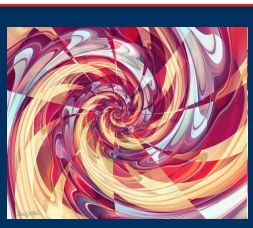
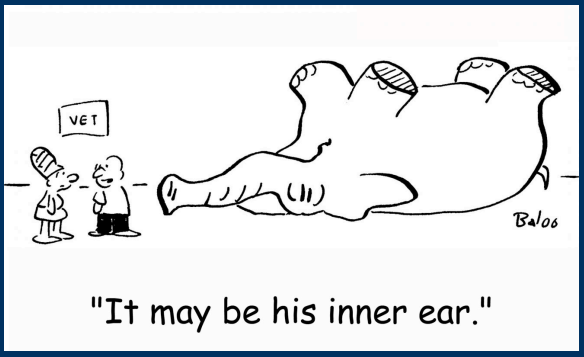


Pediatric Dizzy Patient

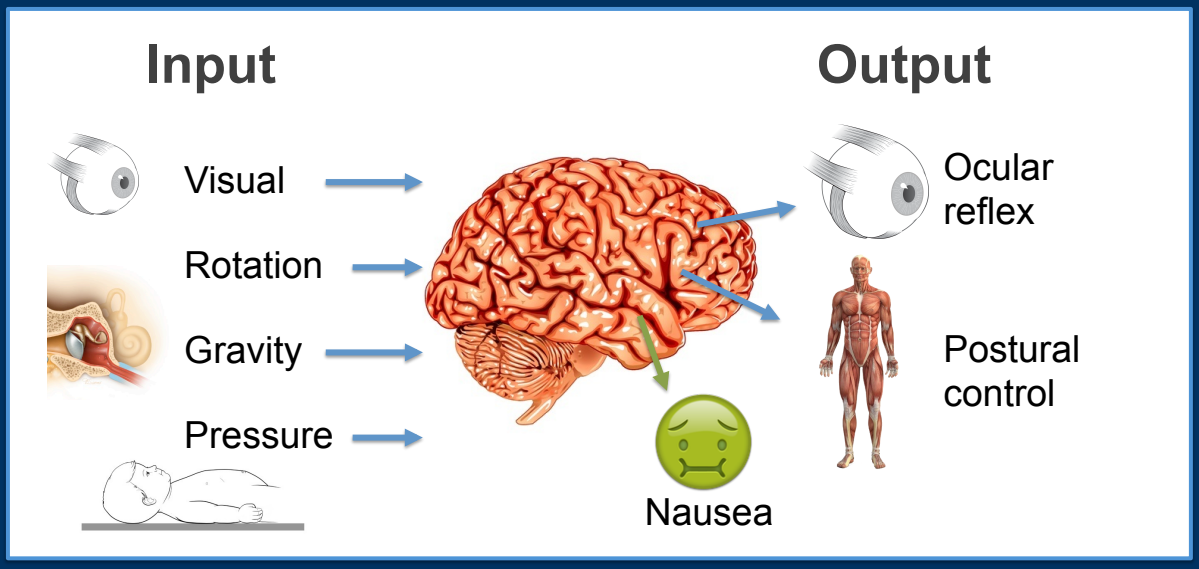
Yi-Chun Carol Liu, MD
Surgeon, Otolaryngology
Texas Children's Hospital
Assistant Professor, Pediatric Otolaryngology
Baylor College of Medicine

Objective

- Identify and define symptoms of dizziness
- Differential diagnosis of pediatric dizziness
- Assessment of dizziness in children
- Treatment



Balance Sensory Input



Signs of Dizziness in Children

- "Frightening"– Clutching caretakers
- Clumsiness (sudden falls or tipping over)
- Periodic N/V
- Delayed motor function
- Loss of postural control
- Difficulty with ambulating in the dark
- Abnormal movements or behavior
- Infant may lie face down against side of crib with eyes closed, not wanting to be moved

Texas Children's Hospital | Baylor College of Medicine

Causes of Dizziness in Children and Adolescents

True Vertigo*	
Benign paroxysmal positional vertigo	Migraine
Benign positional vertigo of childhood	Motion sickness
Cholesteatoma	Multiple sclerosis
CNS infection**	Otitis media
Congenital defects Δ	Perilymph fistula
Head trauma	Poisoning or adverse effect of medication
Labyrinthitis (Vestibular neuritis)	Ramsay Hunt syndrome
Mastoiditis	Seizure
Meniere disease	Stroke
Middle ear trauma	Tumor

Pseudovertigo
Arrhythmia
Anemia
Anxiety
Depression
Heat illness
Hyperventilation
Hypoglycemia
Orthostatic hypotension
Poisoning or adverse effect of medication
Pregnancy
Presyncope
Visual disturbance

Red indicates serious or life-threatening conditions

Blue indicates common conditions

***True vertigo refers to dizziness with a sense of spinning**

****** Meningitis, encephalitis, or intracranial abscess**

Δ Eg, Mondini dysplasia, Usher syndrome, Joubert syndrome, Schiebe deformity, enlarged vestibular aqueduct syndrome

Evaluation of dizziness in children and adolescents, Table 1 UpToDate, 2012.

