

HEARING SOLUTIONS SIG

Sun City Texas Computer Club

February 9, 2017

Dizziness and Imbalance

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What is the difference between DIZZINESS and IMBALANCE?

Dizziness and Vertigo

- Ver·ti·go
'vərdəgō/
a : a sensation of motion in which the individual or the individual's surroundings seem to whirl dizzily
b : a dizzy confused state of mind
"Vertigo." Merriam-Webster.com. Merriam-Webster, n.d. Web. 31 Jan. 2017.
- Characterized by a spinning sensation and the PERCEPTION of movement, either by the individual or surroundings
- May be short-lived, recurrent, acute, chronic... in any presentation, it's disconcerting

General Imbalance

- Im·bal·ance
im-'ba-lən(t)s\
lack of balance : the state of being out of equilibrium or out of proportion
"Imbalance." Merriam-Webster.com. Merriam-Webster, n.d. Web. 31 Jan. 2017.
- Characterized as unsteadiness or a loss of equilibrium
- May be chronic and affect everyday gait and mobility



General Statistics

- In the U.S., falls are the leading cause of injury-related death and injury for people 65 and older ([National Safety Council](#)).
- In 2005, nearly 16,000 older adults in the U.S. died from falls; 1.8 million were treated in emergency departments; and 433,000 were hospitalized ([Centers for Disease Control](#)).
- The [National Institutes of Health](#) (NIH) statistics indicated that balance-related falls cause nearly half of accidental deaths in the population over the age of 65.
- More than five million people consult with their doctors EACH YEAR with complaints of dizziness ([Vestibular Disorders Association](#)).
- Dizziness is the number one malady for people older than 70 ([Vestibular Disorders Association](#)).
- Eighty percent of people aged 65 years and older have experienced dizziness, and BPPV, the most common vestibular disorder, is the cause of approximately 50% of dizziness in older people ([Vestibular Disorders Association](#)).



Questions to Answer Today:

- 1) How does a normal vestibular system work? In other words, how are we able to maintain our balance?
- 2) What can cause an impairment to the vestibular system?
- 3) Are there other common disorders that may cause dizziness or imbalance?
 - Hint: YES ;)
- 4) How are vestibular disorders managed?
 - There IS help out there!
- 5) How can fall risk be reduced at home?



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Three systems work together to assist us in maintaining balance...

