

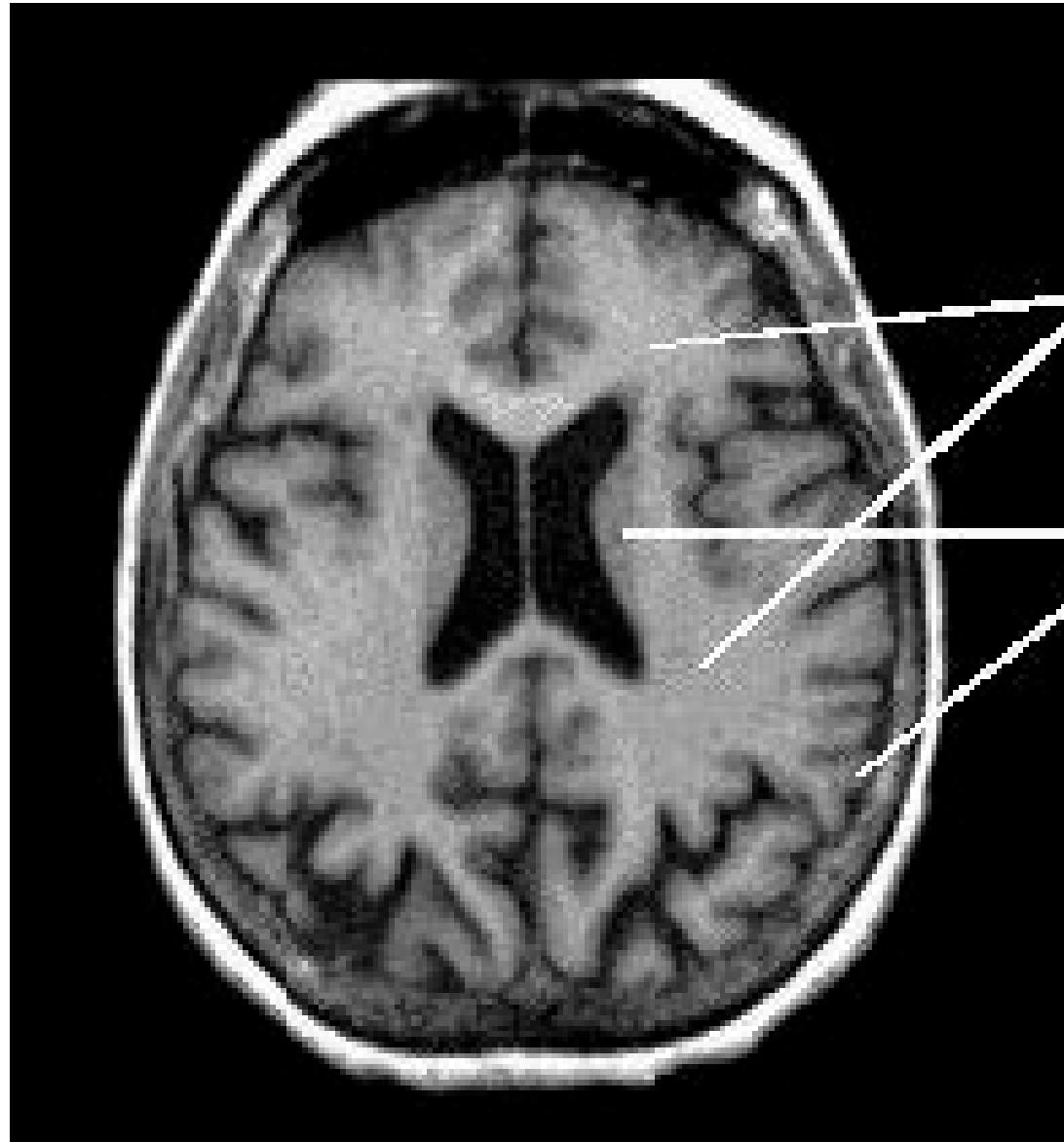


# The Latest Insights Into Lowering Risk For Alzheimer's and Dementia

Marc Milstein PhD

[www.drmarcmilstein.com](http://www.drmarcmilstein.com)

# Brain Age



# Senility?

- Incorrect belief that serious mental decline is a normal part of aging
- Serious mental decline is NOT a normal part of the aging process.
- If there is serious mental decline it is a disorder....



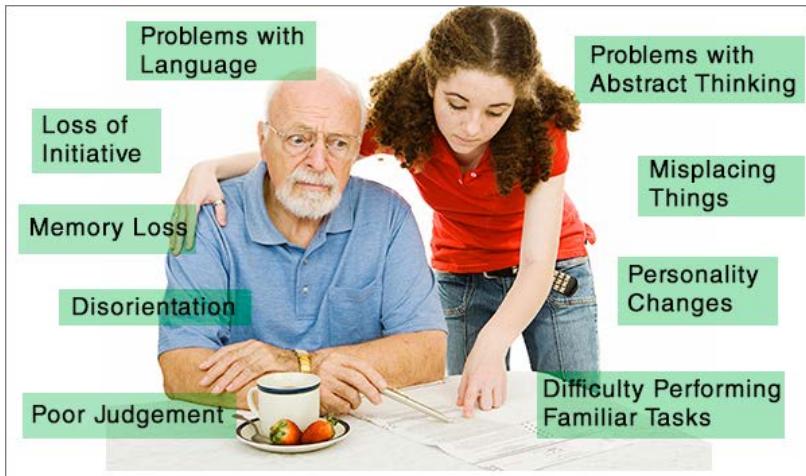
# What Is Dementia?

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# What Is Dementia?

- Memory disorders, personality changes, and impaired reasoning severe enough to impair day to day living.

- Is dementia a disease?

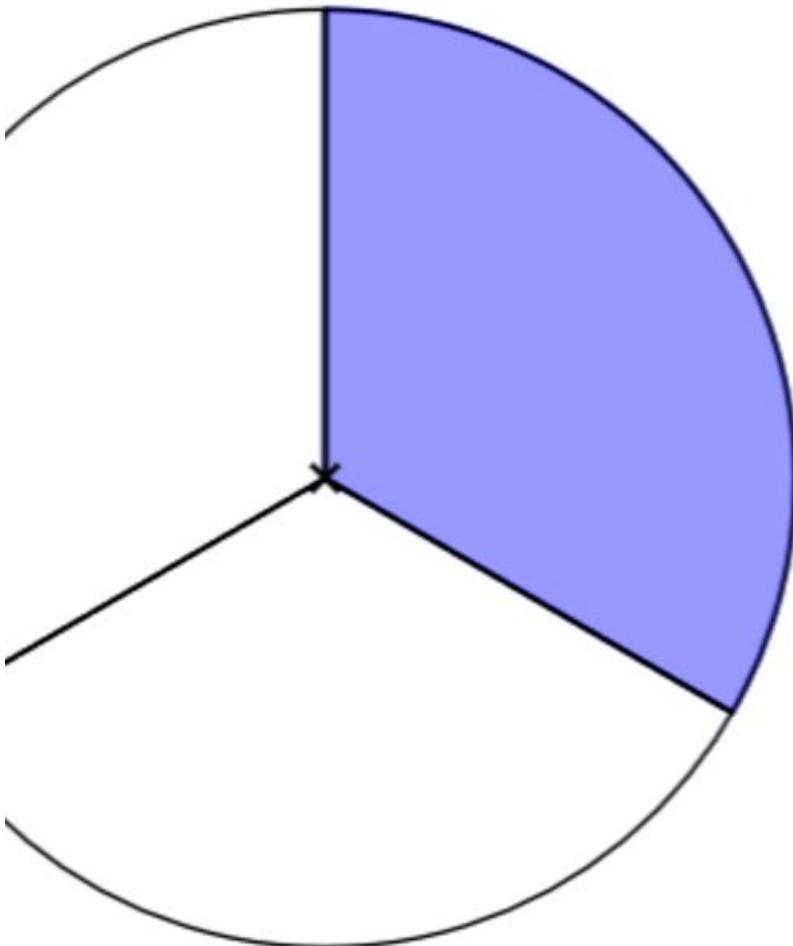




Dementia Is Like A Wave....



Seems Calm. But What Is  
Happening Beneath The Surface? |

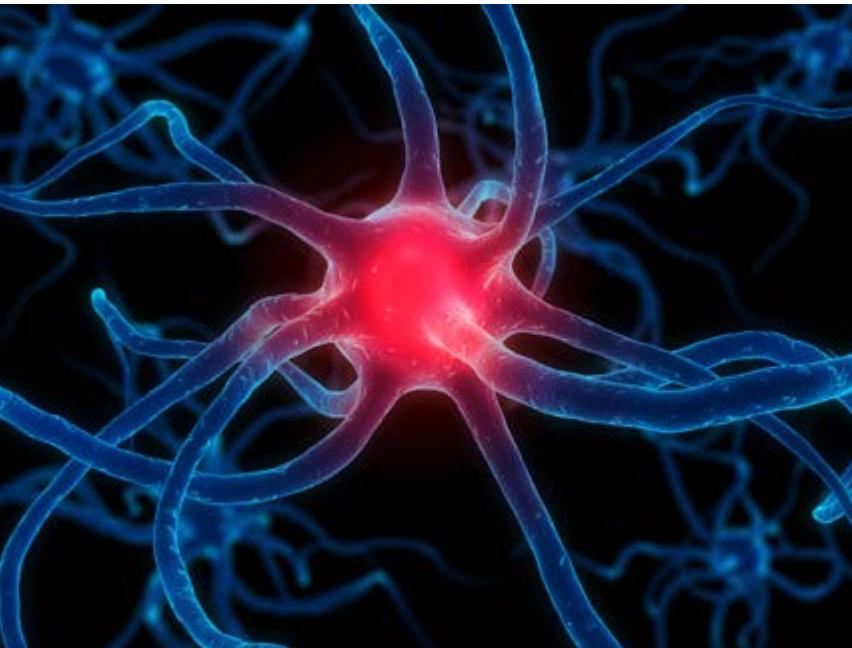


## 1/3 of All Dementia Is Preventable

- 47 million people have dementia worldwide
- 115 million by 2050.
- What are key factors in preventing dementia and brain aging?

# Quick Brain Review

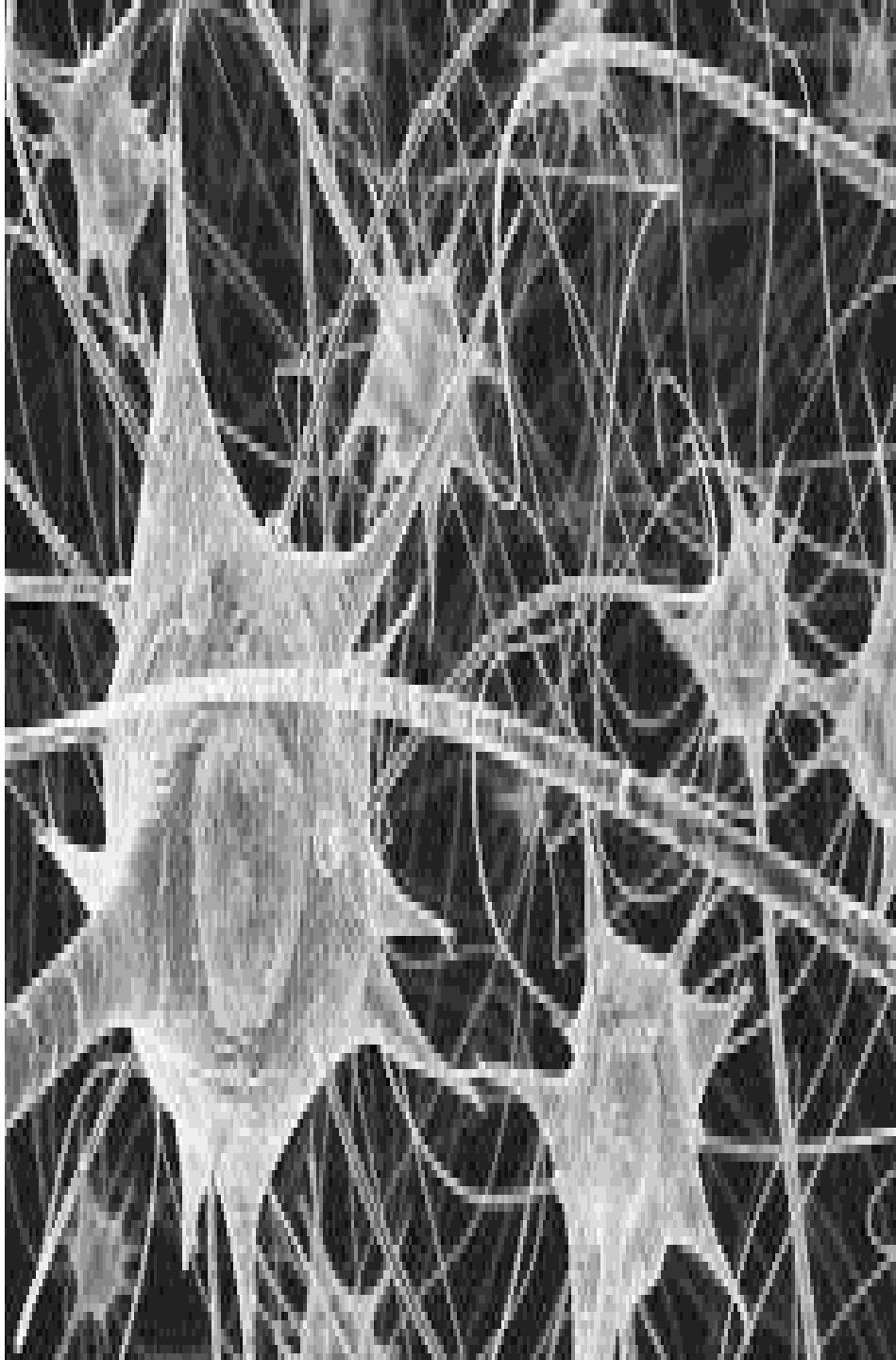
How many cells are in your brain?



# 80 Billion Cells

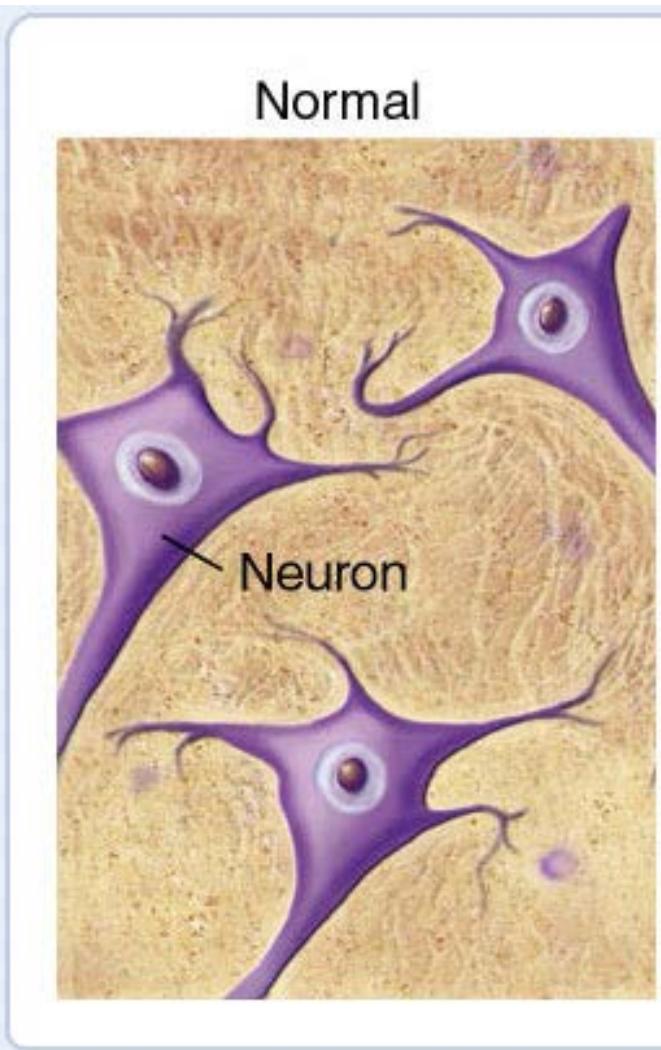
- Thoughts
- Feelings
- Dreams
- Hopes
- Memories
- Movement

How big is 80 billion?



**3,171 Years!!!**

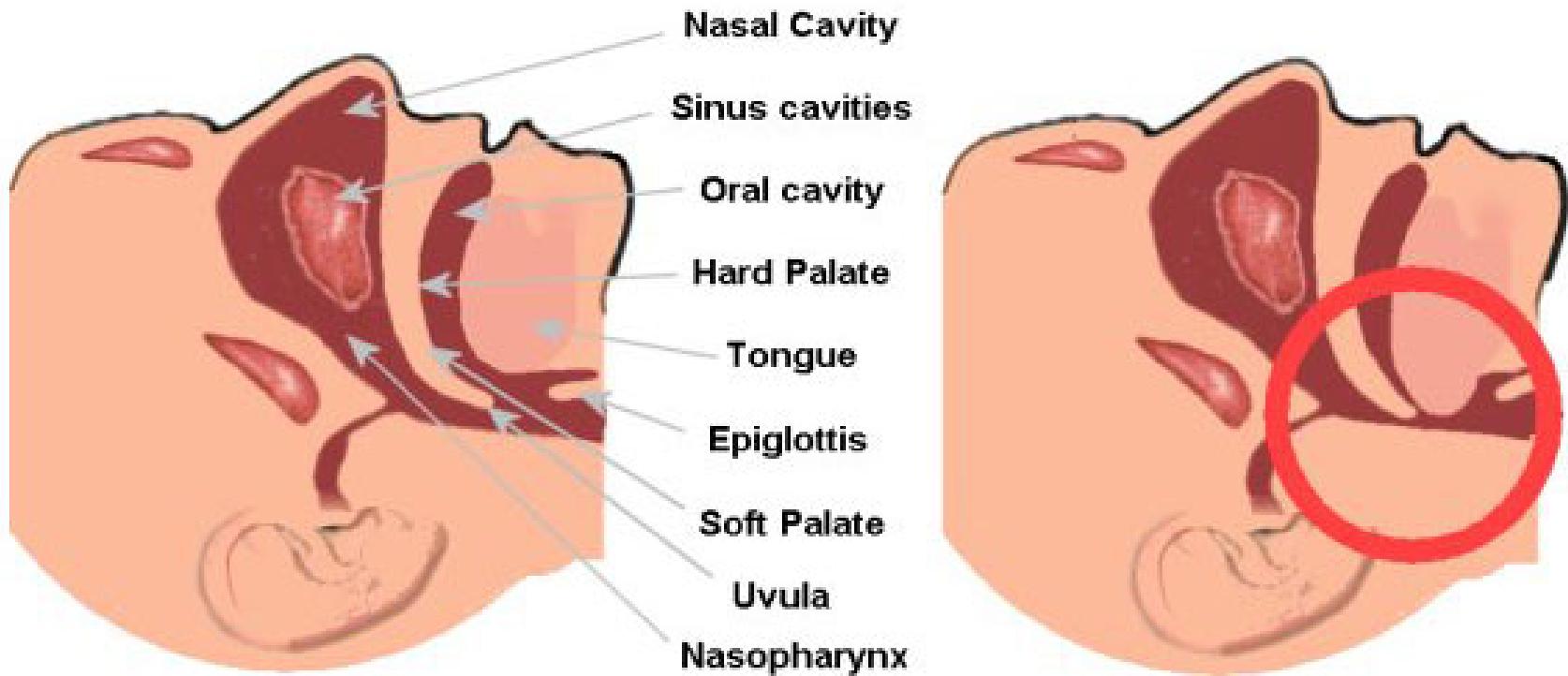
# Dementia and Brain Aging: Something Is Interfering With Brain Cell Communication



# If Someone Is Having Memory Issues

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# Do You Have Sleep Apnea?