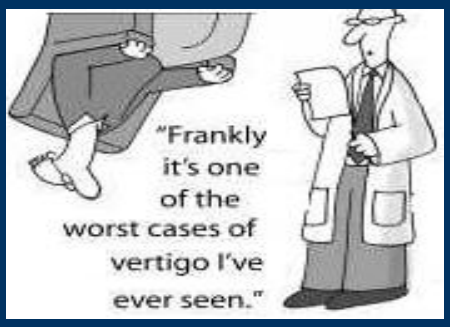
History

- Prenatal or perinatal infection
- Ototoxic medications
- Syndromes
- Craniofacial anomalies
- Family hx of hearing loss, vertigo, migraine, seizure disorders or demyelinating disease

Texas Children's Hospital | Baylor College of Medicine

History

- Episodic vs. continuous
- Acute vs. slow onset
- Provoked by changes of head position
- Paroxysmal vertigo with or without HL
- Loss of postural control
- Unremitting, neurological signs



Texas Children's Hospital | Baylor College of Medicine

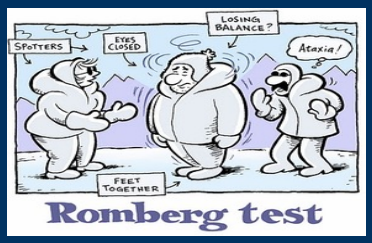
Physical Exam

- Otologic exam
- Neurological exam
- Check visual acuity
- Static and dynamic imbalance of vestibular function

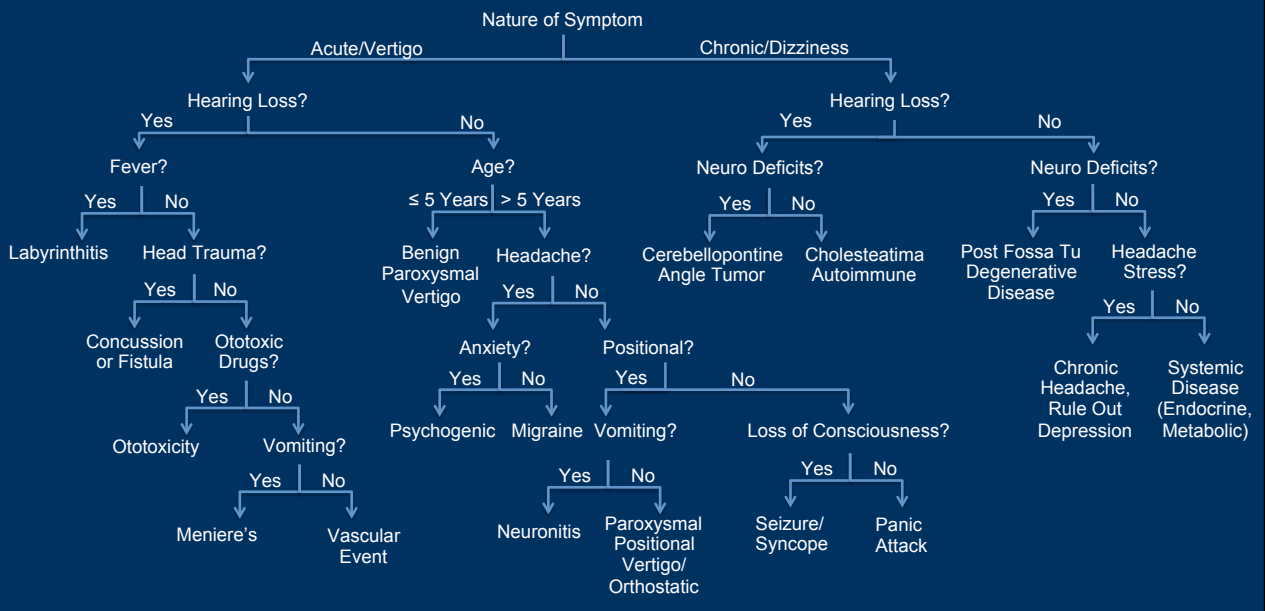
Texas Children's Hospital | Baylor College of Medicine

Gait & Gross Motor Abilities

- Vestibulospinal testing
  - Fukuda
  - Romberg test
  - Tandem gait
- Age appropriate gross motor assessments available (Bruininks- Oseretsky test 4-21yrs)



Texas Children's Hospital | Baylor College of Medicine



A simplified diagnostic approach to dizziness in children. Ravid S - Pediatr Neurol - 01-OCT-2003; 29(4): 317-20.

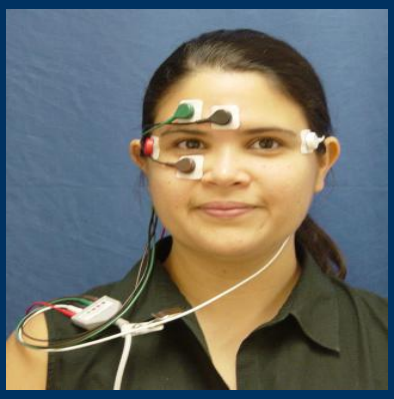
Workup

- Audiology evaluation
- Eye examination
- Vestibular function test
- EEG
- Hematological workup (CBC, electrolytes, glucose, thyroid tests)
- Imaging indication
  - Focal neurological symptoms or findings
  - Worsening symptoms – Prolonged LOC (> 1 min)
  - Failure of symptoms to improve

Texas Children's Hospital | Baylor College of Medicine

Vestibular Function Testing

- ENG battery
- Rotation testing
- Platform posturography
- Dix-Hallpike - PSSC
- Gaze testing
- Caloric ENG – LSSC
  - >30% difference between side indicates a unilateral peripheral lesion



Texas Children's Hospital | Baylor College of Medicine

Imaging

- CT of Temporal Bone
  - Further evaluate craniofacial syndromes & PLF
  - Defects in bony labyrinth, cholesteatoma
  - Suspect tumor or previous trauma
- MRI with gadolinium
  - Children with CNS findings
  - Suspect schwannomas and other tumors
  - Granulomatous disorders

Texas Children's Hospital

Baylor College of Medicine