

Age-Proof Your Brain

Maximize Productivity, Boost Memory, Slow
Aging and Protect Your Brain

Dr. Marc Milstein

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Sudoku or Puzzles???

Brain Games??

6				2			9
	1		3		7		5
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2			8	7	5		3
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This Week's Crossword Puzzle

ACROSS

1. Teacher for honing
4. Thanks through
11. Infamous slogan
14. Downtight reason
15. Red pepper pop
21. "... visit area"
22. Abused condition
24. Lary one
25. Clones
26. Theater smash
27. "Sit together"
28. Thraps
29. Sea phase
30. Wrenching
31. Daring documents
34. Used a blender
36. Tigris coin
38. Not a bad word
40. Move with a saloon
42. Running late
43. Think aloud
45. Whimsy and Kelly
47. Shave
49. Hockey team
50. Engraving
51. Impetuous
52. Crystal of country
53. Bore them
54. Like John Wayne
59. Abominable kid
60. Bone file
61. Specialty
62. Dutch report
63. Friend (2 wks)
64. Zapper's brother
65. Car's seat
66. "Help Me..." (Beach Boys song)
68. Theater war god (owl)
69. -up drink
70. His ball
72. AKA team
73. Jeweler's unit
74. Bandits
75. Devils of "Do the Right Thing"
77. Mischief
78. Not cheap (2 wks)
79. News subject
82. Rooms under a roof
83. Long south pasture
84. Proclaim verb
86. Chosen as successor
89. Dry yeast
90. Silently down
92. Name perhaps
93. Ratty
94. High IQ group
95. Dickensian version
96. UFO passenger
98. Ladder part
99. Ink print
100. Good to burn
101. Confuse
102. Family nickname
103. Galahad's weapon
104. Endorphin
105. Hard low design
106. Mad Mrs foe
108. Chain dance
109. Card daughter
110. Double date
111. Rake in a dip
112. Cuckoo
113. Smoke column
114. Soap suds
115. St. Louis tourist attraction
116. Lark neighbor
119. Popped up
121. Confuse
123. Family nickname
124. Mamma and Papawawa
127. Alms
128. Mamma foe
131. Banks in Dijon
132. Card daughter
134. Melina rival
135. Attack on a castle
136. Europe Asia divider
137. Radio coasts
138. Skull cut
139. Rashed up
140. Doctrine
141. Brother's daughter
142. They may be related
143. Baggage handler
144. December date
145. Kavi language
146. Bore speech lesson
147. Muffs and jets
148. Alphas kin
149. Discussion group
150. Munchy gems
151. Where variable
152. Where bias
153. Back talk
154. Like a knight
155. When hiking
156. Bathhouse
157. Sing some
158. Dimples, on a canal
159. Ignited
160. Champ down
161. Shards with center
162. Rhythmic
163. Single hamburgers
164. Placed the same as
165. Shredded phase
166. Ruler alien
167. Bank job
168. Ball doctor
169. Snow collection
170. Shiny too fast (Phish)
171. Blatant
172. Ruddy face
173. Blatant
174. "Gullies in the Mar" setting
175. Dimples, on a canal
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DOWN

1. Lark neighbor
2. This and that
3. Hockey season
4. Displaced
5. Landing team team
6. Unleash
7. Munchy gems
8. Hilary or Lois
9. "... upon the quest for"
10. Back talk
11. Do large
12. Parking attendants
13. Stage element
14. Ink, coals
15. Cook slowly
16. Cannon fertilizer
17. Shards with center
18. Rhythmic
19. Single hamburgers
20. Placed the same as
21. Shredded phase
22. Ruler alien
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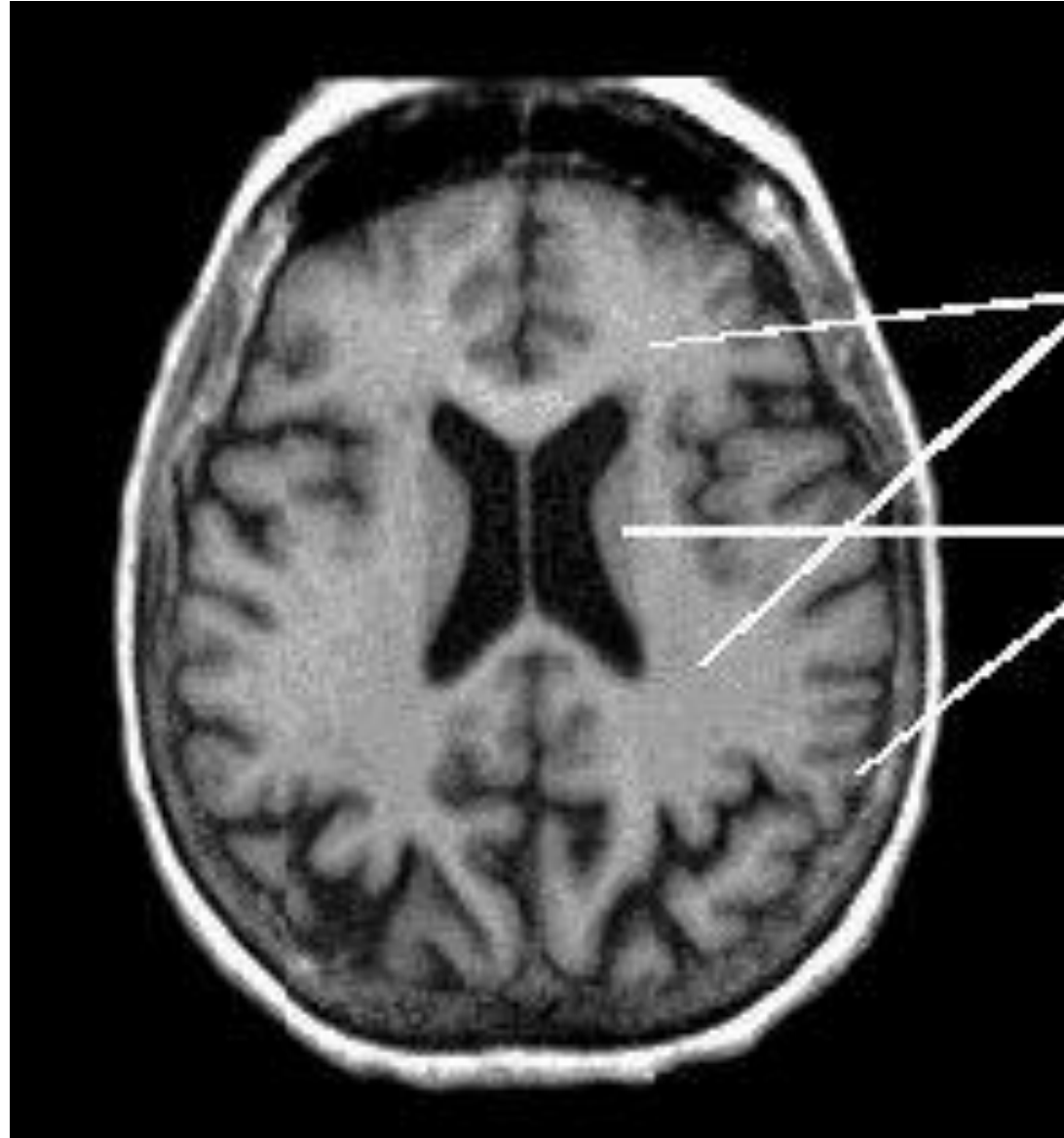


Surprising Things That
Will Really Make A
Difference

How Old Is
Your Brain?



