

# Can we preserve memory as we age?



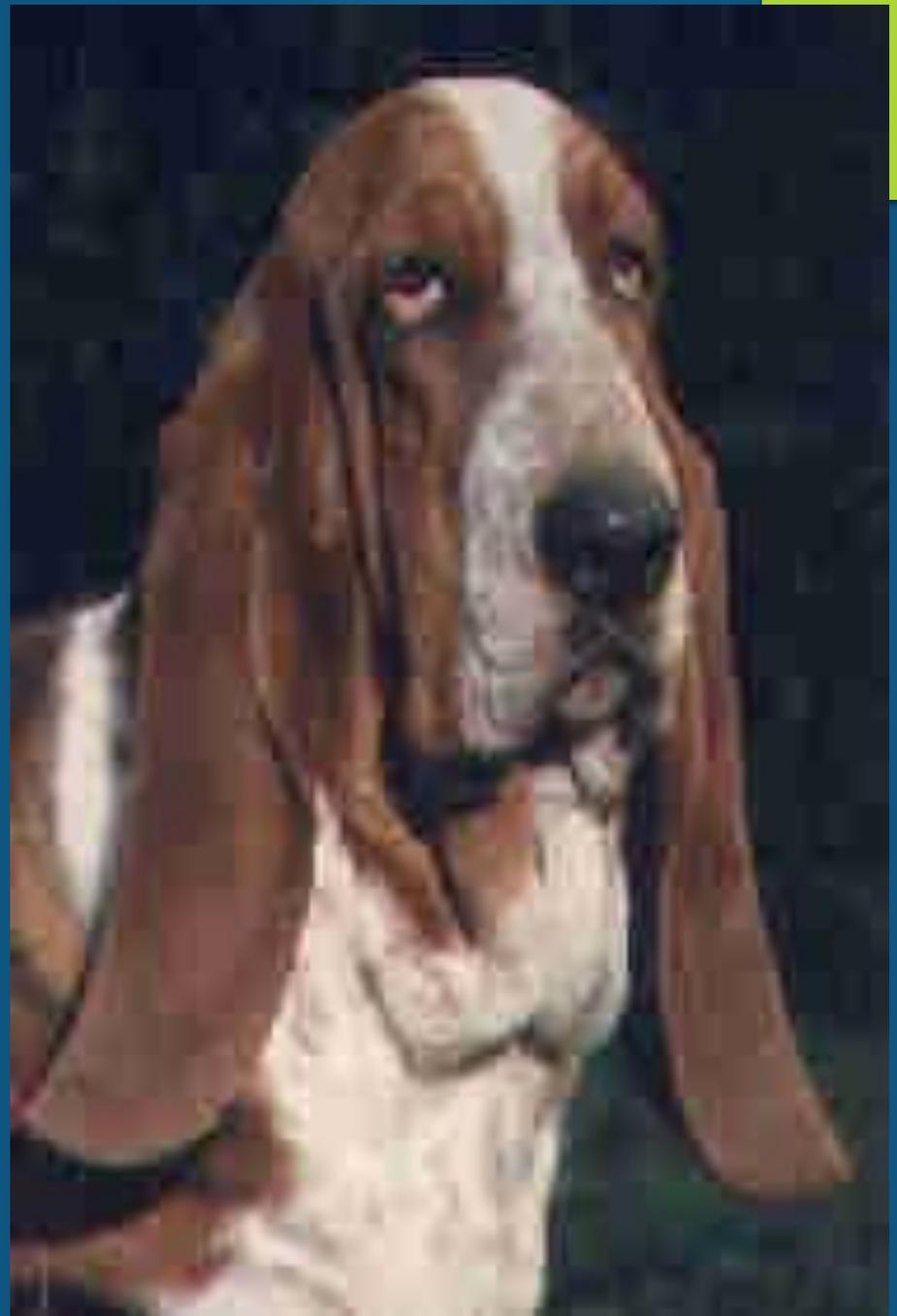
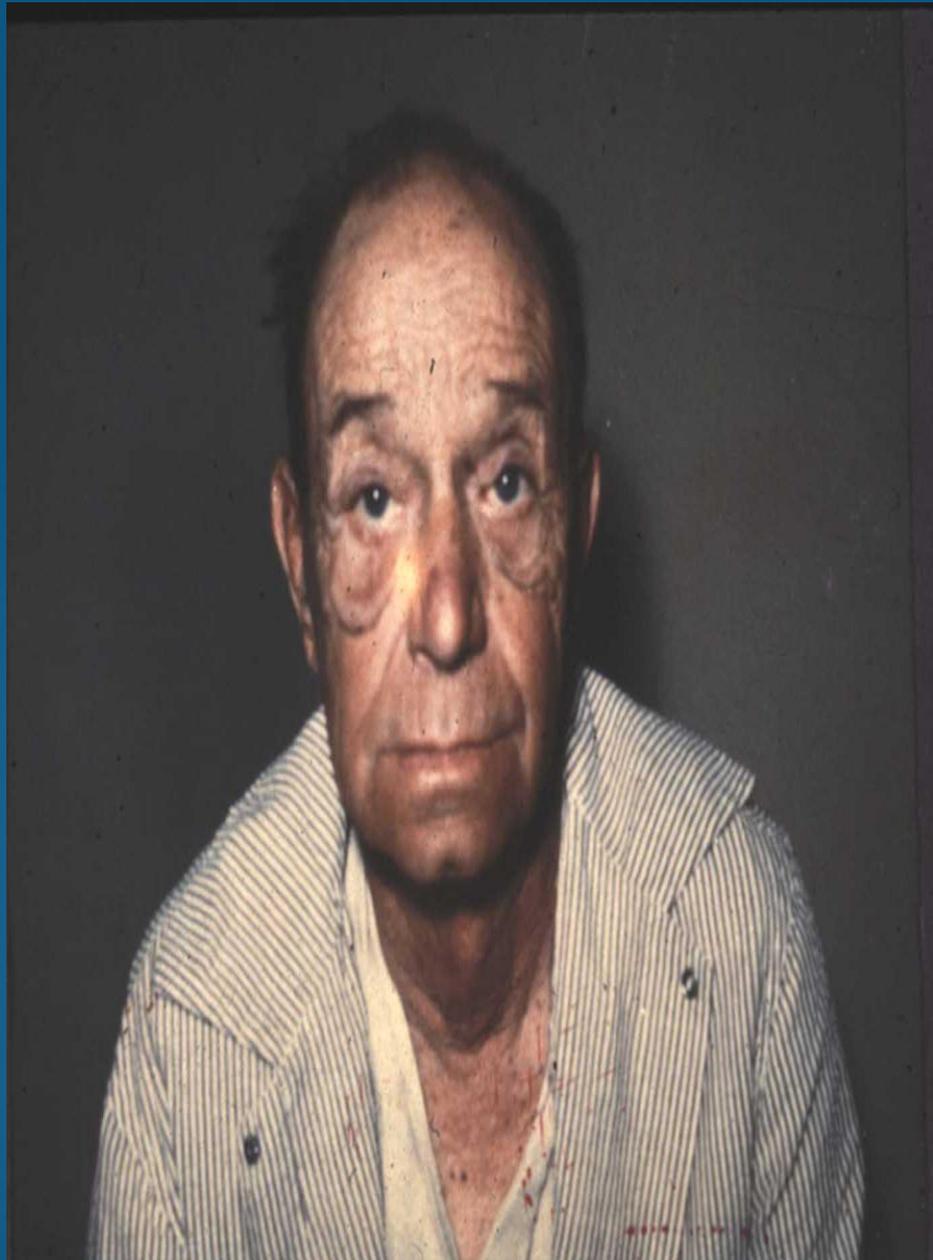
# Game Plan: Protect the Brain



- ▶ 1. Cases of reversible memory loss
- ▶ 2. How to optimize vascular health to protect memory
- ▶ 3. What additional steps we can take proactively to preserve memory
- ▶ (Alzheimer's will be addressed in Dr. Rapcsak's talk)