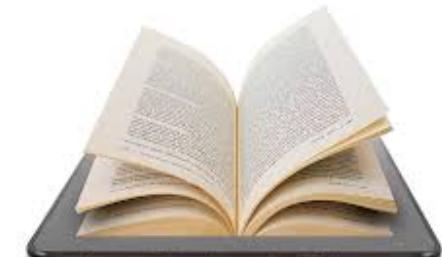
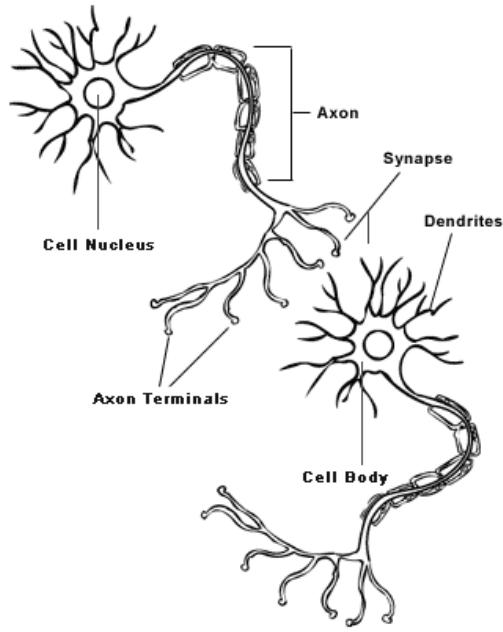
## Normal Breathing

## Blocked Airways

# How Are Sleep and Memory Related?

cottage / swiss / cake  
cream / skate / water  
show / life / row

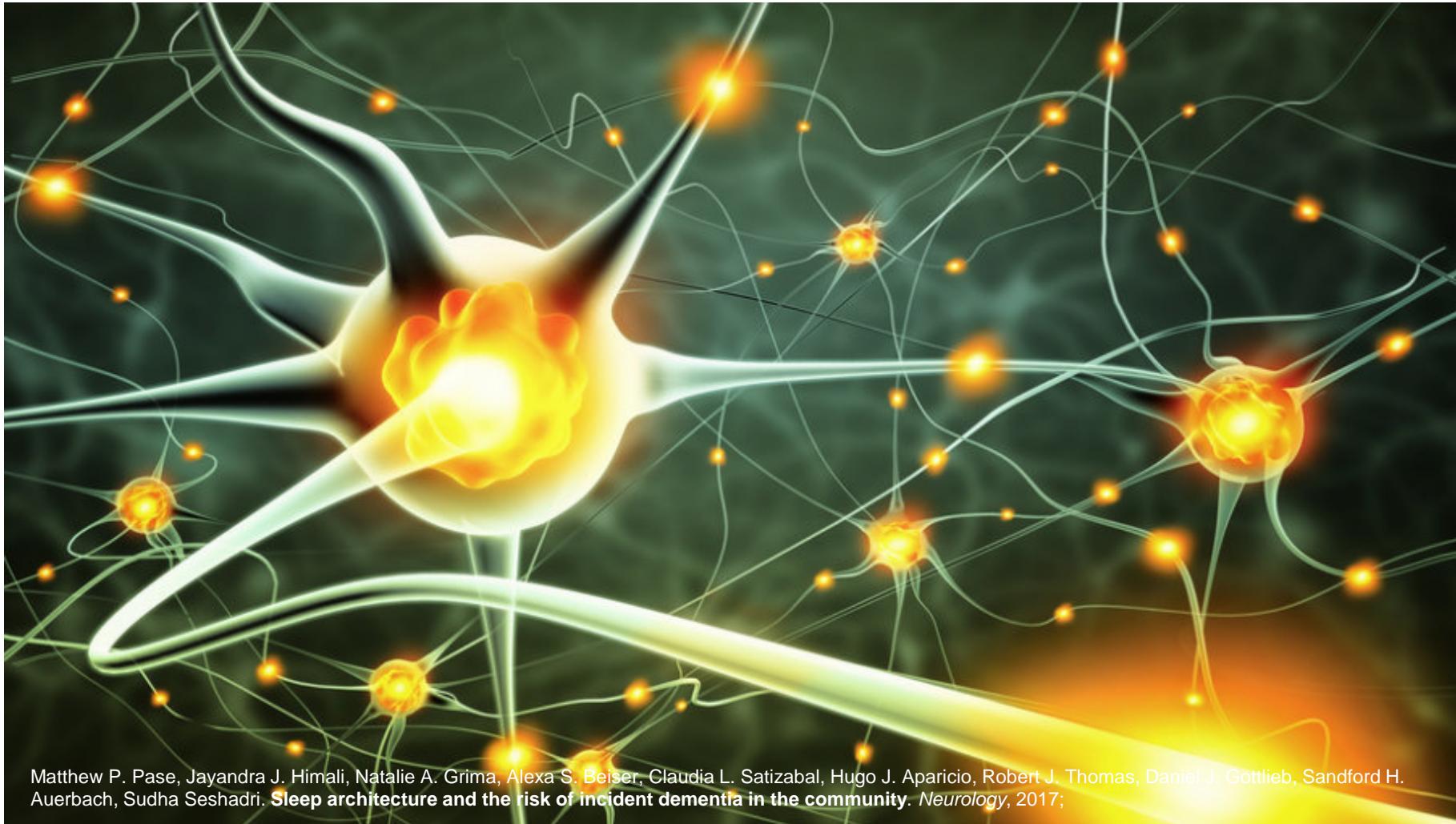
- First round vs second round.
- Some allowed to sleep, some not.



What Happens In Your Brain  
When You Learn Something  
During The Day.....

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# Sleep Is A Key Part Of Learning and Memory

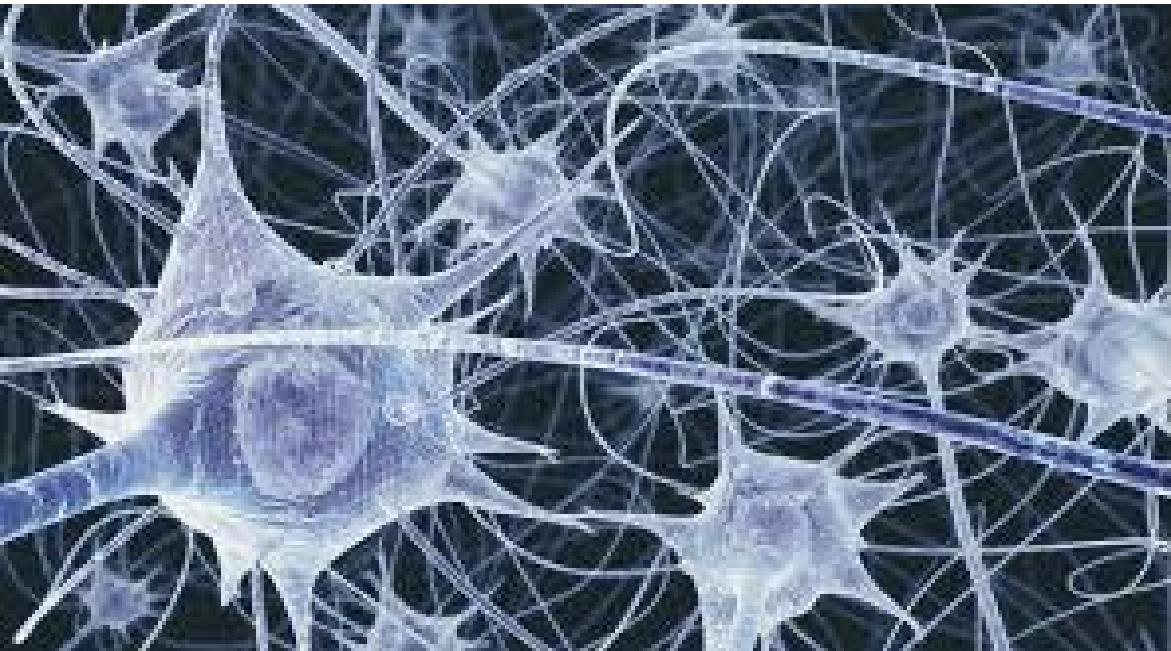


Matthew P. Pase, Jayandra J. Himali, Natalie A. Grima, Alexa S. Beiser, Claudia L. Satizabal, Hugo J. Aparicio, Robert J. Thomas, Daniel J. Gottlieb, Sandford H. Auerbach, Sudha Seshadri. **Sleep architecture and the risk of incident dementia in the community.** *Neurology*, 2017;

# Sleep Tips Based On Brain Science That You Can Use Today

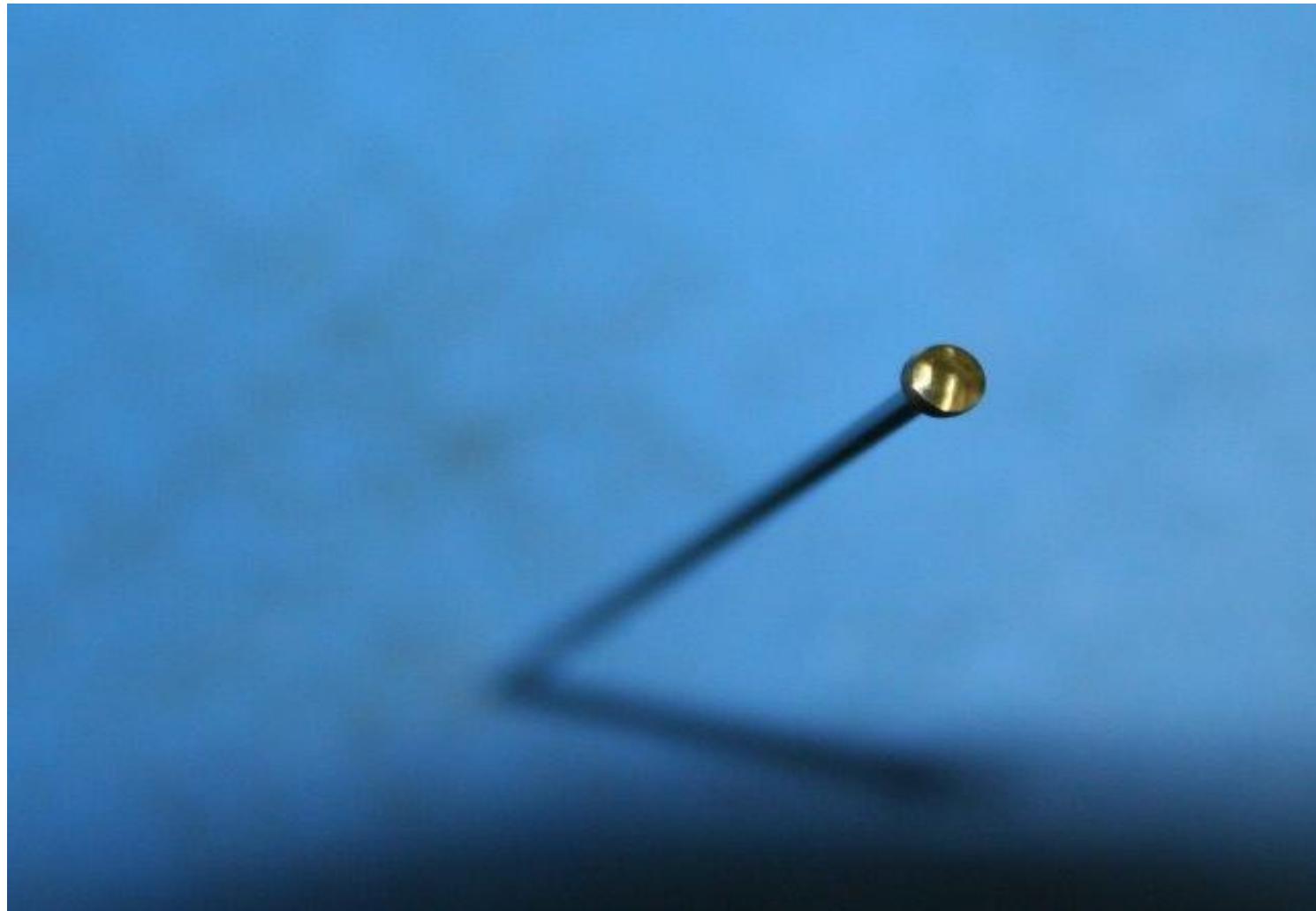
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# **Somewhere Among Those 80 Billion Cells You Have A Clock....**

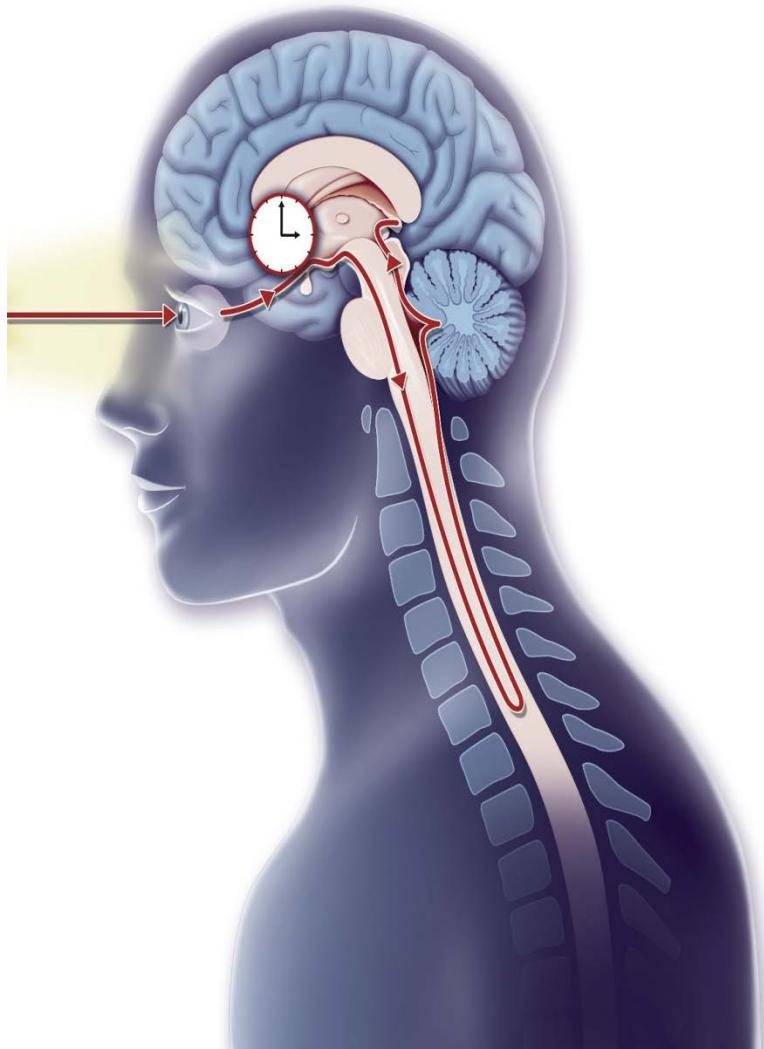


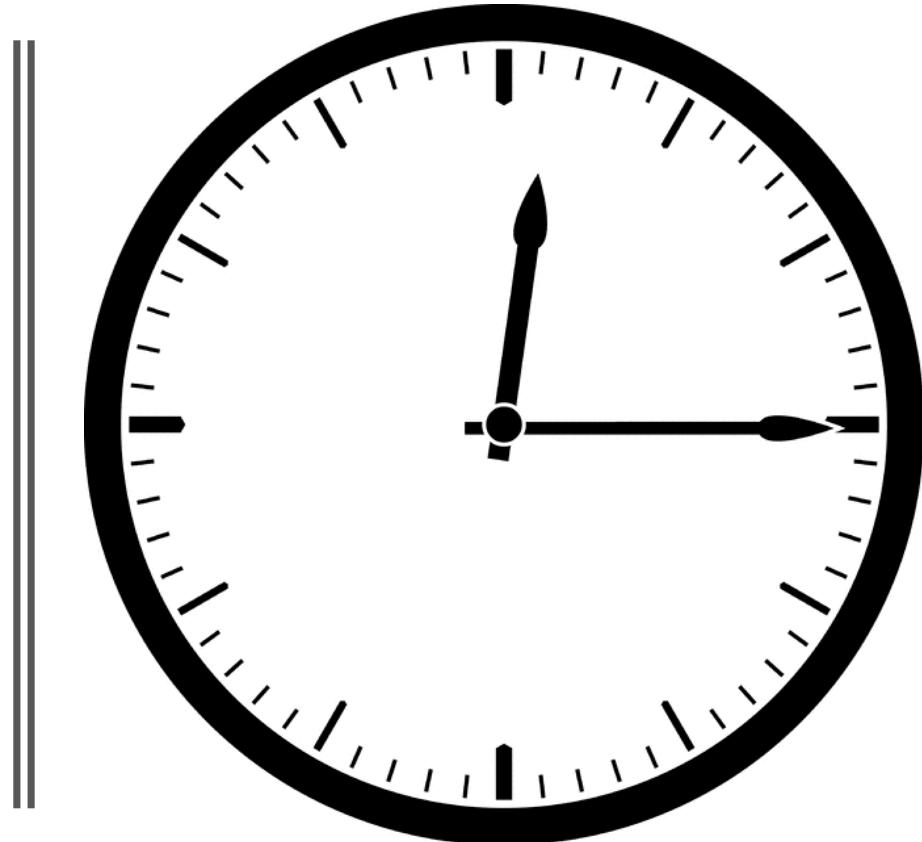
## **How Big Is Your Clock???**

# “Clock” In Your Brain Is The Size Of A Pinhead



# The Brain Clock



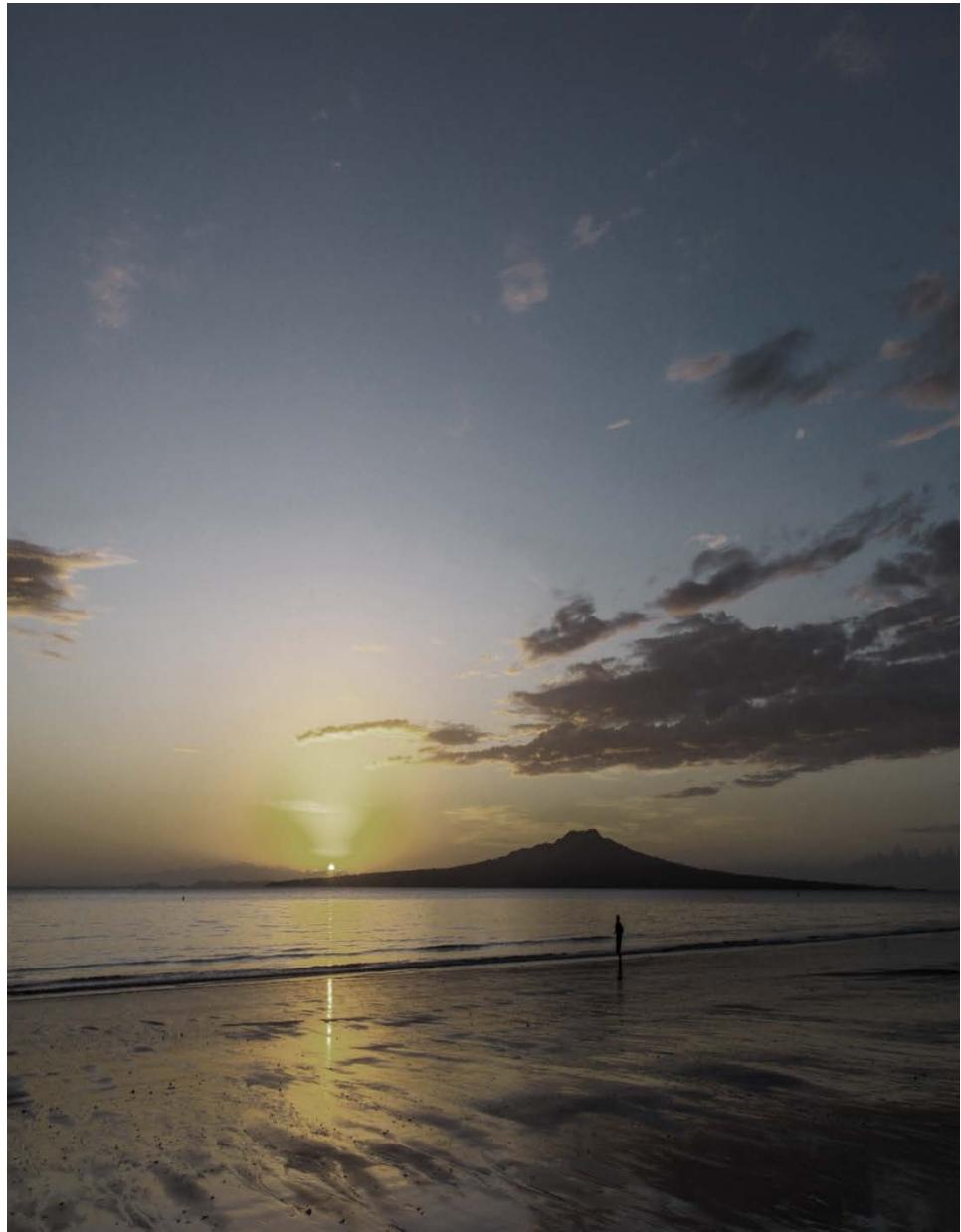


Clock Reset?