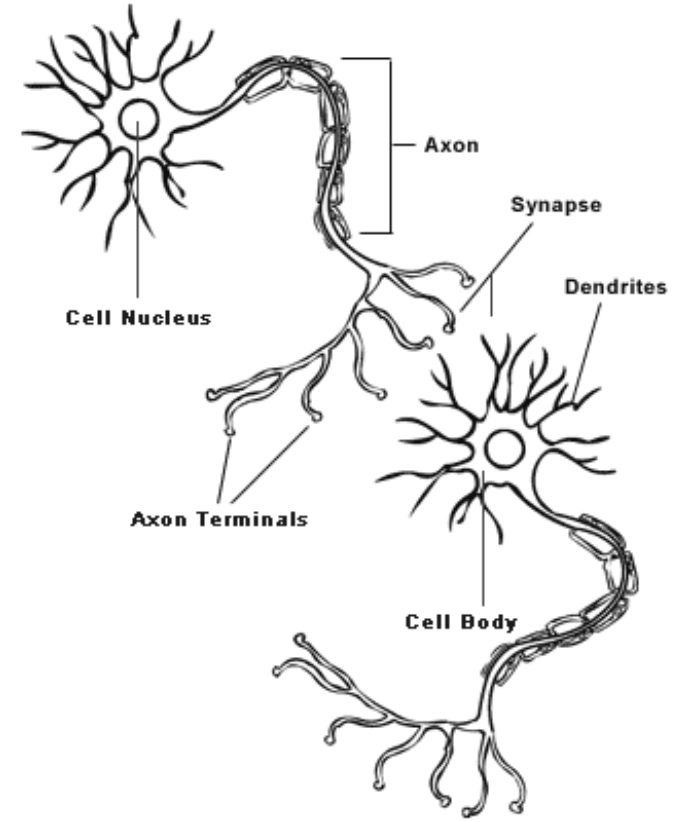
Brain Age



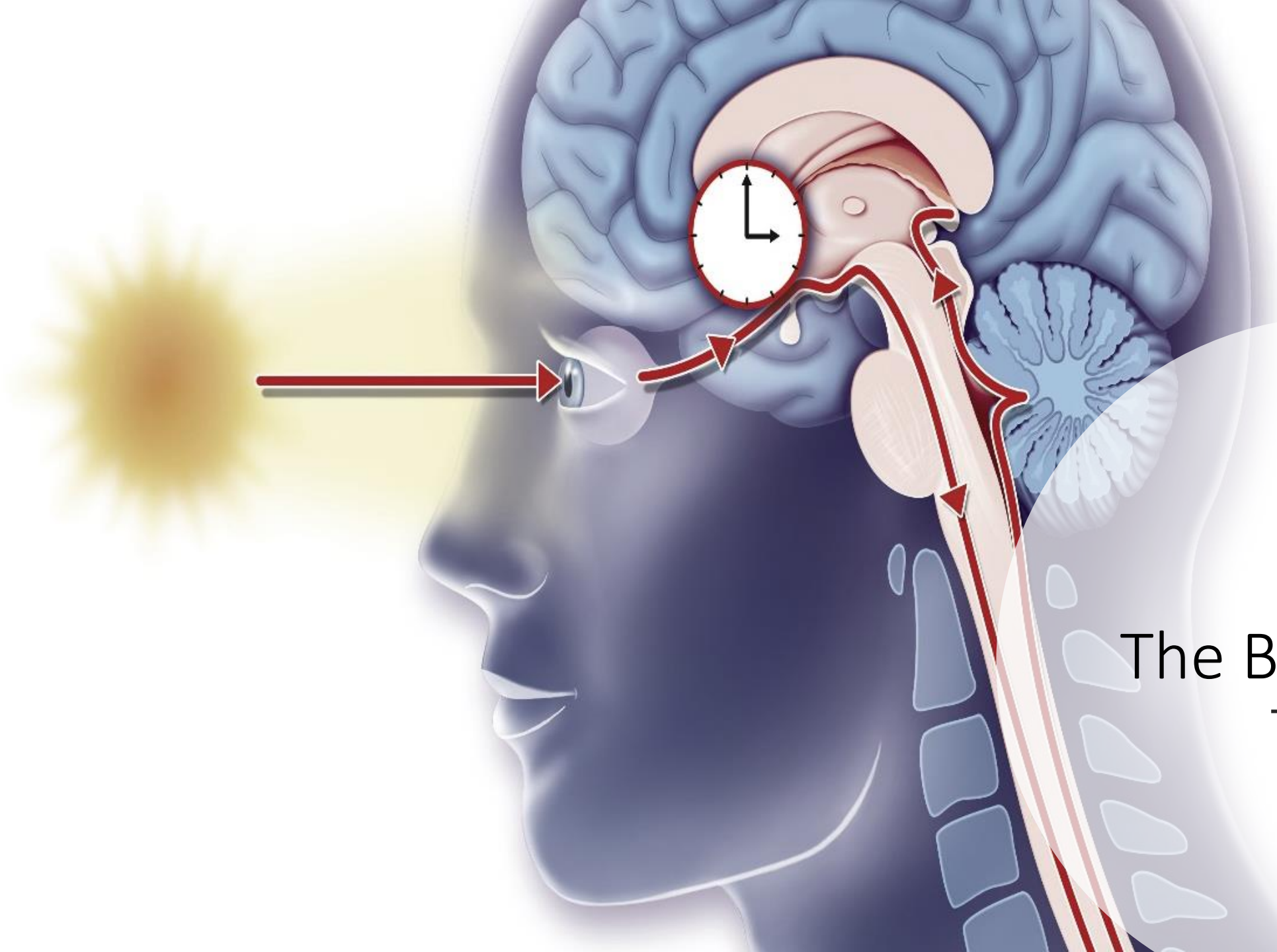
H Cole, S J Ritchie, M E Bastin, M C Valdés Hernández, S Muñoz Maniega, N Royle, J Corley, A Pattie, S E Harris, Q Zhang, N R Wray, P Redmond, R E Marioni, J M Starr, S R Cox, J M Wardlaw, D J Sharp, I J Deary. **Brain age predicts mortality.** *Molecular Psychiatry*, 2017;

How Are Sleep and Memory Related?

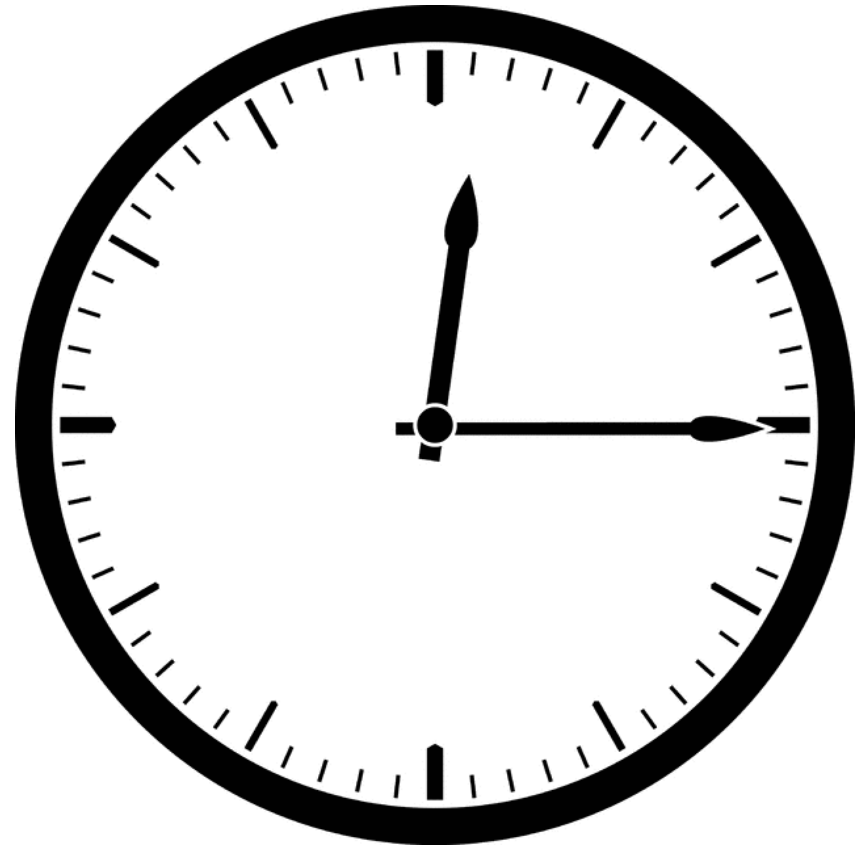
cottage / swiss / cake
cream / skate / water
show / life / row



