

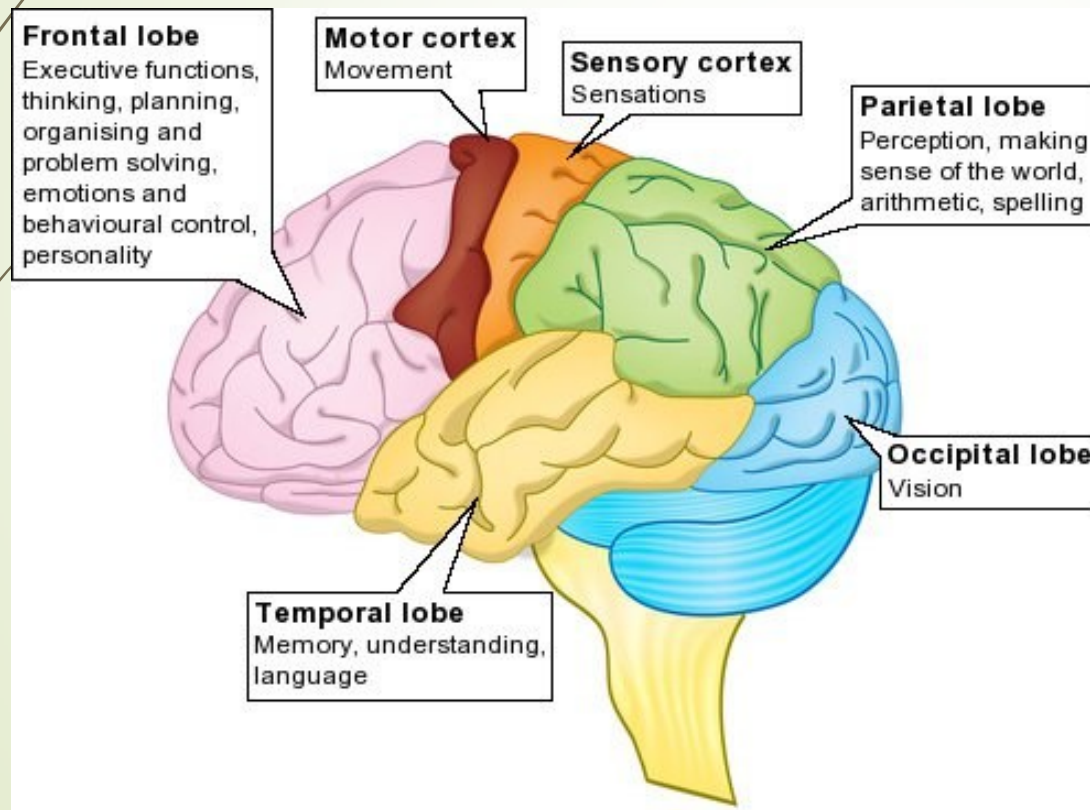
# Memory Loss and Other Neurological problems



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# Cognitive Domains



- Executive function (frontal, hemispheric white matter)
- Memory (medial temporal lobes/ hippocampus)
- Language (left hemisphere, usually)
- Visuospatial (occipital, parietal)