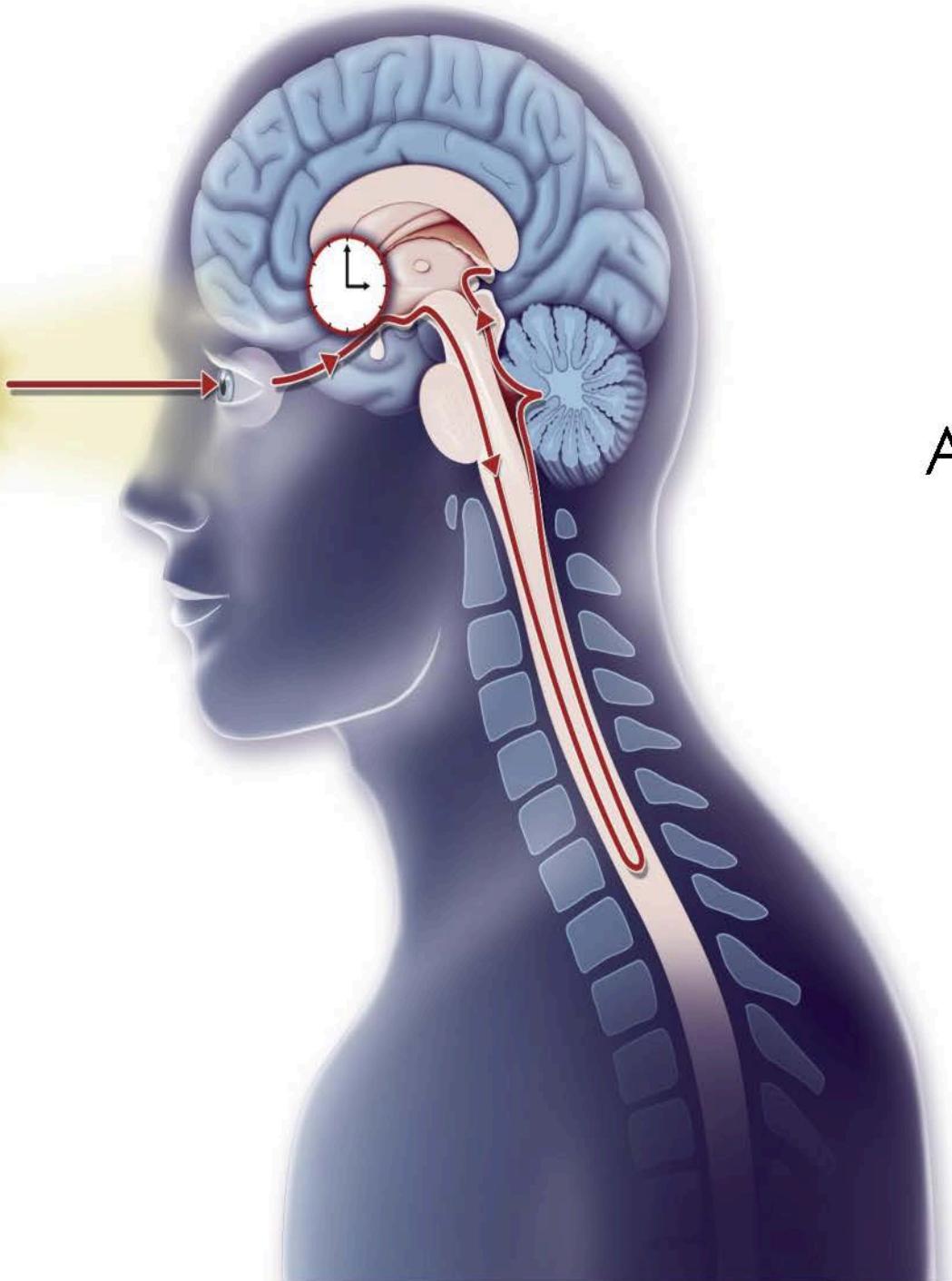
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Every  
Morning

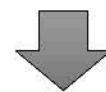
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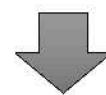
# Length of Process



Darkness



Activates Eyes



Clock



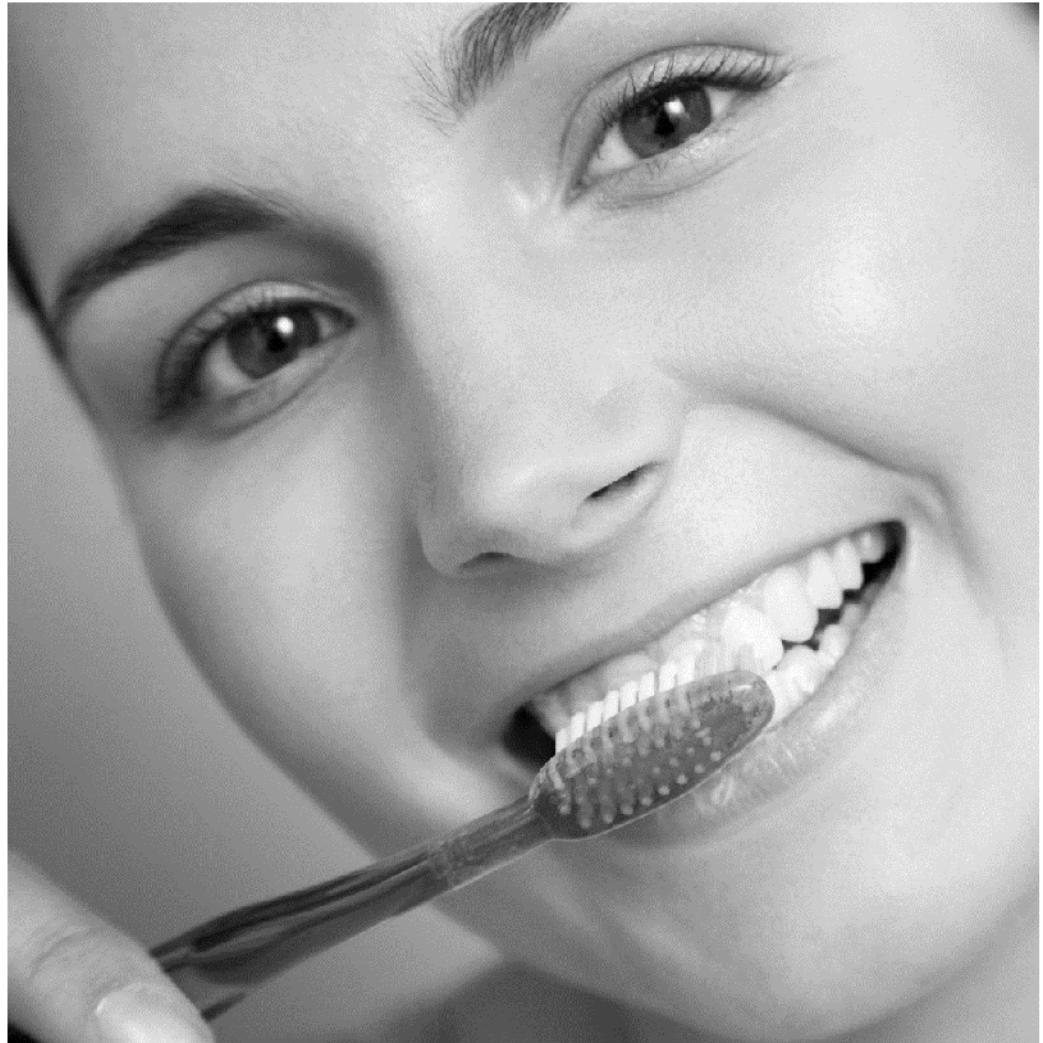
Melatonin



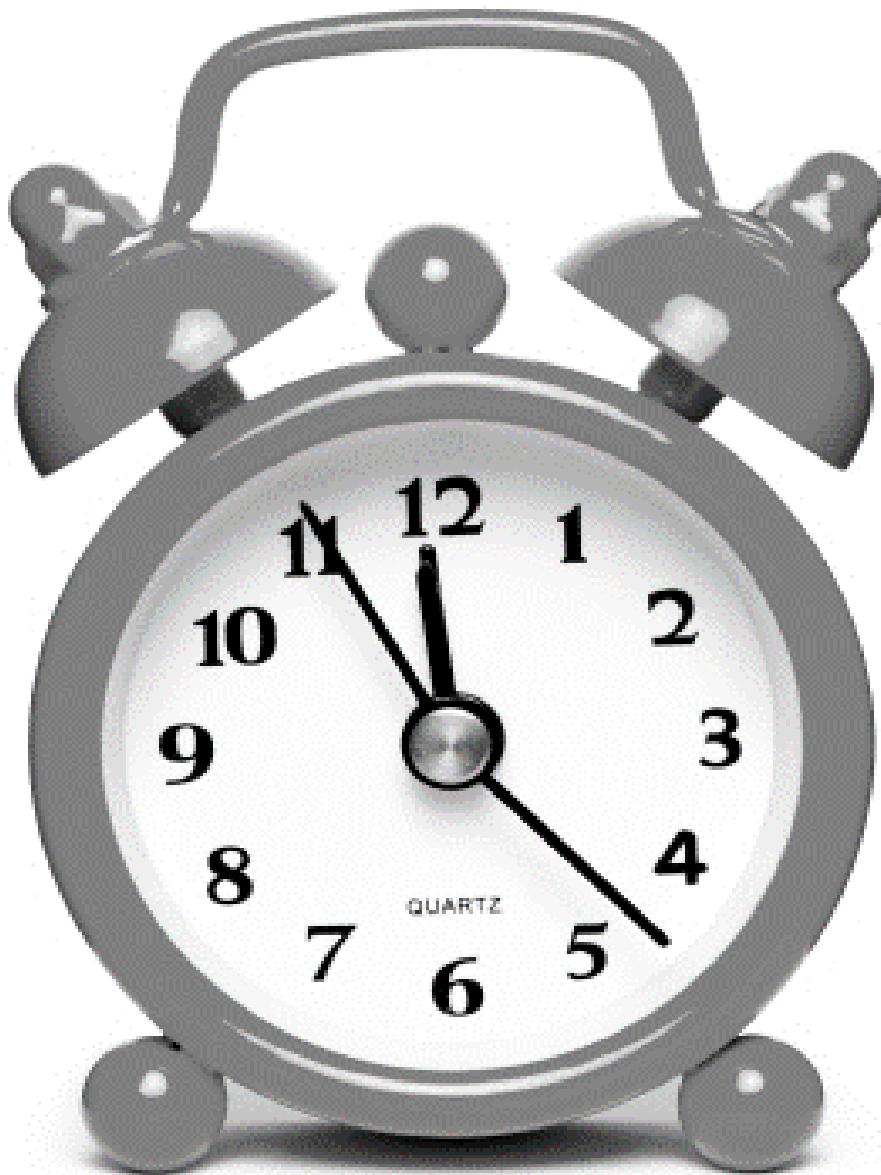
Sleep

If You are  
Doing This

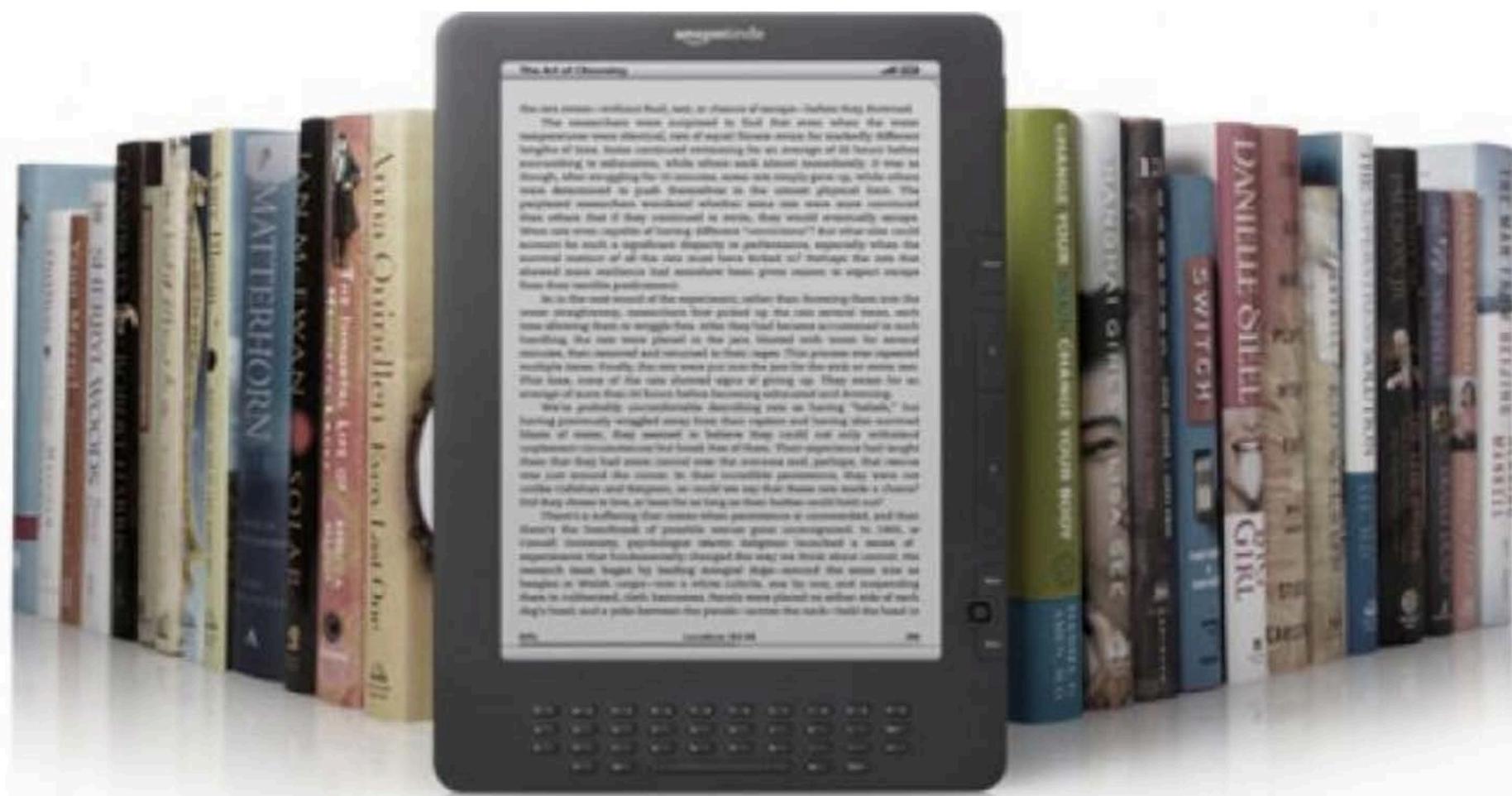
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SLEEP TIP:  
Stay on a Schedule

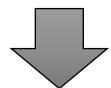


# E-Readers vs. Books?

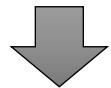


Anne-Marie Chang, Daniel Aeschbach, Jeanne F. Duffy, and Charles A. Czeisler. Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness. *PNAS*, December 22, 2014