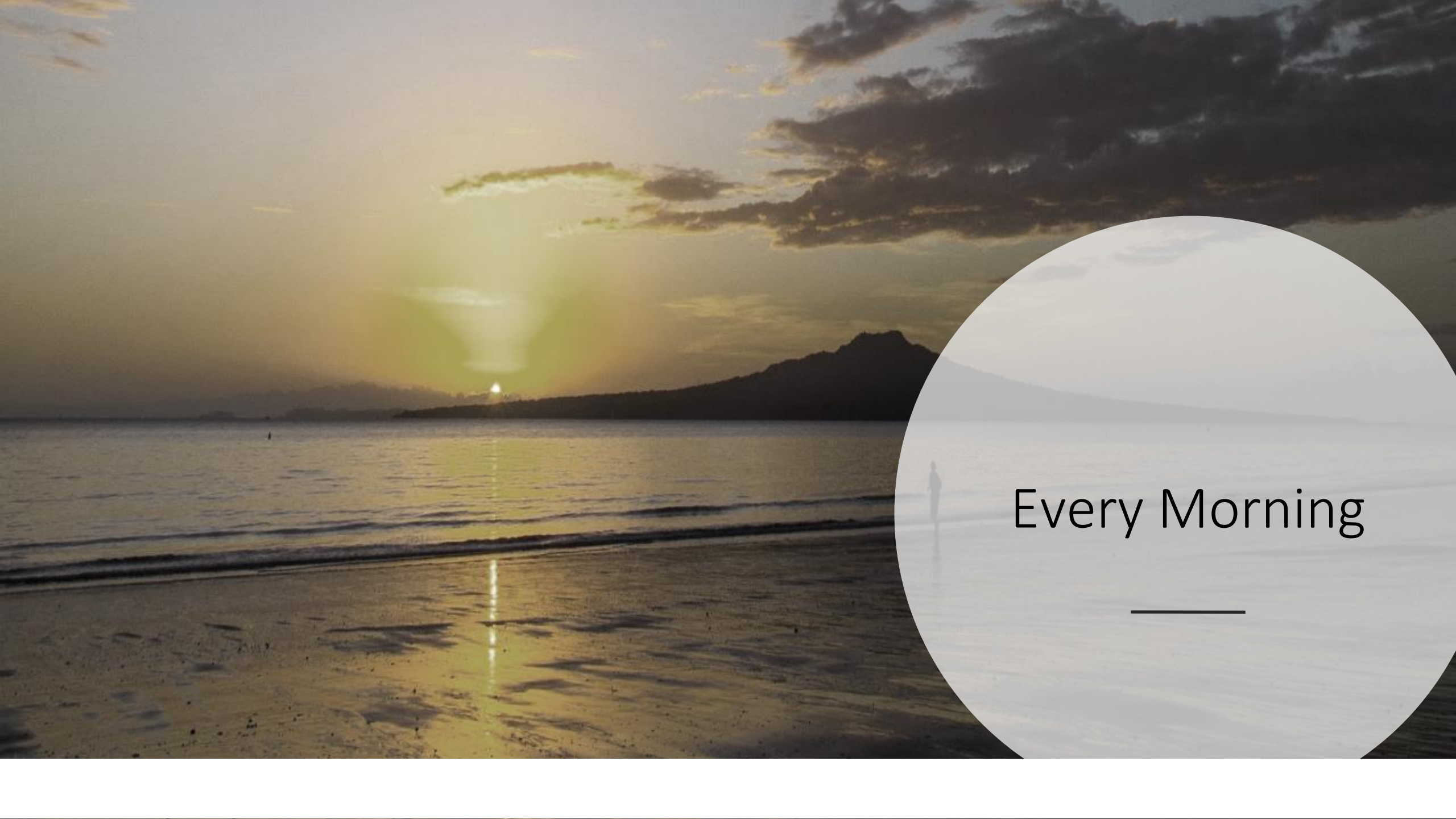
What Happens In Your Brain When You Learn Something
During The Day.....



The Brain Clock



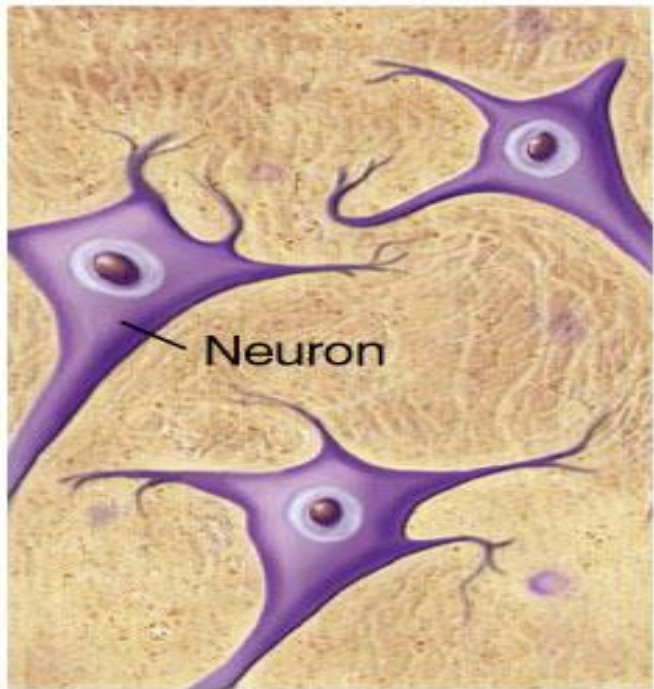
Clock Reset?