# Case studies of reversible memory loss





# History : sluggish and memory loss

- ▶ Exam : slow relaxation of bicep reflex

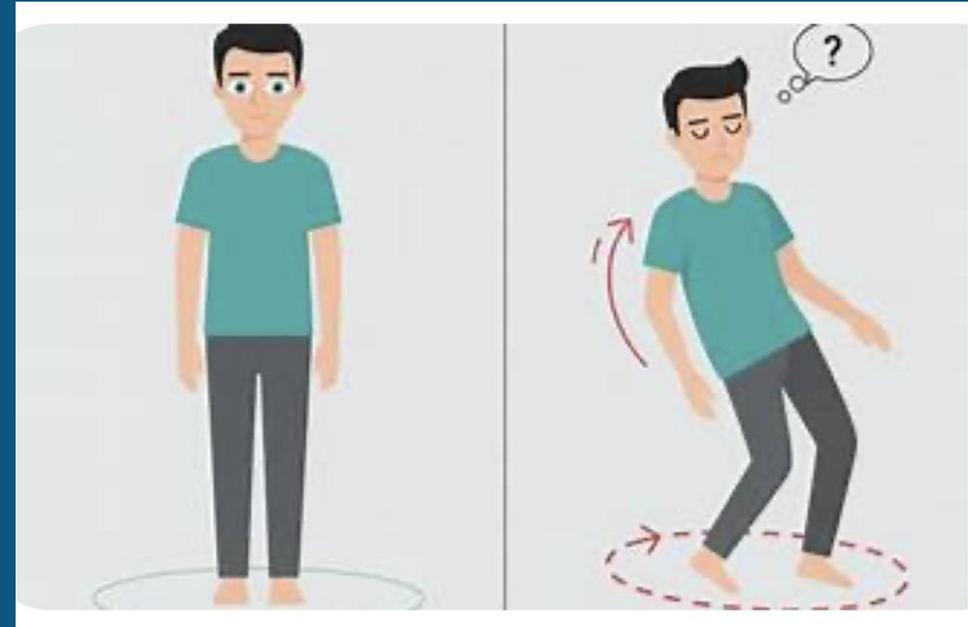
- ▶ Primary Hypothyroidism

- ▶ ↑ TSH AND ↓ T4



# 62 yo Woman with Type 2 DM on Metformin

- ▶ Loss of balance
- ▶ More forgetful
- ▶ + Romberg
- ▶ Anemic



- ▶ Vitamin B-12: 78 (160-950)
- ▶ Metformin interferes with B-12 absorption

77 yo with chronic pain presents  
with increase forgetfulness

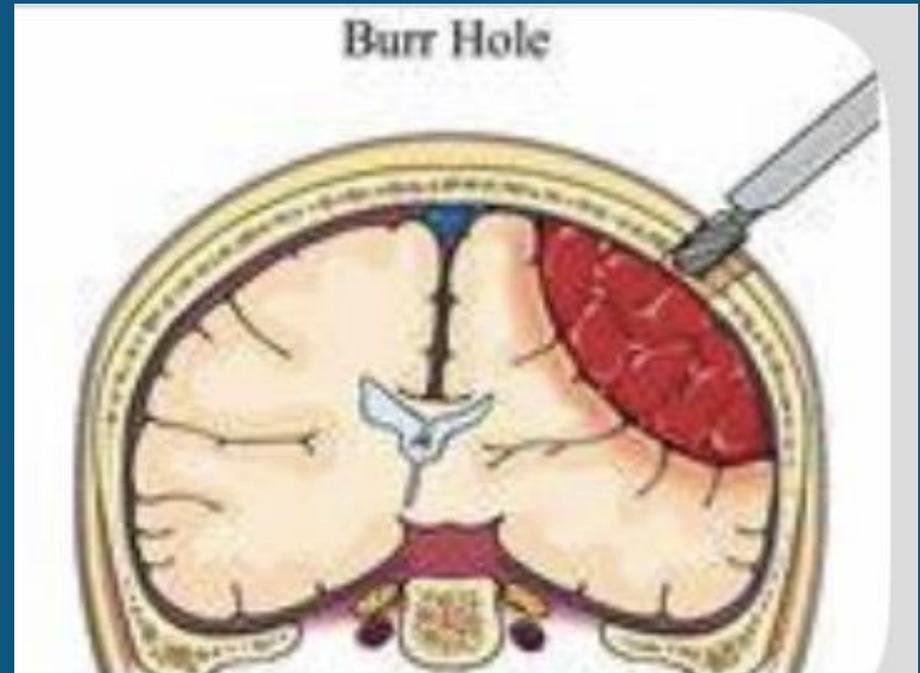
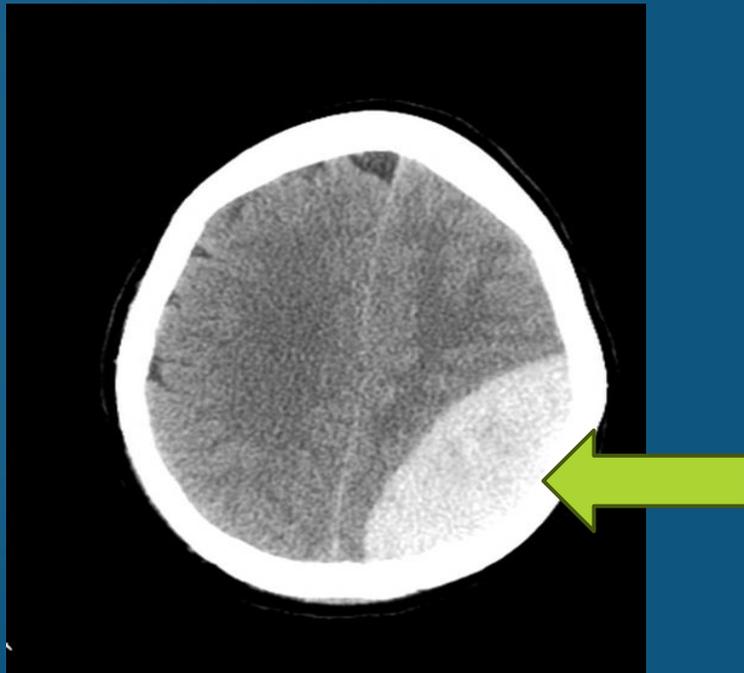
- ▶ Recently started on Lyrica  
(pregabalin)
- ▶ Titrated off Rx-memory improved



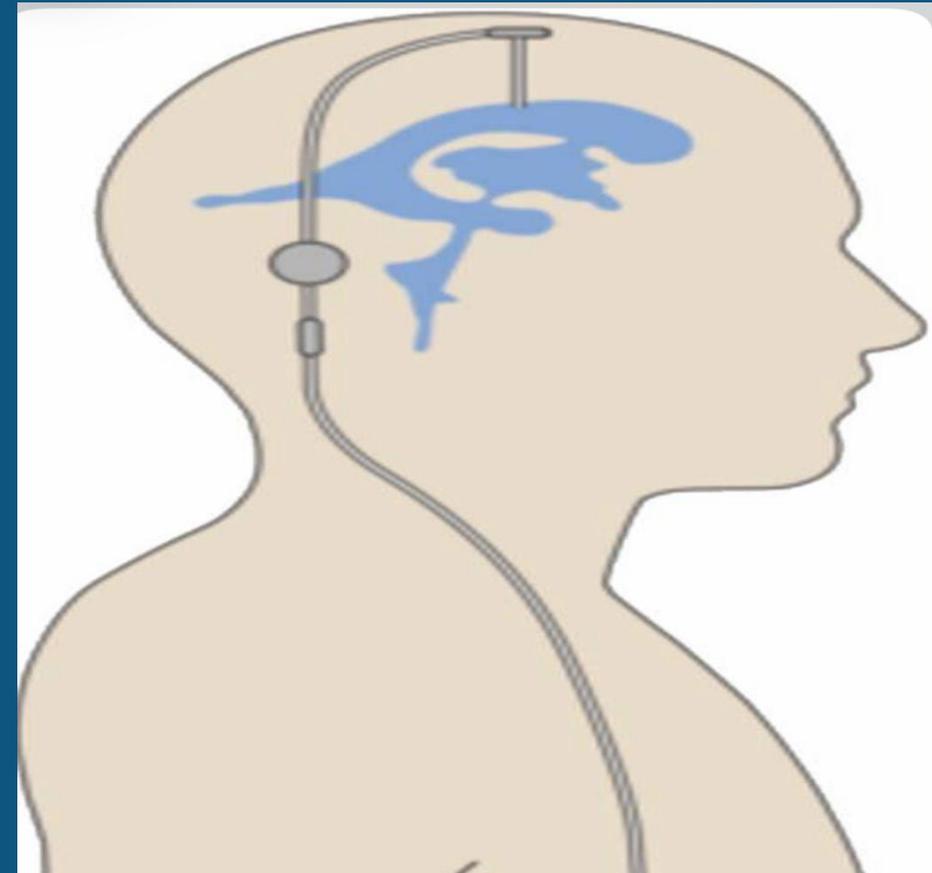
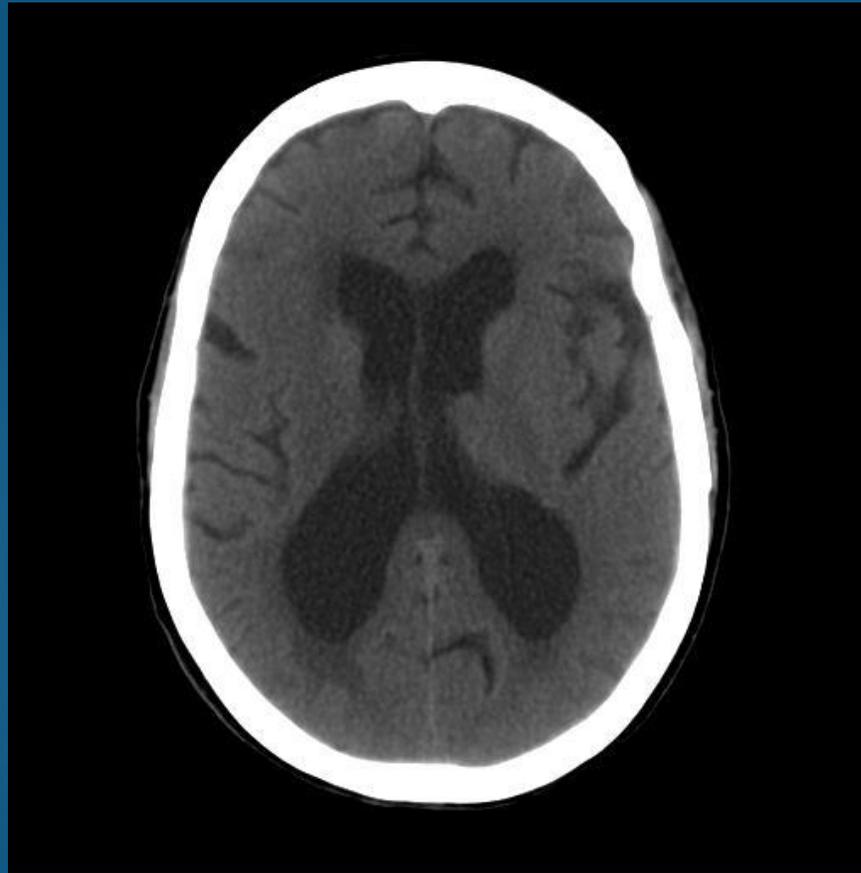
“Elementary, my dear Watson”

83 yo geologist presents with recent memory changes, Had fallen 2 weeks ago.

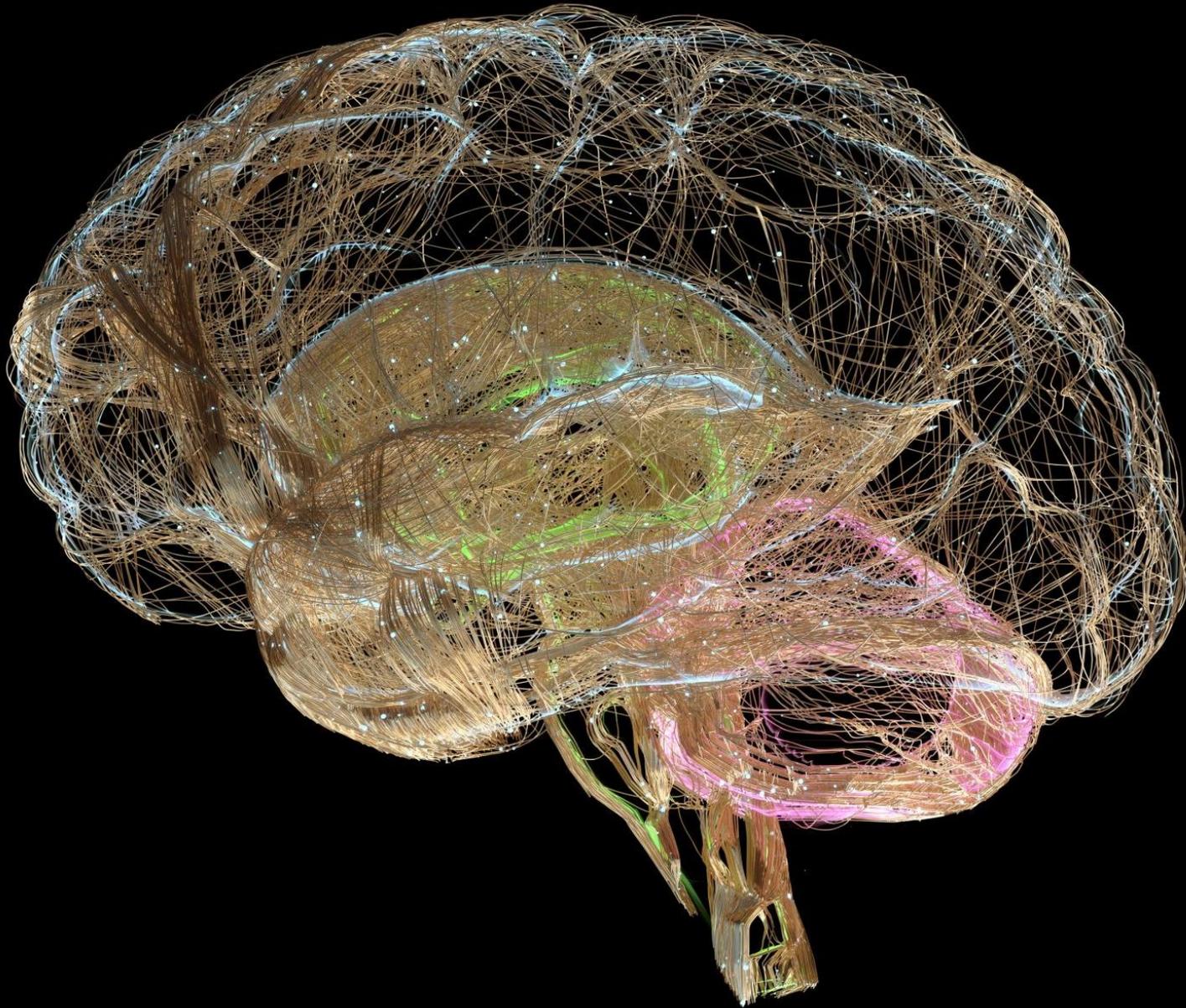
Exam: unable to stand on 1 foot



52 yo with cystic fibrosis and Type 1  
DM c/o memory loss and loss of  
balance  
A1c: 7.1



Low Pressure Hydrocephalus



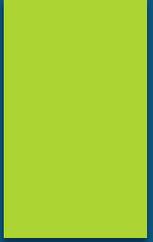
Preventing  
vascular  
hypoperfusion  
and strokes to  
protect memory

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# PRESCRIPTIONS



*"I'll have an ounce of prevention."*



What are the major medical maladies that impede blood flow to our brains and /or cause strokes?

- ▶ Hypertension
- ▶ Atherosclerosis
- ▶ Atrial fibrillation- emboli to brain
- ▶ Type 2 DM

## Healthy Conditions



## Chronic Hypertension

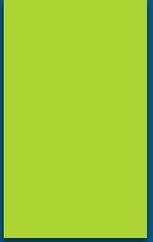


reduced  
blood flow

narrowed  
artery



Hypoperfusion – atrophy and strokes,  
(small vessel strokes-lacunar strokes)

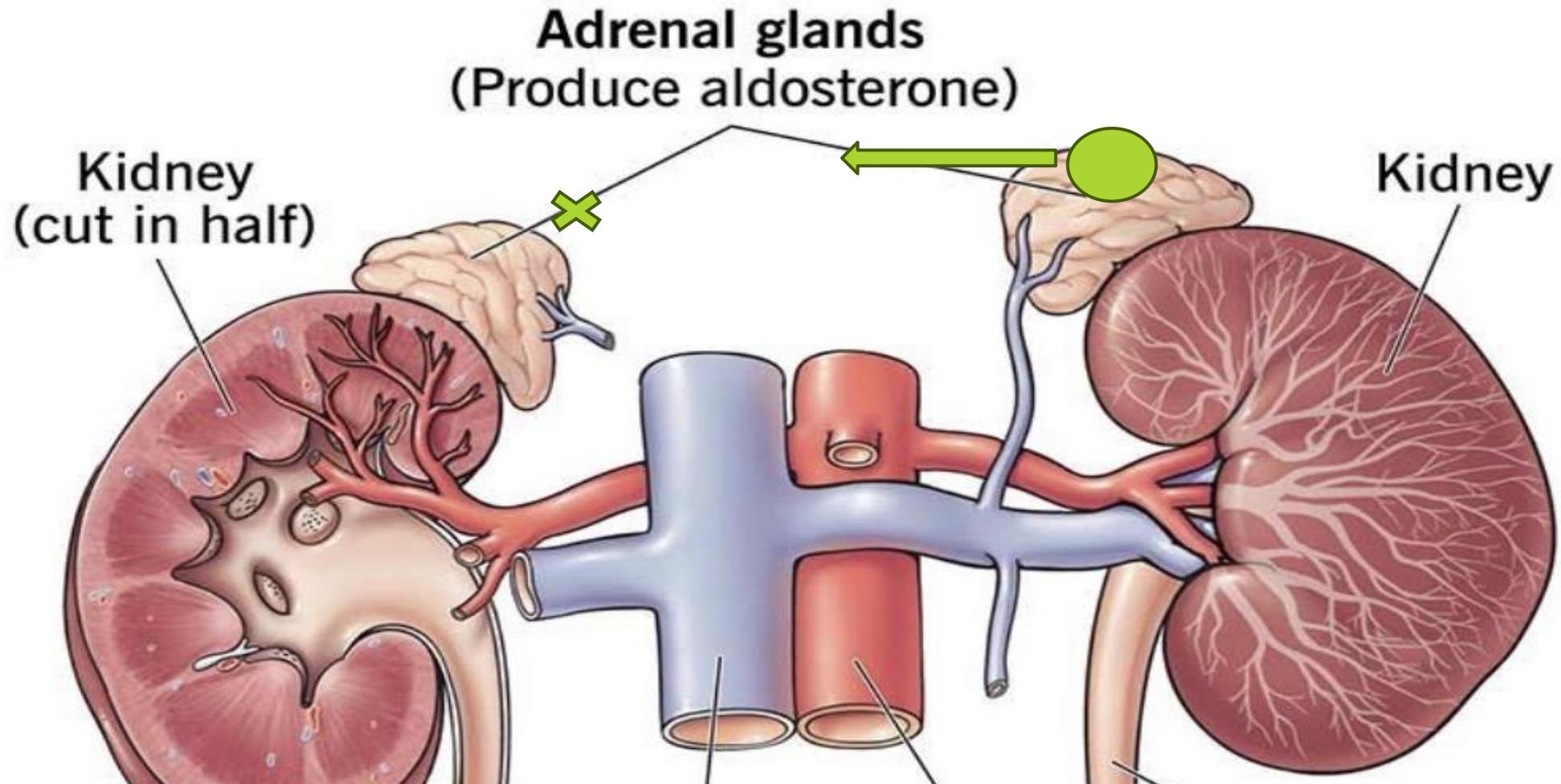
- 
- ▶ What is an optimal BP?
  - ▶ < 120-130 systolic
  - ▶ < 80 diastolic
  - ▶ Individualize especially if frail
  - ▶ Monitor BP at home