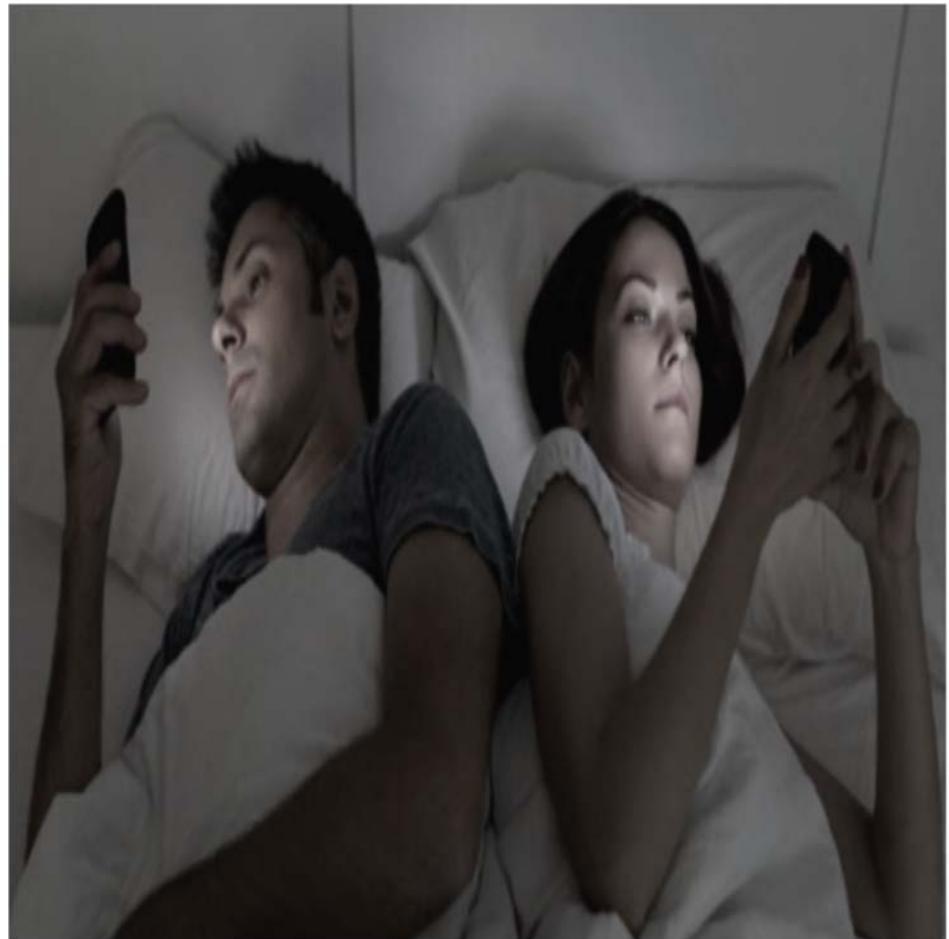
# The Blue Light



Activates Brain Clock



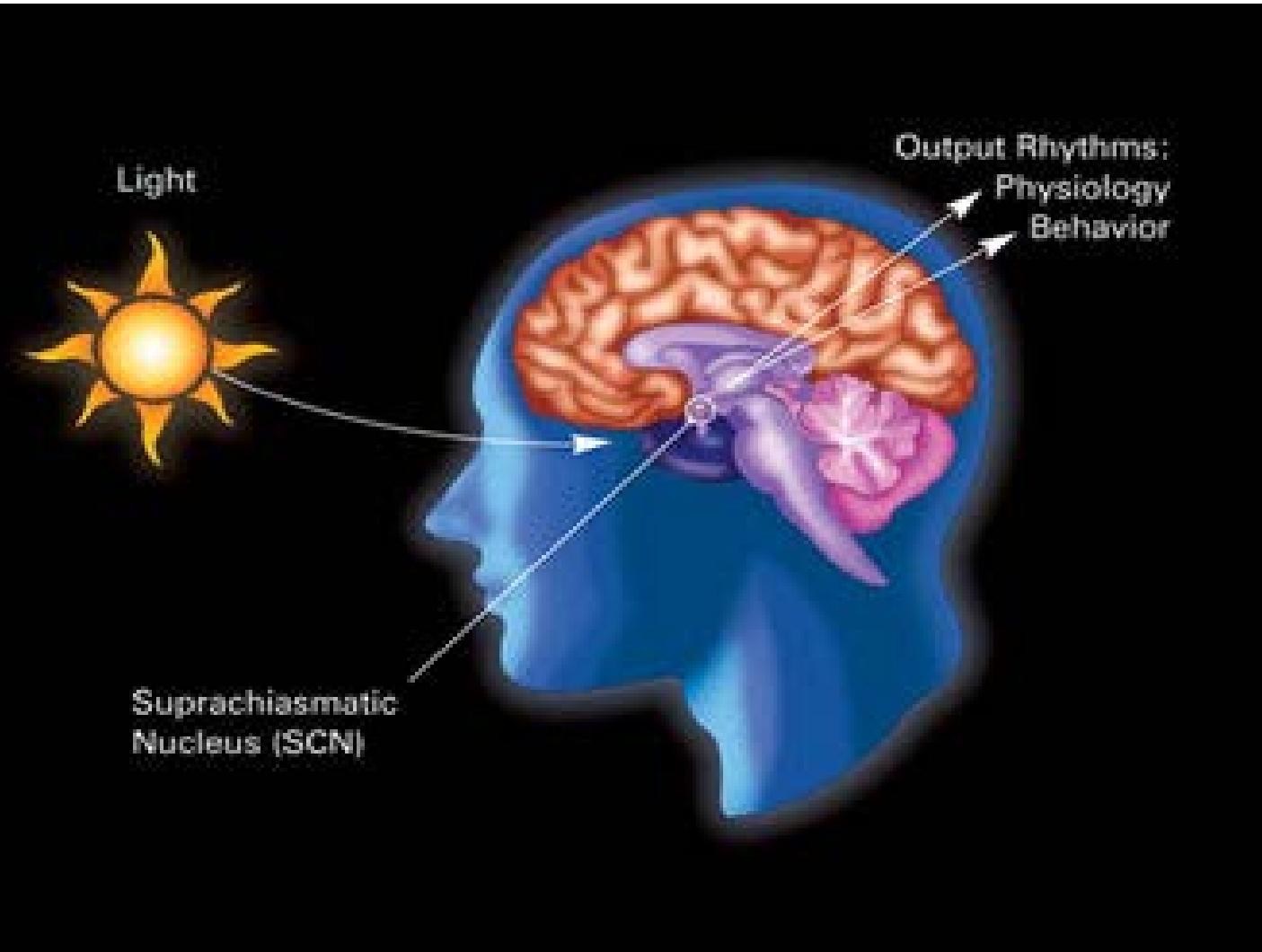
~~Sleep~~





# Ancient Brain Mechanisms In Our Modern Society

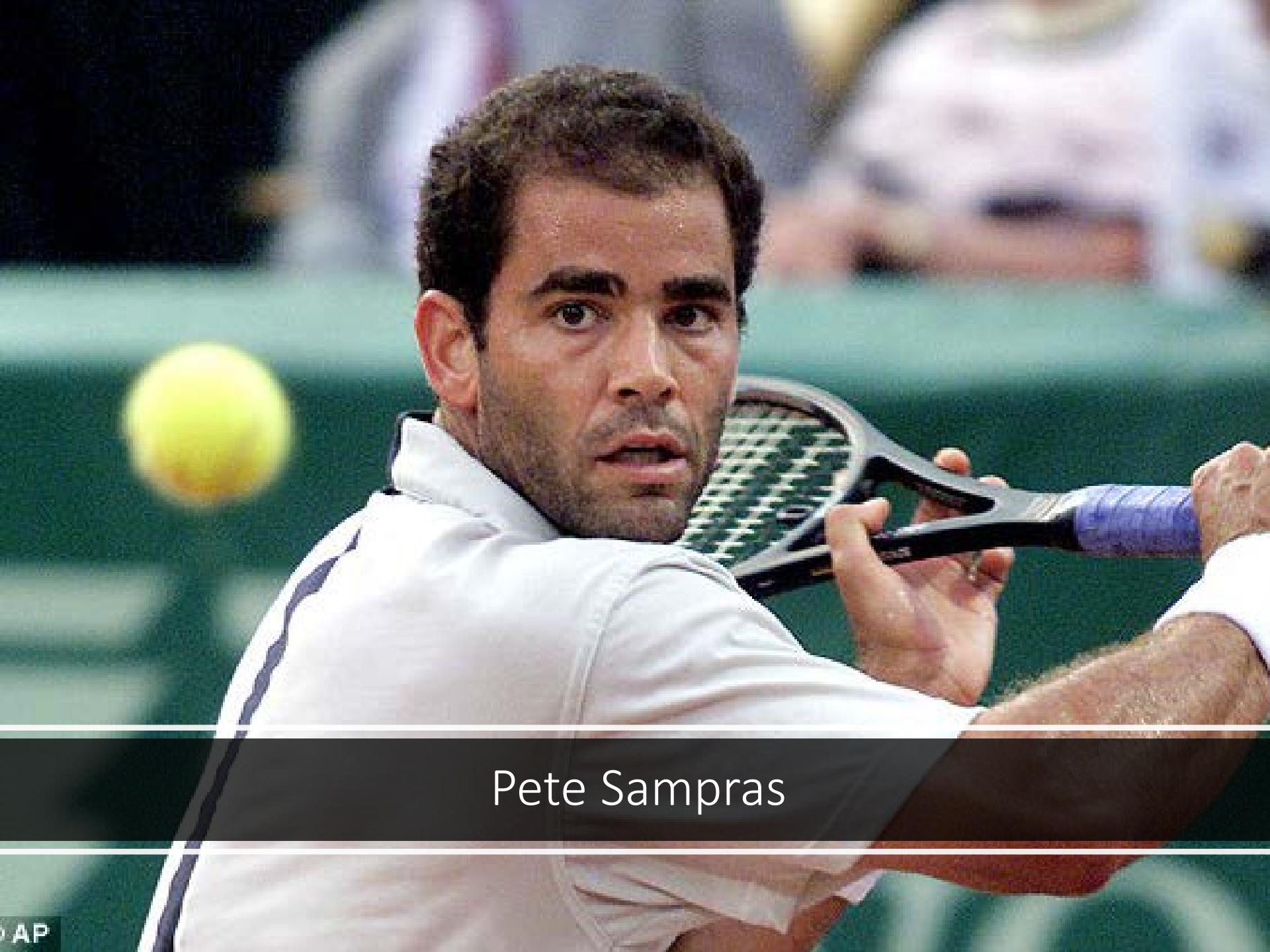
# Natural Light First Thing In Morning Darken Your Bedroom At Night





It's Hard To Get Our  
Rooms Dark....

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Pete Sampras

# Simple Solution





Take Home Tip For Homes, Hospitals and Nursing Homes

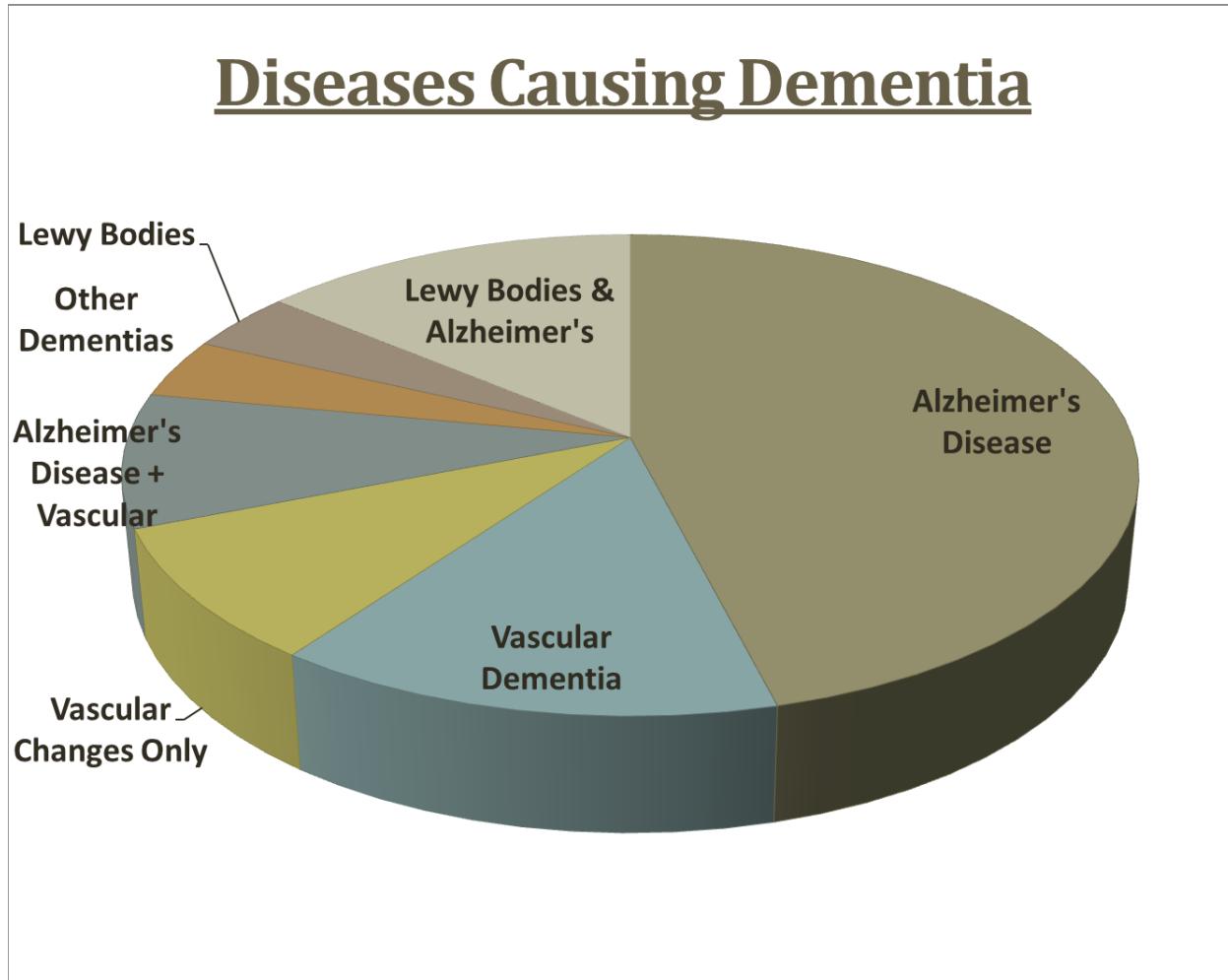
# Alzheimer's Disease

- What is the difference between Alzheimer's disease and dementia?

A close-up photograph of a woman with long, dark brown hair, wearing a white t-shirt. She is holding a white tissue to her nose, which is partially visible. Her eyes are closed, and she appears to be in the middle of a sneeze or a strong cough. The background is blurred, showing what might be a living room or bedroom setting.

Think Of It This Way....

# What Can Cause Dementia?

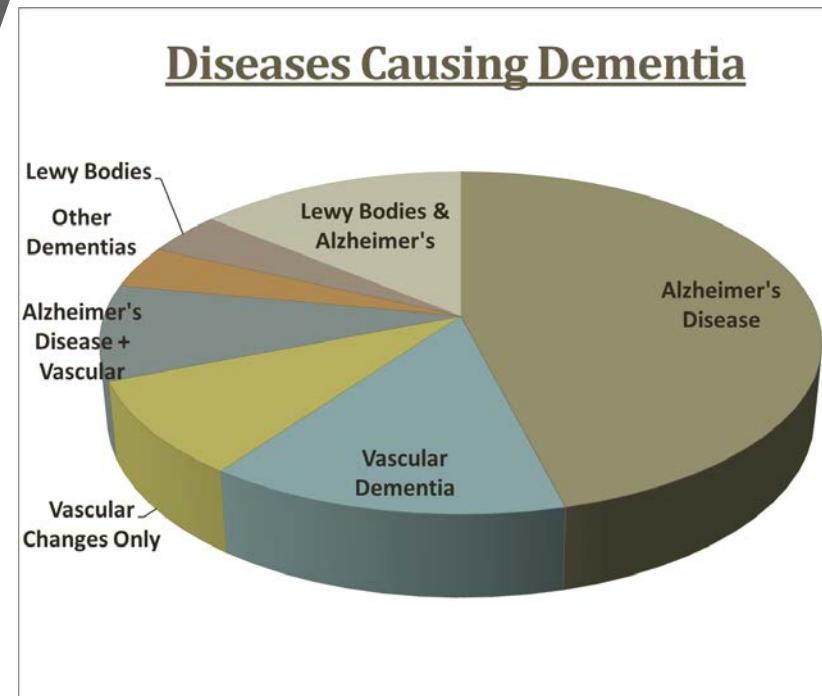


There are as many as 200 known causes of dementia, but most of these causes are very rare.

# Why Is It Worth Knowing The Underlying Cause?

# Approximately 20% Of Dementia Is Quickly Treatable

- If dementia is caused by vitamin or hormone deficiencies, the symptoms may resolve once the problem has been corrected.
- Which vitamins?
- Therefore, dementia symptoms require comprehensive evaluation.

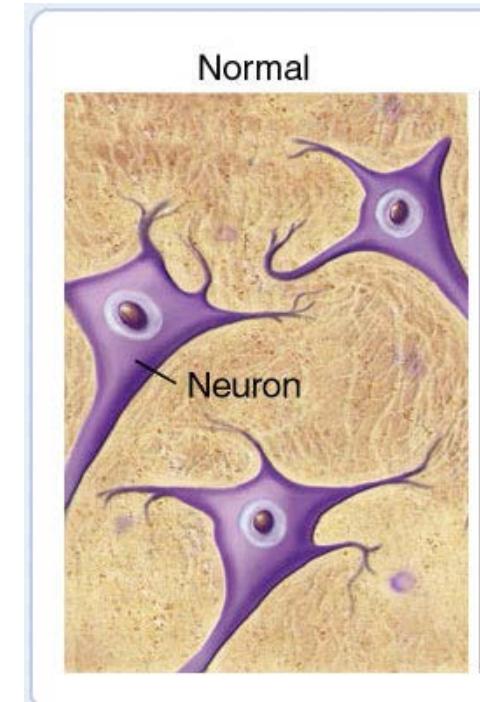


95% of what is known  
about Alzheimer's has  
been discovered in the  
last 15 years

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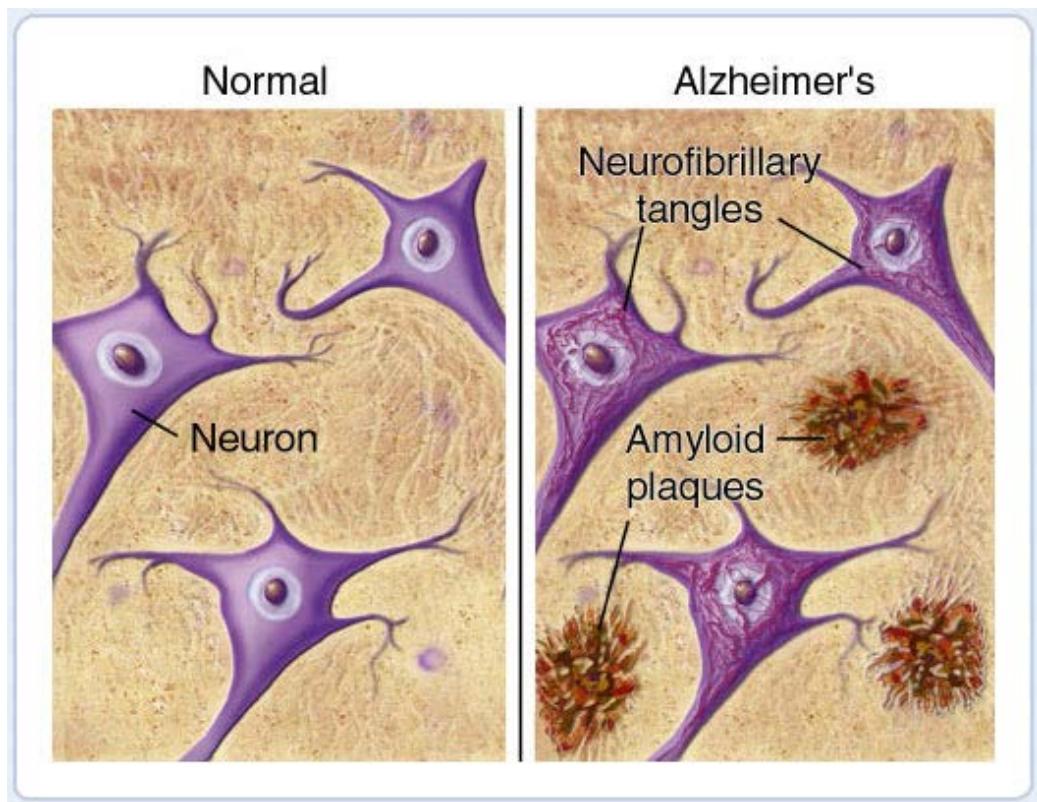
# Brain Cells Are Like Factories

Both create what?