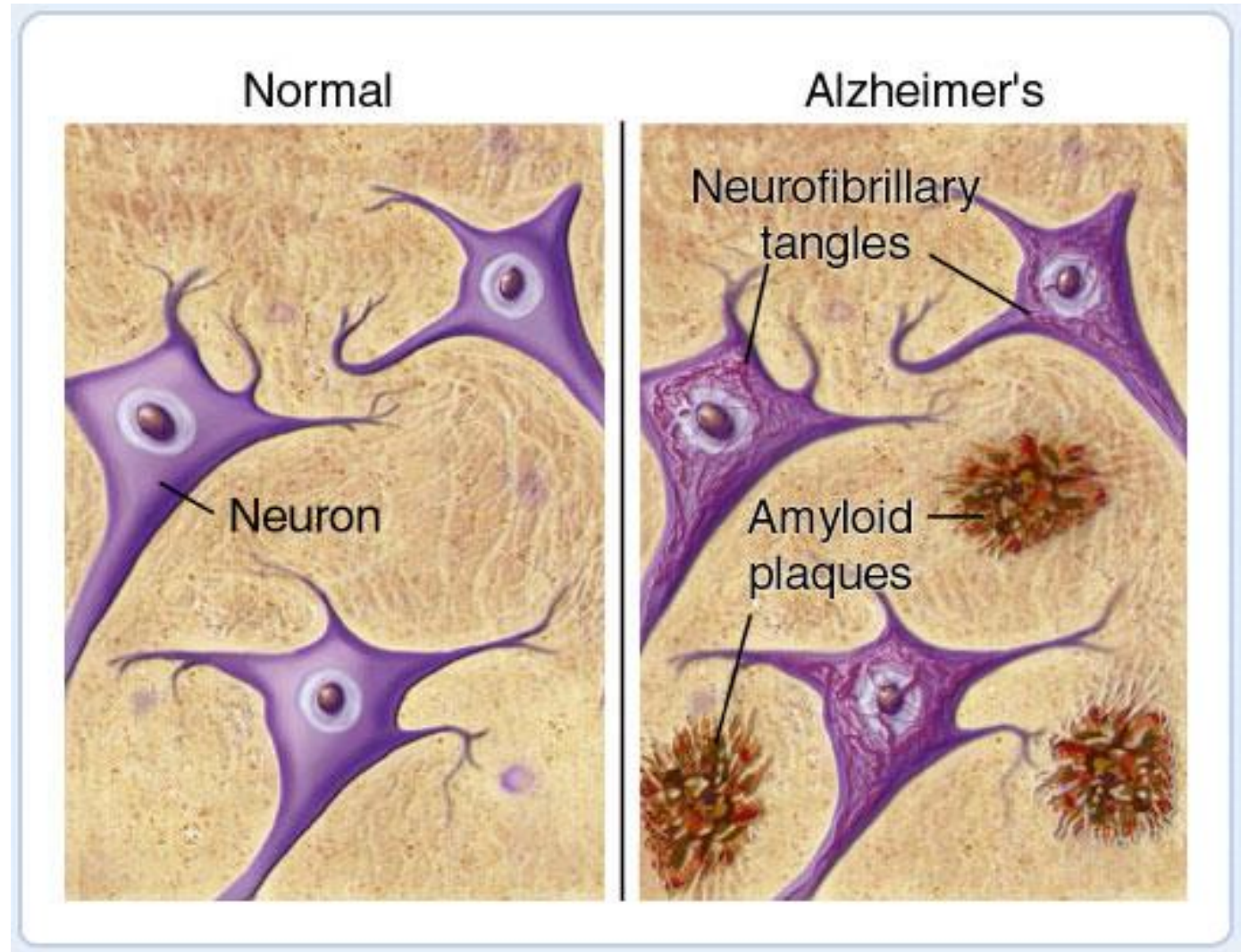
Every Morning

Brain Cells Are Like Factories

Normal



What Can Trash Interfere With?



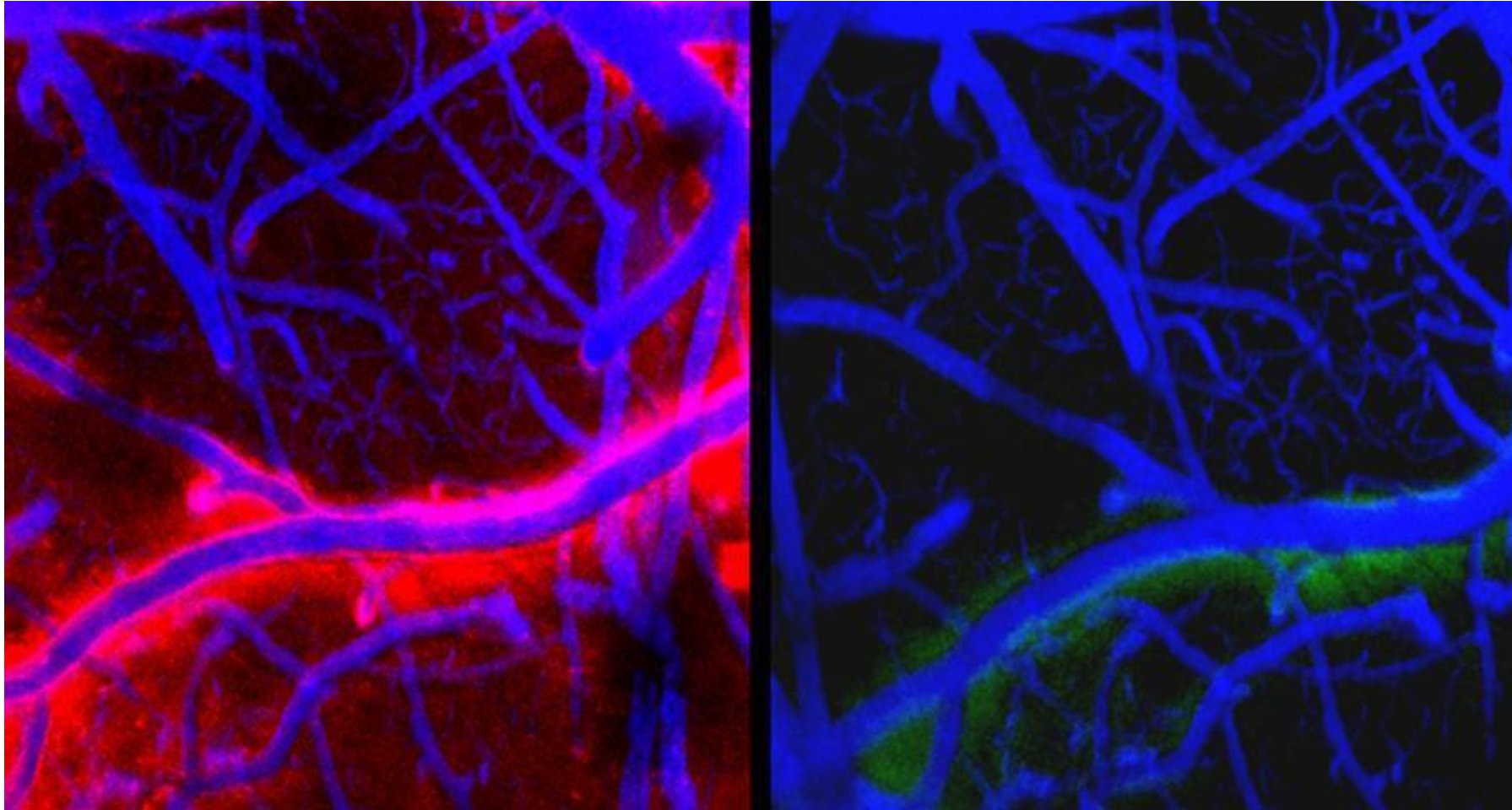
New Insight:

When Does Your
Brain Take Out The
Trash?

But First, How
Much Trash Do We
Make?



