
duration short.




A yoga ball is great for encouraging movement at home. Have your child bounce on it and then try different positions – laying on their stomach, reclining on their back or rolling gently from side to side.

THINK ABOUT TOYS!



DITCH THE PLASTIC!

Plastic toys typically have the same feel. Wooden toys and toys with textures invite more sensory exploration and creative play.



Sometimes the most
simple of objects like the
tupperware drawer in
your kitchen intrigues
your child.




KINESTHETIC TOYS

With warmer weather just around the corner, toys like Play Doh, sand and water tables invite exploration and provide so many language opportunities.

For example, at the sand/water table, model language like, "Scoop" "pour" "dip" "dig in the sand" "float" "splash."

CEMENT LANGUAGE WITH ACTION!

For example something
as simple as counting 1-
2-3 GO! before your child
goes down the slide.




With enough modeling,
your child will then use
this language during
independent play.


STANDING AND BALANCE

An easel is a great tool for helping your child to develop core strength, coordination, balance and fine motor skills.






While standing at the easel try painting with different textures like fingerpaint, or pudding paint and using different drawing tools like thick chalk or thick crayons.



When you are dressing your child, have him/her stand and lift his/her leg into pants or stand and raise his/her hands above their head to put on a shirt.

GET OUTSIDE!

We are fortunate to live in Colorado and to have so many opportunities to get outside. Try each day to be outside with your child.



Take advantage of
opportunities to observe
and encourage your
child's play.

This requires you to be
“in the moment”



Move! Before During and After Story!

Move like the animals in the story. Place props in sand/rice/water.

Read books that have a variety of textures.

Use feely boxes. Light and deep touch.

Plan art experiences with different textures like chalk, paint, materials that connect to the story.

Music and Movement


Songs, rhymes, and chants all provide opportunities to PLAY with the sounds of language and to develop phonemic awareness.

- Make up songs for daily routines
- Practice familiar nursery rhymes
- Pause and have the child fill in the missing word or phrase-practice auditory closure often!



Studies show that if a child knows 8 nursery rhymes by heart by the age of 4, they typically are one of the top readers in their class.

Laurene Simms, PhD



When parents are asked to define how they play and what they do when they play with their child, a common response is “I hand him/her my phone.”

Let this not be your go-to!