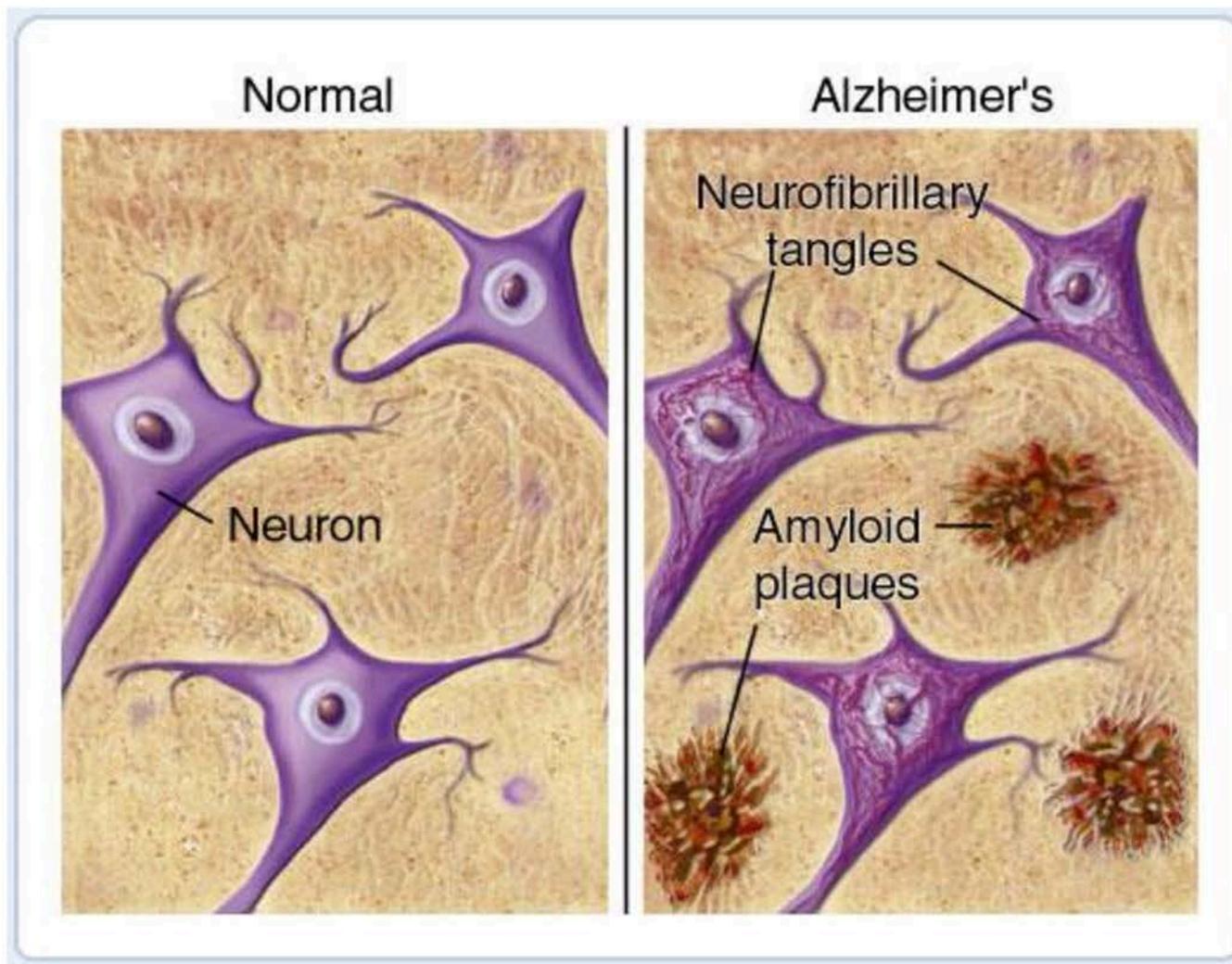


# What Can Trash Interfere With?

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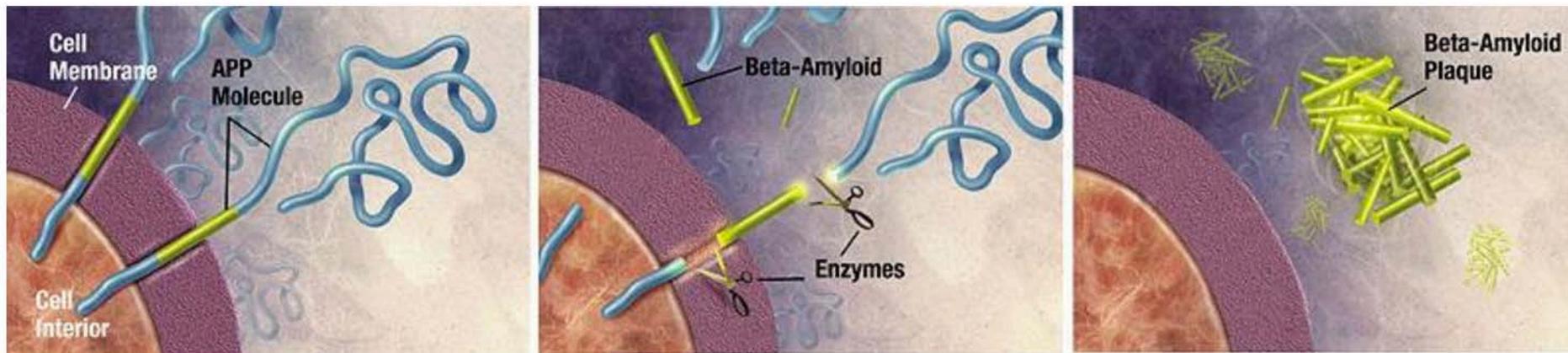


# Amyloid Plaques

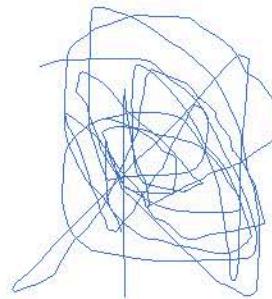
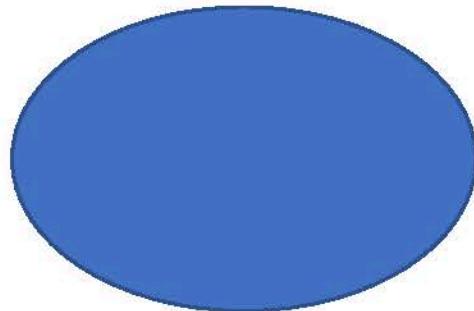


**Plaques** are deposits of a protein fragment called beta-amyloid that build up in the spaces between nerve cells.

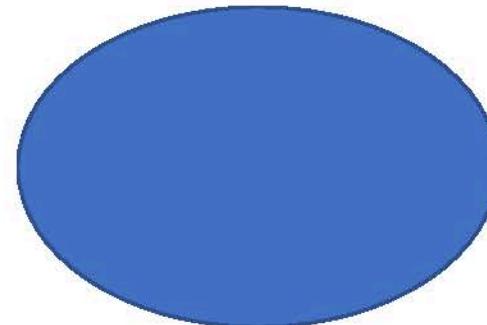
# How Plaques Are Formed



Brain Cell 1



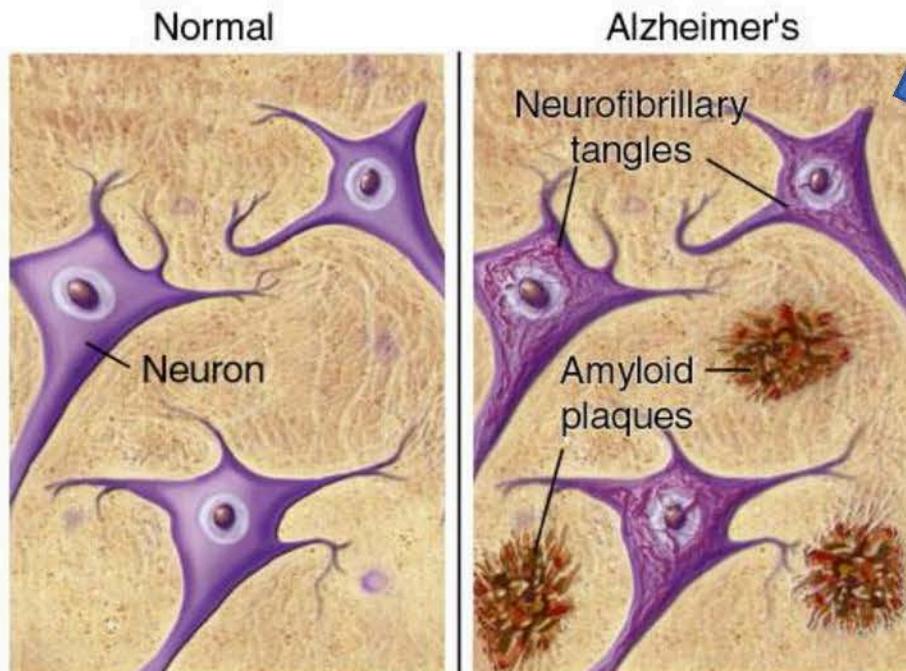
Brain Cell 2



# There Is Another Way Trash Builds Up

- Are plaques inside or outside the brain cells?

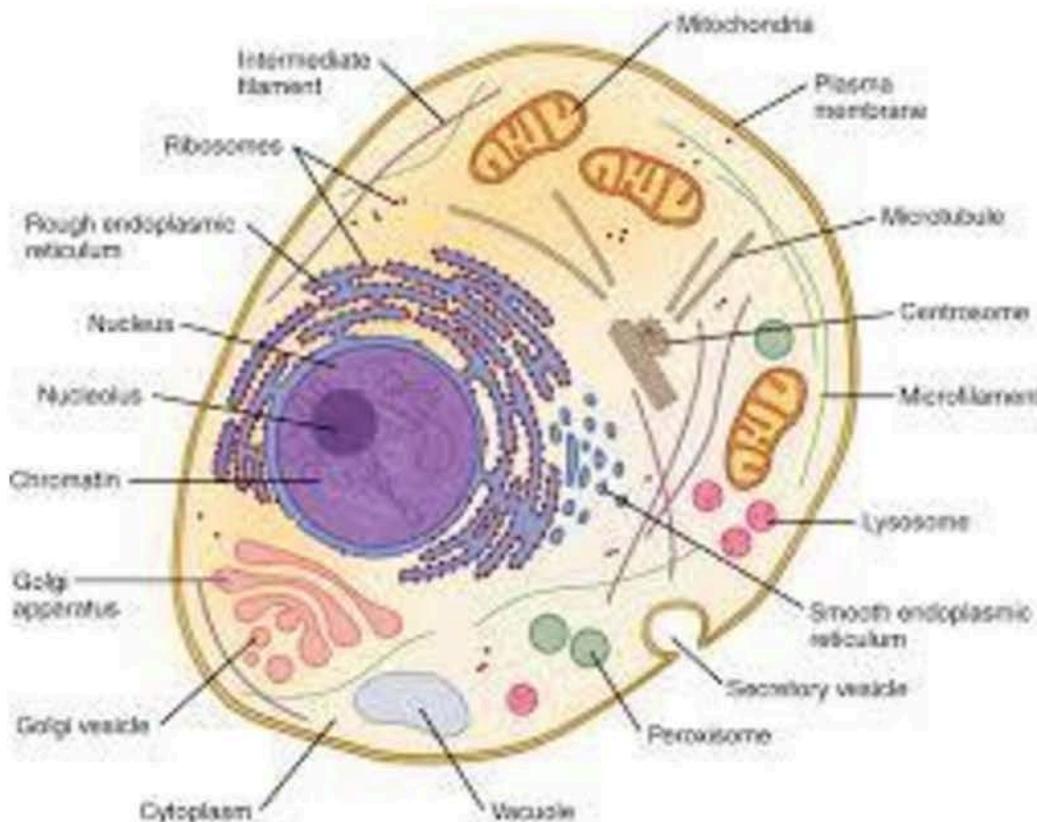
# Second Cause: Tangles

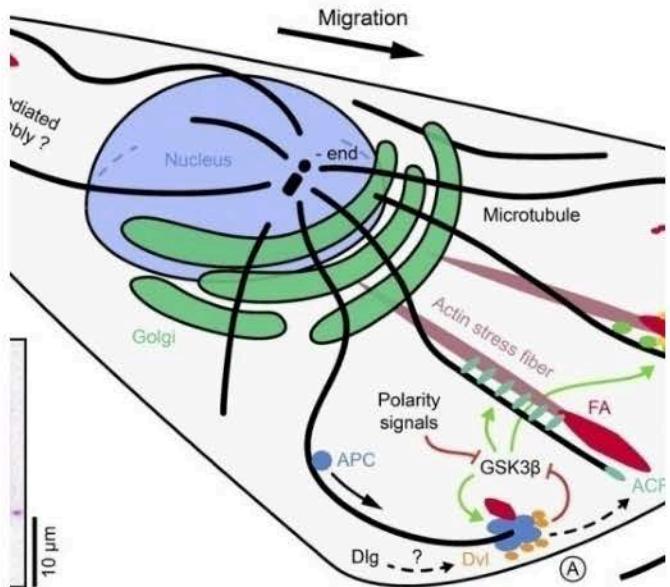


**Tangles** are twisted fibers of another protein called tau that build up inside cells.

# How Do “Things” Like Nutrients Get Around In Your Cells?

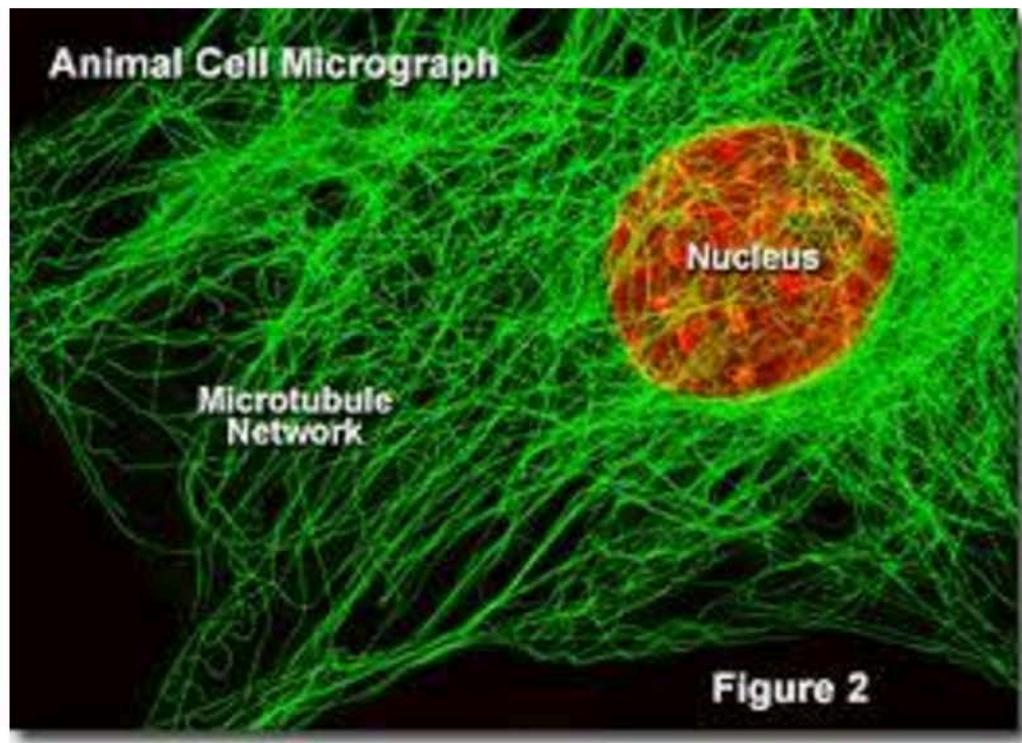
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Nutrients Get Around In Your Cells Using A System Similar To Railroad Tracks

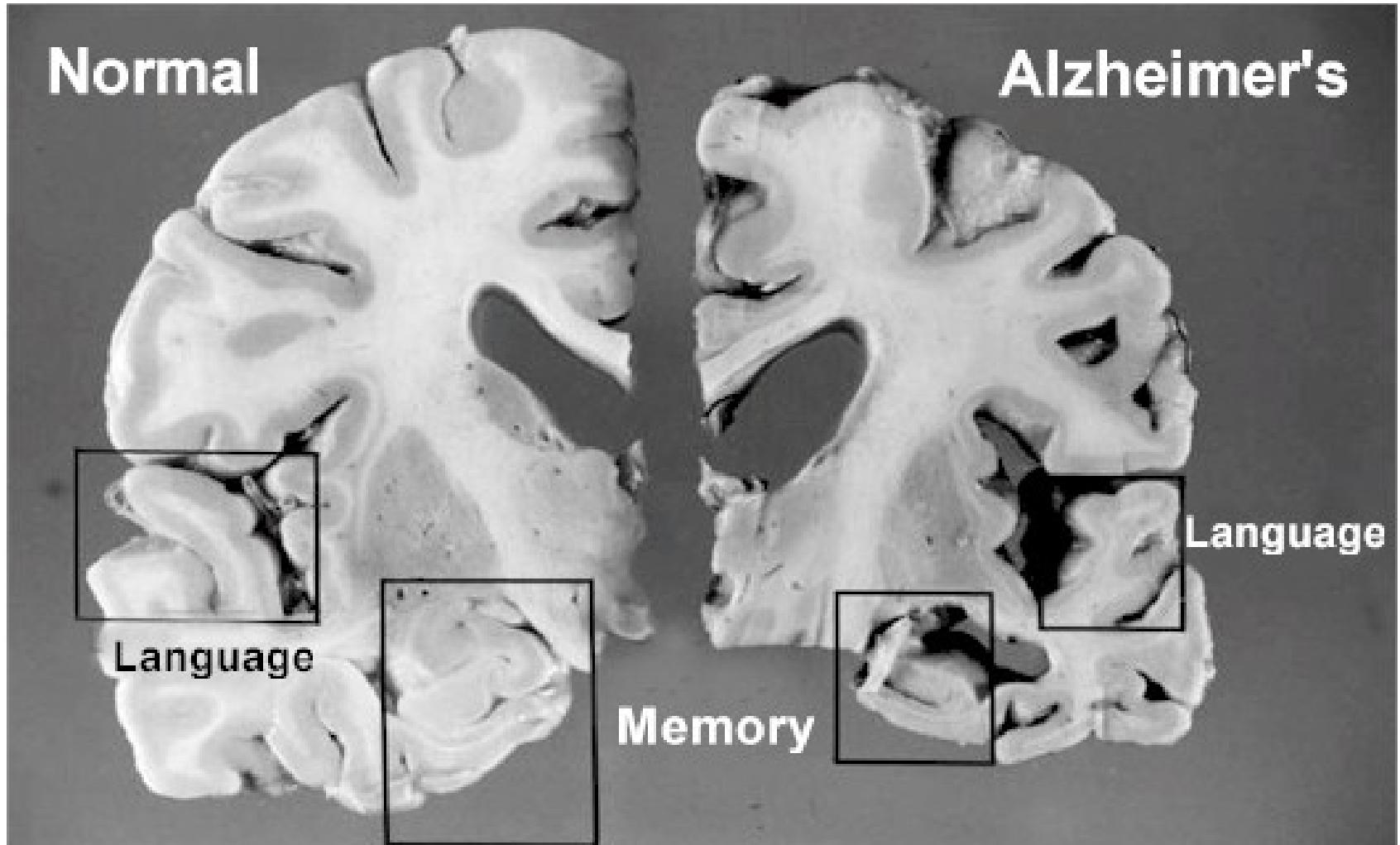
Tracks  
Inside The  
Cell Are  
Used For  
Transport



# Alzheimer's Is Trash In The Brain

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# Trash Causes A Factory Breakdown