Brain Wash



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

Over The Counter Sleep Aids

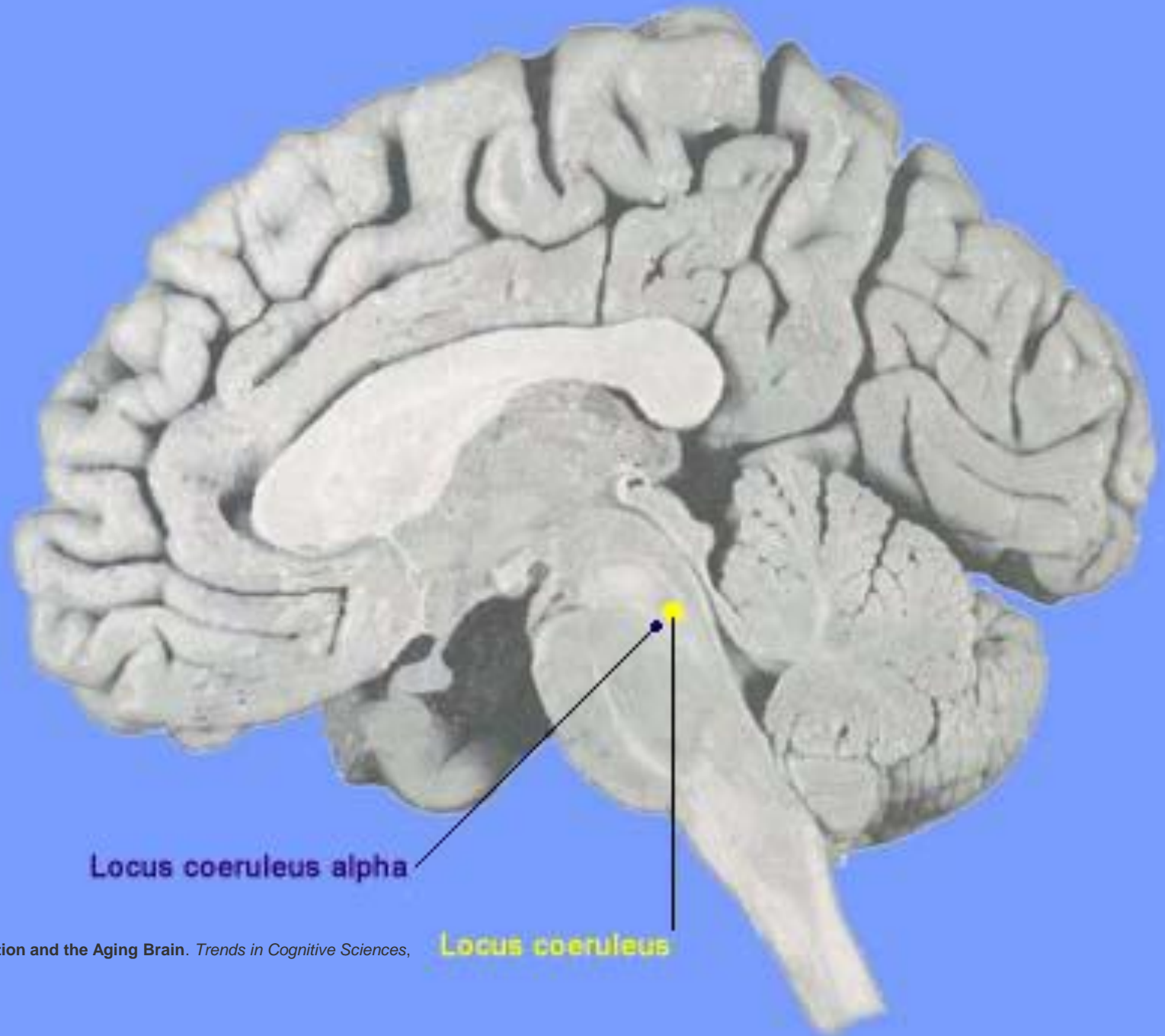




One More
Sleep Tip:



Another Way To Clean Your Brain



Locus coeruleus alpha

Locus coeruleus

Exercise Your Brain & Learn New Things

- Hearing
- Something you enjoy!



Isolated and Loss of Social Contact



Andrew Sommerlad, Séverine Sabia, Archana Singh-Manoux, Glyn Lewis, Gill Livingston. **Association of social contact with dementia and cognition: 28-year follow-up of the Whitehall II cohort study.** *PLOS Medicine*, 2019; 16 (8): e1002862 DOI: [10.1371/journal.pmed.1002862](https://doi.org/10.1371/journal.pmed.1002862)

Third Way To Clean Your Brain

Dimitrije Krstic, Amrita Madhusudan, Jana Doehner, Prisca Vogel, Tina Notter, Claudine Imhof, Abigail Manalastas, Martina Hilfiker, Sandra Pfister, Cornelia Schwerdel, Carsten Riether, Urs Meyer and Irene Knuesel. **Systemic immune challenges trigger and drive Alzheimer-like neuropathology in mice.** *Journal of Neuroinflammation*, 2012

What Do Microglia Do?



Cells known as microglia eat amyloid plaques and dying, tangle-ridden neurons.

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)
3. What else?



Does Diet Matter?

Martha Clare Morris, Christy C. Tangney, Yamin Wang, Frank M. Sacks, David A. Bennett, Neelum T. Aggarwal. **MIND diet associated with reduced incidence of Alzheimer's disease.** *Alzheimer's & Dementia*, 2015
Poonamjot Deol, Elena Kozlova, Matthew Valdez, Catherine Ho, Ei-Wen Yang, Holly Richardson, Gwendolyn Gonzalez, Edward Truong, Jack Reid, Joseph Valdez, Jonathan R Deans, Jose Martinez-Lomeli, Jane R Evans, Tao Jiang, Frances M Sladek, Margarita C Curras-Collazo. **Dysregulation of Hypothalamic Gene Expression and the Oxytocinergic System by Soybean Oil Diets in Male Mice.** *Endocrinology*, 2020; DOI: [10.1210/endo/bqz044](https://doi.org/10.1210/endo/bqz044)

The Mind Diet

Include These

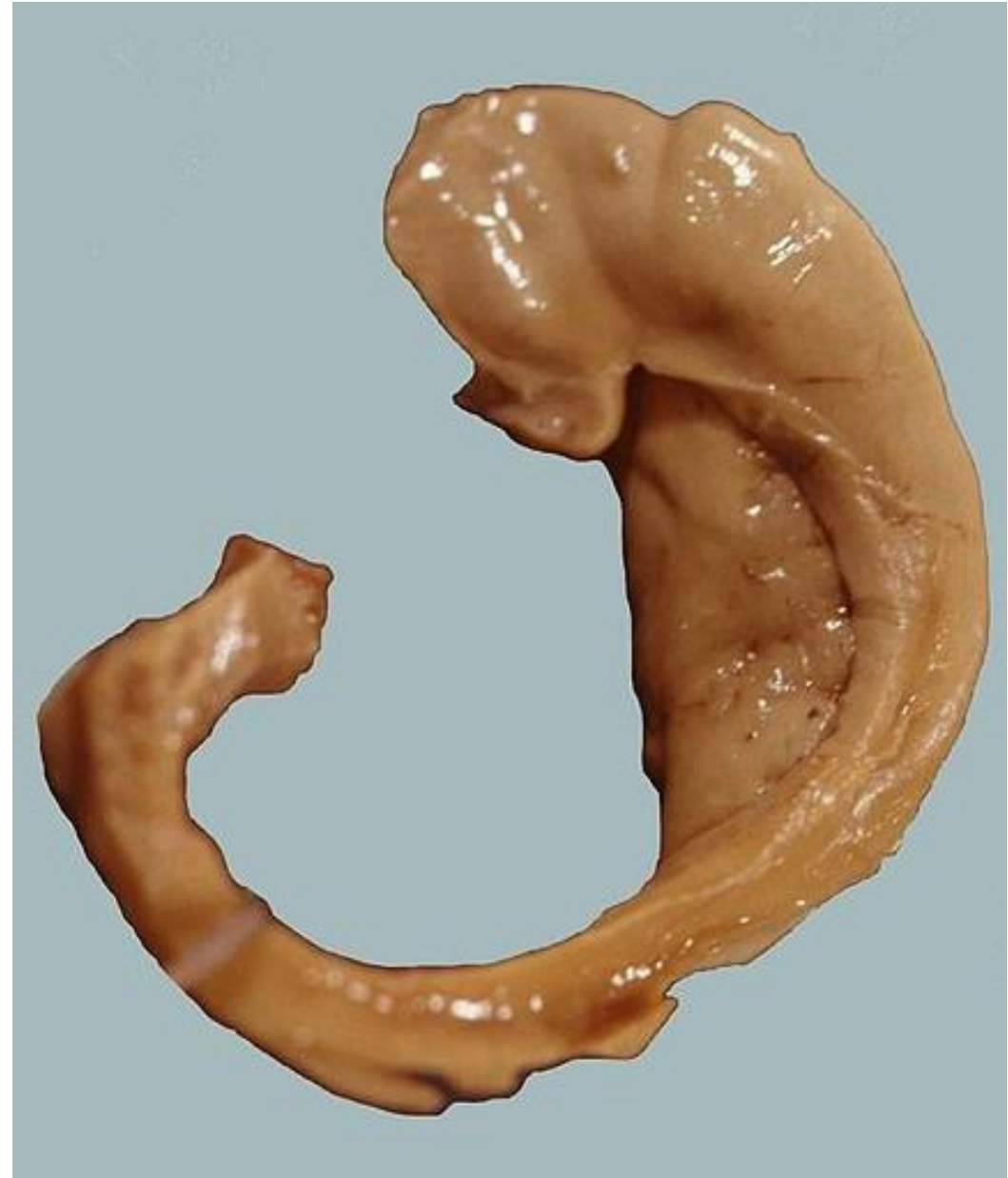
- **Green leafy vegetables:** every day
- **Other vegetables:** at least once per day
- **Nuts:** every day
- **Berries:** at least twice per week
- **Beans:** every other day
- **Whole grains:** three times per day
- **Fish:** at least once per week
- **Poultry:** at least twice per week
- **Olive oil**
- **Wine:** one glass per day

