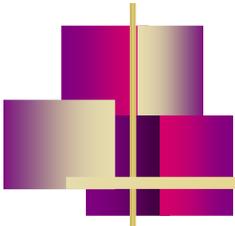


# BALANCE DISORDERS

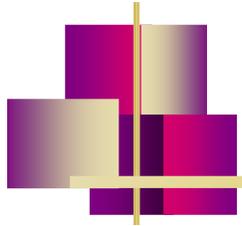
My World is Spinning and I'm Falling Down!



Harriet B. Jacobster, Au.D.

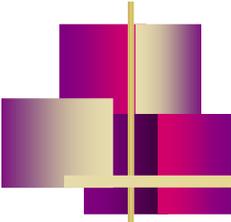
 *Lyric Audiology*

*Bringing Words and Music to Your Ears*



# HOW BIG IS THE PROBLEM?





# SOME SOBERING FACTS

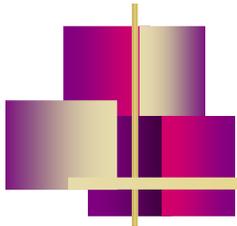
---

- ♪ More than 1/3 of adults 65 + fall each year in the US
- ♪ Among older adults, falls are the leading cause of injury deaths AND the most common cause of nonfatal injuries and hospital admissions for trauma
- ♪ In 2005 alone
  - ♪ 15,800 people 65+ died from injuries related to unintentional falls
  - ♪ About 1.8 million people 65+ were treated in EDs for nonfatal injuries from falls, and more than 433,000 of these patients were hospitalized
- ♪ The rates of fall-related deaths among older adults rose significantly over the past decade



# WHAT CAN HAPPEN WHEN YOU FALL??





- ♪ 20 to 30% of people suffer moderate to severe injuries such as bruises, hip fractures or head traumas
  - ♪ limited independent living
  - ♪ increased risk of early death
- ♪ Falls are the most common cause of traumatic brain injuries (TBI)
  - ♪ In 2000, TBI accounted for 46% of fatal falls among older adults
- ♪ Most fractures among older adults are caused by falls
  - ♪ The most common are of the spine, hip, forearm, leg, ankle, pelvis, upper arm, and hand

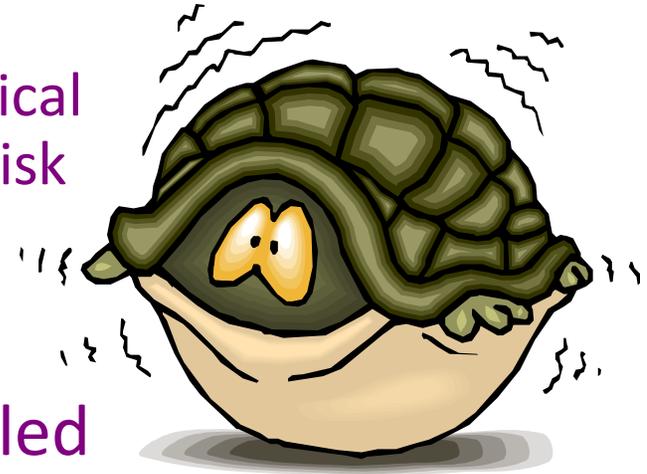


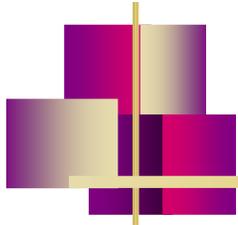
♪ Many people who fall, even those who are not injured, develop a fear of falling

♪ Leads to limiting activities

♪ Leads to reduced mobility and physical fitness and increasing their actual risk of falling

♪ In 2000, direct medical costs totaled \$179 million for fatal falls and \$19 billion for nonfatal fall injuries



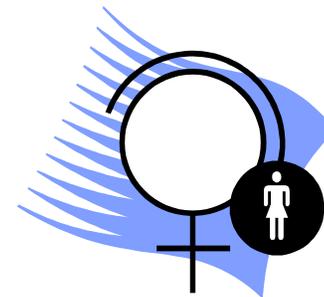
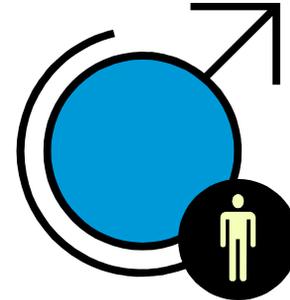


# WHO FALLS?



# DEMOGRAPHICS - Gender

- ♪ Men are more likely to die from a fall
  - ♪ After adjusting for age, the fall fatality rate in 2004 was 49% higher for men than for women
- ♪ Women are 67% more likely than men to have a nonfatal fall injury
- ♪ Rates of fall-related fractures among older adults are more than twice as high for women as for men
- ♪ In 2003, about 72% of older adults admitted to the hospital for hip fractures were women