# New Insight:

## When Does Your Brain Take Out The Trash?

### But First, How Much Trash Do We Make?

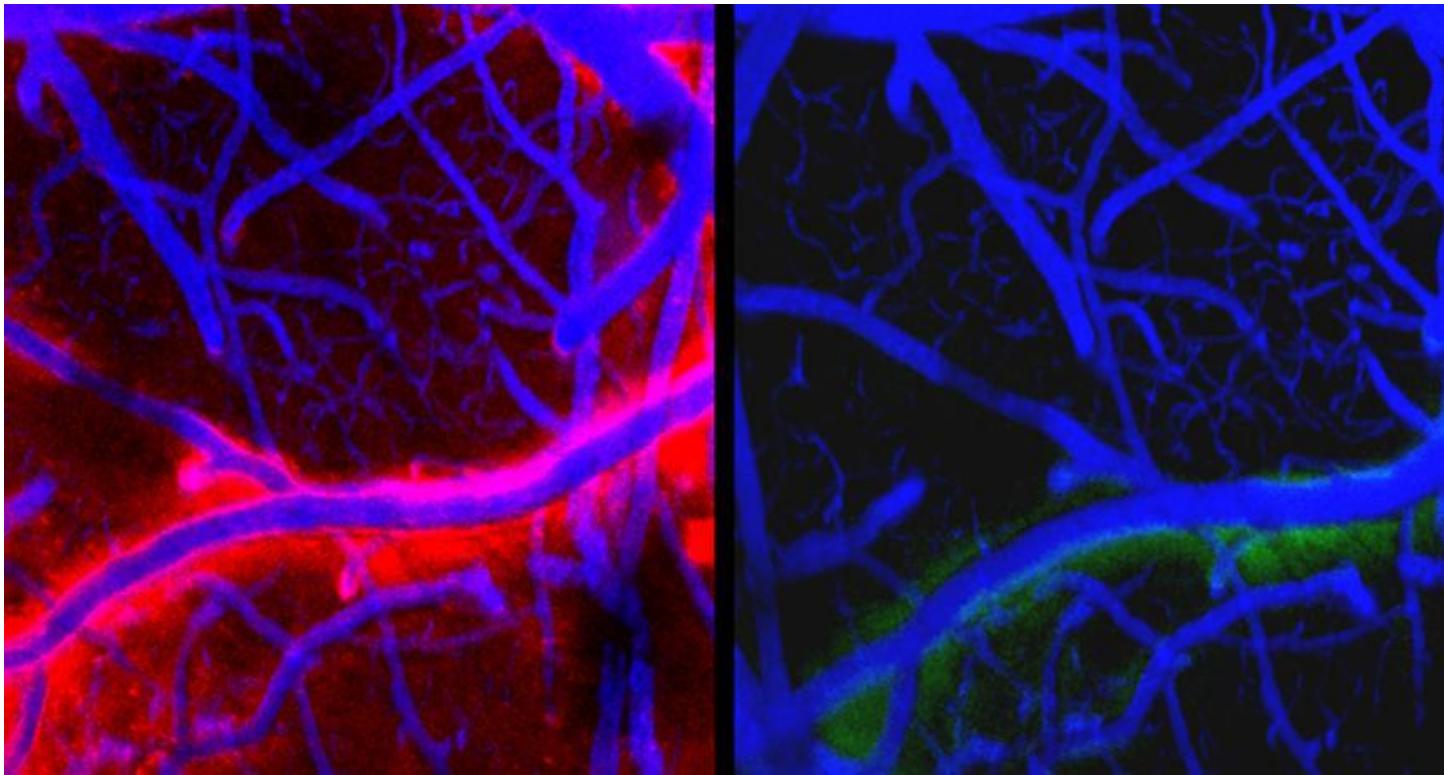


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# Sleep Clears Trash Out Of The Brain



# Brain Wash



While you are sleeping your brain shrinks by 60% and squeezes toxins out of your brain cells and gets a wash!

Sleep Drives Metabolite Clearance from the Adult Brain

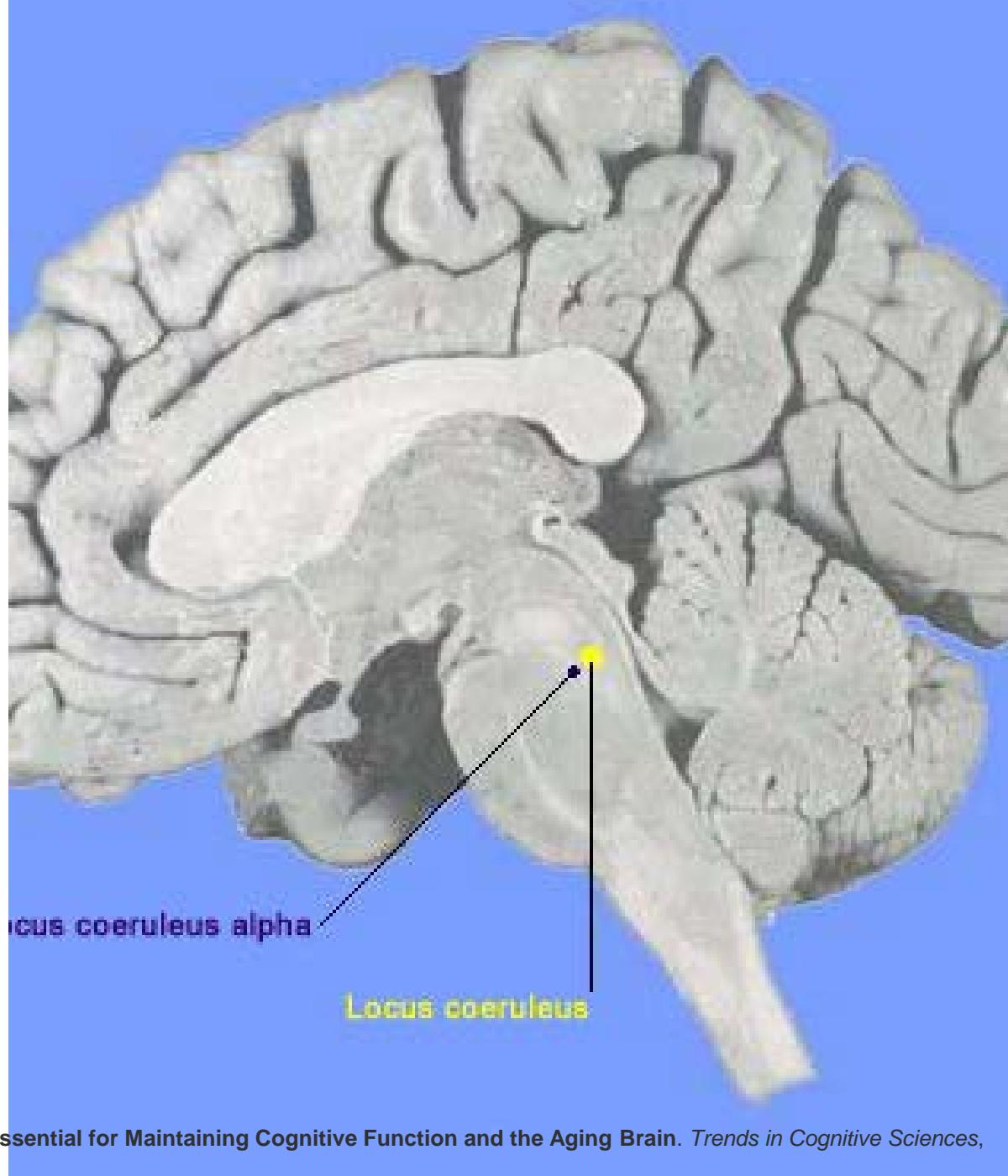
[Lulu Xie<sup>1</sup>](#) et al. Science 18 October 2013: Vol. 342 no. 6156 pp. 373-377

# Over The Counter Sleep Aids



# Scientists identify 'ground zero' for Alzheimer's disease

- **Locus coeruleus**, a small part of the brainstem, is the first region of the brain to exhibit trash tangles.
- When does this part of brain release norepinephrine?





## Exercise Your Brain & Learn New Things

- Challenging
- Something you enjoy!

# What About Hearing Loss?

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# Untreated Hearing Loss Linked To Dementia (Hopkins Study)



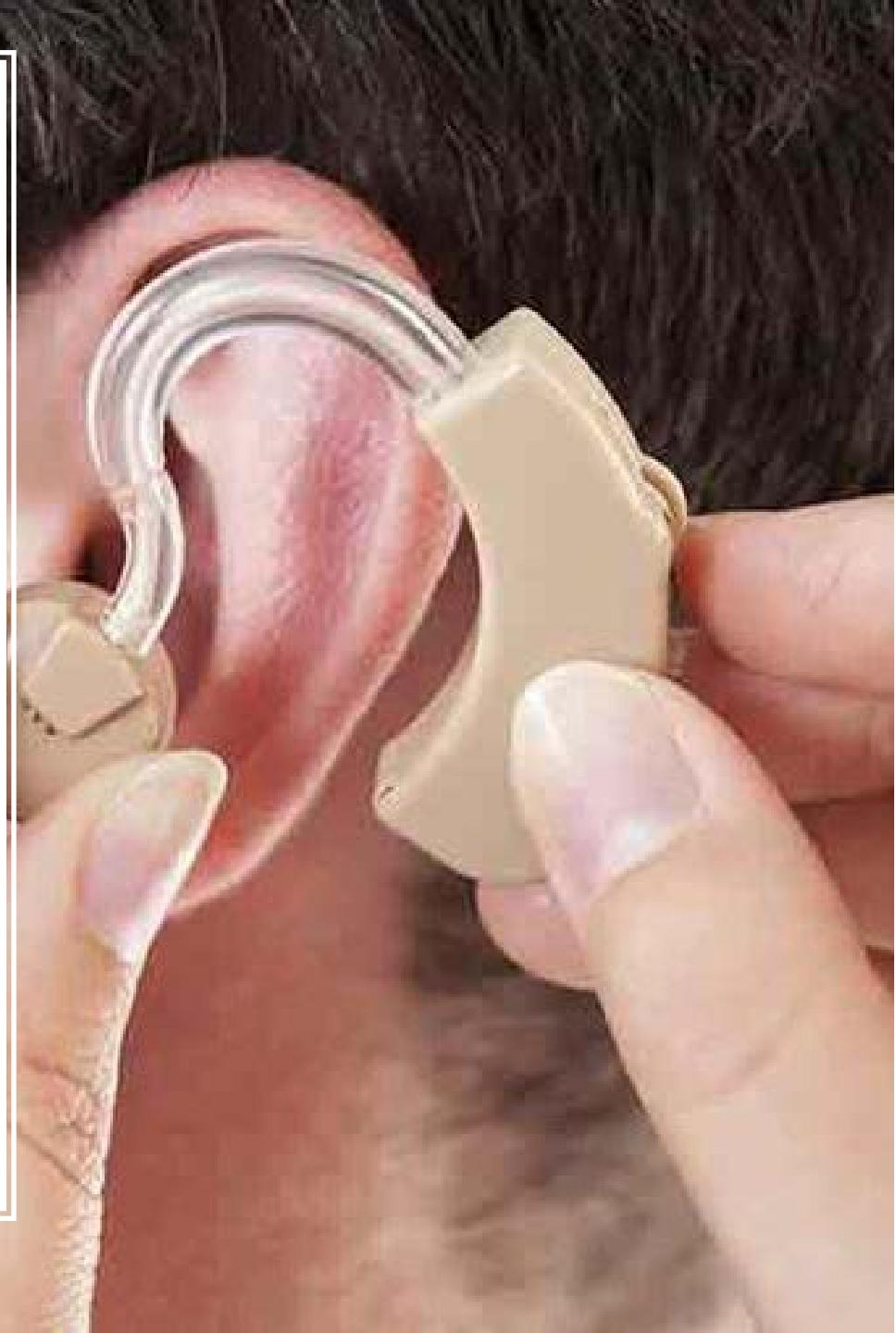
## Why?

# Isolated and Loss of Social Contact



## 2 Key Take Home Messages

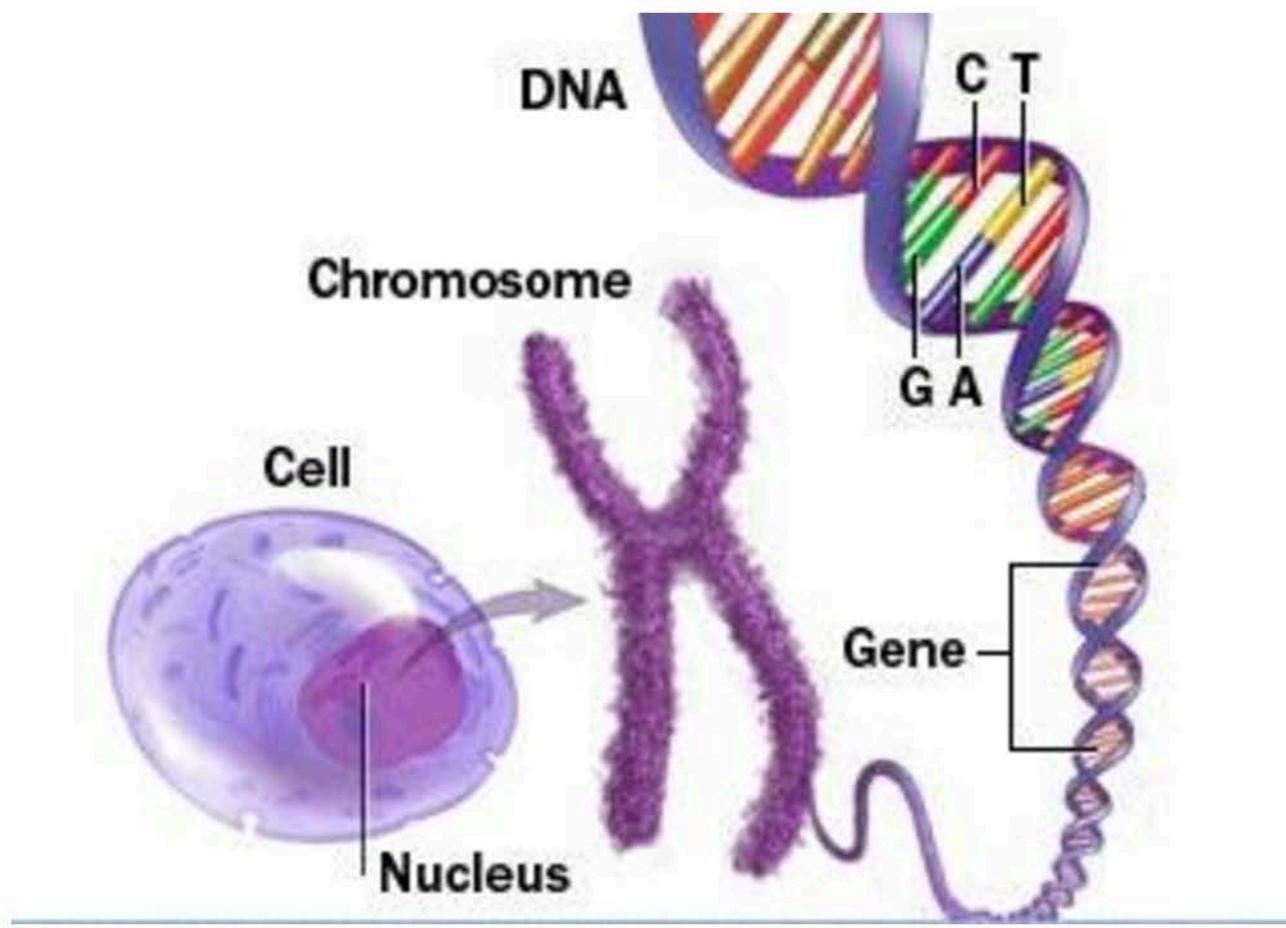
- Treat hearing loss.
- Importance of social contact.



# We Now Have 4 Major Tips

- Sleep
- Learn New Things
- Treat Hearing Loss
- Stay Engaged Socially

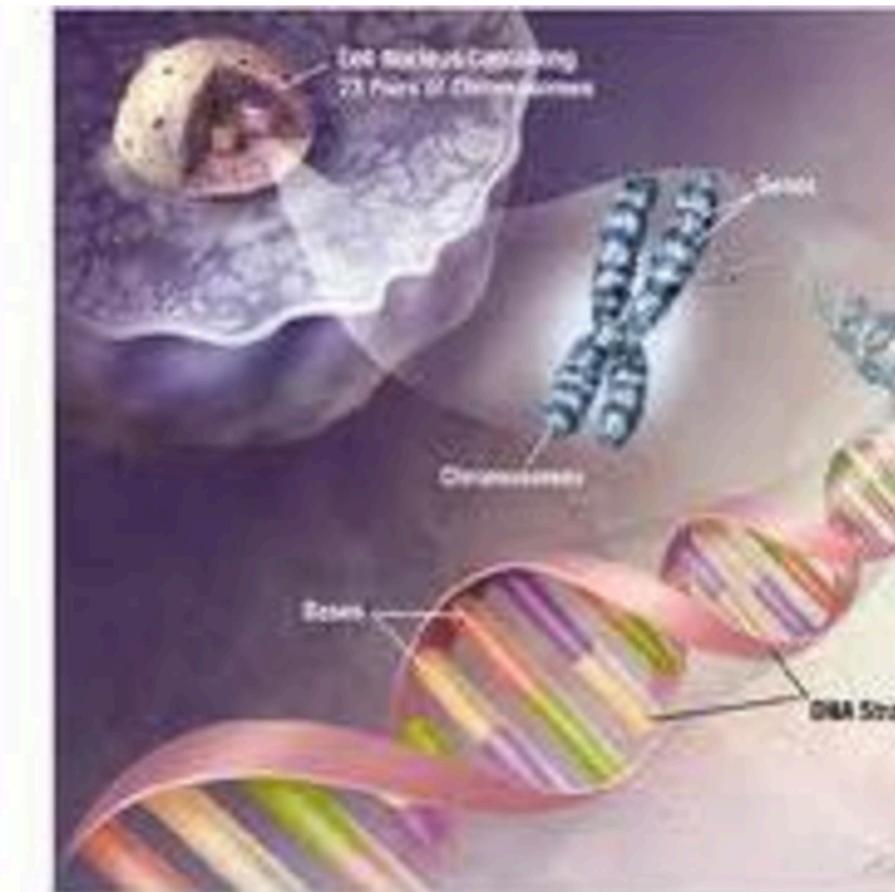
# Is Alzheimer's Genetic?



Is There An Alzheimer's Gene?

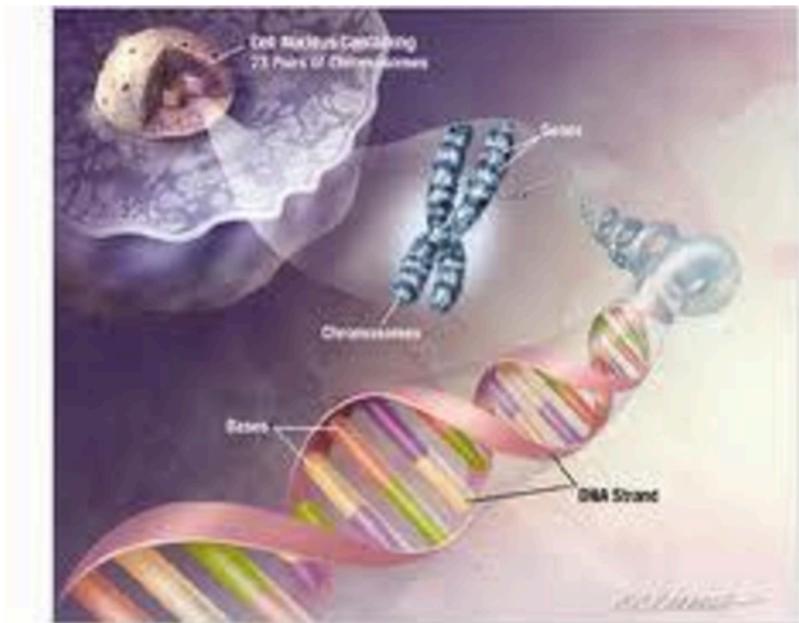
# Genetics And Alzheimers Info

- The genetic cause for most Alzheimer's cases is still mostly unknown except for 1% to 5% of cases where genetic differences have been identified.



# Alzheimer's Is Not Considered A Genetic Disease In Most Cases

- The genetic cause for most Alzheimer's cases is still mostly unknown except for 1% to 5% of cases where genetic differences have been identified.



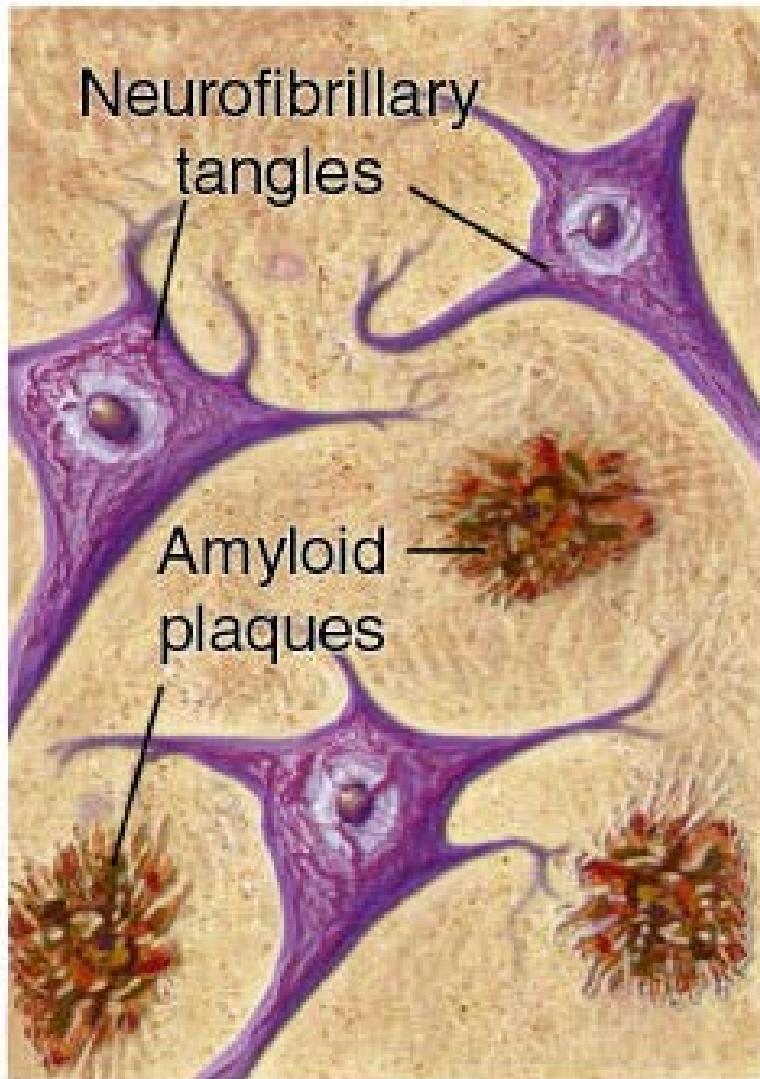
# New Understandings And Insights In Alzheimer's

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# Can There Be Trash In The Brain and No Dementia?

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## Alzheimer's



## Do We All Have Trash In Our Brain.....

- How does the body react to things that shouldn't be in your body?
- What specific response?
- Key part of the understanding....

# What Do Microglia Do?



Cells known as microglia—neural cousins of pathogen-eating macrophages of the bloodstream—swarm around amyloid plaques and dying, tangle-ridden neurons.

## The Double Whammy: Keep Inflammation Low

1. Effectively treat diseases that cause inflammation. Heart disease to autoimmune and injury....**Don't half treat.**
2. Ask your personal Doctor about checking inflammation....(CRP markers)

What else?



## Does Diet Matter?

# The Mind Diet

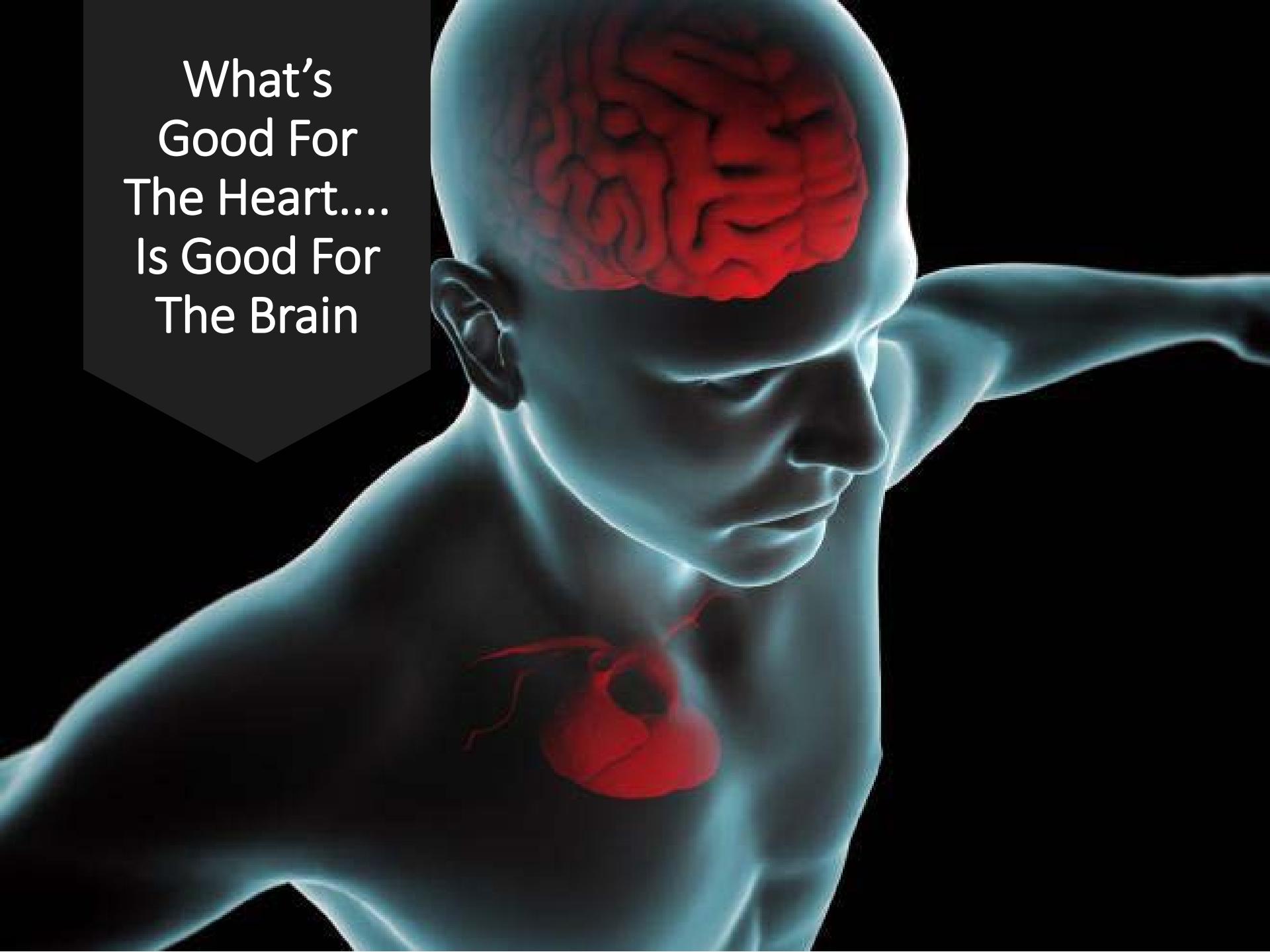
Include These	Limit These
<ul style="list-style-type: none"><li>• Green leafy vegetables: every day</li><li>• Other vegetables: at least once per day</li><li>• Nuts: every day</li><li>• Berries: at least twice per week</li><li>• Beans: every other day</li><li>• Whole grains: three times per day</li><li>• Fish: at least once per week</li><li>• Poultry: at least twice per week</li><li>• Olive oil</li><li>• Wine: one glass per day</li></ul>	<ul style="list-style-type: none"><li>• Red meats</li><li>• Butter and stick margarine: less than 1 tablespoon per day</li><li>• Cheese: less than one serving per week</li><li>• Pastries and sweets: limit</li><li>• Fried or fast food: less than one serving per week</li></ul>

- MIND diet lowered Alzheimer's risk by about 35 percent for people who followed it moderately well and up to 53 percent for those who adhered to it rigorously.

# Why Those Foods?

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What's  
Good For  
The Heart....  
Is Good For  
The Brain



All Things  
Heart Health  
Impact Brain  
Aging.....

- 1. Blood Pressure
- 2. Obesity
- 3. Smoking

# Gut Brain Connection



- Human studies?
- Animal studies?

# 3 Simple Questions

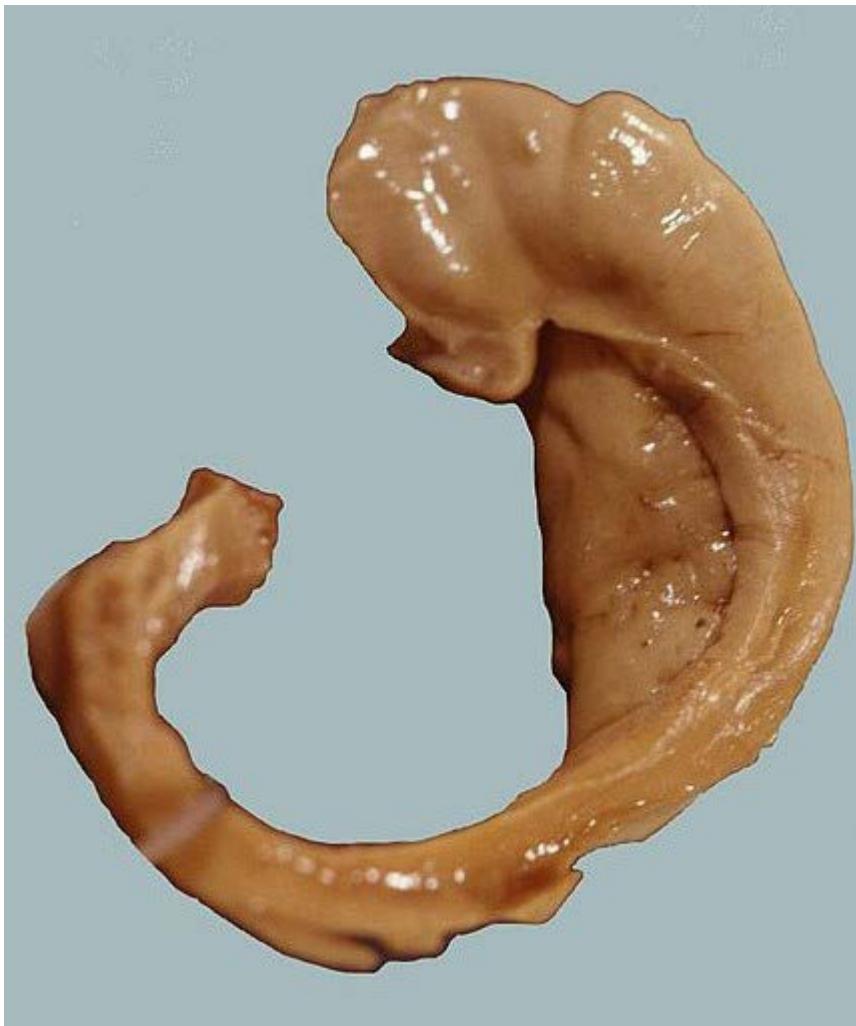
- Does it spoil?
- Can I pronounce the ingredients?
- Does it have a lot of ingredients?

INGREDIENTS: ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMIN MONONITRATE [VITAMIN B<sub>1</sub>], RIBOFLAVIN [VITAMIN B<sub>2</sub>], FOLIC ACID), CORN SYRUP, SUGAR, SOYBEAN AND PALM OIL (WITH TBHQ FOR FRESHNESS), CORN SYRUP SOLIDS, DEXTROSE, HIGH FRUCTOSE CORN SYRUP, FRUCTOSE, GLYCERIN, CONTAINS 2% OR LESS OF COCOA (PROCESSED WITH ALKALI), POLYDEXTROSE, MODIFIED CORN STARCH, SALT, DRIED CREAM, CALCIUM CARBONATE, CORNSTARCH, LEAVENING (BAKING SODA, SODIUM ACID PYROPHOSPHATE, MONOCALCIUM PHOSPHATE, CALCIUM SULFATE), DISTILLED MONOGLYCERIDES, HYDROGENATED PALM KERNEL OIL, SODIUM STEAROYL LACTYLATE, GELATIN, COLOR ADDED, SOY LECITHIN, DATEM, NATURAL AND ARTIFICIAL FLAVOR, VANILLA EXTRACT, CARNAUBA WAX, XANTHAN GUM, VITAMIN A PALMITATE, YELLOW #5 LAKE, RED #40 LAKE, CARAMEL COLOR, NIACINAMIDE, BLUE #2 LAKE, REDUCED IRON, YELLOW #6 LAKE, PYRIDOXINE HYDROCHLORIDE (VITAMIN B<sub>6</sub>), RIBOFLAVIN (VITAMIN B<sub>2</sub>), THIAMIN HYDROCHLORIDE (VITAMIN B<sub>1</sub>), CITRIC ACID, FOLIC ACID, RED #40, YELLOW #5, YELLOW #6, BLUE #2, BLUE #1.



Have You Had This Happen?

# What Does Hippocampus Do?

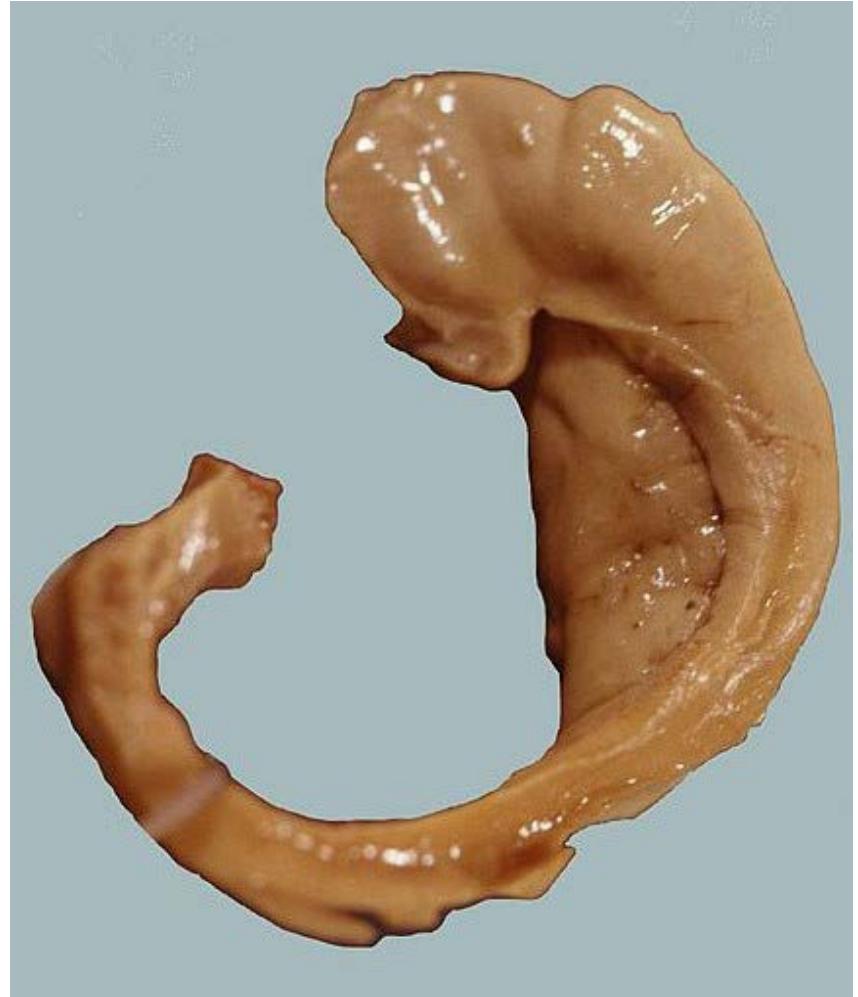


# Short Term Memory: The Waiting Room

**8715843**

Short-term memory holds about seven items for no more than seconds at a time.

Strategies to get around that.....



# What is happening to your hippocampus???



# Multi-tasking Might Be Multi-distracting

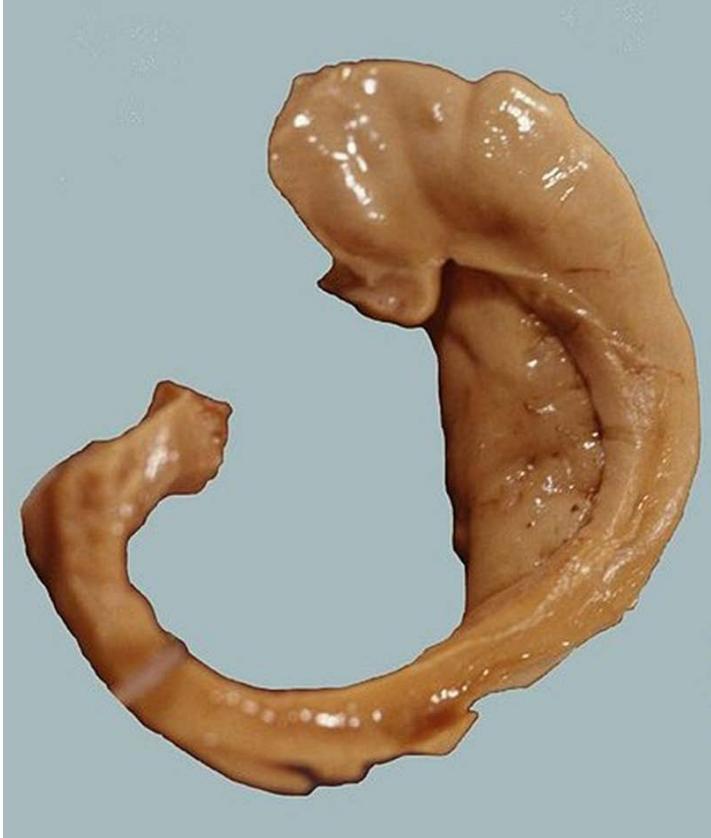
- A significant amount of age related memory decline is due to distraction.
- We live in a multi-tasking world.
- If you are forgetting ask yourself if you were multitasking?



# 3 Ways To Keep Hippocampus Healthy and Make It Grow

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## Stress and Brain Aging? The Surprise.....



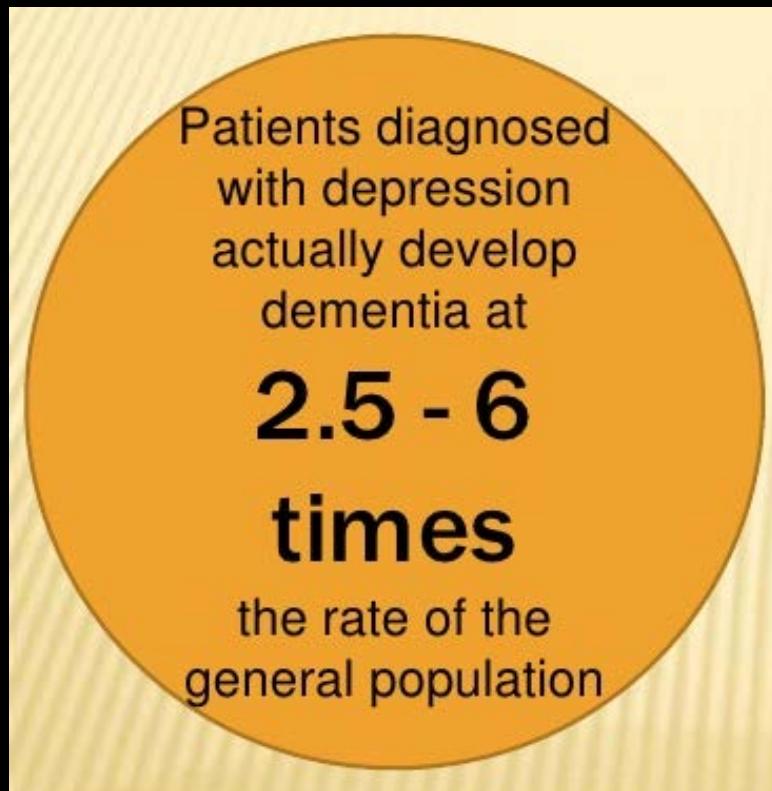
# Mindfulness Is Now A Medical Treatment Is This The Only Way???

1.Madhav Goyal, Sonal Singh, Erica M. S. Sibinga, Neda F. Gould, Anastasia Rowland-Seymour, Ritu Sharma, Zackary Berger, Dana Sleicher, David D. Maron, Hasan M. Shihab, Padmini D. Ranasinghe, Shauna Linn, Shonali Saha, Eric B. Bass, Jennifer A. Haythornthwaite. **Meditation Programs for Psychological Stress and Well-being**. *JAMA Internal Medicine*, 2014; DOI: [10.1001/jamainternmed.2013.13018](https://doi.org/10.1001/jamainternmed.2013.13018)



# Nature: A Couple Minutes of Green Time:

# Treat Depression



# The Most Detailed Study Ever Done On The Effect of Lifestyle on The Risk of Getting Dementia

- Researchers followed 2,235 individuals with initial ages between 45 and 59 years old—for 30 years.
- Individuals who consistently did a few things reduced their risk for cognitive decline and dementia by a staggering 60%.

Peter Elwood and a team from the Cochrane Institute of Primary Care and Public Health at Cardiff University in the U.K. released results



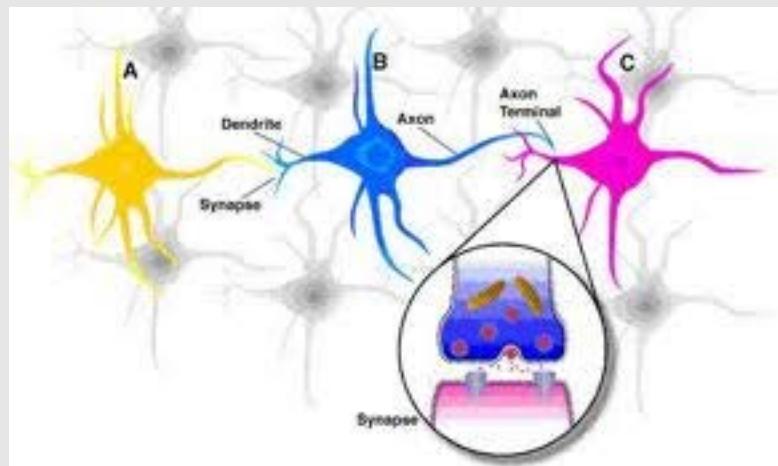
Approximately 30-  
40 Minutes Of  
Walking  
A Day

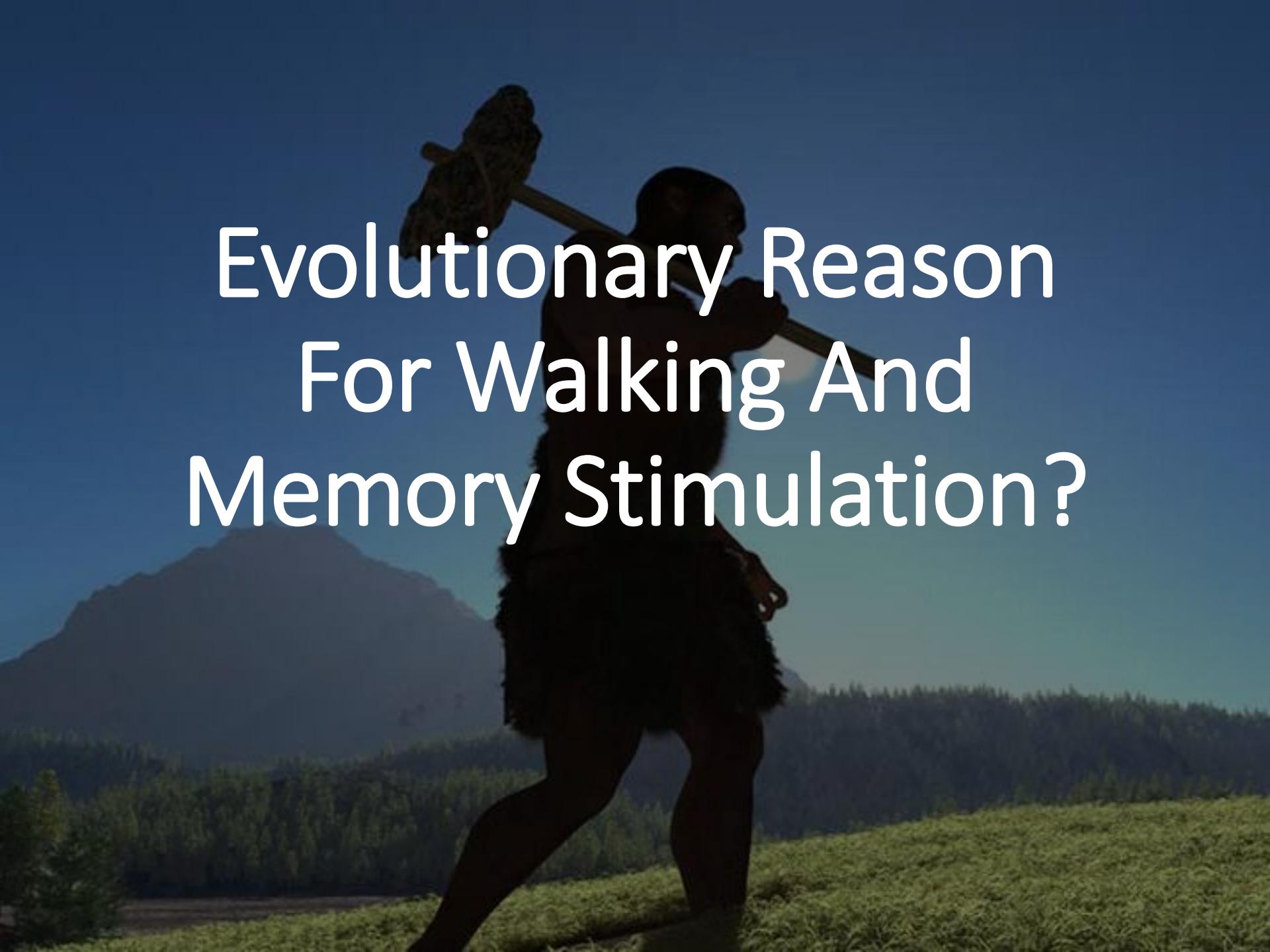
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Doesn't Need To  
Done All At The  
Same Time

# Walking Releases Brain Fertilizer!

- Triggers the release of “neurotrophic growth factors, which help the brain to grow, maintain new connections and stay healthy.



A dark silhouette of a person walking a dog on a grassy hillside. In the background, there are mountains and a forest under a blue sky.

# Evolutionary Reason For Walking And Memory Stimulation?



# Exercise Is Medicine For The Brain

- Helps blood flow to the brain
- Helps sleep
- Helps balance immune system.
- Prevents an increase in choline
- **How much exercise?**



How Much Exercise?

# What About Taking The Stairs?





When Is A Good Time To Take  
Walks? |

## A Tip...

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- Taking a 30 minute walk after meals lowers bump in blood sugar by 50%.



# What About Diabetes?

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# How Many People Have Diabetes and Prediabetes?

# Diabetes increases a person's risk of Alzheimer's by 65 percent.

One of the biggest risk factors.

It's now thought that a considerable percentage of AD cases are directly attributable to type 2 diabetes.

How is this happening??

# Keeping Your Desk Organized?

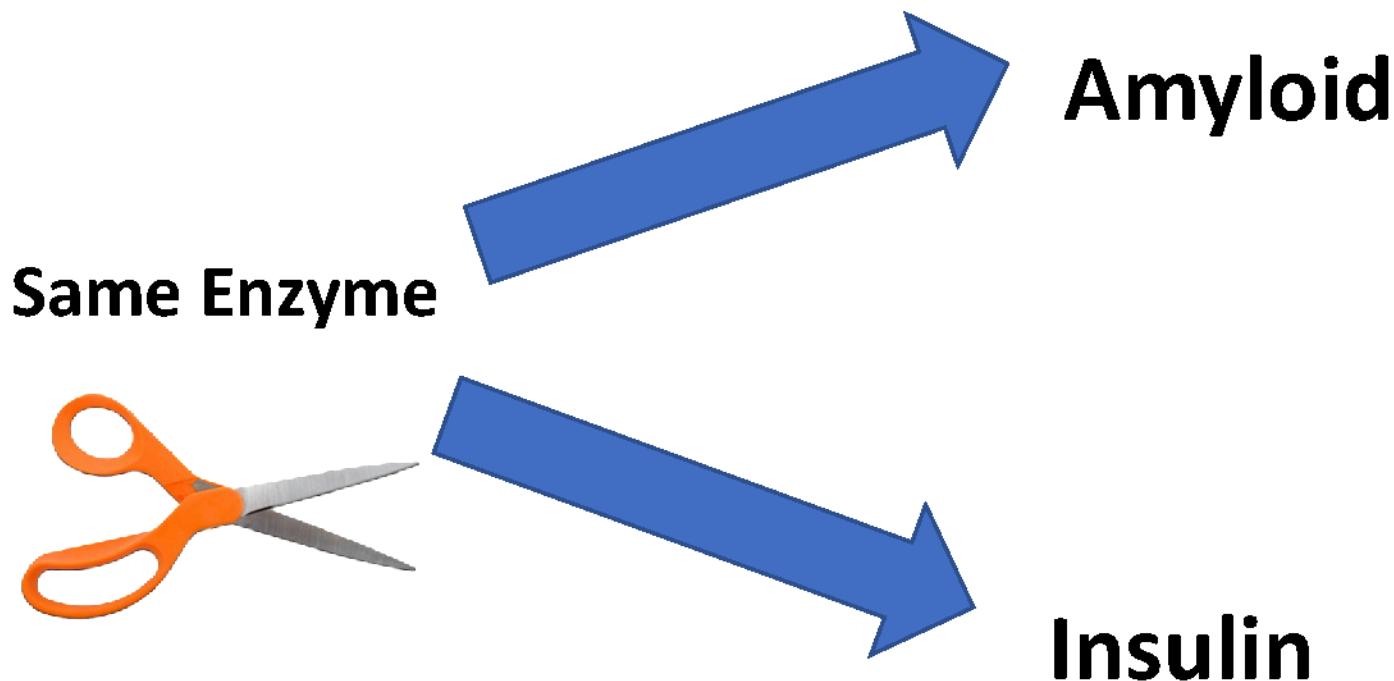
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**What happens  
when you get  
busy?**





# Enzyme Has To Make A Choice



# What If Diabetes Is Treated? What Happens To AD Risk?

- Having diabetes leaves you with higher risk for AD, but if you effectively treat your diabetes, your risk for AD is lower.



# UCLA Study To Improve Memory Loss

- Eliminating processed food from diet, and eating more vegetables, fruits and non-farmed fish
- Meditating twice a day and beginning yoga to reduce stress
- Sleeping seven to eight hours per night, up from four to five
- Optimizing oral hygiene using flossing and electric toothbrush
- Exercising for a minimum of 30 minutes, four to six days per week
- Optimizing vitamin and hormone levels

# We Have This Data

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# FINGER Intervention: Diet

- 1260 people from across Finland, aged 60-77 years and at risk for dementia.
- What was the intervention?
- **Healthy eating guidance** (fruits, vegetables, whole grains, rapeseed oil, fish meal twice a week. Vitamin D supplement if needed.



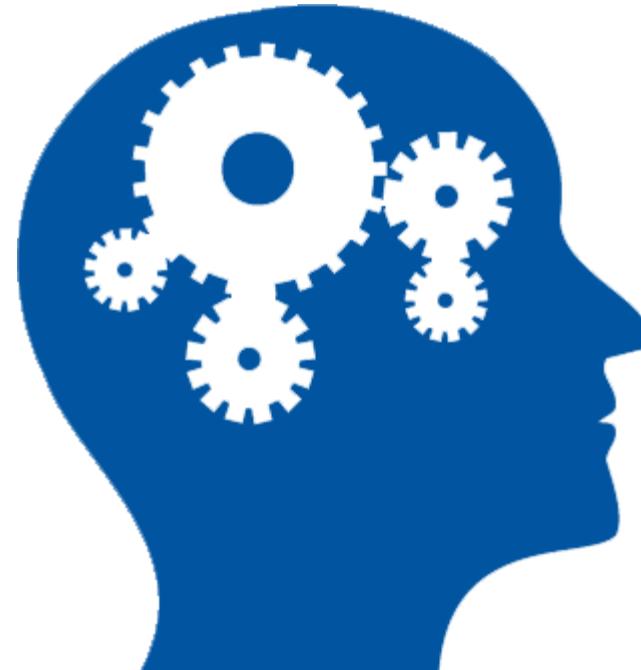
# FINGER Intervention: Exercise

- **Exercise Was Tailored But.....**
- Gym, 1 to 2 times week for 30 to 45 minutes for muscle strength.
- After 6 months, 2 to 3 sessions a week for 1 hour.
- Aerobic included in the one hour: 2 x week to start and then 3 to 5 times a week.



# FINGER Intervention: Challenge Brain and Treat Underlying Conditions

- **Brain training:** Computer programs to enhance executive function, memory and mental speed.
- 2 to 3 times a week for 10 to 15 minutes.



And.....

- **Management of metabolic and vascular risk factors**
- **Results???**

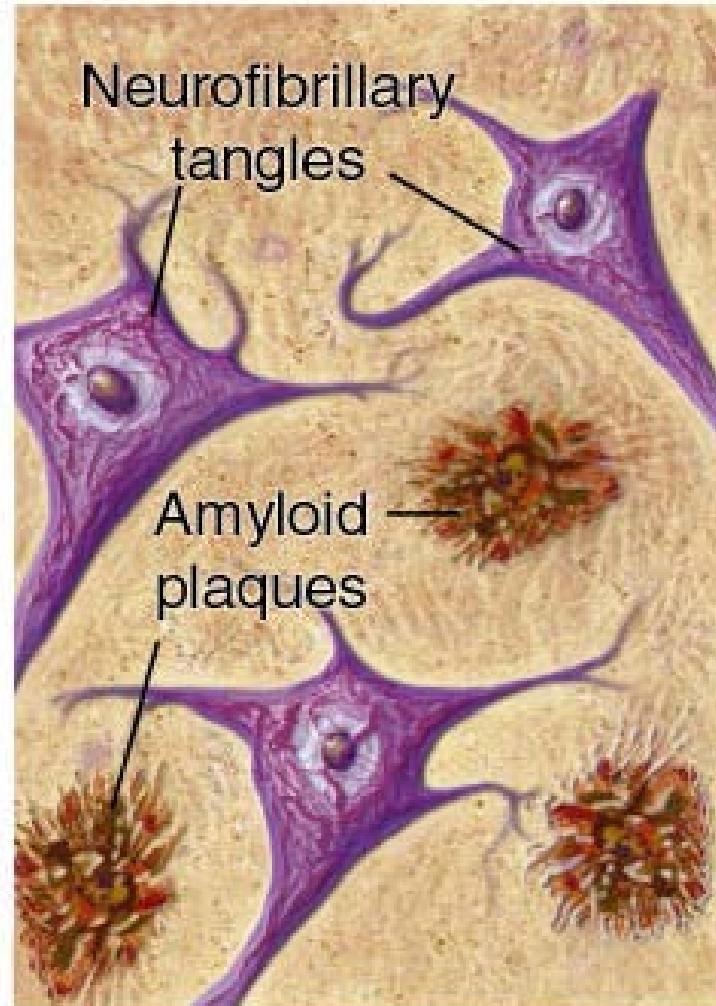
# FINGER Intervention Results

- Overall test scores in the intervention group were **25% higher** than in the control group.
- For executive functioning scores were **83% higher** in the intervention group
- Processing speed was **150% higher**.
- Next step, continuing study for 7 more years.

# When Does Trash Form In The Brain?

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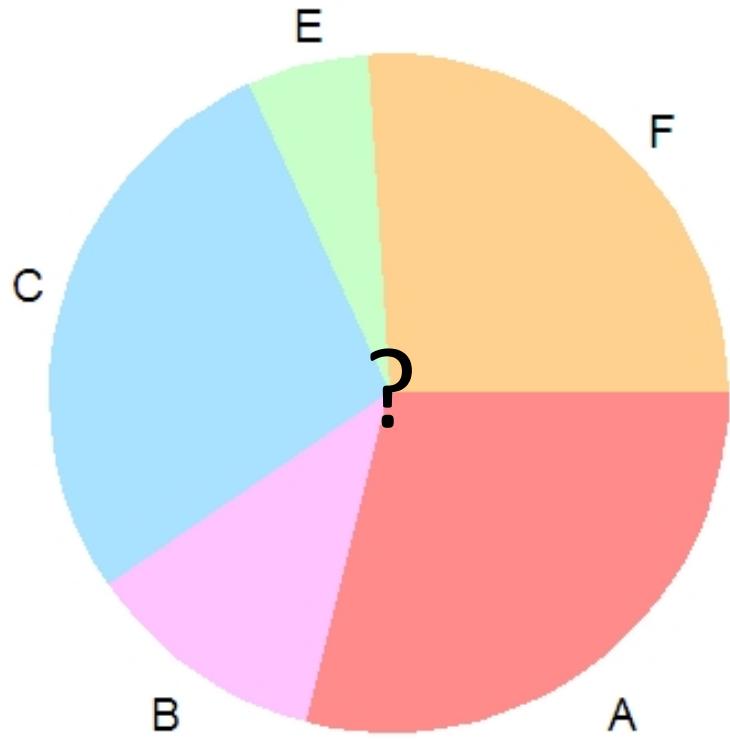
Alzheimer's





Dementia Is Like A Wave....

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We Used To Think of Brain  
Aging, Alzheimer's,  
Dementia  
Like This.....

# Can We Reverse Aging In The Brain At Any Age?

- Study published August 27, 2017
- Most “Bang For Your Buck” Activities
- Can we beat exercise???





# Dancing vs Treadmill/Stationary Bike

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- Key point.....
- Why dancing?
- At any age we can make our brain younger.



# Tai Chi

# The Best Things You Can Do For Your Brain

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# We Now Have 10 Major Tips

- Sleep (Light and Dark)
- Learn New Things
- Treat Hearing Loss
- Be Socially Engaged
- Manage Stress/Mindfulness
- Keep Inflammation Low
- MIND Diet
- Moderate Exercise/Walking
- Treat Diabetes
- Take Care of The Heart

# These 4 Make A Big Difference

- Sleep (Light and Dark)
- Get Regular Physicals (Heart, Inflammation, Diabetes)
- Have Fun Mentally and Physically & Learn New Things
- Eat Real Food

And For  
Today.....

# Thanks!

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