- 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.

Have You Had
This Happen?



What Does Hippocampus Do?



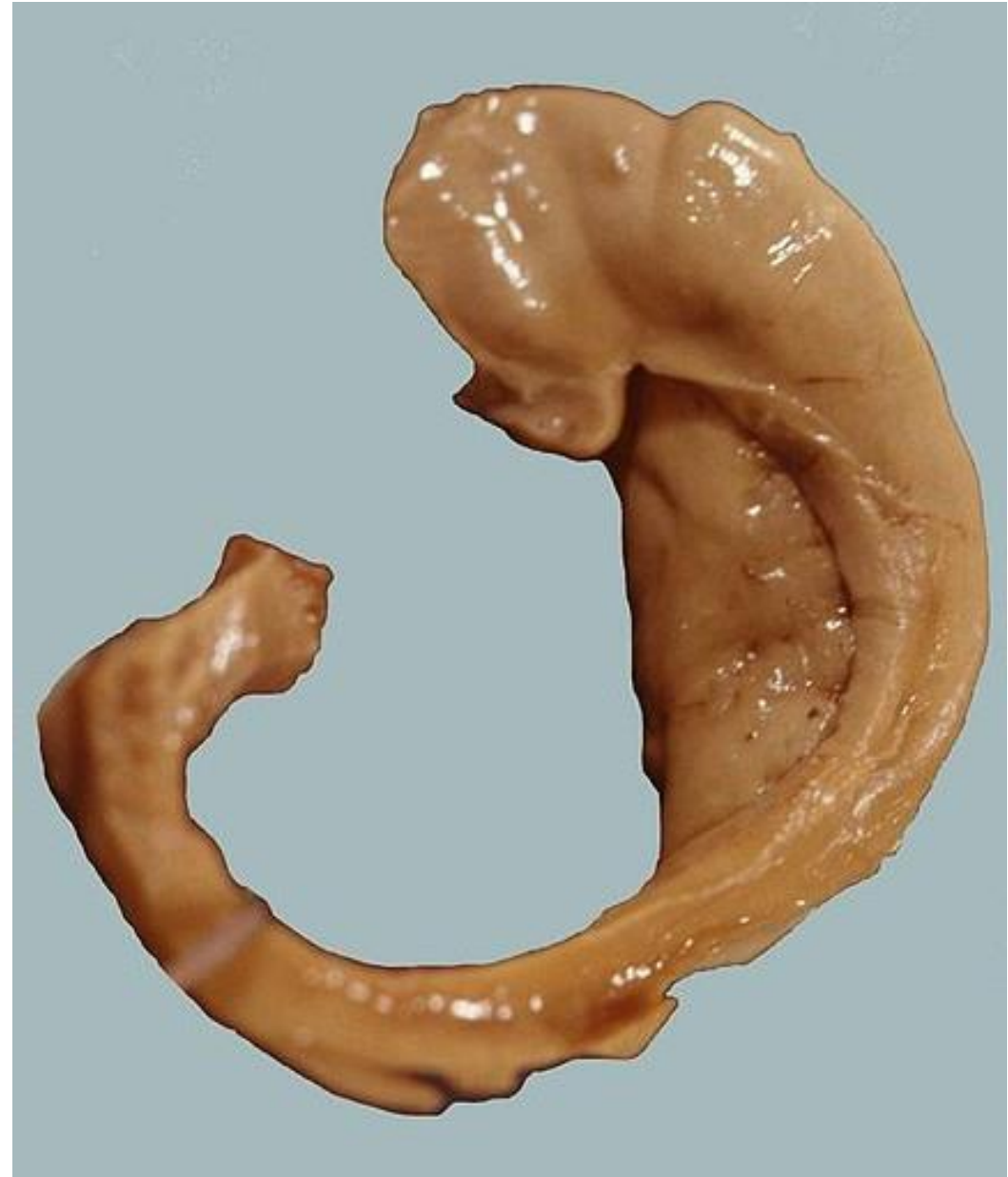
What is happening
to your
hippocampus???