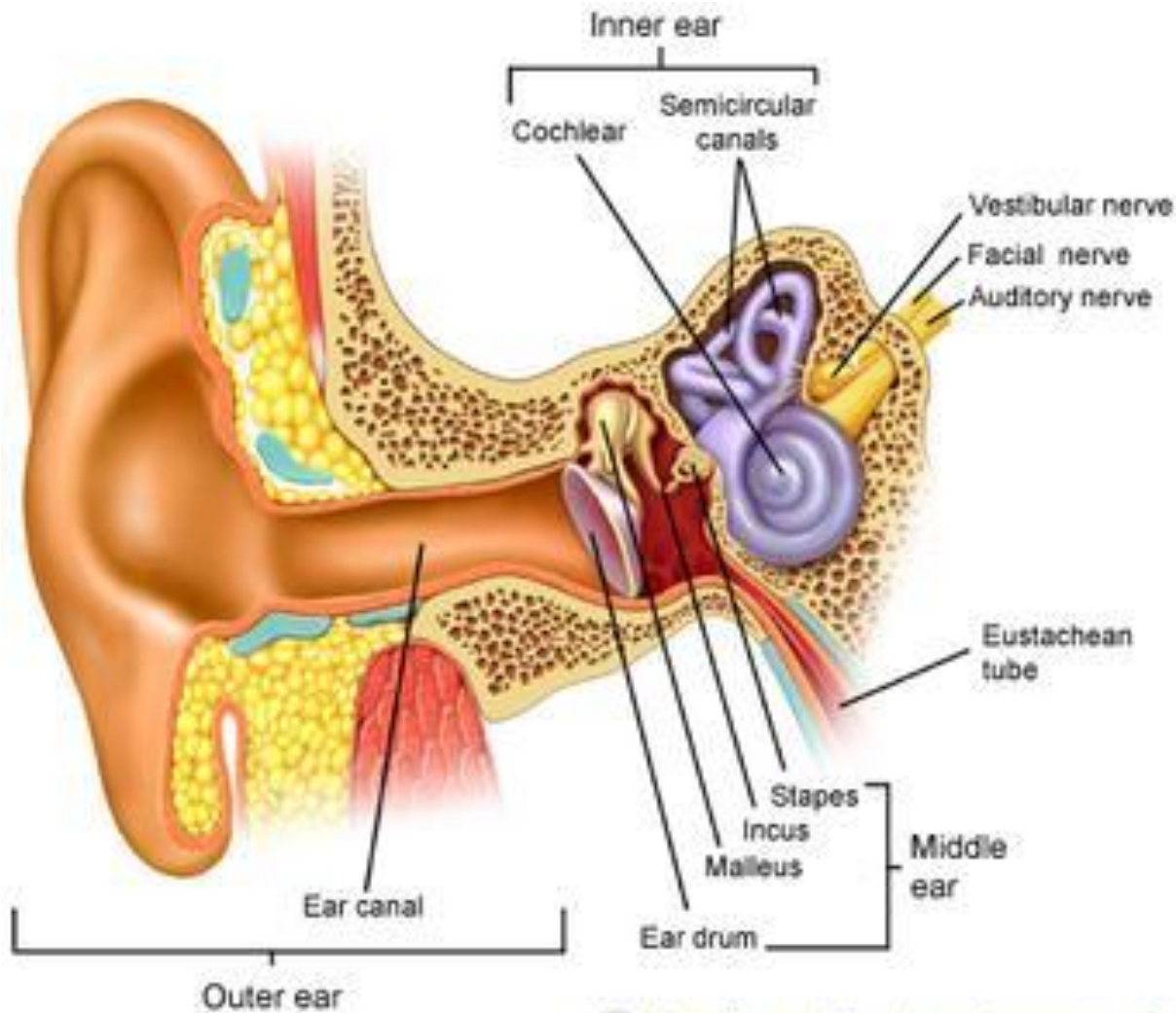
- 1) Vestibular System
 - 1) Input from your inner ears and semicircular canals allows specialized areas in your cerebellum and brainstem to process head movements
- 2) Visual System
 - 1) Utilize visual input to know if you are moving, or if your surroundings are moving
 - 2) Allows you to maintain visual fixation while moving
- 3) Somatosensory System
 - 1) Utilize sensory input to allow brain to perceive touch, pain, pressure, position, movement, vibration, etc.



So how does our
vestibular system
work?!



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Anatomy of the Ear

Outer Ear

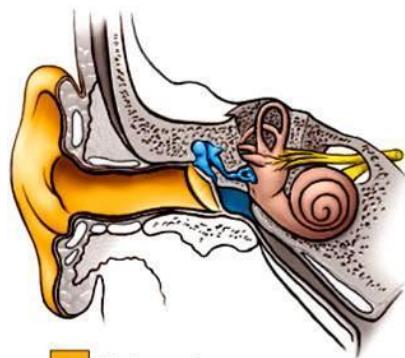
Middle Ear

Inner Ear

Vestibulocochlear Nerve

ENTER

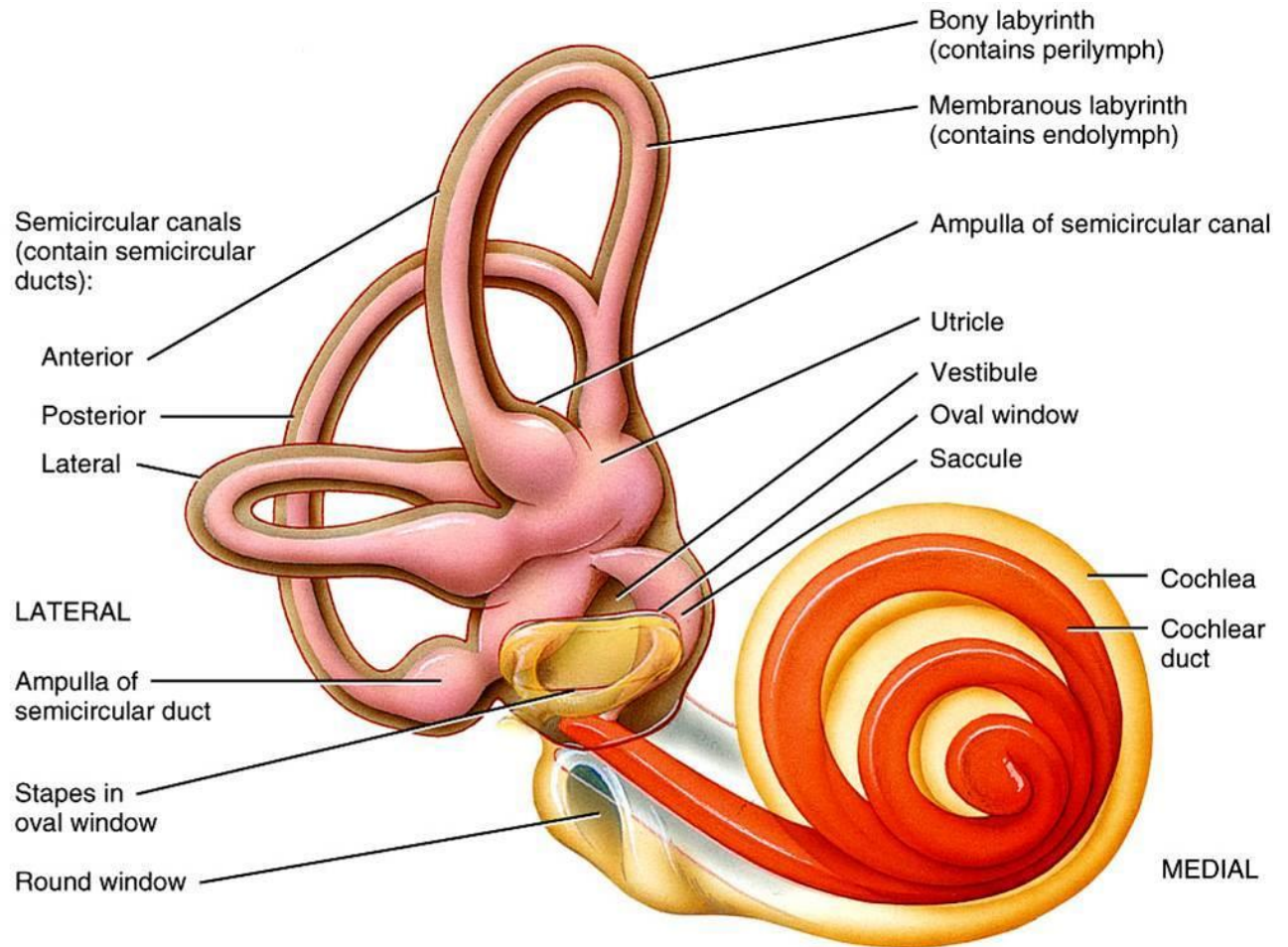




- External ear
- Middle ear
- Internal ear

Anatomy of the Vestibule

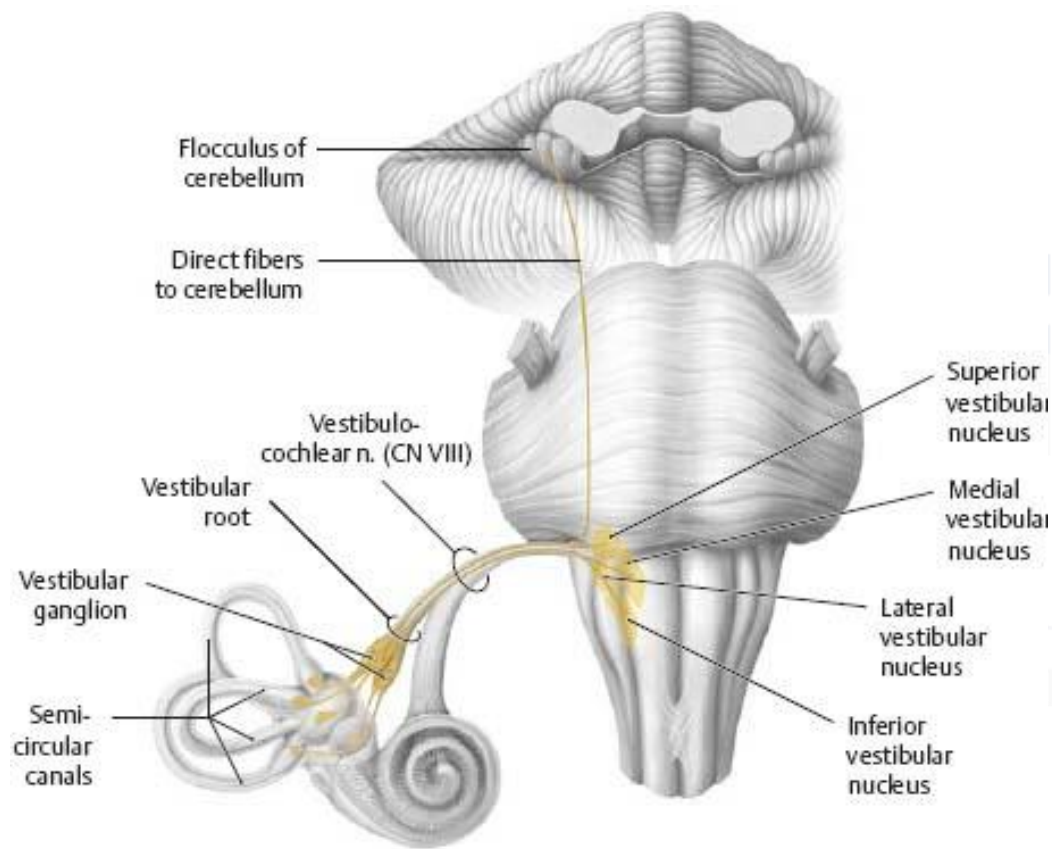
2 Otolith Organs
3 Semicircular Canals



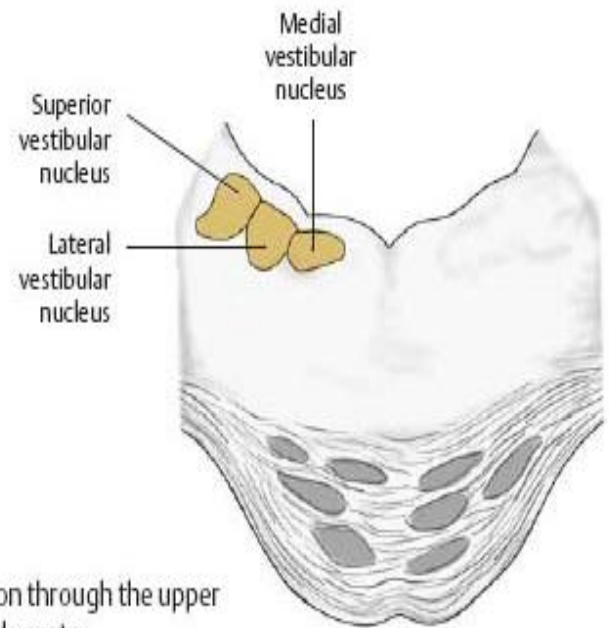
(a) Components of the right internal ear

Figure 17.20 Tortora - PAP 12/e
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A Anterior view of the medulla oblongata and pons with cerebellum.



B Cross section through the upper medulla oblongata.

Anatomy of the Brainstem & Cerebellum



Common Vestibular Impairments

- BPPV
- Meniere's Disease
- Vestibular neuritis or labyrinthitis
- Acoustic neuroma and vestibular schwannoma
- Mal de Debarquement
- Postural Perceptual Dizziness
- Concussion

Common Disorders that may cause Imbalance

- Diabetes
- Certain medications
- Nervous system disorders
 - Peripheral neuropathies, Parkinson's, Multiple Sclerosis
- Visual disturbances
 - Macular degeneration, poor visual acuity, etc
- Cardiovascular disorders
 - Aneurysms, arrhythmia, atherosclerosis
- Dehydration

How do we MANAGE Vestibular Disorders and Imbalance?

...it depends.

- Medication
 - Meclizine for Meniere's flare ups
 - Antihistamines for motion sickness
 - Anti-anxiety medications
- Surgical intervention
 - SSCD
 - Shunts for Meniere's
 - Vestibular nerve resection and/or labyrinthectomy
 - WORST CASE SCENARIO
- Manage underlying cause of dizziness or imbalance
 - i.e. manage blood pressure, keep neurological disorders managed per physician, alter diet
- Repositioning maneuvers for positional vertigo
 - Epley
 - Log Roll
- VESTIBULAR REHABILITATION
- GAIT and BALANCE THERAPY



Vestibular Rehabilitation and Gait Training

Vestibular Rehabilitation

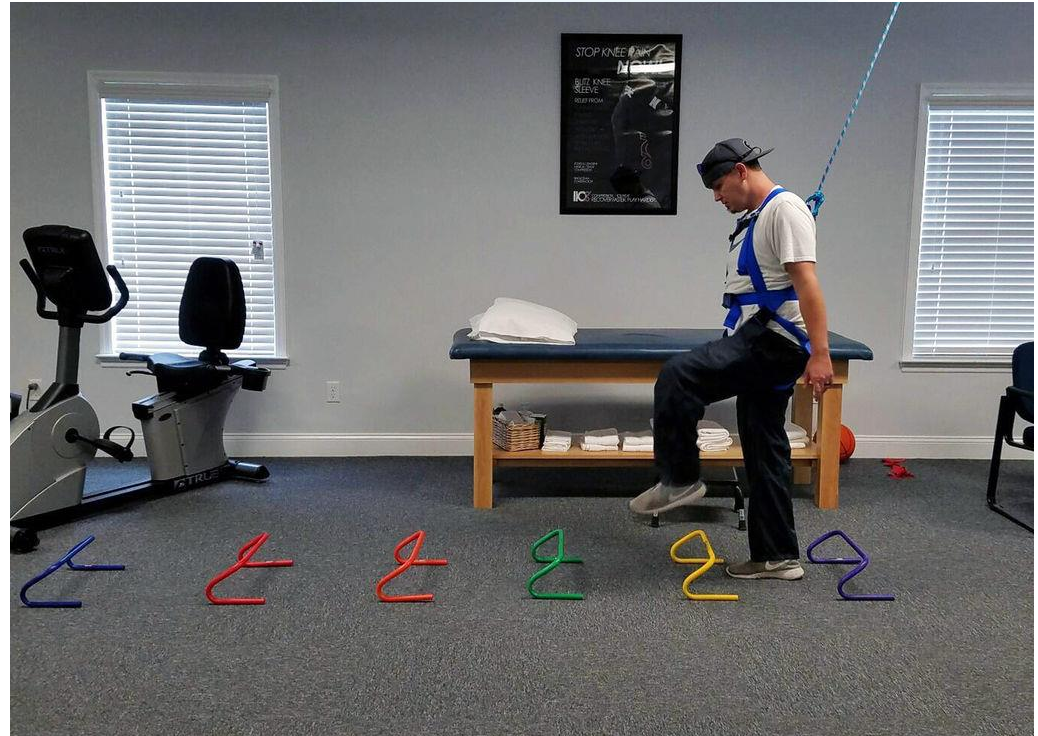
- Goal: alleviate primary and secondary problems caused by vestibular disorders
- Exercise based program
 - Designed to reduce vertigo and/or dizziness, alleviate instability, and reduce fall risk
- Compensation
 - May occur naturally over time
 - Visual and somatosensory skills substitute for vestibular deficit
- Habituation
 - Used for dizziness that is produced by self-motion or visual stimulus, NOT spontaneous events
 - Reduce dizziness with repeated exposure of dizziness-provoking stimuli

Balance and Gait Training

- Goal: improve steadiness to allow for successful completion of daily activities
- Exercised based program
 - Designed to be challenging and manipulated for individual underlying balance problems
- Appropriate intervention to improve overall balance function and reduce fall risk
- NOT appropriate for individuals with BPPV or acute vertigo attacks without an underlying imbalance issue



FYZICAL... Spelled different because we ARE different.





FYZICAL Austin

Tips to Reduce Fall Risk at Home

- STAY ACTIVE
 - Conditioning programs that challenge your balance and cardiovascular systems
 - Strengthening programs to improve musculature and assist with core strength
 - Walking tasks to assist with gait
 - Tai chi and yoga are good examples of something that is not only physically challenging, but also challenges your cognitive skills
- Keep your home safe
 - Maintain adequate lighting
 - Remove clutter on the ground
 - Remove area rugs that may cause you to trip
 - Ensure railings are secure along stairs
 - Keep items you need on a regular basis in an easy-to-reach location
- Keep YOURSELF safe
 - Utilize proper footwear
 - Refrain from wearing pants or slacks that are too long or baggy and may trip you up



No Meeting in March

Next Meeting

April 13, 2017



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