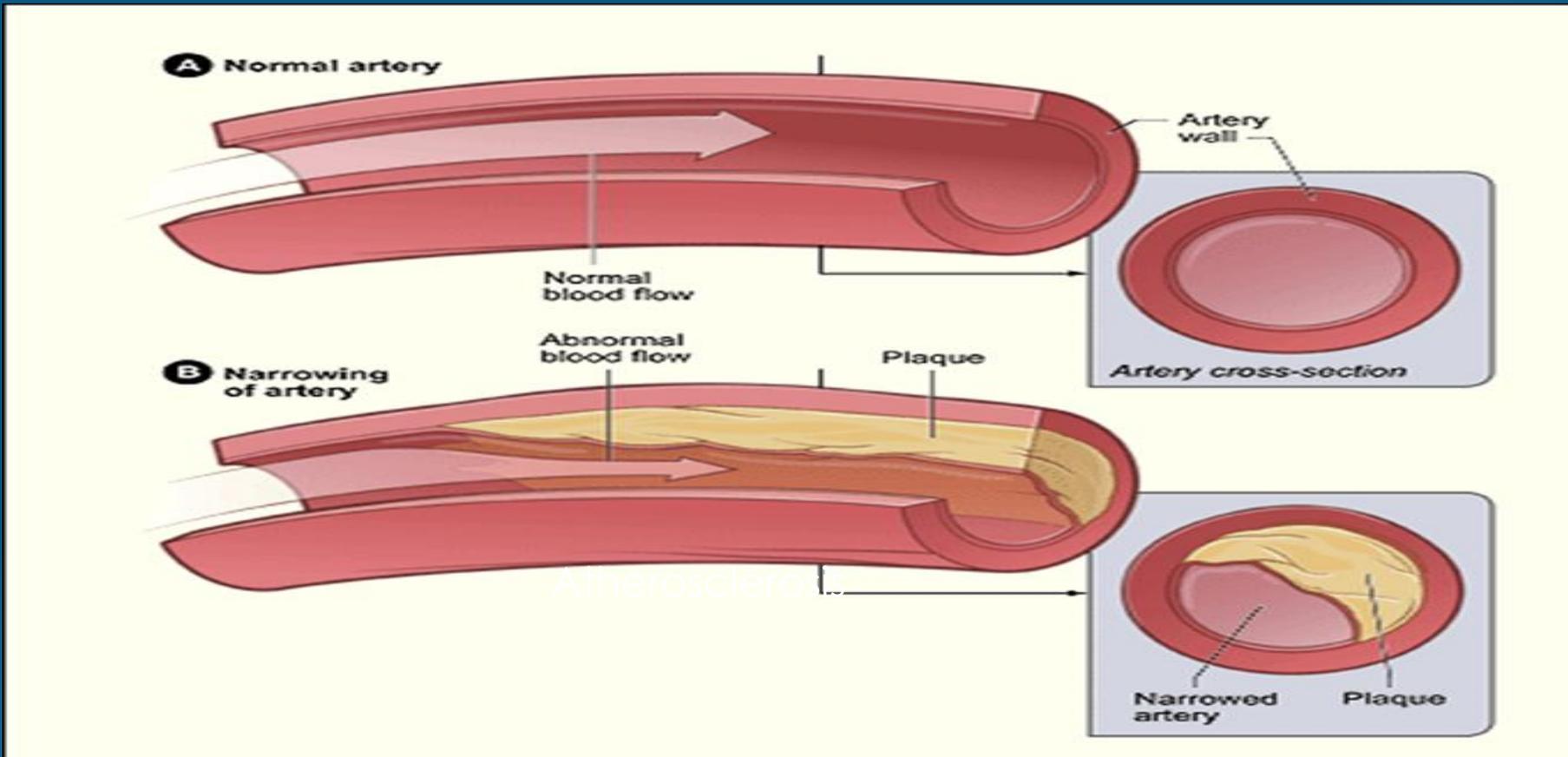
# Rx Hypertension

- ▶ Nonpharmacological: Salt restriction, DASH diet, weight loss, stress management (meditation)
- ▶ Drugs: Individualize Rx –titrate for effect- two or more drugs usually required
- ▶ If resistant, assess for 2nd causes-  
25% Hyperaldosteronism

# Aldosteronoma-Conn's Syndrome

## Hyperaldosteronism

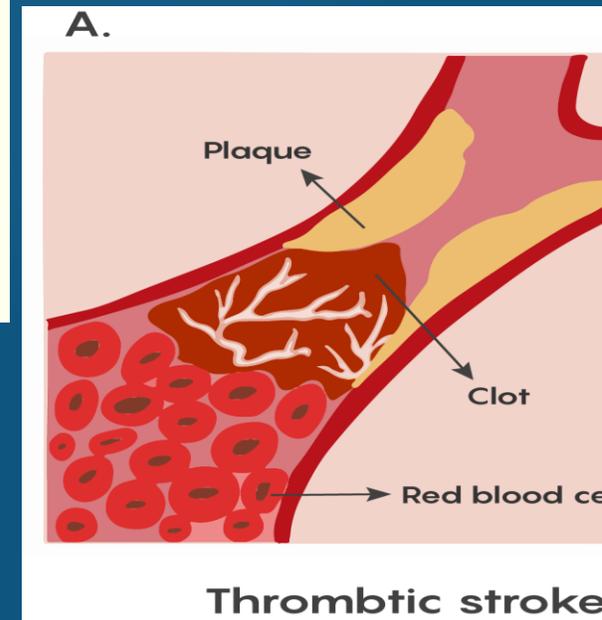




# Atherosclerosis

Hypoperfusion → brain atrophy

Thrombus forms on unstable plaque → stroke





# When suspecting stroke-time is of the essence

If you notice signs of a stroke, think "**BE FAST**" and **call 911**.



**Balance**

Loss of Balance, Dizziness



**Eyes**

Vision Changes



**Face**

Facial Drooping, Severe Headache



**Arms**

Weakness, Numbness



**Speech**

Trouble Speaking, Confusion

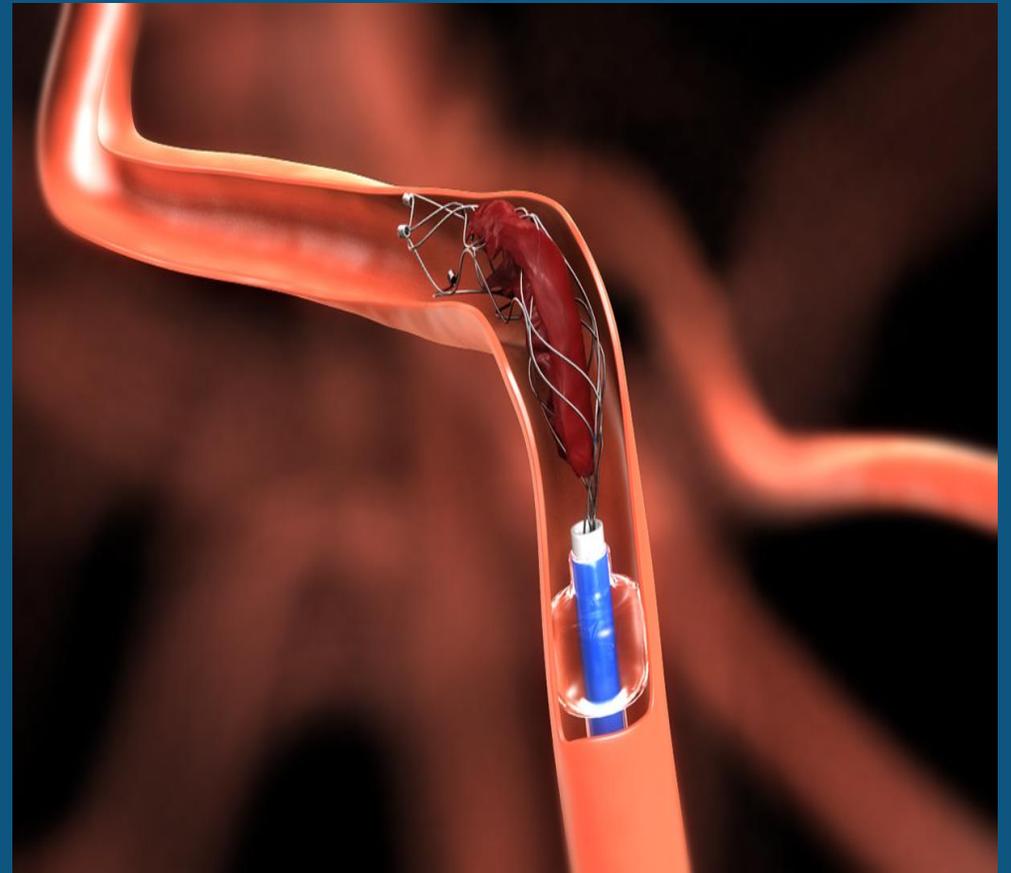


**Time**

Time to Call 9-1-1

# Endovascular thrombectomy

- ▶ Optimal within 4-6 hours of onset of stroke



# Assessing atherosclerotic risk:

- ▶ Lipid profile: LDL, HDL
- ▶ Lipoprotein a
- ▶ A1C, FBS (Screen for DM)
- ▶ Sensitive CRP (Inflammation)

# Coronary calcium score:

Left Anterior Descending: 465.

Left Circumflex: 143.

Right Coronary Artery: 205.

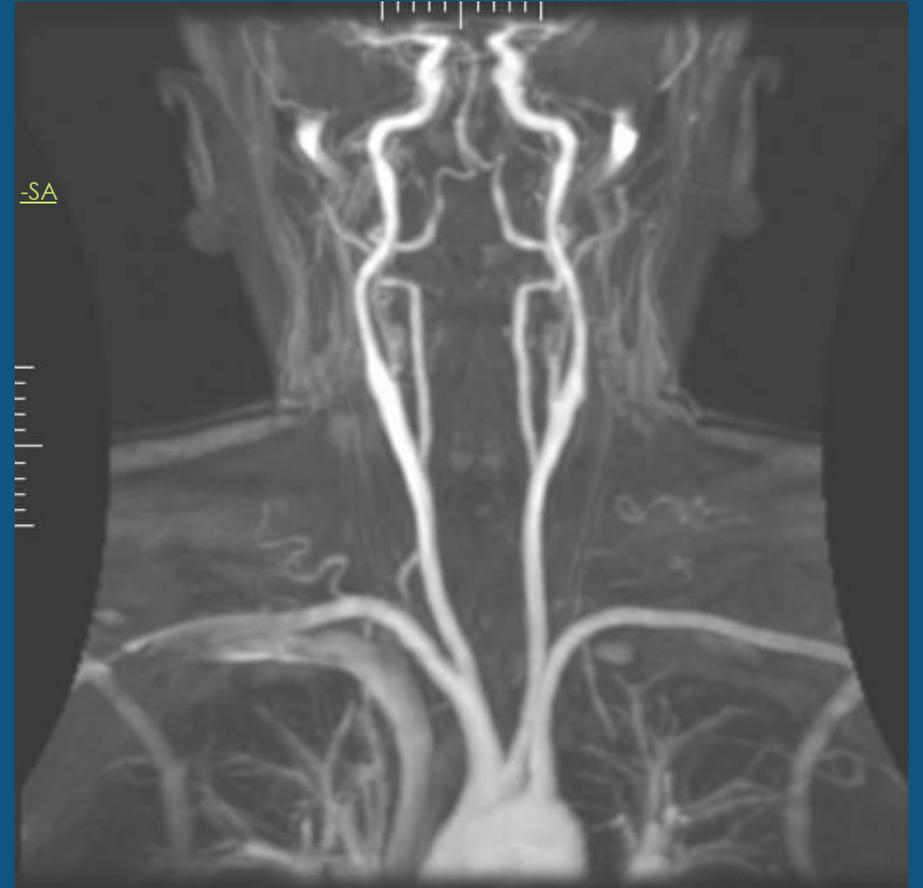
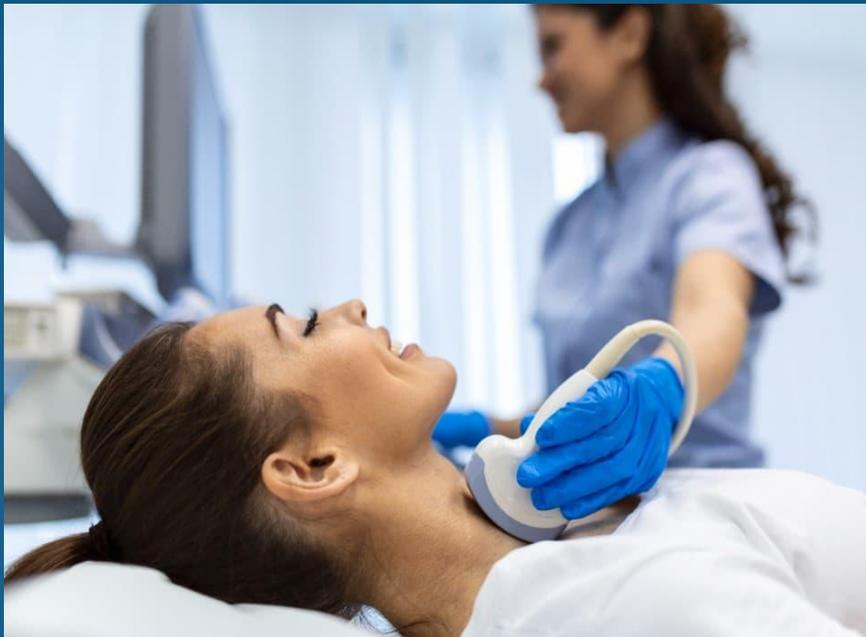
Total Agatston Score: 814.

Total coronary artery calcium volume: 655 cubic mm.

- ▶ CT coronary angiogram- 80% LAD occlusion ( Fractional Flow Reserve can quantify the flow through an obstruction)
- ▶ Stress Test
- ▶ Cath-coronary angiogram

# Cerebrovascular imaging

- ▶ Carotid doppler
- ▶ Neck and Brain- MRA or CTA



# Targeting LDL Cholesterol

- ▶ Statins
- ▶ Ezetimibe
- ▶ PCSK9 inhibitors  
(Repatha, Praluent, Leqvio)
- ▶ Bempedoic acid (Nexlitol)

# LDL goal

- ▶ Moderate risk < 100
- ▶ High risk < 70
- ▶ Very high risk < 55
- ▶ IDEAL LDL: 45

# Preventing blood clots- Anticoagulants

- ▶ High risk individuals-Baby  
ASA, Plavix



- ▶ Atrial fibrillation
- ▶ Prevent clots in atrium ,prevent emboli to brain
- ▶ Eliquis,Pradaxa,Warfarin
- ▶ Watchman device seals atrial appendage

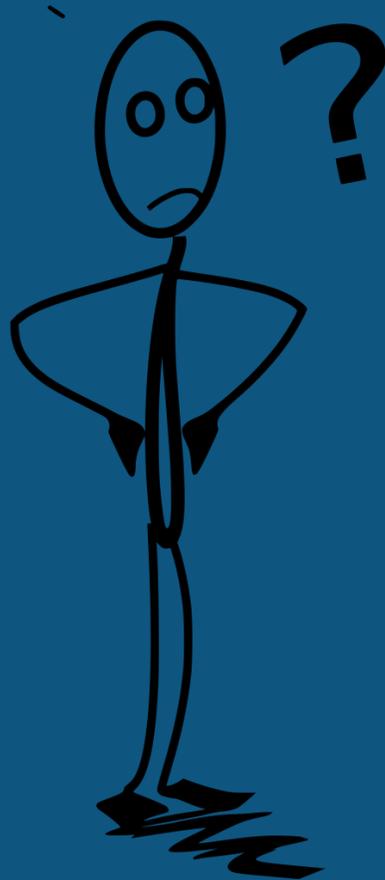


Type 2 Diabetes – 60% higher risk of dementia

Diabetic drugs which may protect :  
(observational studies)

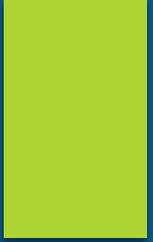
- ▶ Metformin
- ▶ SGLT-2 inhibitors (Jardiance)
- ▶ GLP-1 meds (Ozempic, Mounjaro)

How else can we proactively prevent memory loss?



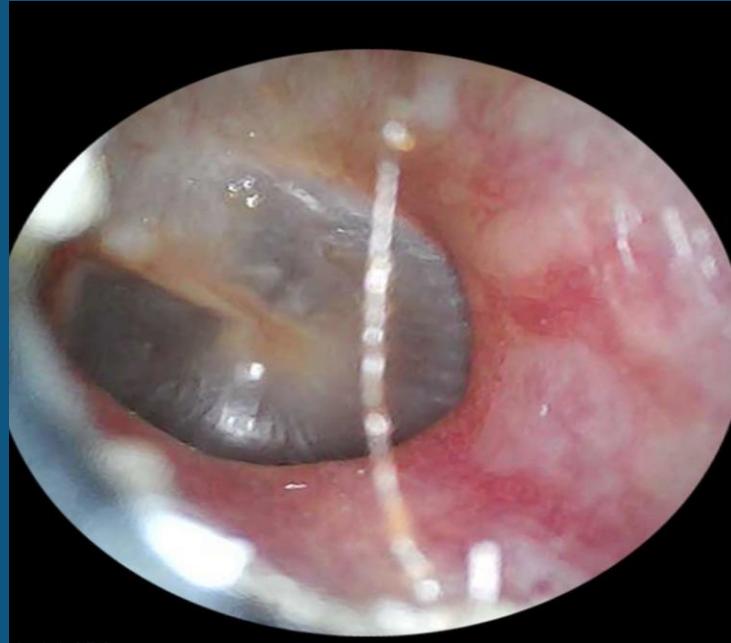
Which of the following can prevent memory loss?

- ▶ HEARING AIDS
- ▶ IMPROVING SLEEP HYGIENE
- ▶ EXERCISE
- ▶ FRIENDS
- ▶ PETS
- ▶ MODIFYING DIET

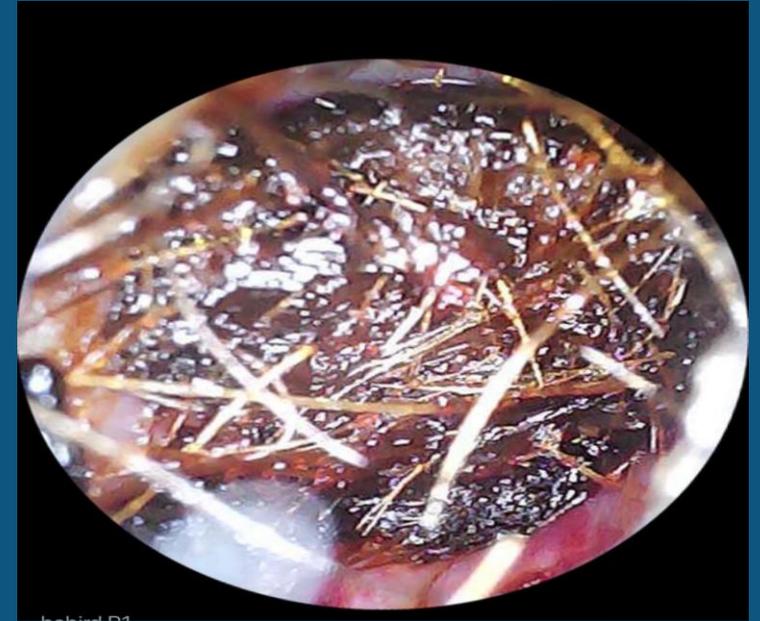
- 
- ▶ VACCINES
  - ▶ VITAMINS
  - ▶ HEALING DEPRESSION and ANXIETY
  - ▶ BRAIN ENGAGEMENT/BRAIN GAMES
  - ▶ ALL OF THE ABOVE

# Optimizing our senses-

Ear exam



LEFT



RIGHT

Hearing aids :  
19% reduction of cognitive decline  
(50 % reduction over 3 years in high risk  
folks)

# Visual Impairment with aging



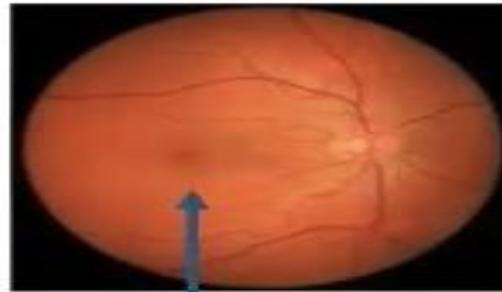
Normal



Glaucoma



Cataract



Macula

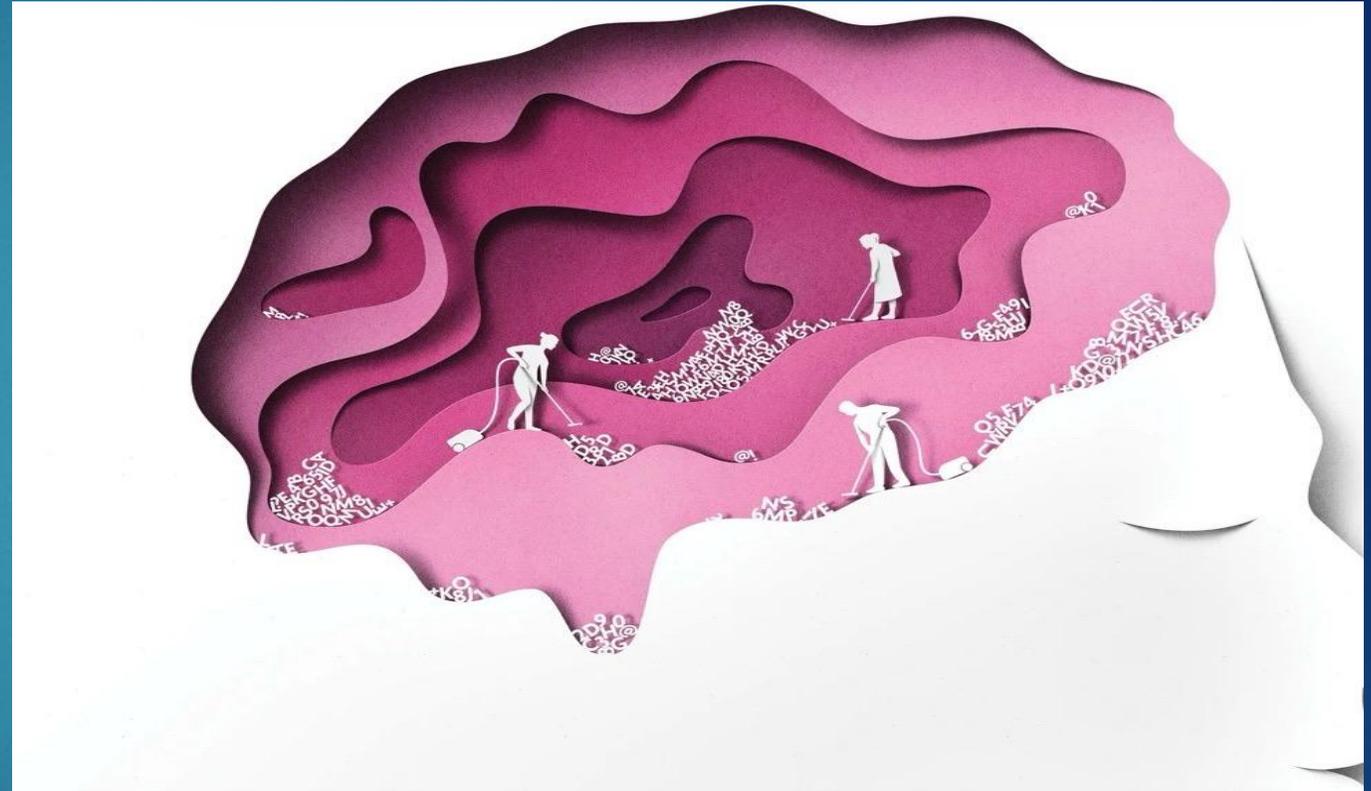


Macular degeneration

Acuity associated 63% reduced risk of dementia

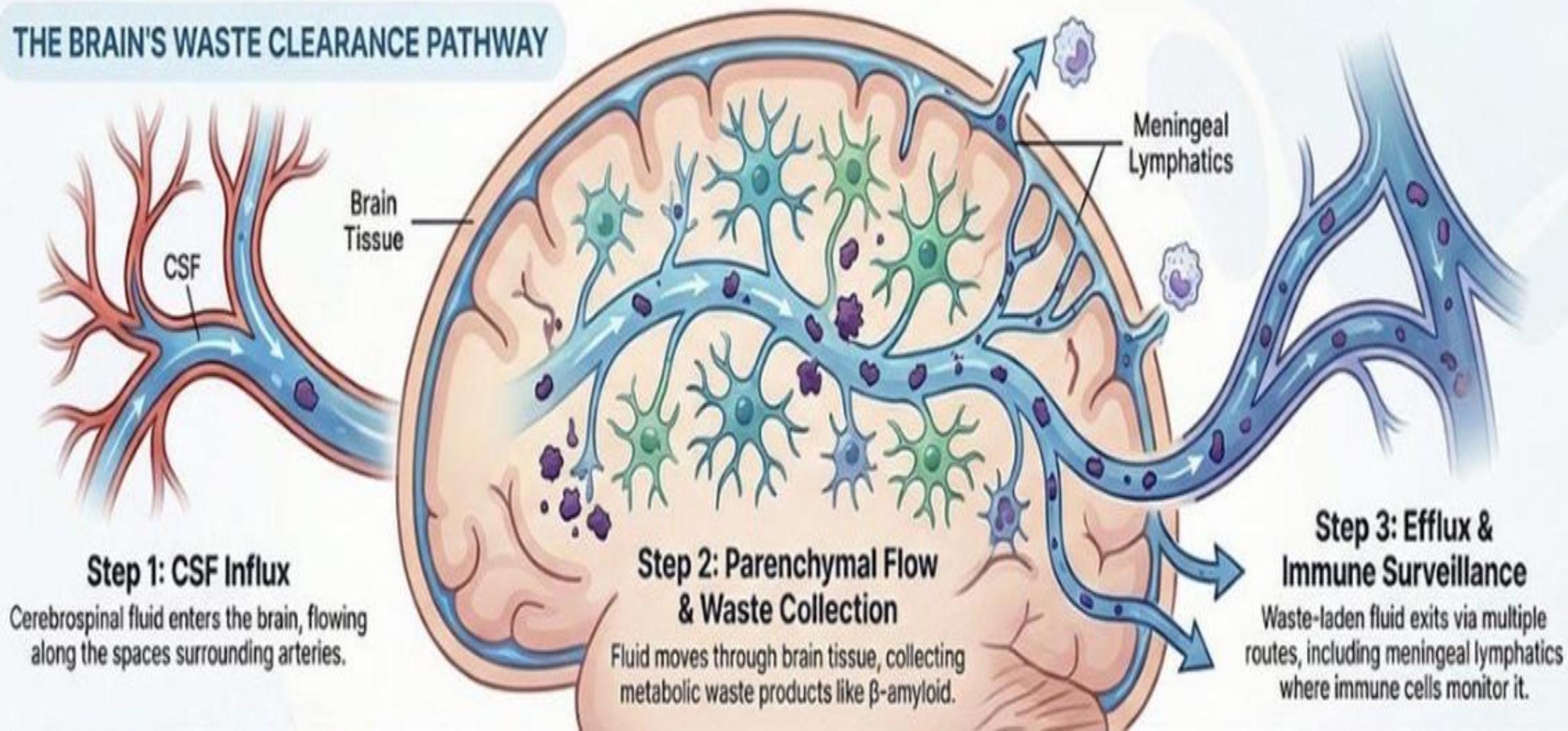
# Slow wave sleep washes out Amyloid Toxins (THE BS)

Aim for 7-  
9 hours  
sleep



# Unveiling the Glymphatic System: The Brain's Waste & Immune Highway

## THE BRAIN'S WASTE CLEARANCE PATHWAY



# Sleep Hygiene

- ▶ Cognitive behavioral therapy is first line – with a therapist or app
- ▶ Meditate/Calm App
- ▶ Naming 3 animals that start with each letter
- ▶ Exercise in the morning
- ▶ Restrict caffeine in evening
- ▶ ~~Alcohol~~

Sleep apnea: a major barrier to restorative sleep— 10-20 % older folks



# Exercise



3000 -5000 steps -3 years of delayed  
cognitive decline  
5000-7500 steps- 7 years of protection

# Dancing associated with 78% reduced risk of dementia (NEJM 2003)



# Socialization



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38% reduction in dementia risk and 21% reduction in mild cognitive impairment risk

# Mind Diet: Mediterranean-Dash Diet



Over 10 years 25% lower  
dementia risk

Will Power Lasts About Two  
Weeks  
and is Soluble in Alcohol

Mark Twain

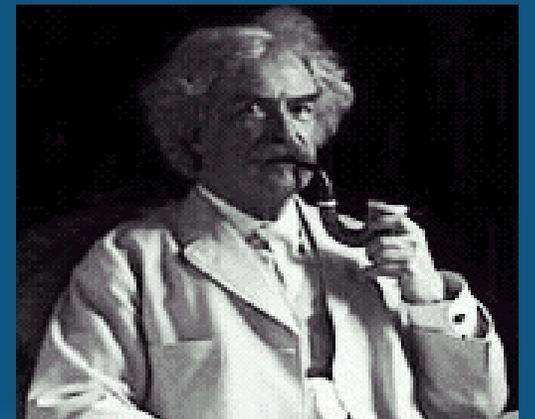
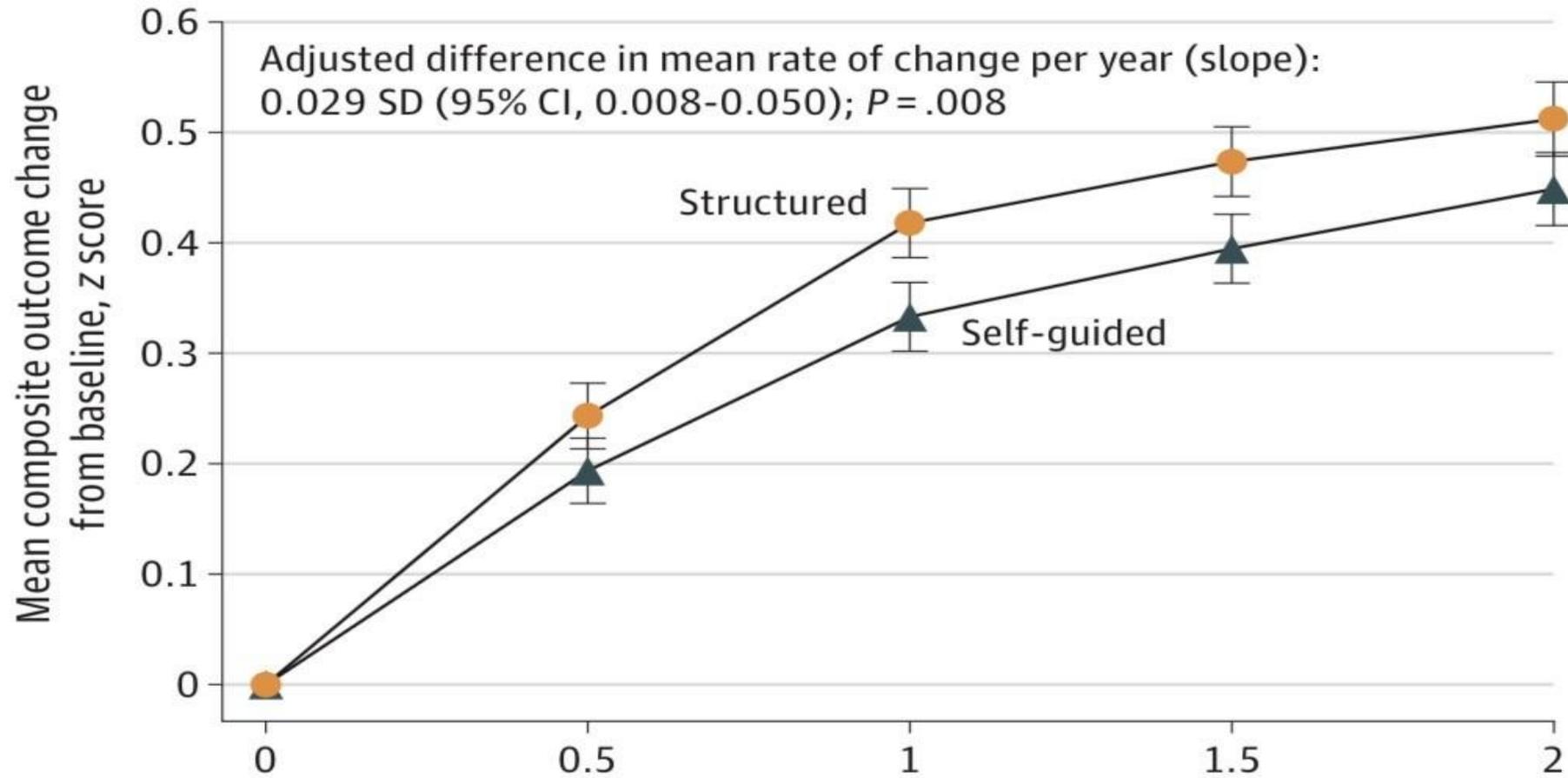


Figure 3. Change From Baseline in Global Cognitive Function Composite Score (Primary Outcome) by Structured vs Self-Guided Lifestyle Interventions



Blue Zones

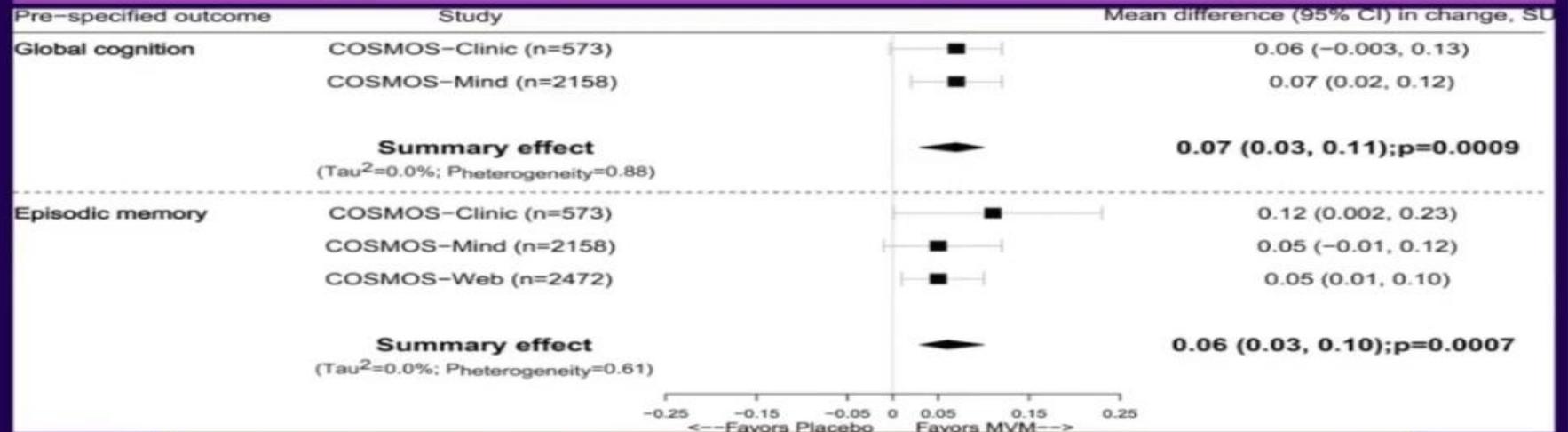
# Role of vaccines

- ▶ Shingle's vaccine (Zostavax) –Wale's study reduced dementia by 20% over 7 years
- ▶ RSV vaccine reduced incidence of dementia 29% ,18 months after administration

# Multiple Vitamins



## Meta-analysis: MVM and Cognition in COSMOS



- ❖ **Strong and consistent benefits of a daily MVM vs. placebo on preventing memory loss and slowing global cognitive aging in older adults**
- ❖ **Clinical translation: MVM effects on global cognition were comparable to having 2 fewer years of cognitive aging.**

Source: Yang CM, Manson JE, Sisco JD, Oberste OL. *Am J Clin Nutr*. 2024

Effect comparable to having 2 less years of cognitive aging

"I've lost interest in everything. It's even an effort to get out of bed in the morning. I don't want to go anywhere, see anybody or do anything. It's all closing in on me"



Karlsson et al (2025)<sup>111</sup>

Buntinx et al (1996)<sup>112</sup>

Chen et al (2025)<sup>118</sup>

Köhler et al (2015)<sup>119</sup>

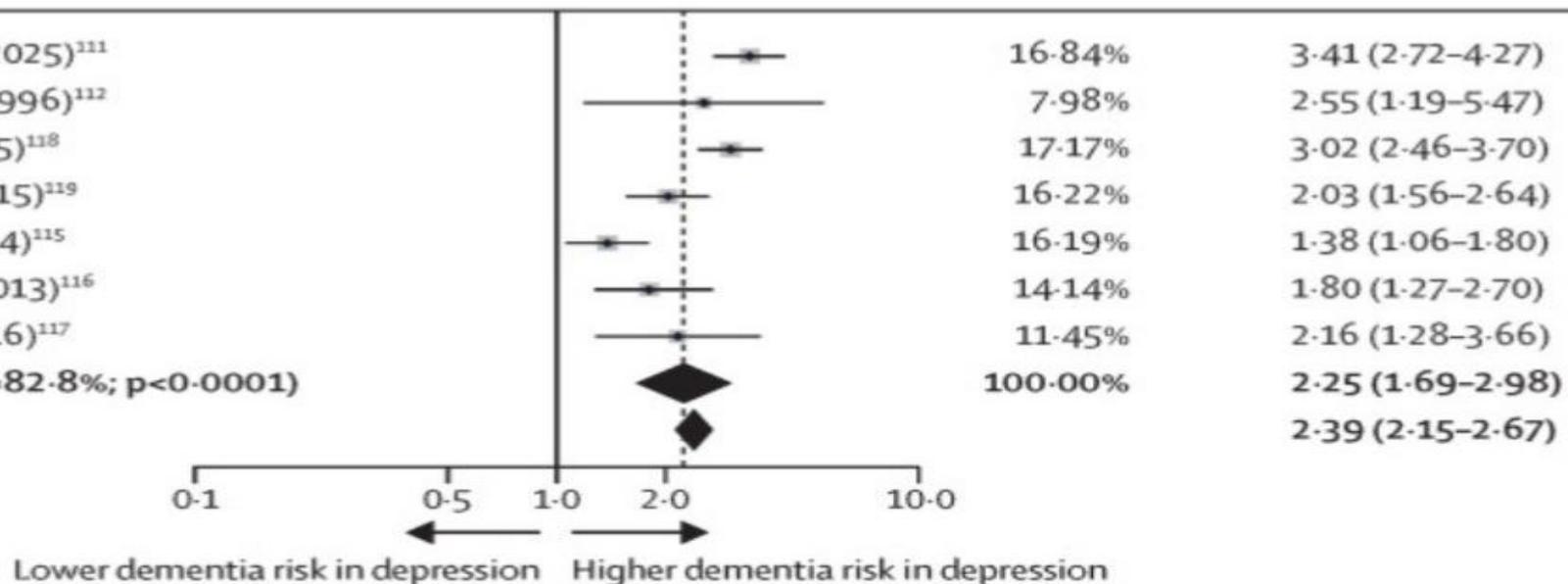
Mirza et al (2014)<sup>115</sup>

Richard et al (2013)<sup>116</sup>

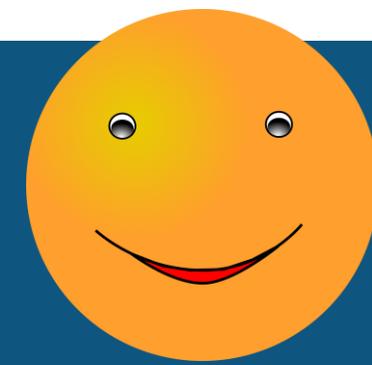
Wang et al (2016)<sup>117</sup>

D+L overall ( $I^2=82.8\%$ ;  $p<0.0001$ )

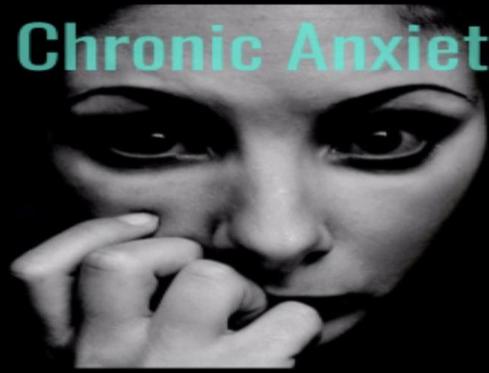
I-V overall



**Figure 6** Meta-analysis of risk of developing dementia 10-years after depression diagnosis compared with those who were not depressed



Chronic Anxiety



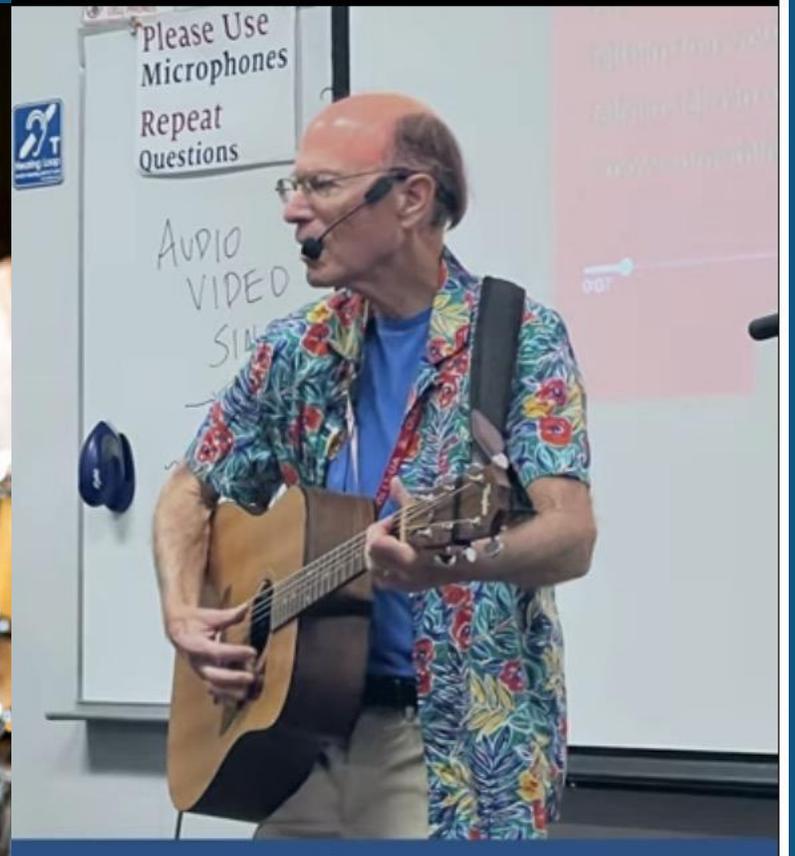
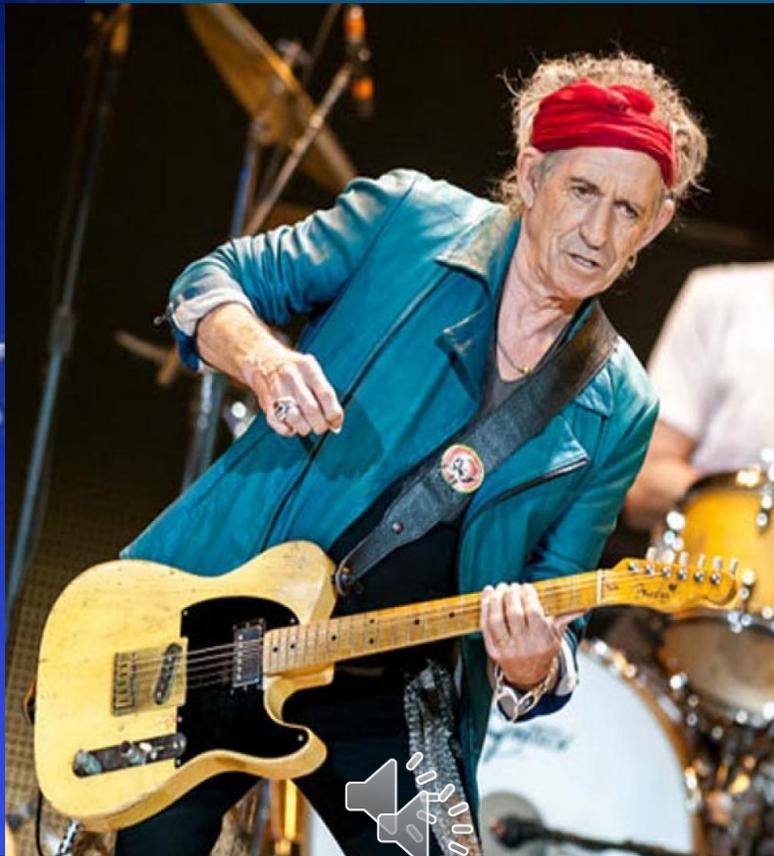
2.8 x's risk of dementia



# CHALLENGING THE MIND PRESERVES THE MIND

- ▶ Attend and/or teach OLLI classes
- ▶ Read or listen to audiobooks
- ▶ Learn a new language, musical instrument, or new hobby
- ▶ Play brain games

RELISH IN YOUR PASSION , YOUR  
PURPOSE , YOUR LOVE OF SELF AND  
OTHERS –**STAY FOREVER YOUNG**



What specific changes can you implement to protect and nurture your mind?