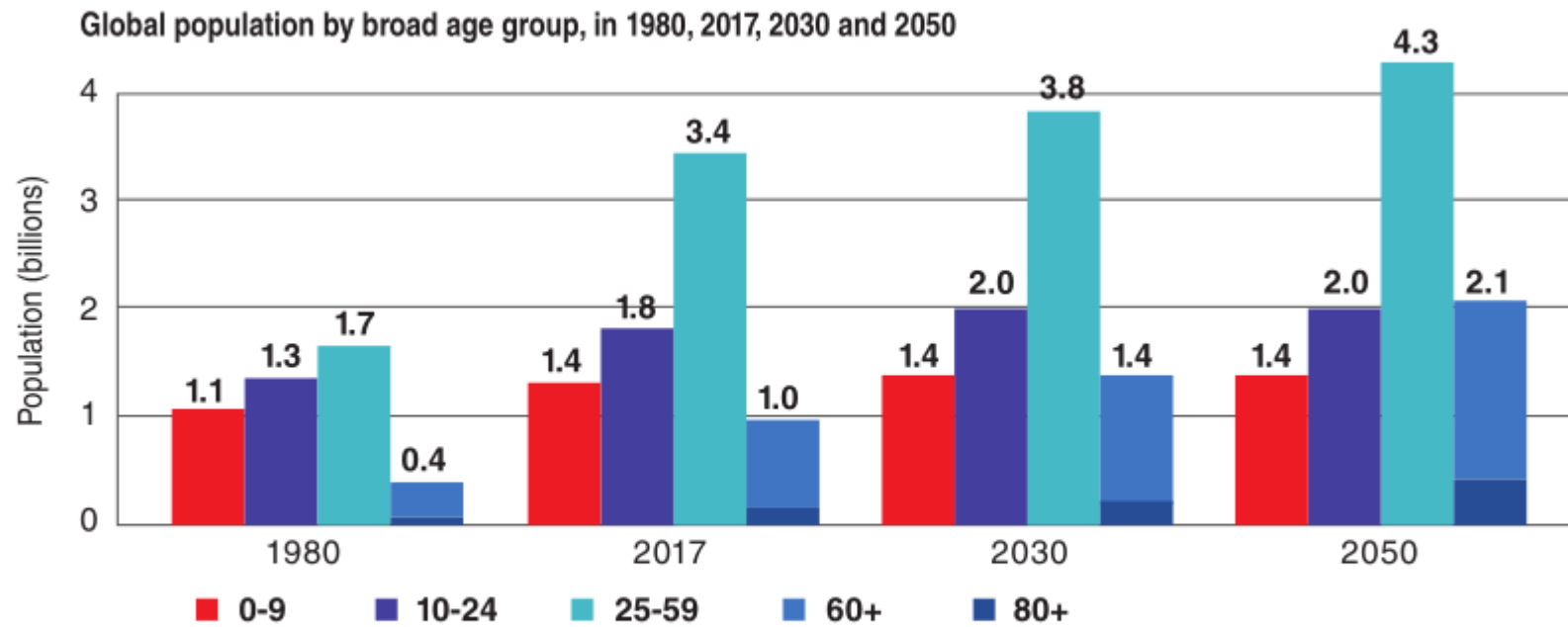


# Memory



- ▶ Faculty of brain where information is coded stored and retrieved when needed.
- ▶ Cognition — The process of knowing. It is a combination of skills, including knowledge acquisition , attention , intuition, memory , language, perception , skilled motor behaviors, decision making, goal setting, planning, and judgment.
- ▶ Cognitive vitality—Complex combination of brain capacity, acquired knowledge , and a degree of protection against brain insults.

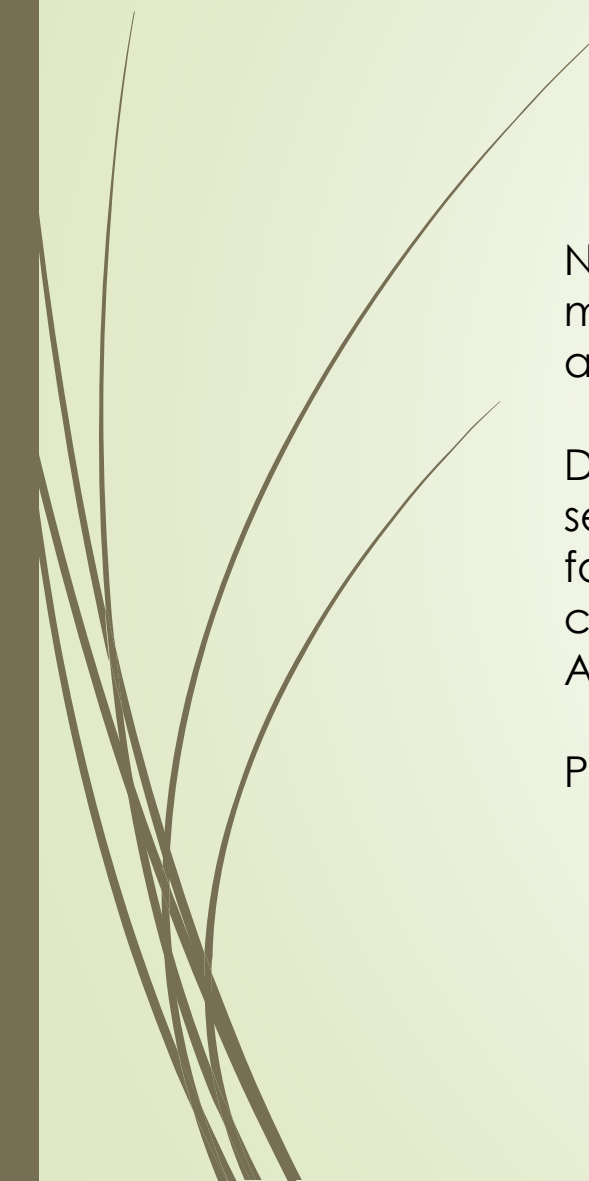
# GLOBAL AGING



Data source: United Nations (2017). World Population Prospects: the 2017 Revision



# Normal AGING vs DEMENTIA



Normal age-related declines are subtle and mostly affect the speed of thinking and attentional control.

DEMENTIA- declines in cognition are more severe and thinking abilities, such as rapid forgetting or difficulties navigating, solving common problems, problems with speech, Abnormal behavior


Problems in motor system with falls or tremor.