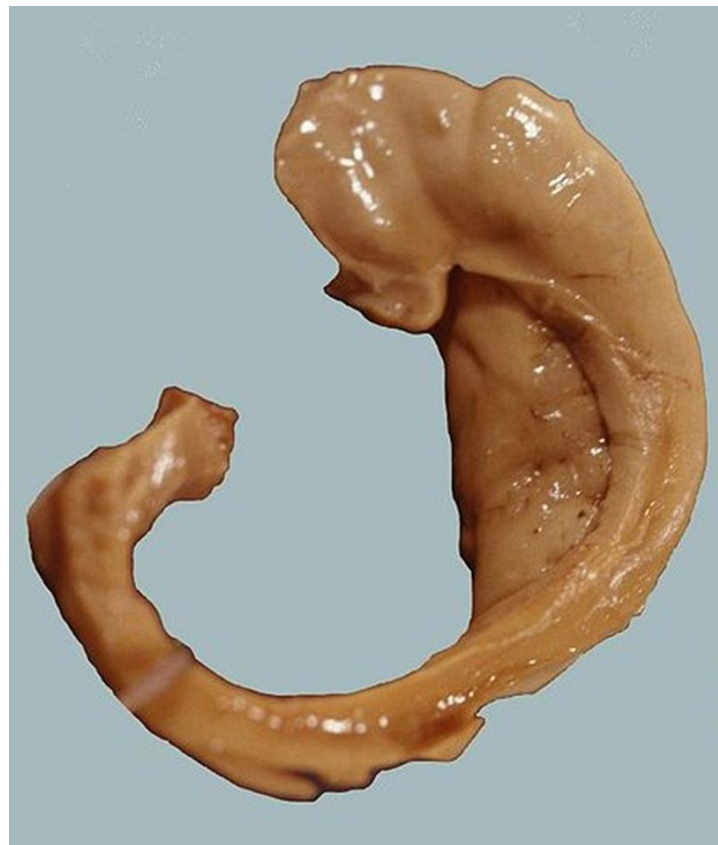


Multi-tasking Can Be Multi-distracting

Keep
Hippocampus
Healthy and
Make It Grow



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



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



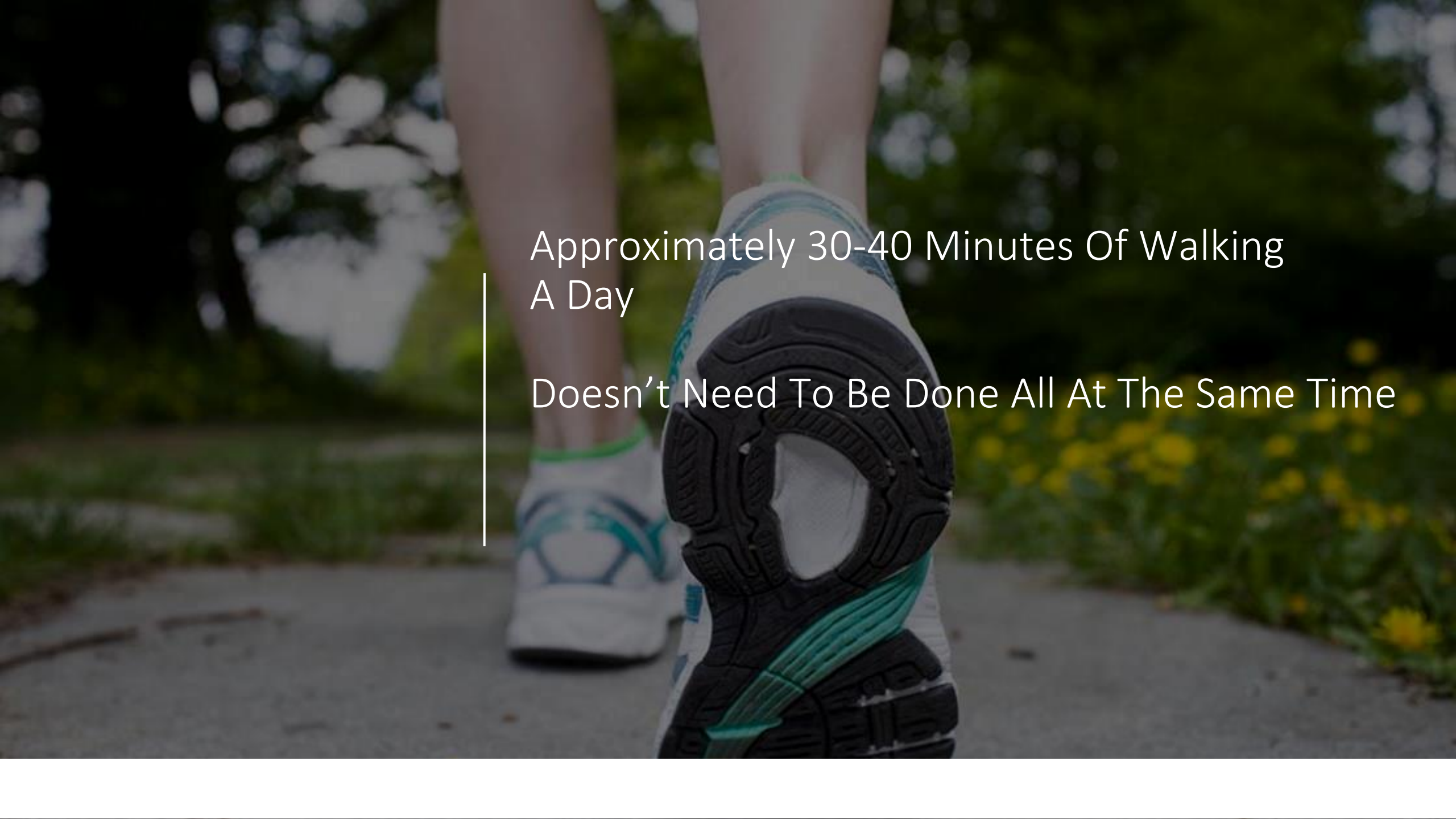
Nature: A Couple Minutes of Green Time:



Marselle Melissa R., Irvine Katherine N., and Warber Sara L. **Examining Group Walks in Nature and Multiple Aspects of Well-Being: A Large-Scale Study.** *Ecopsychology*, September 2014 DOI: [10.1089/eco.2014.002](https://doi.org/10.1089/eco.2014.002)

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.
- Reduced their risk for cognitive decline and dementia by a staggering 60%.....

A low-angle, close-up shot of a person's legs and feet as they walk on a paved path. The person is wearing white athletic sneakers with teal accents. The background is a soft-focus outdoor setting with green foliage and a path. The text is overlaid on the right side of the image.

Approximately 30-40 Minutes Of Walking
A Day

Doesn't Need To Be Done All At The Same Time

Exercise Is Medicine For The Brain

- Helps blood flow to the brain
- Helps sleep
- Helps balance immune system.
- **How much exercise?**



Takashi Tarumi, Heidi Rossetti, Binu P. Thomas, Thomas Harris, Benjamin Y. Tseng, Marcel Turner, Ciwen Wang, Zohre German, Kristin Martin-Cook, Ann M. Stowe, Kyle B. Womack, Dana Mathews, Diana R. Kerwin, Linda Hynan, Ramon Diaz-Arrastia, Hanzhang Lu, C. Munro Cullum, Rong Zhang. **Exercise Training in Amnesic Mild Cognitive Impairment: A One-Year Randomized Controlled Trial.** *Journal of Alzheimer's Disease*, 2019; 1 DOI: [10.3233/JAD-181175](https://doi.org/10.3233/JAD-181175)

How Much Exercise?



What About Taking The Stairs?



Jason Steffener, Christian Habeck, Deirdre O'Shea, Qolamreza Razlighi, Louis Bherer, Yaakov Stern. **Differences between chronological and brain age are related to education and self-reported physical activity.** *Neurobiology of Aging*, 2016;

We Have This Data

1260 people from across Finland,
aged 60-77 years and at risk for
dementia.

What was the intervention?

And Weill Cornell Study

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**.
- And Weill Cornell Study just published.