# DEMOGRAPHICS - Age

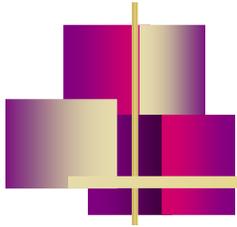
- ♪ The risk of being seriously injured in a fall increases with age
  - ♪ In 2001, the rates of fall injuries for adults 85 and older were four to five times that of adults 65 to 74
  - ♪ Nearly 85% of deaths from falls in 2004 were among people 75 and older
- ♪ People 75 and older who fall are four to five times more likely to be admitted to a long-term care facility for a year or longer



# DEMOGRAPHICS - Race

- ♪ There is little difference in fatal fall rates between whites and blacks from ages 65 to 74
- ♪ After age 75, white men have the highest fatality rates, followed by white women, black men, and black women
- ♪ White women have significantly higher rates of fall-related hip fractures than black women
- ♪ Among older adults, non-Hispanics have higher fatal fall rates than Hispanics





# RISK FACTORS

---

- ♪ Medical conditions causing problems with gait, balance, dizziness, syncope, impaired perception of environment or confusion

- ♪ Medications



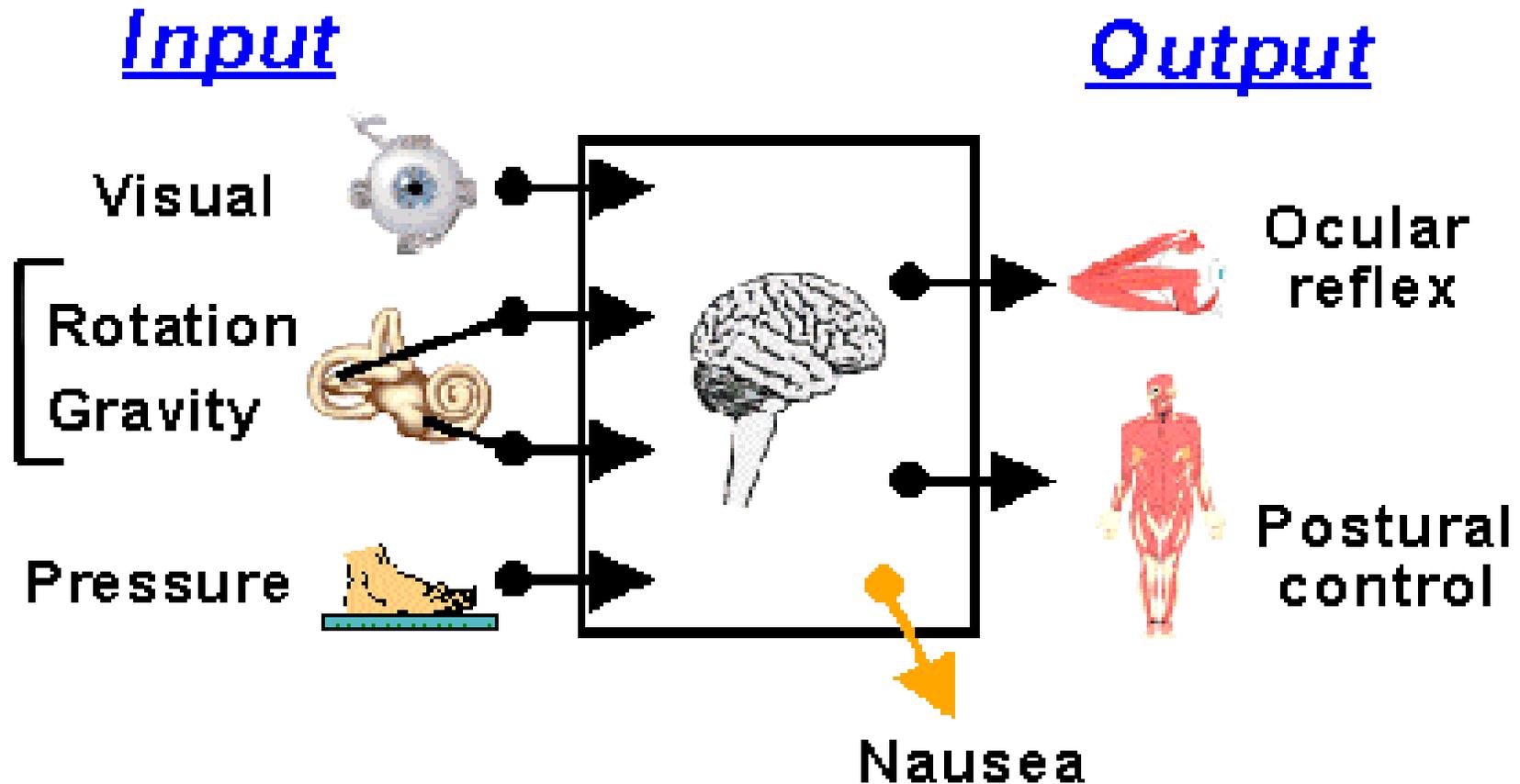
- ♪ Environmental hazards



- ♪ anxiety and other psychological disorders

- ♪ Less common in older than younger persons

# THE BALANCE SYSTEM

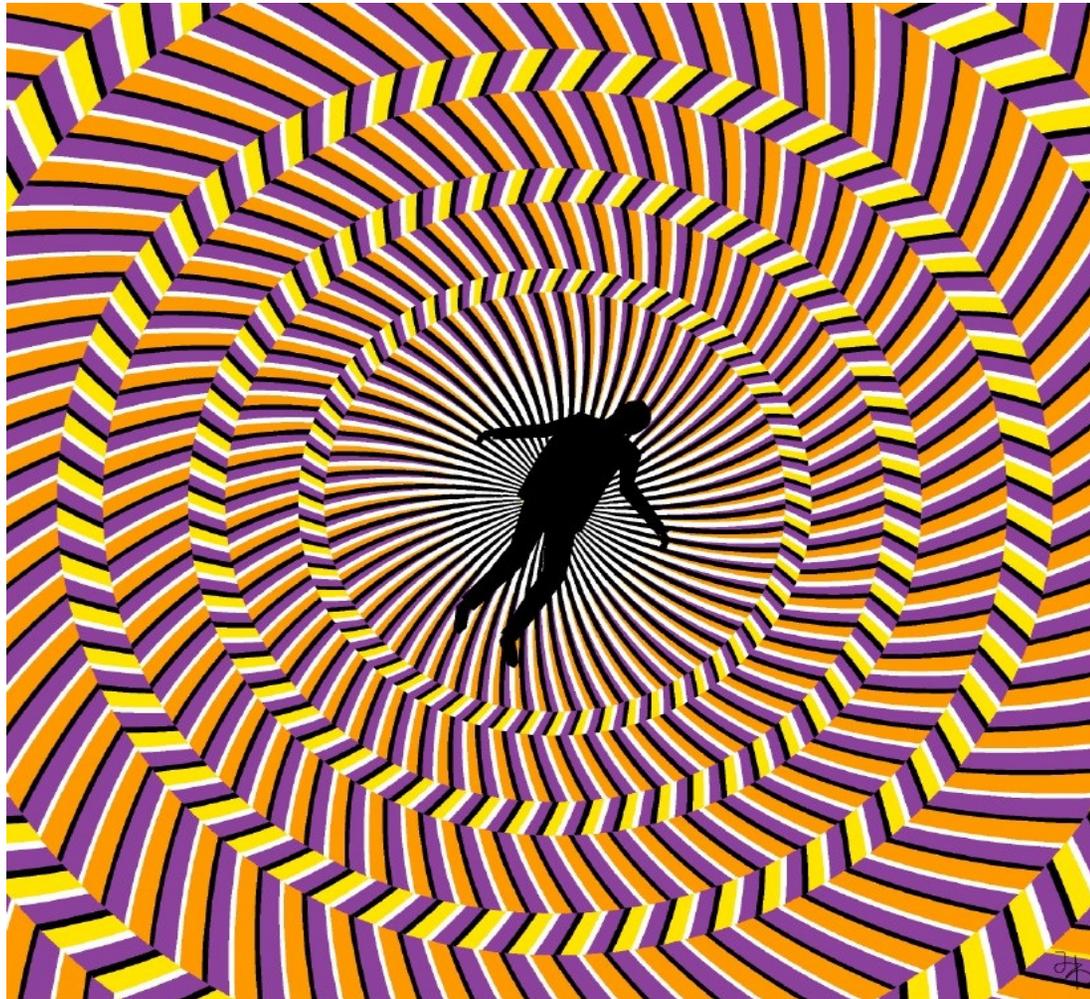


# THE JOB OF THE VESTIBULAR SYSTEM

- ♪ Integrate sensory stimuli and movement for the brain
- ♪ keep objects in visual focus as the body moves
- ♪ Sends signals to the inner ear, an organ consisting of three semicircular canals surrounded by fluid
- ♪ sends movement information through vestibular nerve to the cerebellum, which control balance and posture and coordinate movement
- ♪ Disruption of any part of the system can result in dizziness



*I'M SPINNING....*



# FOUR TYPES OF SENSATIONS

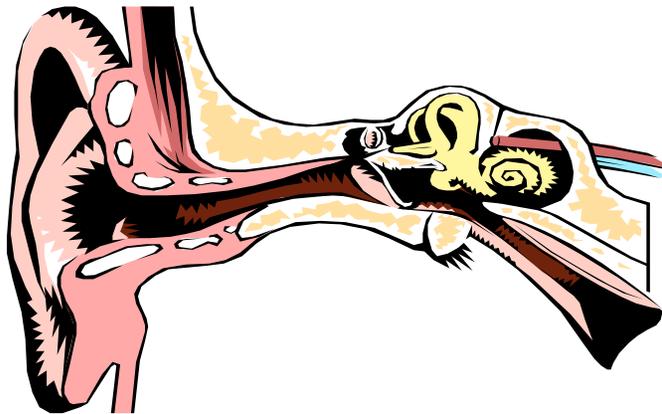
---

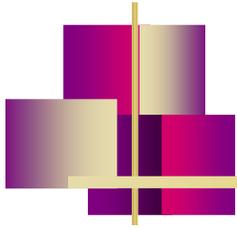
- ♪ *Vertigo* - spinning or motion
- ♪ *Presyncopal lightheadedness* - impending faint
- ♪ *Dysequilibrium* - unsteadiness, off balance
- ♪ *Other dizziness* - vague, difficult to describe, “floating”



# KEY DIZZINESS SYNDROMES

- ♪ Postural dizziness
- ♪ Positional vertigo
- ♪ Labyrinthitis
- ♪ Vestibular neuronitis
- ♪ Meniere's disease
- ♪ Vertebrobasilar TIAs
- ♪ Stroke
- ♪ Cervical dizziness
- ♪ Physical deconditioning
- ♪ Drug induced
- ♪ Multiple sensory impairments
- ♪ Psychological





# VERTIGO

---

A false sense that the person or the surroundings are moving or spinning

- ♪ Motion sickness
- ♪ Ménière's disease
- ♪ middle-ear infections
  - ♪ migraines
  - ♪ multiple sclerosis
- ♪ damage to the vestibular nerve
- ♪ reduced blood flow to the brain after a stroke/TIA
- ♪ Benign paroxysmal positional vertigo, sudden head movements cause a sensation of motion (most common)

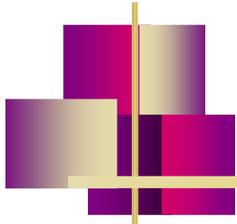


# PRESYNCO PAL LIGHTHEADEDNESS

Faintness, the feeling of being about to black out when upright



- ♪ Dehydration
- ♪ Abnormal heart rhythms
- ♪ Overmedication with BP drugs
- ♪ Disorders of the regulatory branch of the central nervous system that helps people adapt to changes in their environment



# DYSEQUILIBRIUM

---

Feeling unsteady and about to fall even though muscle strength is normal

- ♪ Disorders of the inner ear
- ♪ Disorders of the cerebellum because of stroke or chronic alcoholism
  - ♪ Parkinson's disease
  - ♪ Overmedication with certain sedating drugs
  - ♪ Vision disturbances
- ♪ Neuropathy or spinal cord disease that causes a loss of position sense in the legs  
(proprioception)



# OTHER DIZZINESS

Vague lightheadedness, a feeling of giddiness or detachment from the world

- ♪ Panic attack
- ♪ Depression
- ♪ Anxiety
- ♪ Hyperventilation

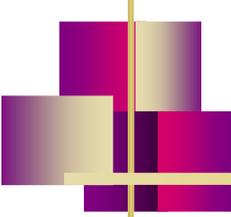


# MULTIPLE CAUSES

---



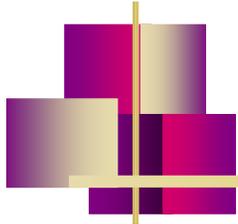
- ♪ Subtyping may be useful in only about half the cases
- ♪ Older persons often describe several subtypes
- ♪ Most have dysequilibrium along with some other type of dizziness - vertigo or presyncope



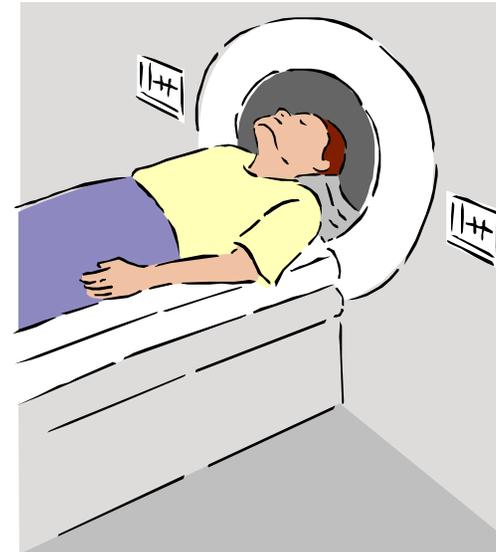
# PHYSICAL EXAMINATION

---

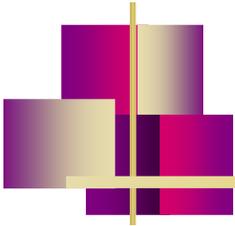
- ♪ BP and pulse in recumbent and upright position - immediate, 1 and 3 minutes
- ♪ Cranial nerves - including vision, hearing, nystagmus
- ♪ Neck, cerebellar, leg-neuromuscular, sensation
- ♪ Cardiovascular
- ♪ Audiometry
  - ♪ Electronystagmography/Hallpike maneuver
  - ♪ Brainstem auditory-evoked potentials



- ♪ CBC, thyroid, glucose, RPR, liver/kidney
- ♪ MRI, cervical spine x-rays
- ♪ Holter/event monitor, carotid sinus massage
- ♪ Doppler of carotid and vertebral arteries



# HOW CAN YOU PREVENT FALLS?



# HOME FALL HAZARDS

## ♪ Clear walkways of:

- ♪ cords and hoses
- ♪ throw rugs
- ♪ pets
- ♪ clutter



## ♪ Increase lighting

## ♪ Add rails to stairways, porches and beds



## ♪ Clean wet floors

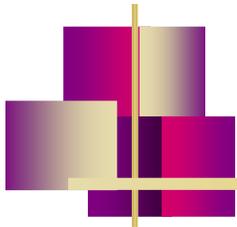


# HOME FALL HAZARDS

## *BATHROOM SAFETY*

- ♪ Grab bars around the tub and toilet
- ♪ Raised toilet seat
- ♪ Shower or tub chair
- ♪ Flexible hose for the shower
- ♪ Non-skid mat in tub

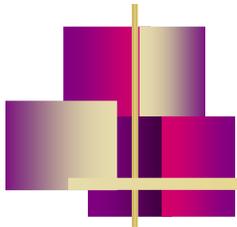




# PUBLIC FALL HAZARDS

- ♪ Curbs
- ♪ No railings near steps
- ♪ Cracks in walkways
- ♪ Uneven walkways
- ♪ Slippery steps
- ♪ Obstacles along paths



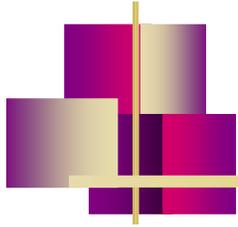


# ASSISTIVE DEVICES

- ♪ Canes
- ♪ Walkers
- ♪ Reachers

- ♪ Special step stools
- ♪ Portable seat lift
- ♪ Hip protectors



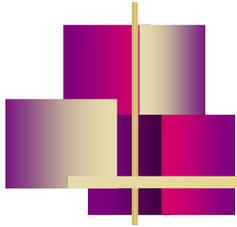


# TAKING CHARGE!

---

- ♪ Talk to your doctor about...
  - ♪ dizziness, especially with regards to medications
  - ♪ chronic diseases such as Arthritis, Diabetes, and Osteoporosis
  - ♪ starting an exercise program
- ♪ See an Audiologist for a hearing and vestibular evaluation
- ♪ See a Physical Therapist about...
  - ♪ improving your balance and strength
  - ♪ walking with assistive devices like canes





♪ See an Occupational Therapist about...

♪ home safety

♪ special needs or assistive device use like reachers

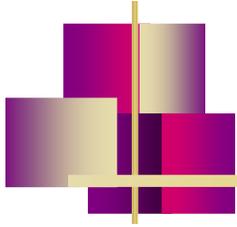
♪ See an eye doctor for a yearly eye exam



# EMPOWER YOURSELF!

- ♪ Exercise
- ♪ Stay physically and mentally active
- ♪ Eat well
- ♪ Drink lots of water
- ♪ Do not let fear stop you!





# THANK YOU

---

**Harriet B. Jacobster, Au.D.**

ASHA Certified in Audiology



*Lyric Audiology*

---

*Bringing Words and Music to Your Ears*

Ph: 845-395-0300

E-mail: [hearingarts@aol.com](mailto:hearingarts@aol.com)