## Symptoms to Watch For

- ▶ Getting lost in familiar places
- ▶ Repetitive questioning
- ▶ Odd or inappropriate behaviors
- ▶ Forgetfulness of recent events
- ▶ Repeated falls or loss of balance
- ▶ Personality changes
- ▶ Decline in planning and organization
- ▶ Changes in diet/eating habits
- ▶ Changes in hygiene
- ▶ Increased apathy
- ▶ Changes in language abilities, including comprehension



# WHY DOES BRAIN SLOWS DOWN

- 
- INFLAMMATION
  - OXIDATIVE STRESS
  - HORMONAL CHANGES
  - AMYLOID DEPOSITION
  - TRAUMA
  - STROKES
  - OTHER HEALTH CONDITIONS



# IS COGNITIVE DECLINE IS SOMETHING EVERYONE SHOULD EXPECT ?

- ▶ AGE ASSOCIATED MEMORY IMPAIRMENT –

Subjective complaints and objective evidence of memory loss

- ▶ MILD COGNITIVE IMPAIRMENT –

Losing things often

Forgetting to go to events or appointments

Having more trouble coming up with words than other people of the same age

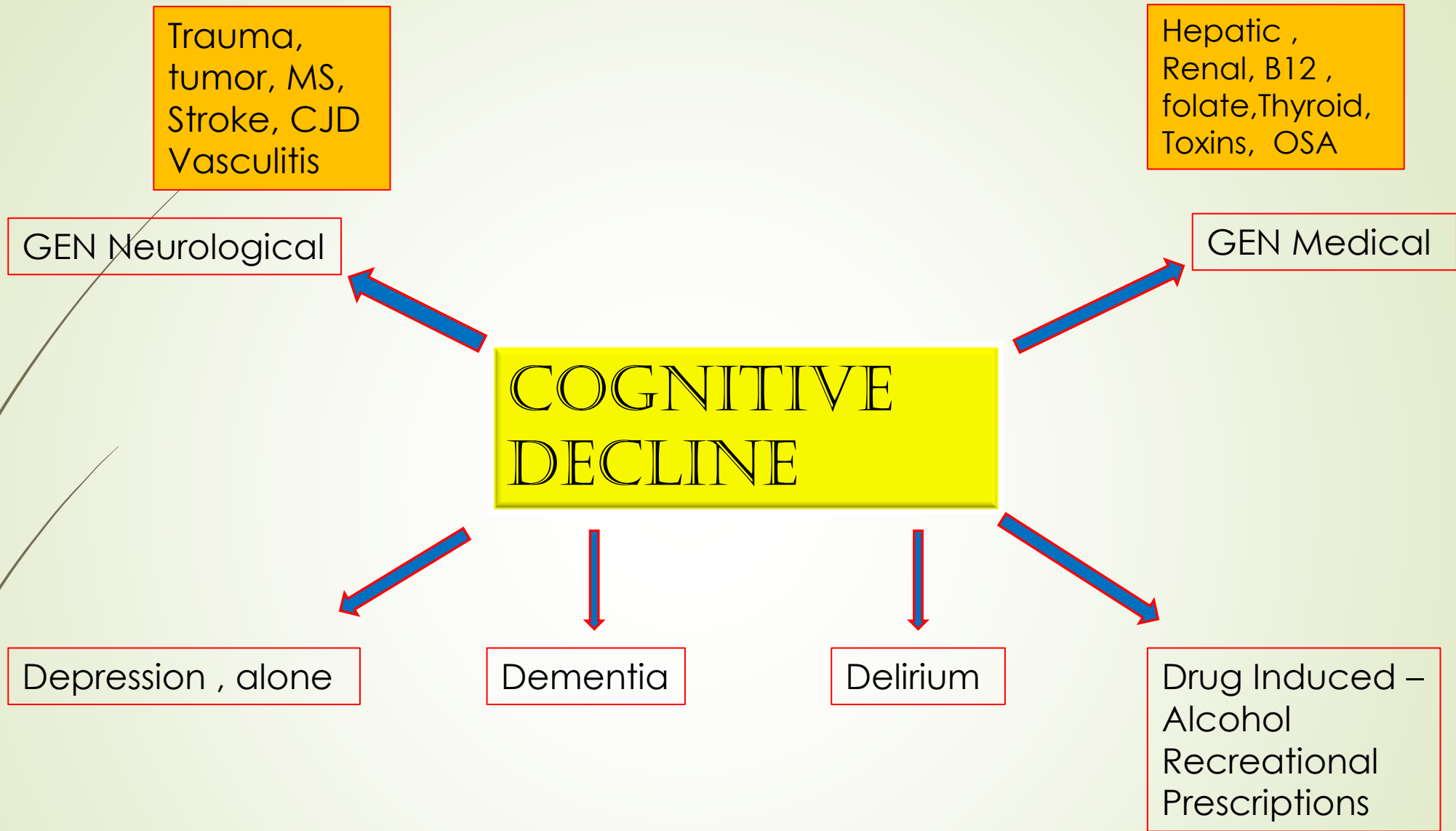
Movement difficulties and problems with the sense of smell

NOT everyone who has MCI develops Alzheimer's disease. About 8 of every 10 people who fit the definition of amnesic MCI go on to develop Alzheimer's disease within 7 years.

1 to 3 percent of people older than 65 who have normal cognition will develop Alzheimer's in any one year

Medications such as Valium, Ativan, Benadryl, Tylenol PM, Advil PM (both contain Benadryl), Cogentin and many others- Should be avoided.


Sleep apnea and other sleep disorders, mood disorders (such as anxiety and depression), deficiencies in vitamin B12 and other nutrients, and use of medications that cause cognitive side effects.








# RISK FACTORES

- 
- Age
  - Female sex
  - Mild cognitive impairment (MCI)
  - ApoE-e4 positivity
  - Family history in first degree relative (especially if younger onset)
  - Vascular risk (diabetes, heart disease, etc.)
  - Low education and physical/social activity

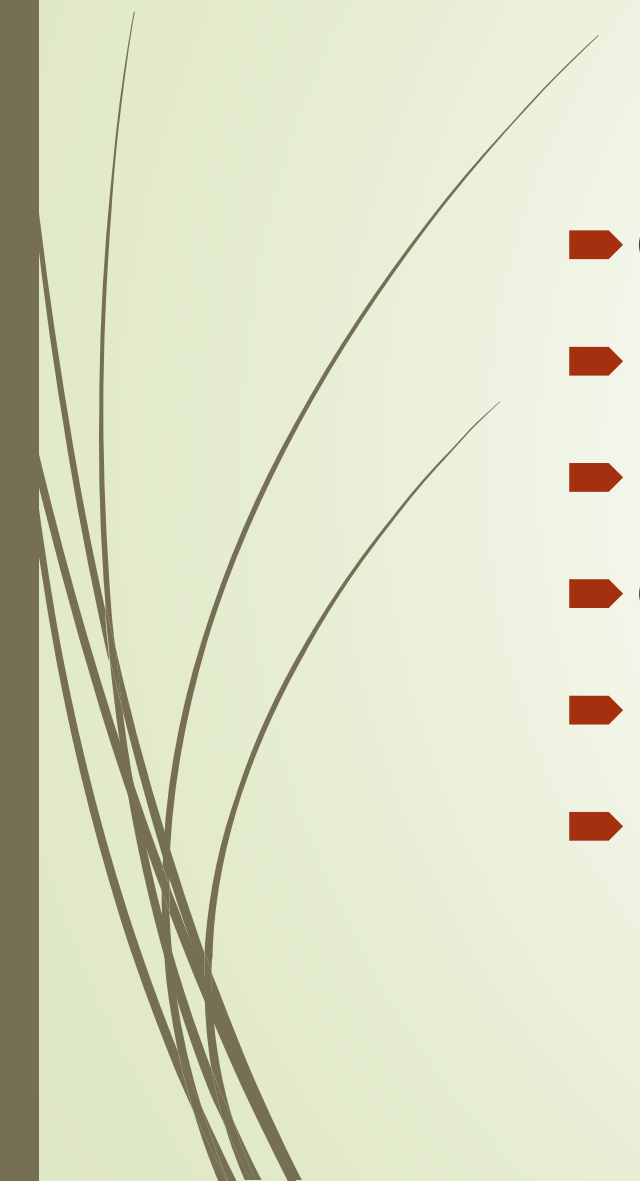


# Dementia

- ▶ LEWY BODY DEMENTIA
  - ▶ ALZHEIMER'S DEMENTIA
  - ▶ FRONTOTEMPORAL DEMENTIA
  - ▶ NORMAL PRESSURE HYDROCEPHALUS
  - ▶ VASCULAR DEMENTIA
  - ▶ PARKINSON DISEASE
  - ▶ PSUEDODEMANTIA
- 

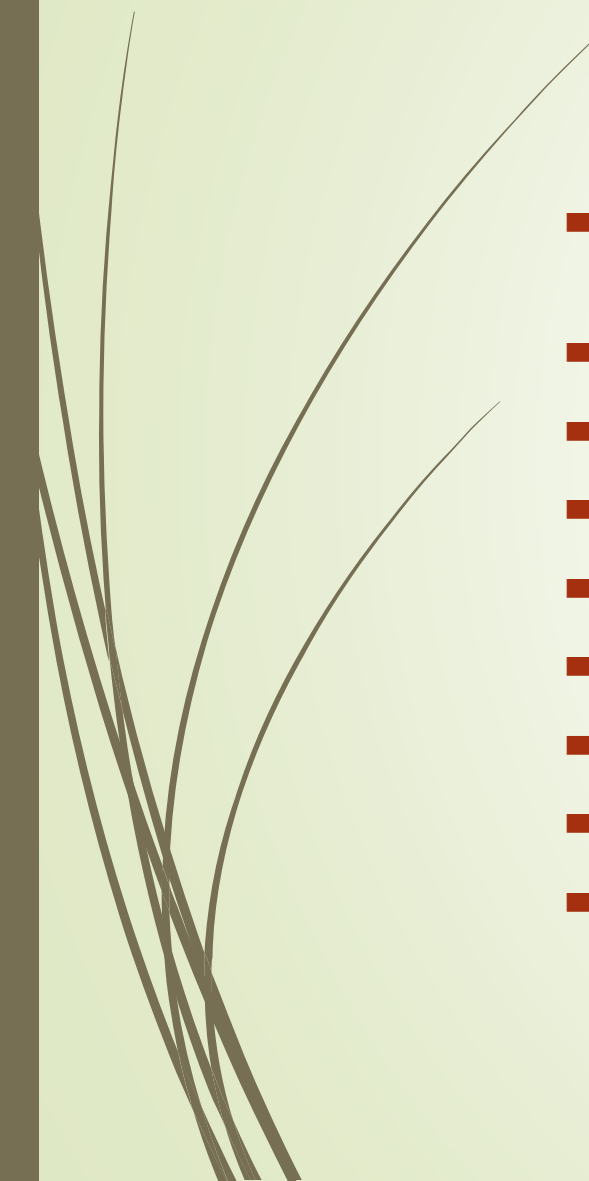


# Vascular Risk Factors

- 
- Cholesterol
  - Elevated blood pressure
  - Increased levels of inflammation
  - Obesity
  - Diabetes
  - Physical activity



# How to live with Mild cognitive impairment (MCI)

- ▶ Diet- Green leafy Vegetables, Spinach Romaine lettuce , Mediterinean diet –fruits whoel griane healthful fats such as Omega 3-
  - ▶ Learning New language
  - ▶ Physical activity
  - ▶ Don't Panic
  - ▶ Schedule daily activities
  - ▶ Use calendars
  - ▶ Establish Memory places
  - ▶ Risk factor management
  - ▶ Stay socially active
- 




# Drug treatment





- There is no current treatment which slow down neuronal cell death
- Choline esterase inhibitors- ( Donepezil, Rivastigmine Galantamine)
- Modest symptoms improvement in AD
- Marked improvement in PDD and DLB
- Memantine – Modest improvement in AD




# Later stages Of Dementia

- 
- ▶ Not able to recognize their dear ones
  - ▶ Difficulty navigating in their own home
  - ▶ Behavioral issues
  - ▶ Bowel bladder disturbances
  - ▶ Forget how to dress needs help with Activities of Daily livings
  - ▶ Hallucinations , worsening mental status
  - ▶ Medical complications – UTI, Aspiration Pneumonia , Falls , Traumatic brain Injuries, Subdurals

- 
- 
- ▶ The person may live in the past search for someone or something from that time
  - ▶ It is good opportunity to talk about their past and the memories about it , and reassure them , don't show unrest ,
  - ▶ Using Music , paintings , taking them to the activities that make take interest
  - ▶ Having daily Routines
  - ▶ Persons body language and expressions is useful guide how they are feeling
  - ▶ Care givers should continue talking to them as they understand, which will help preserving their dignity, and also some moments they are appropriate in their responses.



# How to Improve Your Memory


- 
- A. Brain training and work out
  - B. Physical activity , Yoga , Meditation ,
  - C. Sleep
  - D. Good healthy diet
  - E. Social interactions , Helping others
  - F. Stress , emotional disturbances
  - G. Hearing
  - H. Controlling the health problem






# Mediterranean diet

- 
- Fruits
  - Vegetables
  - Beans
  - Fish- Moderate
  - Limited Red meat
  - Low to moderate dairy
  - Olive oil
  - Walnuts and pecans
  - Red wine

- 
- ▶ Memory, like muscular strength, requires you to “use it or lose it.”
  - ▶ The more you work out your brain, the better you’ll be able to process and remember information.
  - ▶ But not all activities are equal. The best brain exercises break your routine and challenge you to use and develop new brain pathways.
  - ▶ Learn something new which you always wanted to learn, like how to play the musical instruments, painting , speak Sanskrit or learn new language , dance.

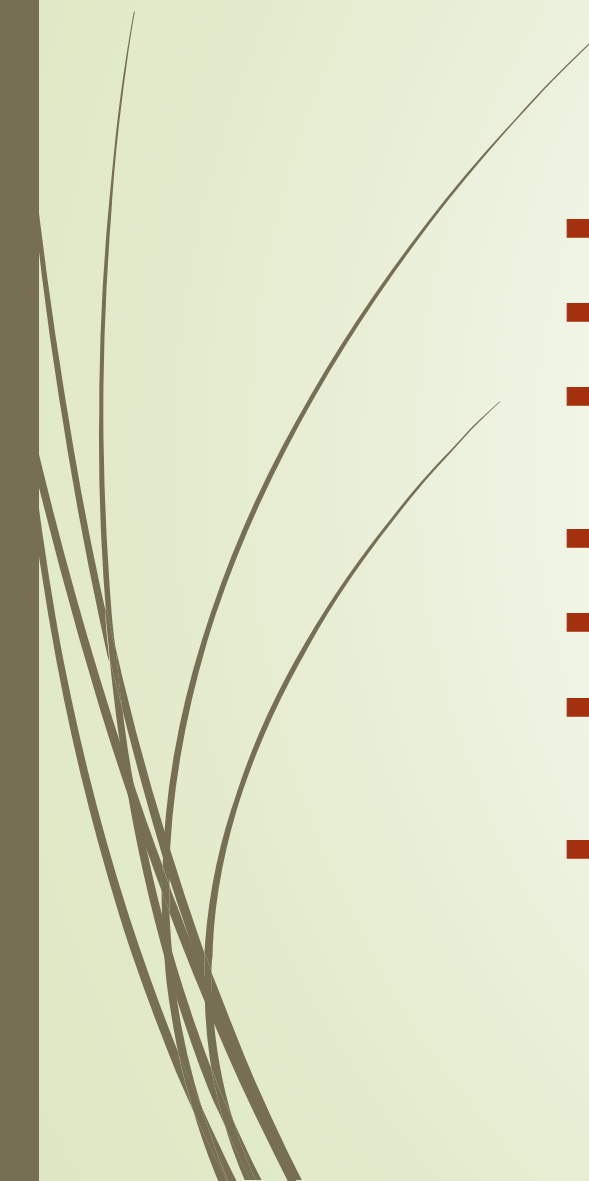


# How to increase dopamine

- 
- ▶ Eat lots of proteins
  - ▶ take adequate sleep
  - ▶ Eat less saturated fats
  - ▶ Exercise
  - ▶ Listen to music
  - ▶ Meditate
  - ▶ Get enough Sun light
  - ▶ Consider supplements – MG, Vitamin D, Curcumin, Green tea



# Gait disturbances / Falls

- ▶ It is how we walk
  - ▶ There are different process involved in walking
  - ▶ We don't understand how important this process is , until someone develops problem
  - ▶ Problem could be due to Neurological or Musculoskeletal
  - ▶ One in 4 Americans aged +65 falls each year
  - ▶ Falls are leading cause of fatal injury most common cause of trauma related hospital admissions
  - ▶ In 2015 total cost of fall injuries was \$50 Billion , may expected to reach \$67.7 Billions by year 2020.
- 



# Classifications of Falls

## **Community-Dwelling:**

41% environment related

13% weakness, balance or gait disorder

8% dizziness or vertigo

## **Nursing Home:**

16% environment related


26% weakness, balance or gait disorder

25% dizziness or vertigo

Rubenstein, et al. Ann Intern Med 1994;121:442 - 451




# Causes of falls

- Medications
  - Orthostatic Hypotension
  - Cardiac- Arrhythmias , edema, Aortic stenosis
  - Intrinsic – age related causes , strength, visual disturbances , reaction time , postural instability , reduced ability to multitask,( going to restroom )
  - Musculoskeletal
  - Foot disorders
- 

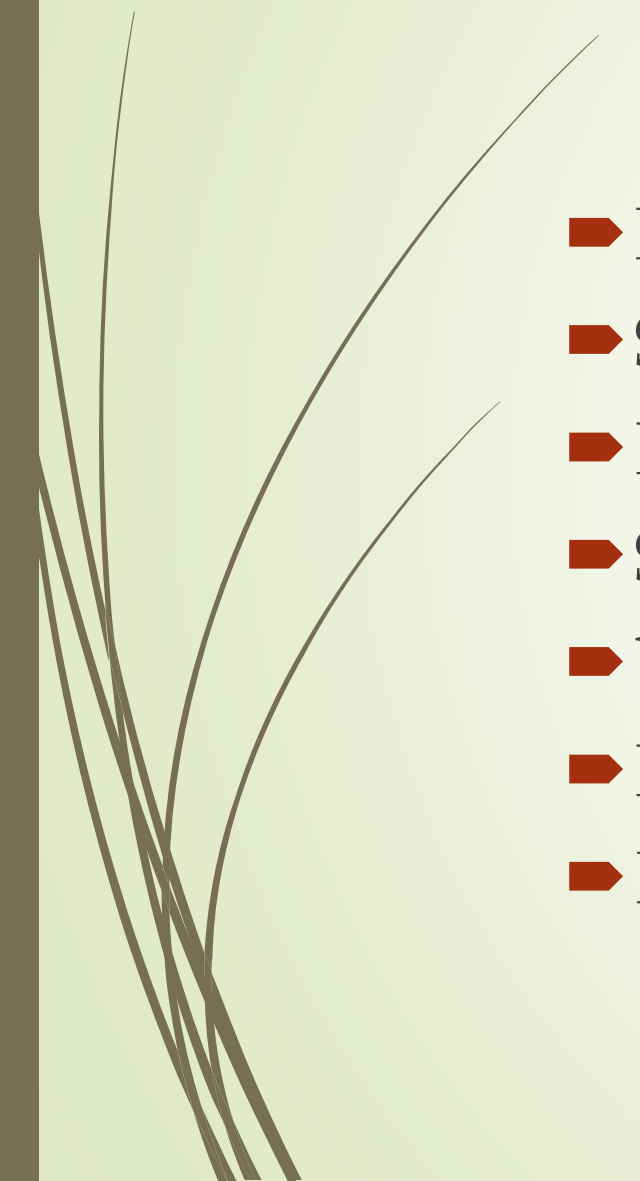


# Neurological

- 
- Impaired sensory input – Visual disturbances , BPPV, Neuropathy
  - Motor weakness – Stroke , Parkinson's disease , Spine disc diseases
  - Cerebellar disease – Ataxia
  - Cognitive disorders



# Extrinsic factors

- 
- Furniture, rugs, lamp cords
  - Stairs, tight areas, clutter
  - Poor lighting, visual distortions or distractions
  - Slippery or wet surfaces
  - Yard obstacles
  - Pets that get under foot
  - Ill-fitting clothes or footwear





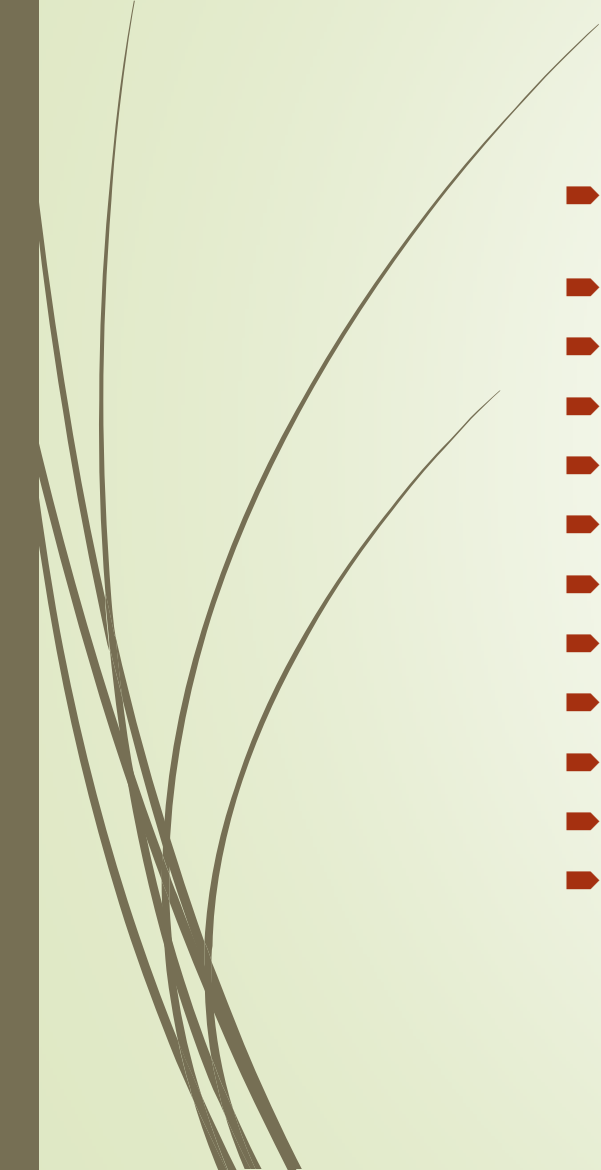
# Rehabilitation



- ▶ Gait and balance training
  - ▶ Physical Therapy
  - ▶ Tai Chi
  - ▶ Yoga – Tree pose, Downward dog, Chair and Bridge pose
- ▶ Strengthening exercises for muscular weakness
- ▶ Physical therapy modalities for pain (e.g. heat, cold, ultrasound, massage, etc.)
- ▶ Balance exercises for vestibular and proprioceptive problems
- ▶ Habituation exercises for benign positional vertigo
- ▶ Ensure patient has correct walking aid and uses it appropriately
- ▶ Training in safe performance of daily activities
- ▶ Braces – e.g. ankle-foot orthotic (AFO) for foot drop
- ▶ Shoe orthotic for painful foot problems and leg length discrepancy



# Environmental and Behavioral Interventions


- 
- ▶ Bathroom modifications: Replace the shower head with a hand-held nozzle, Shower seat , grab bars, raised toilet seat, rubber mat in tub or shower
  - ▶ Tuck away extension cords
  - ▶ Remove excess of furniture
  - ▶ Improve lighting, use of night light
  - ▶ Get a cane or walker
  - ▶ Nonskid throw rugs
  - ▶ Remove obstacles from walking paths
  - ▶ Stair safety- Can consider stair lift
  - ▶ Avoid clutter
  - ▶ Bed and chairs at appropriate height
  - ▶ Proper footwear and clothing
  - ▶ Hip protectors for those at high risk

# Tremors

- ▶ Rest tremor- • Parkinson's disease. • Other Parkinsonian syndromes
- ▶ Postural Tremor -• Essential tremor.
- ▶ • Exaggerated physiological tremor. - Stress, anxiety, fatigue ie., post-exertion. - Hypoglycemia, hyperthyroidism. -
- ▶ Drugs - bronchodilators (eg. salbutamol and aminophylline) lithium, tricyclic antidepressants, selective serotonin reuptake inhibitors (SSRIs), decongestants (eg. pseudoephedrine and phenylpropanolamine) neuroleptics, amphetamines (eg. methylphenidate), dopamine agonists, valproic acid. - substance abuse - chronic alcohol use/withdrawal, excess caffeine, benzodiazepine withdrawal.
- ▶ Action Tremor • Cerebellar disease eg., multiple sclerosis cerebellar infarcts and tumors, (cerebellar atrophy secondary to ethanol more often associated with a gait ataxia). Miscellaneous
- ▶ • Orthostatic tremor. • Psychogenic tremor. • Asterixis. • Clonus.

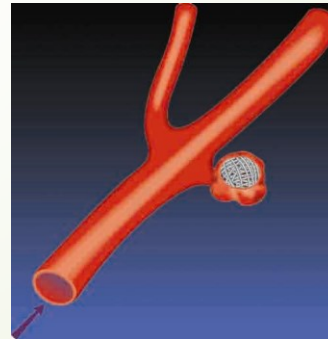
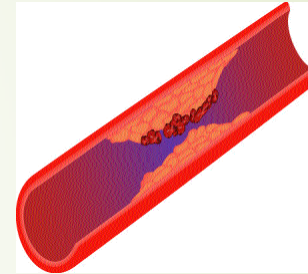


# Stroke facts

- ▶ A leading cause of adult disability
  - ▶ Up to 80% of all strokes are preventable through risk factor management
  - ▶ On average, someone suffers a stroke every 40 seconds in America
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# Definition of stroke

- Ischemic (87%)– Clot
- Hemorrhagic (13%) – Bleed





# Symtoms



- ▶ Sudden onset of tingling numbness on face arm and leg
- ▶ Sudden onset of speech distrurbances
- ▶ Sudden onset of weakness
- ▶ Sudden onset of facial droop
- ▶ Sudden onset of headache
- ▶ Sudden onset of dizziness nausea vomiting , gait disturbances
- ▶ Sudden onset of vision problem



## MYTH

- **Stroke is not preventable**
- **Stroke cannot be treated**
- **Stroke only strikes the elderly**
- **Stroke happens in the heart**
- **Stroke recovery ends after 6 months**


## REALITY

**Up to 80% percent of strokes are preventable**  
**Stroke requires emergency treatment**  
**Anyone can have a stroke**  
**Stroke is a “Brain Attack”**

**Stroke recovery can last a lifetime**




# Stroke Prevention guidelines

- 
- Blood pressure
  - Diabetes
  - Smoking
  - Atrial fibrillation
  - Cholesterol
  - Sleep apnea
  - Seeing immediate medical help

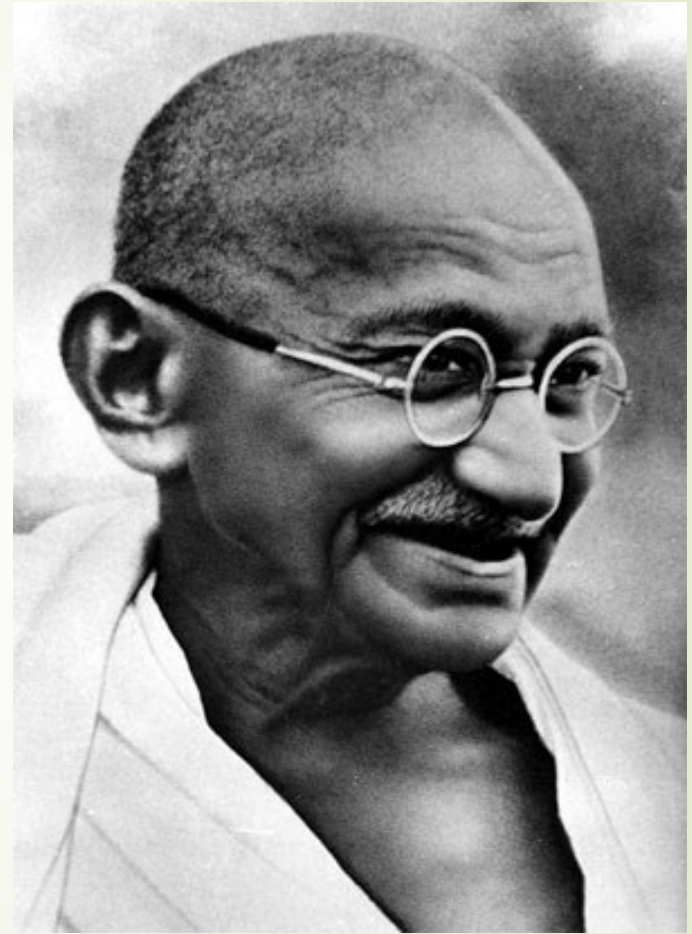




# WEBSITES

- ▶ [www.ncoa.org](http://www.ncoa.org)
  - ▶ <https://www.alz.org/alzheimers-dementia/what-is-alzheimers>
  - ▶ <https://www.cdc.gov/aging/caregiving/index.htm>
  - ▶ <https://www.parkinson.org/>
  - ▶ <https://www.stroke.org/en/about-stroke>
- 

I will not let anyone  
walk through my  
mind with their  
dirty feet





**THANK YOU**