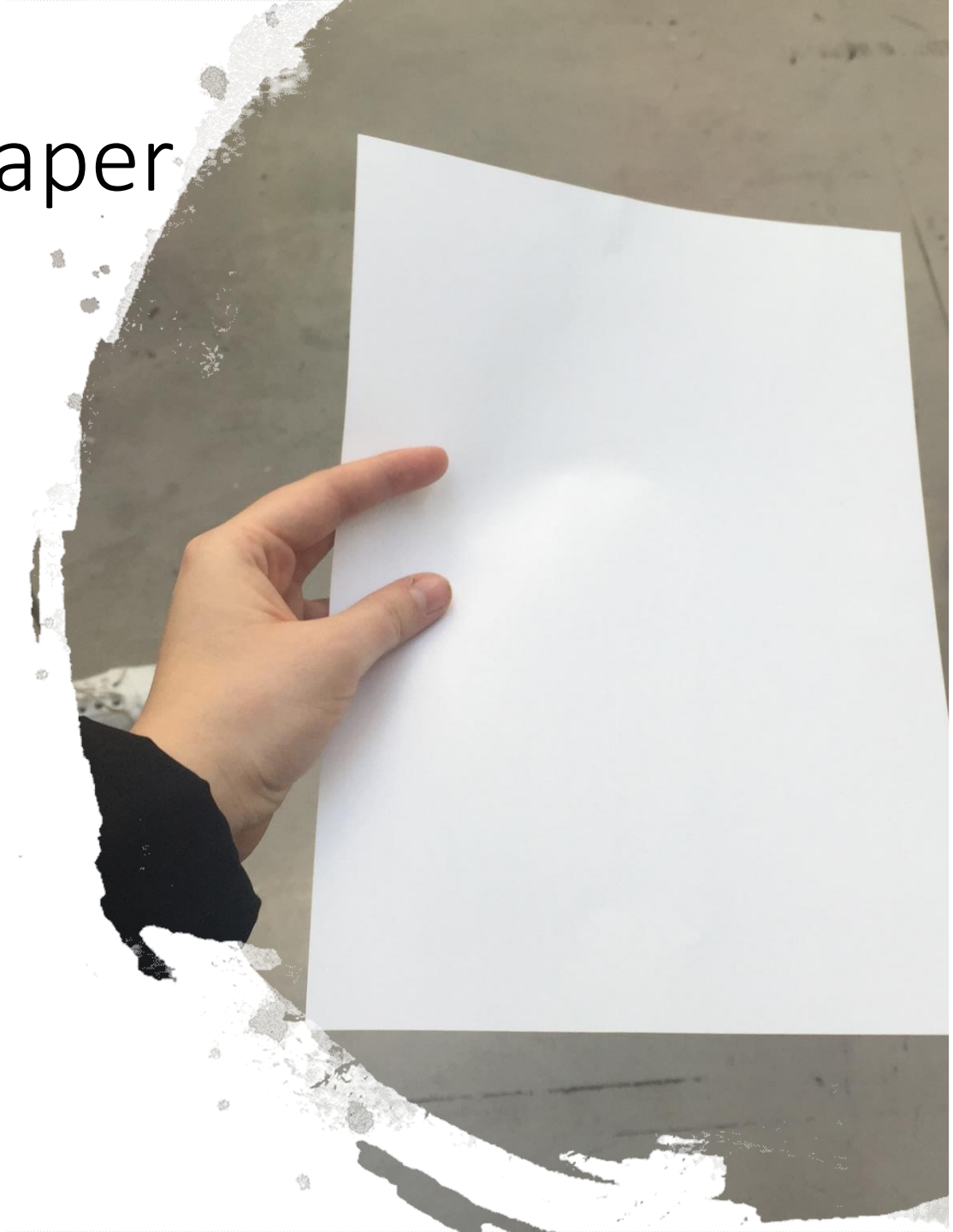
[Isaacson et al. Alzheimers Dement.](#) 2019 Dec;15(12):1588-1602. doi: 10.1016/j.jalz.2019.08.198. Epub 2019 Oct 31.

Individualized clinical management of patients at risk for Alzheimer's dementia

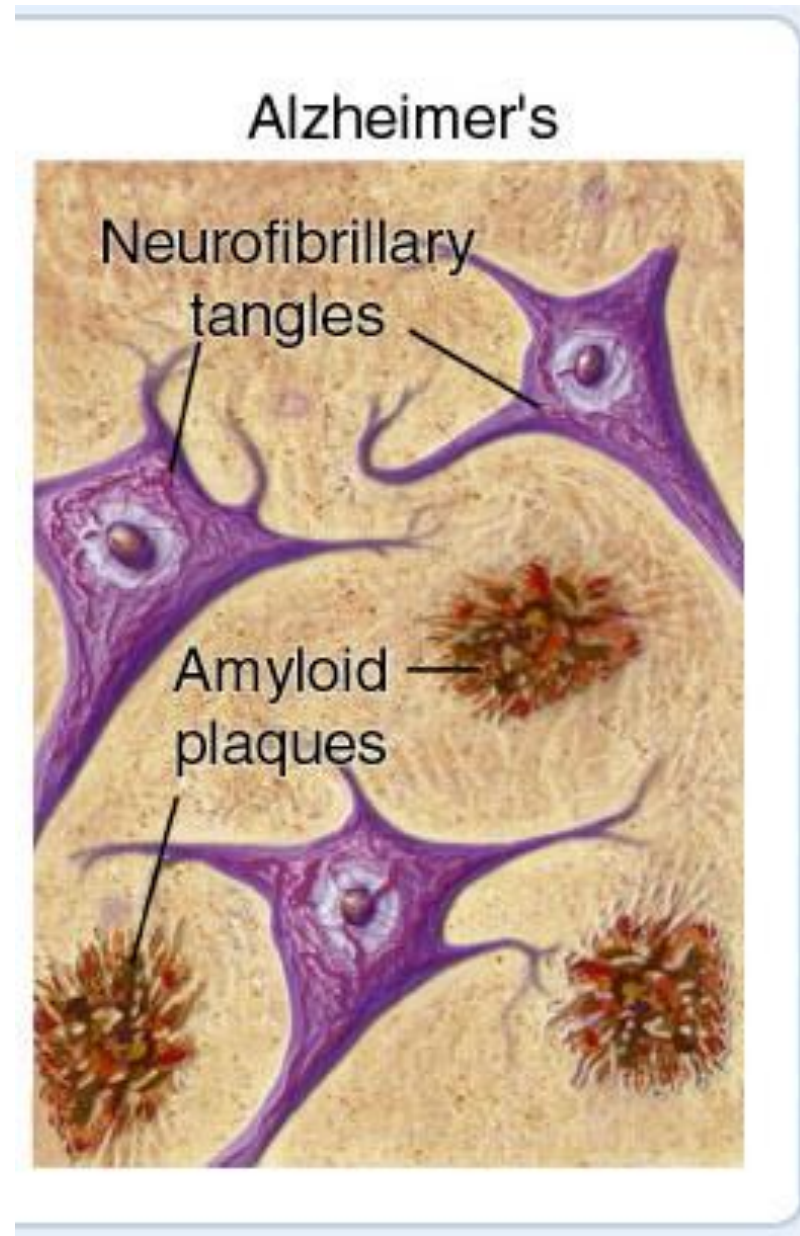
1. Tiia Ngandu, et al. A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial. *The Lancet*, 2015; DOI: [10.1016/S0140-6736\(15\)60461-5](https://doi.org/10.1016/S0140-6736(15)60461-5)

The Important Piece of Paper

- For your personal doctor
- **Inflammation:** (CRP)
- **Heart:** (Homocysteine, Cholesterol and Blood Pressure)
- **Diabetes:** hemoglobin a1c



When Does Trash Form In The Brain?





Can We Reverse Aging In The Brain At Any Age?

- Most “Bang For Your Buck” Activities
- Can we beat exercise???





Dancing vs Treadmill/Stationary Bike

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

1. Kathrin Rehfeld, Patrick Müller, Norman Aye, Marlen Schmicker, Milos Dordevic, Jörn Kaufmann, Anita Hökelmann, Notger G. Müller. **Dancing or Fitness Sport? The Effects of Two Training Programs on Hippocampal Plasticity and Balance Abilities in Healthy Seniors.** *Frontiers in Human Neuroscience*, 2017; 11 DOI: [10.3389/fnhum.2017.00305](https://doi.org/10.3389/fnhum.2017.00305)

The Best Things You Can Do For Your Brain

6 Major Tips

- Sleep
- Learn New Things and Be Socially Engaged
- Manage Stress/Mindfulness
- Moderate Exercise/Walking
- Underlying Conditions
- Eat Real Food

For Today: