

YOUR AMAZING BRAIN



IT'S PLASTIC, FANTASTIC!

FACTS ABOUT

It's an energy hog!

At 2% of body weight it consumes:

75% of available glucose

20% of blood supply

20% of available oxygen

YOUR AMAZING BRAIN

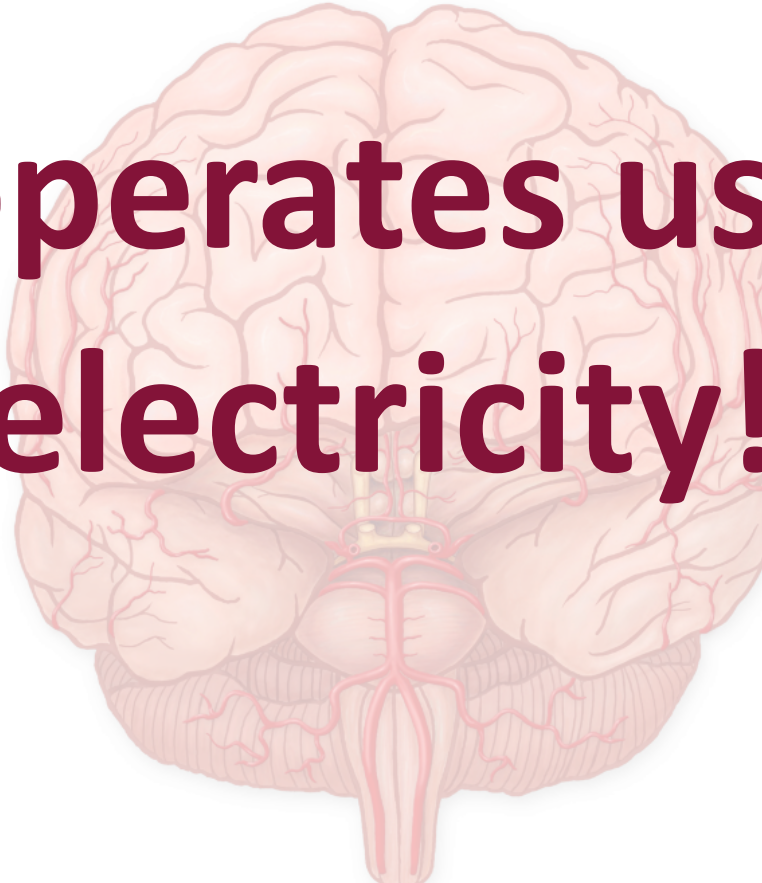
BRAIN TIP #1



**GET SMART, STAY SMART:
EXERCISE YOUR BRAIN!**

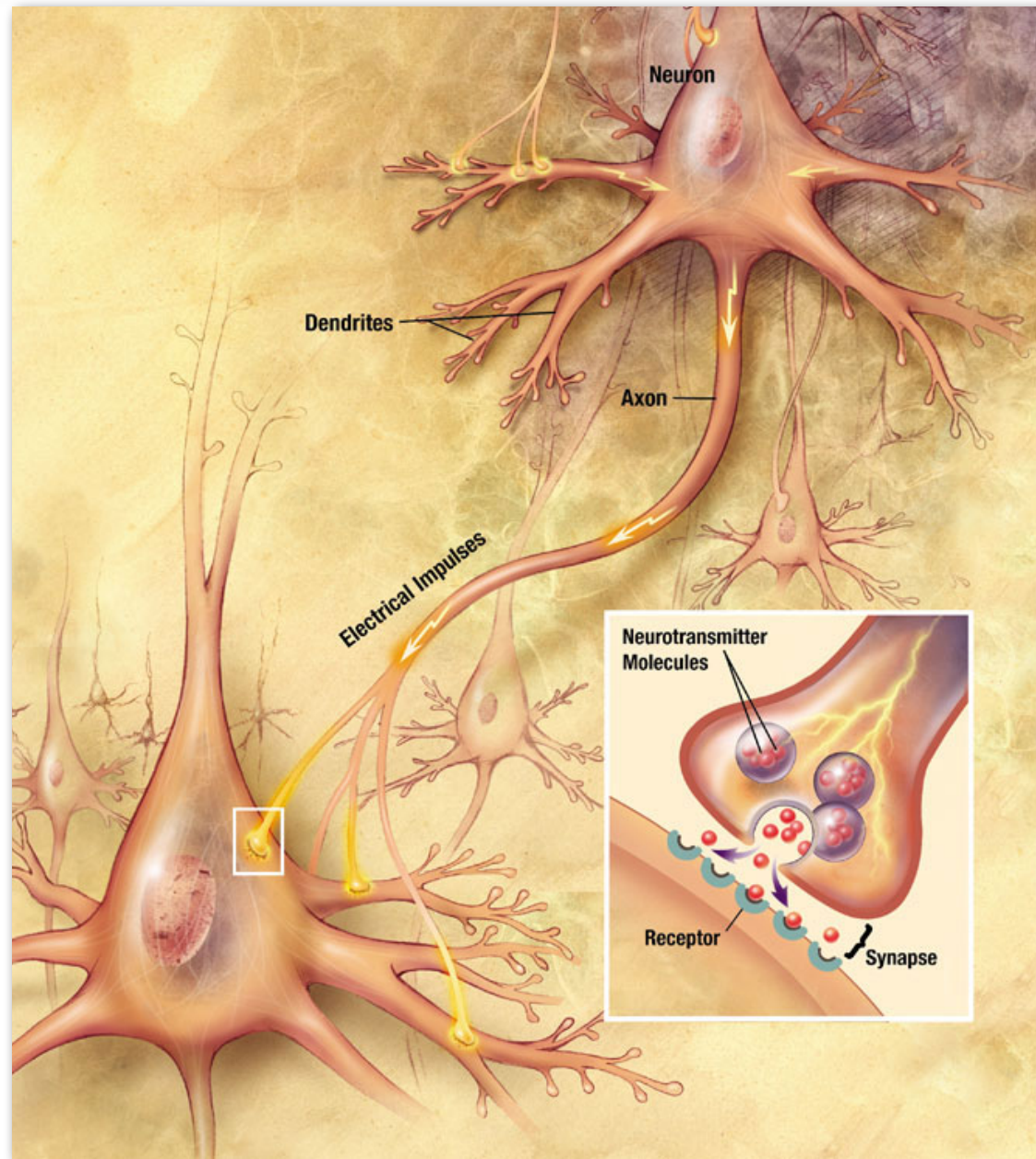
FACTS ABOUT

**It operates using
electricity!**



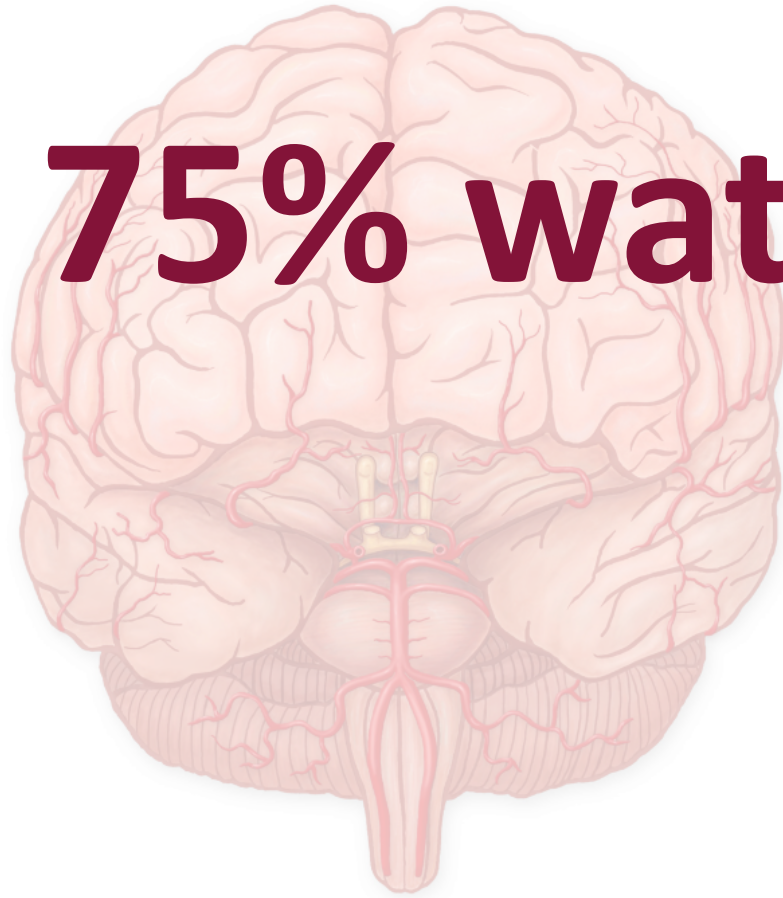
YOUR AMAZING BRAIN

The Electric Brain



FACTS ABOUT

It's 75% water!



YOUR AMAZING BRAIN

Benefits of Water



Hydration:

Provides energy

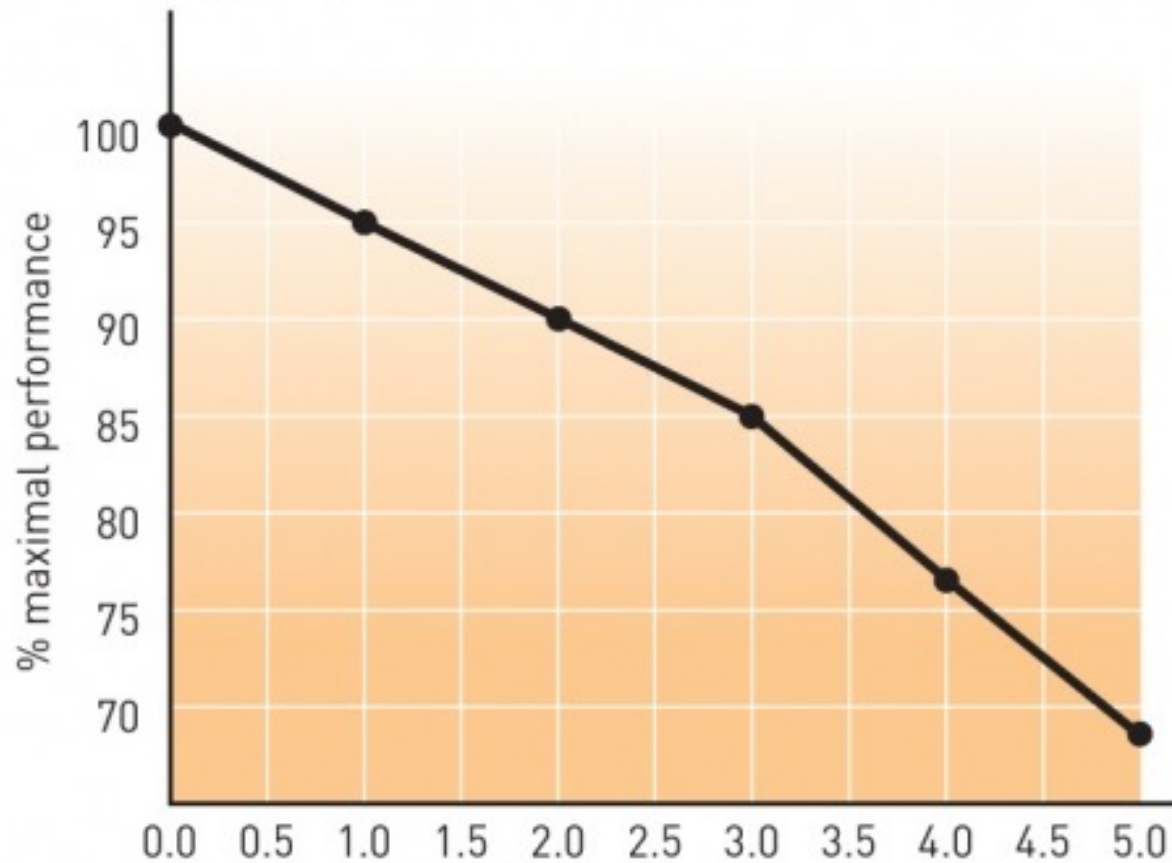
Reduces stress

Makes you smarter,

faster, stronger!

Benefits of Hydration

Physical performance



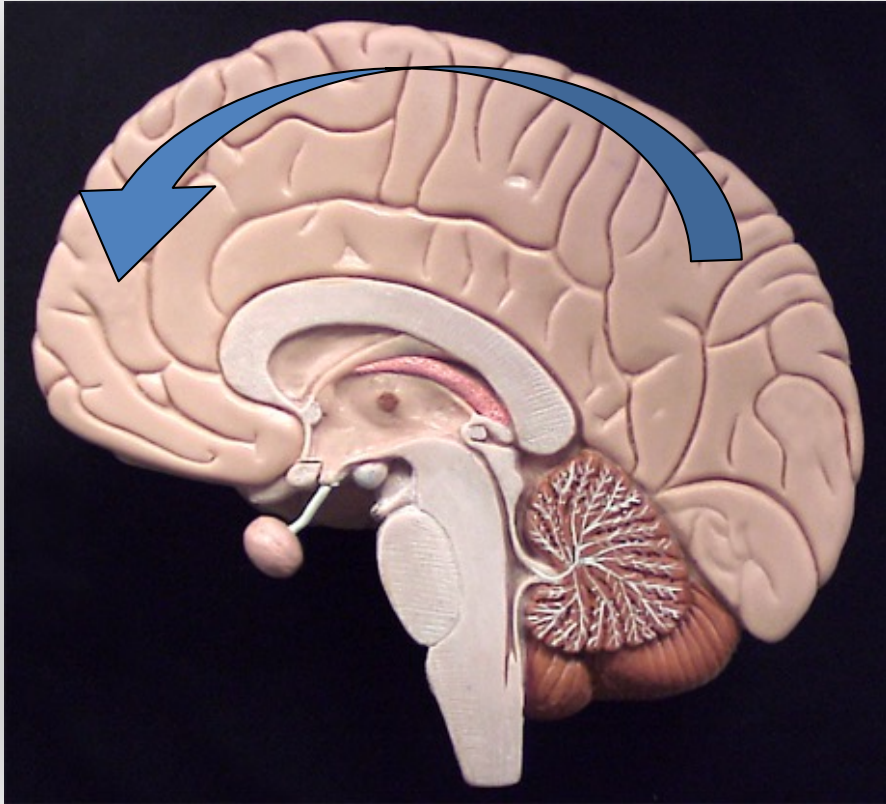
% dehydration

BRAIN TIP #2



STAY HYDRATED!

BRAIN MATURATION



- **Bottom to top**
- **Inside to outside**
- **Side to side**
- **Back to front**

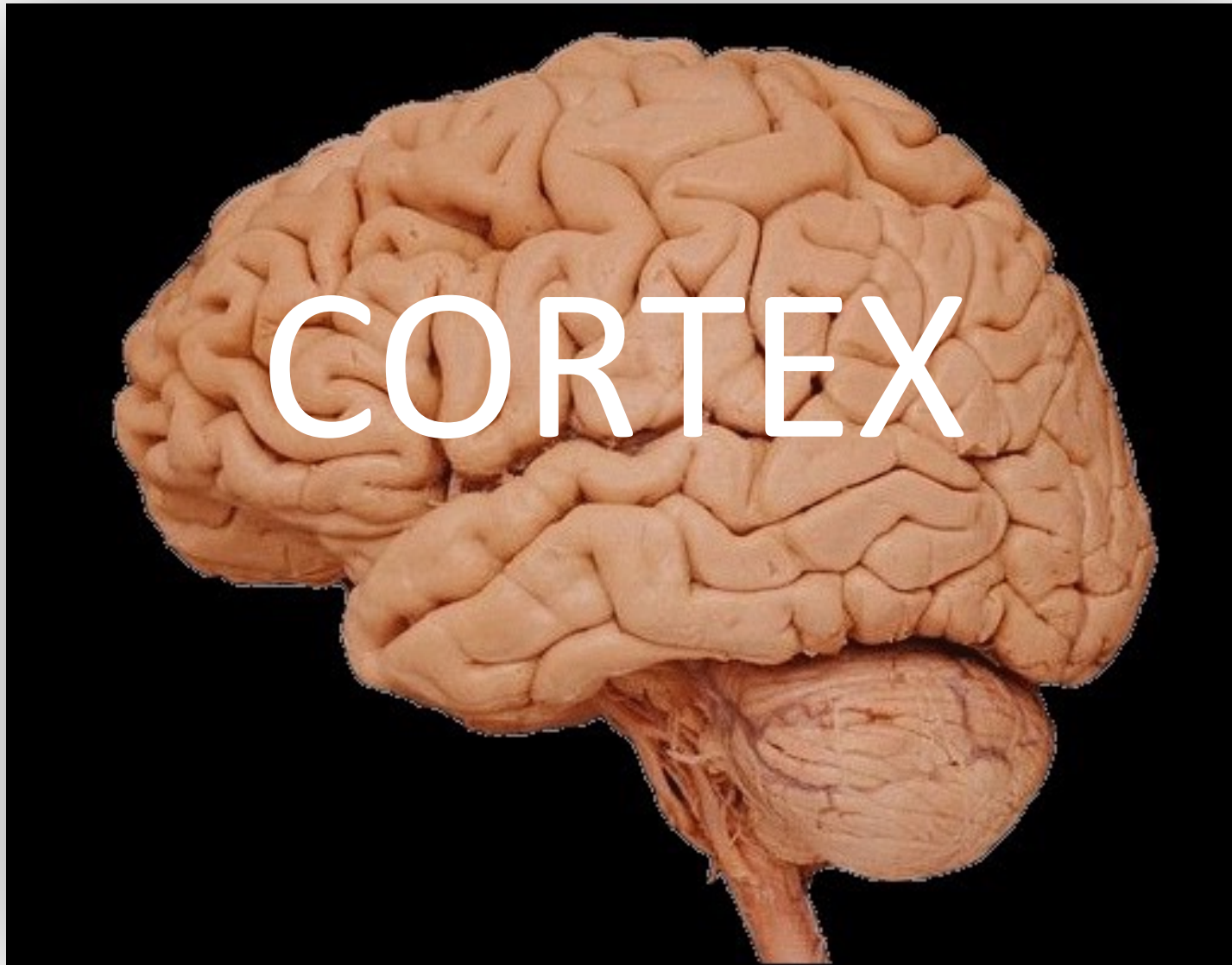
Frontal Lobes of the Brain

- Envision the future
- Dream big dreams
- Set goals
- Carry out plans
- Detect problems
- Solve problems
- Manage emotions
- Control impulses
- Consider consequences



AGE 25

HUMAN BRAIN

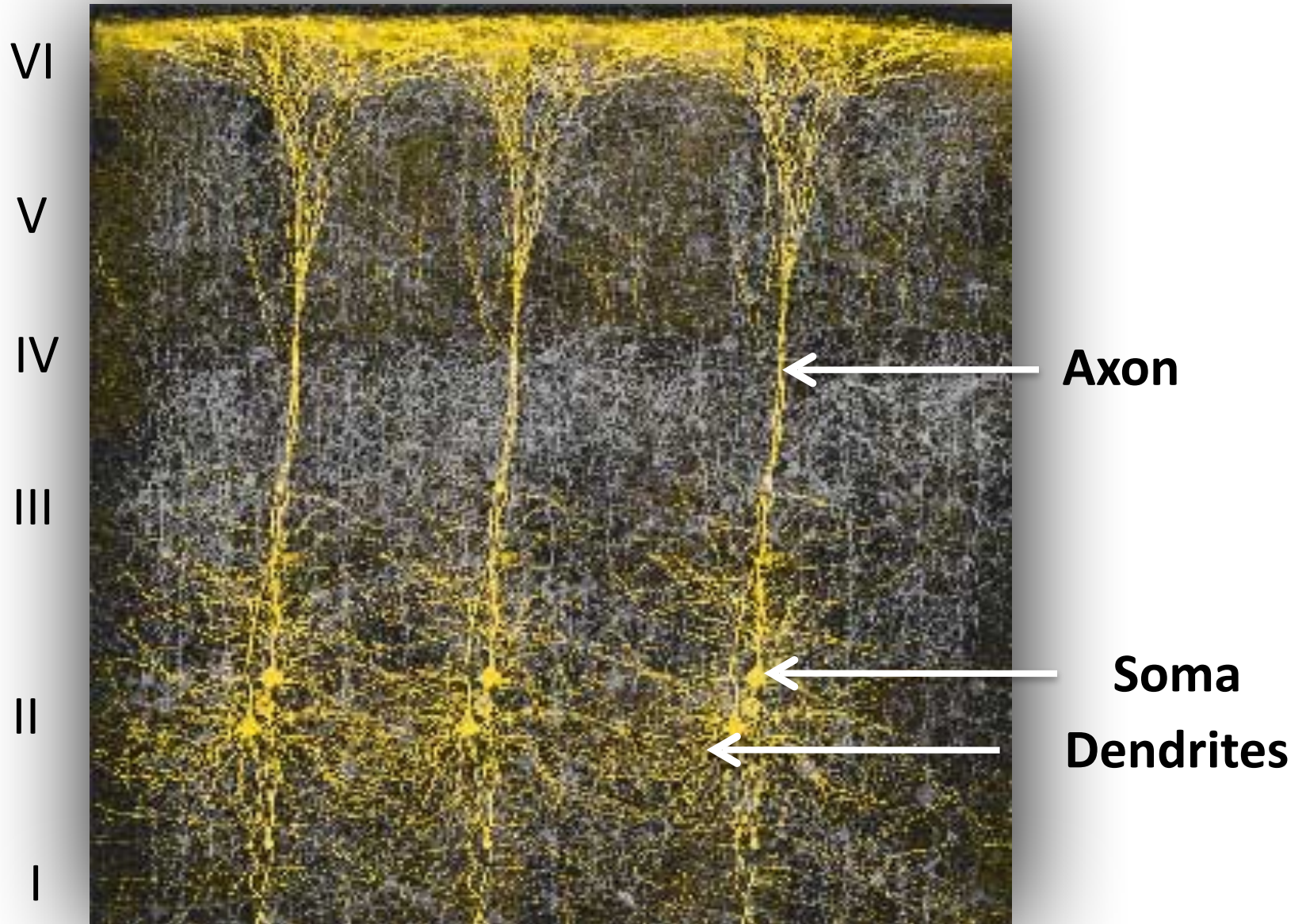


A microscopic image of neurons, showing a complex network of branching cell bodies and axons. The neurons are stained in shades of blue and green, creating a dense, interconnected web. The background is a dark, textured green. Overlaid on this image is the text 'NEURONS' in large white letters, and 'Tiny Cells That Think!' in smaller white letters below it.

NEURONS

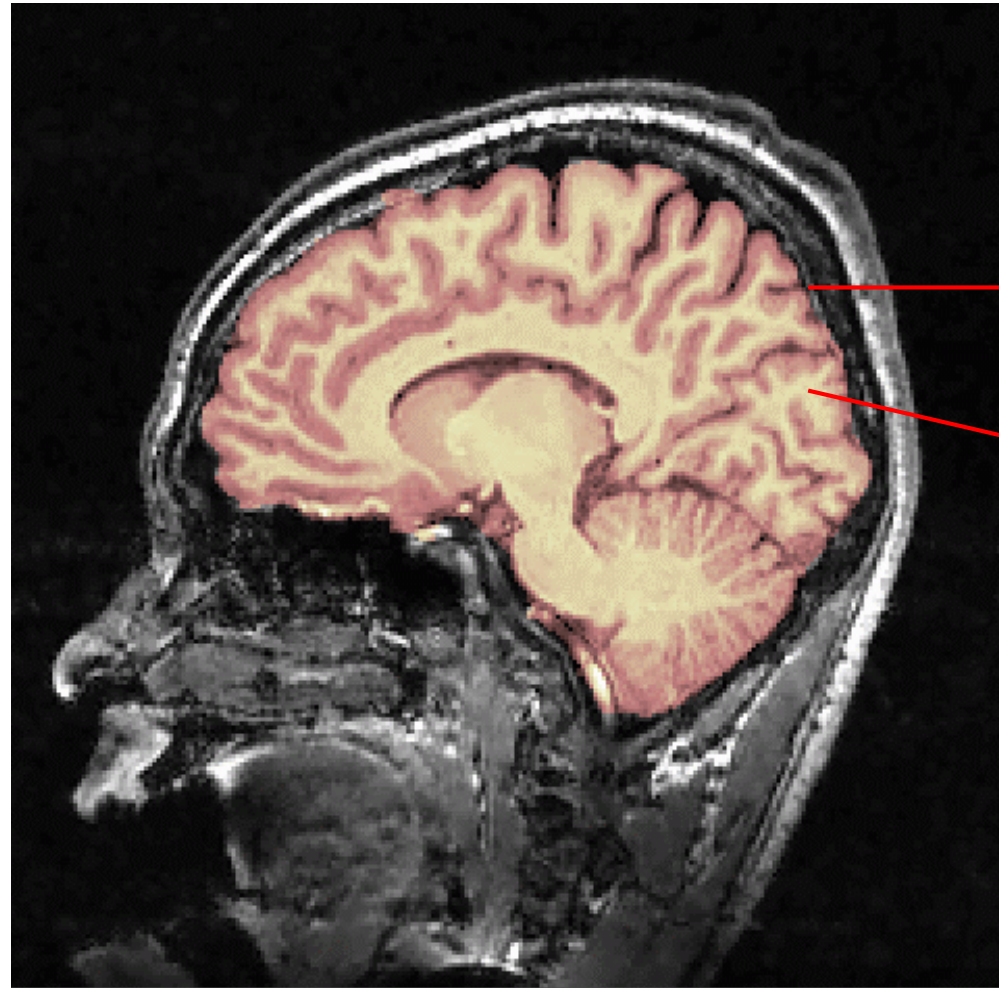
Tiny Cells That Think!

CORTEX: SIX CELL LAYERS



Brown, J. Cooper-Kuhn, C. Kempermann, G. Van Praag, H. Winkler, J. Gage, F. & Kuhn, H. "Enriched environment and physical activity stimulate hippocampal but not olfactory bulb neurogenesis. *European J. of Neuroscience*, 17 (10), 2042-2046.

GRAY and WHITE MATTER

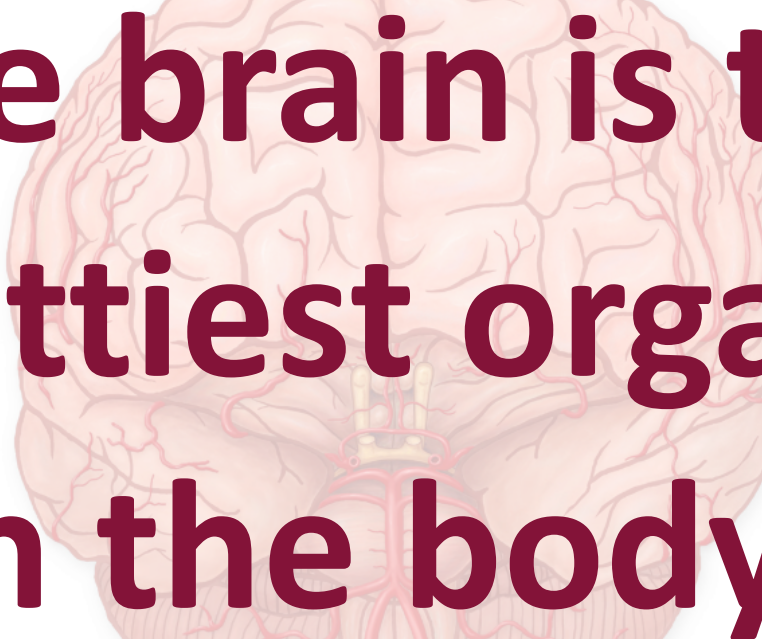


GRAY

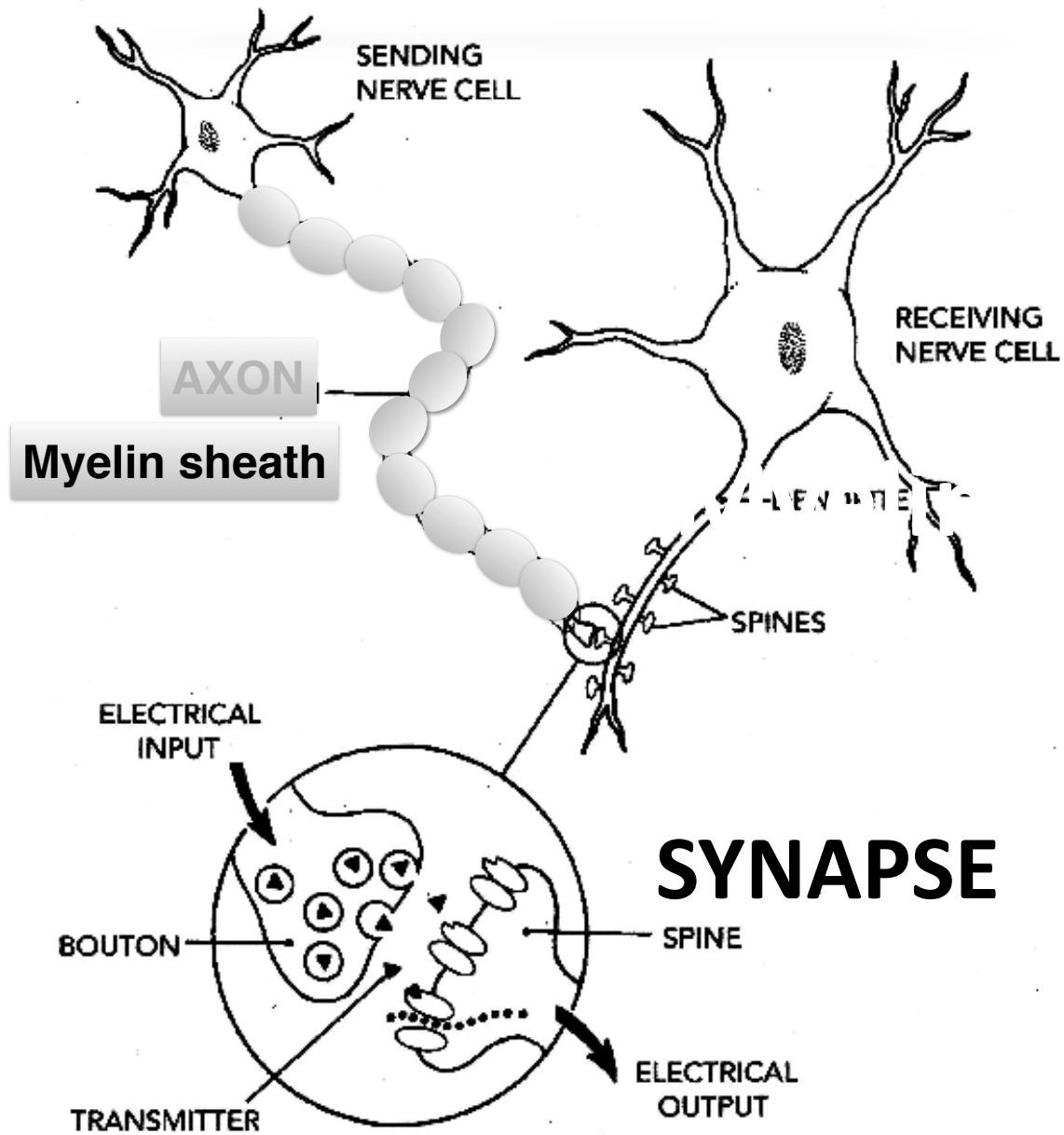
WHITE

FACTS ABOUT

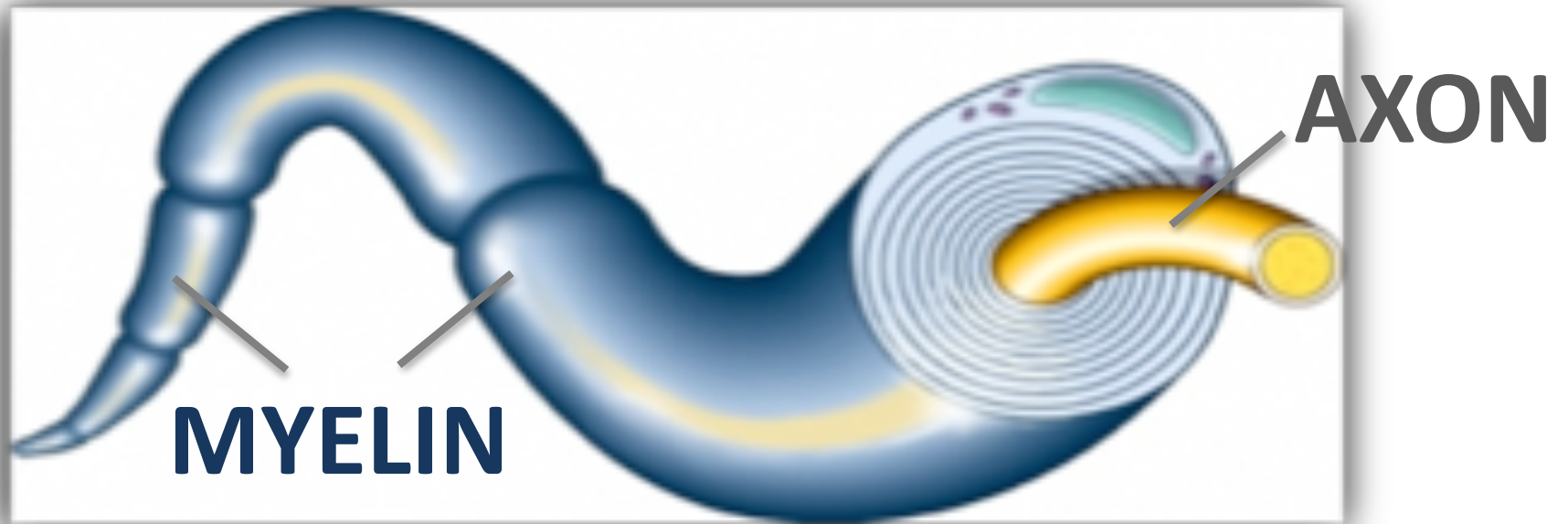
**The brain is the
fattiest organ
in the body!**



YOUR AMAZING BRAIN



Axon With Insulating Myelin

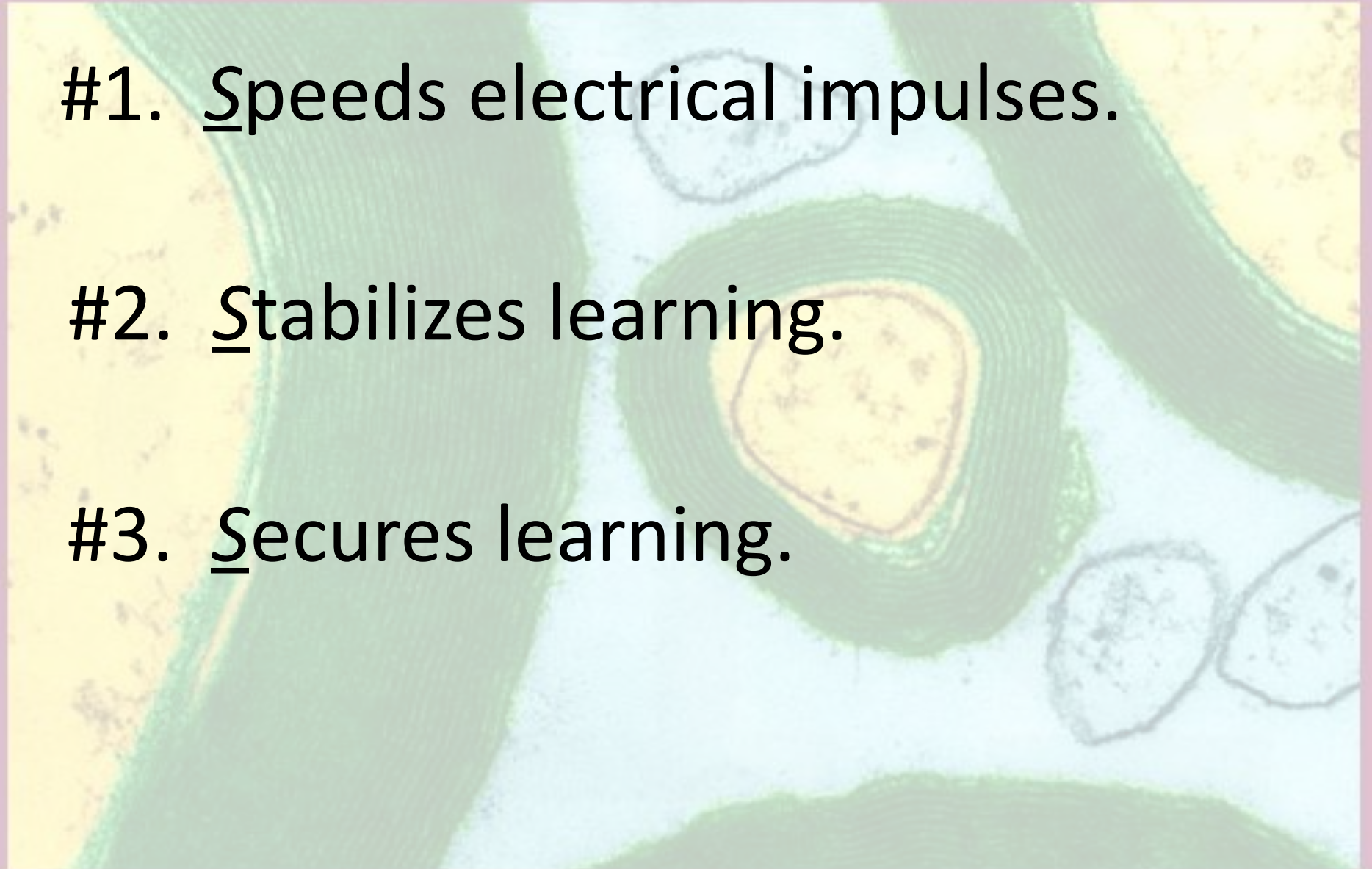


THE THREE S's of MYELINATION

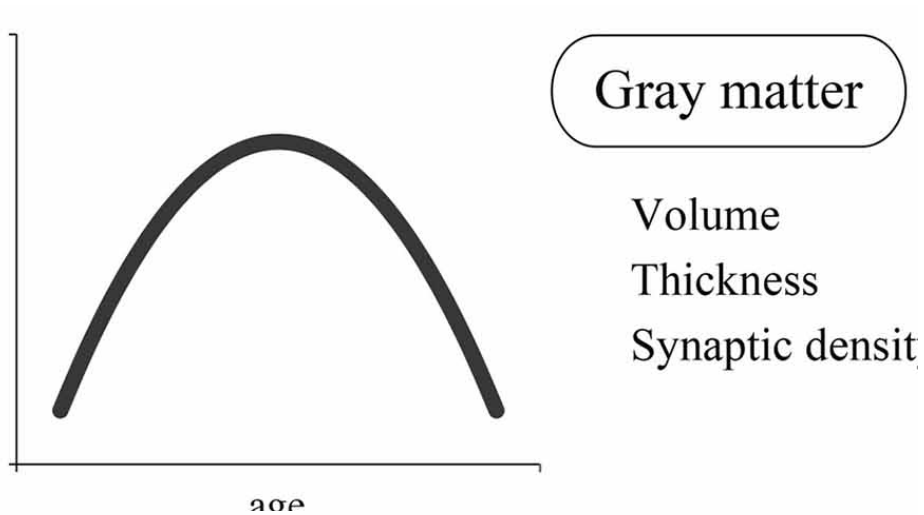
#1. Speeds electrical impulses.

#2. Stabilizes learning.

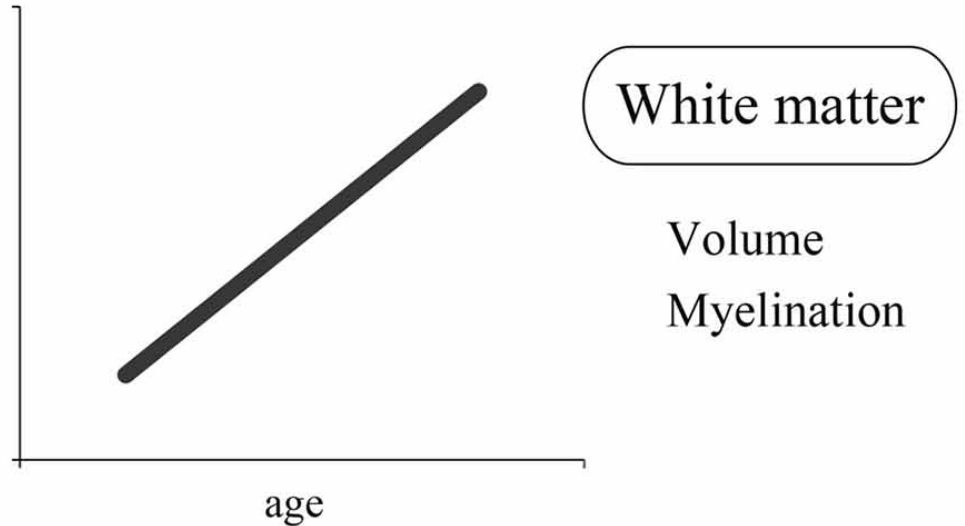
#3. Secures learning.



Gray Matter: Peak and Decline



Inverted U-shaped change



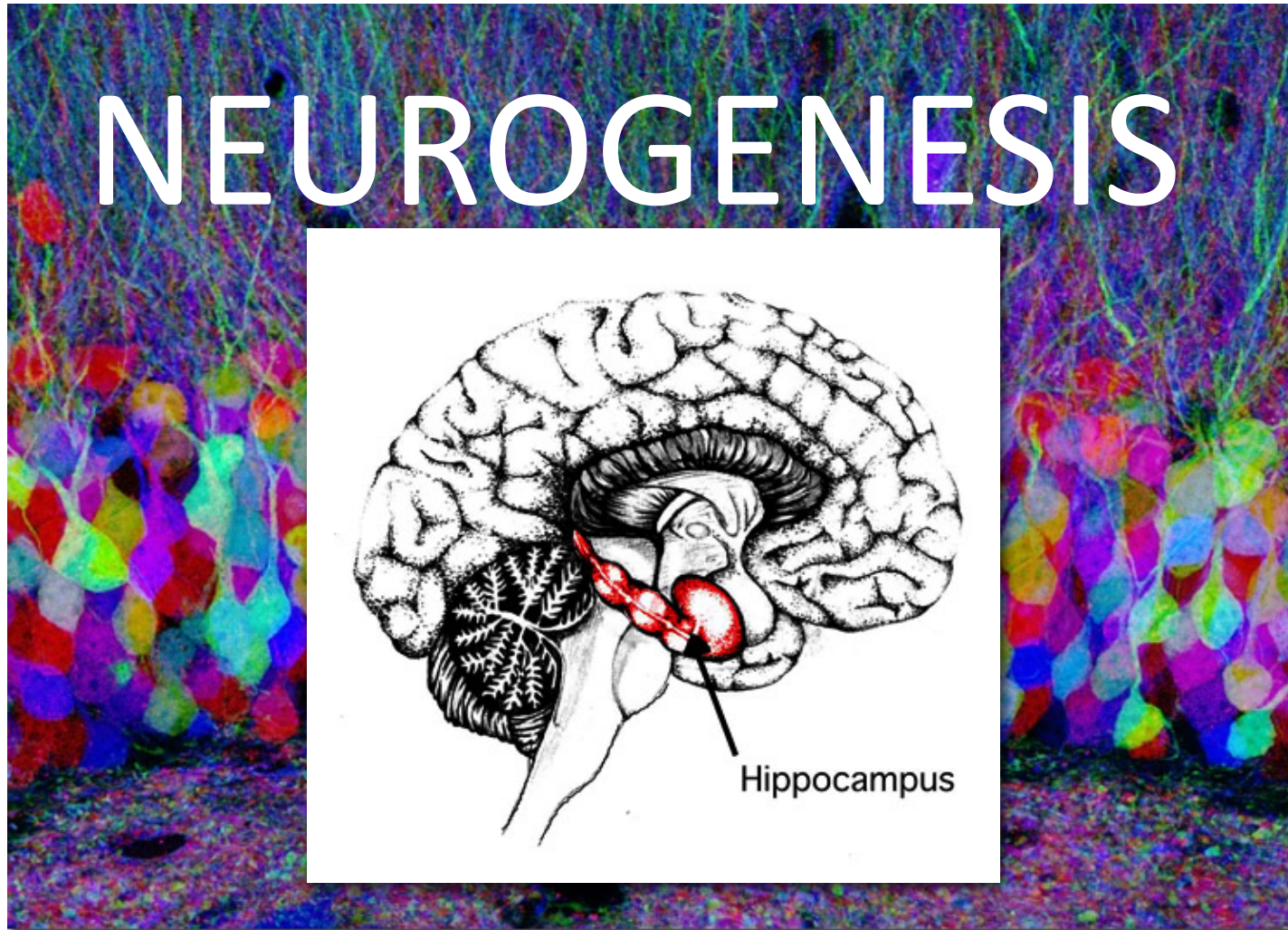
Linear change

BRAIN TIP #3

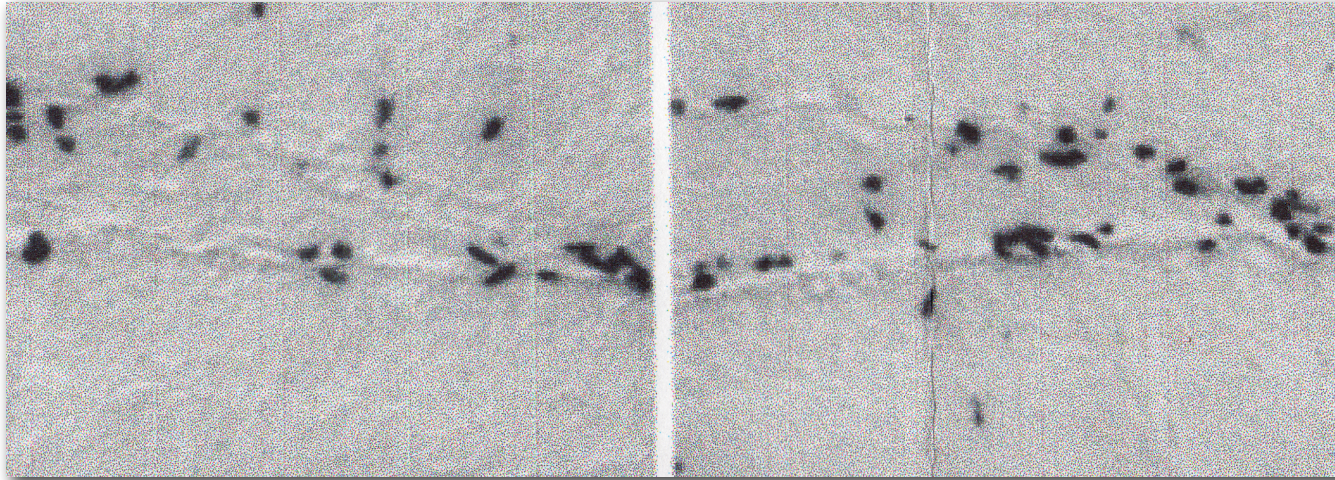


EAT FRESH, HEALTHY FOOD
(LIMIT THE JUNK FOOD!)

The brain makes new neurons!



Neurogenesis



STANDARD

ENRICHED

60% INCREASE

COMPARATIVE LEARNING ENVIRONMENTS

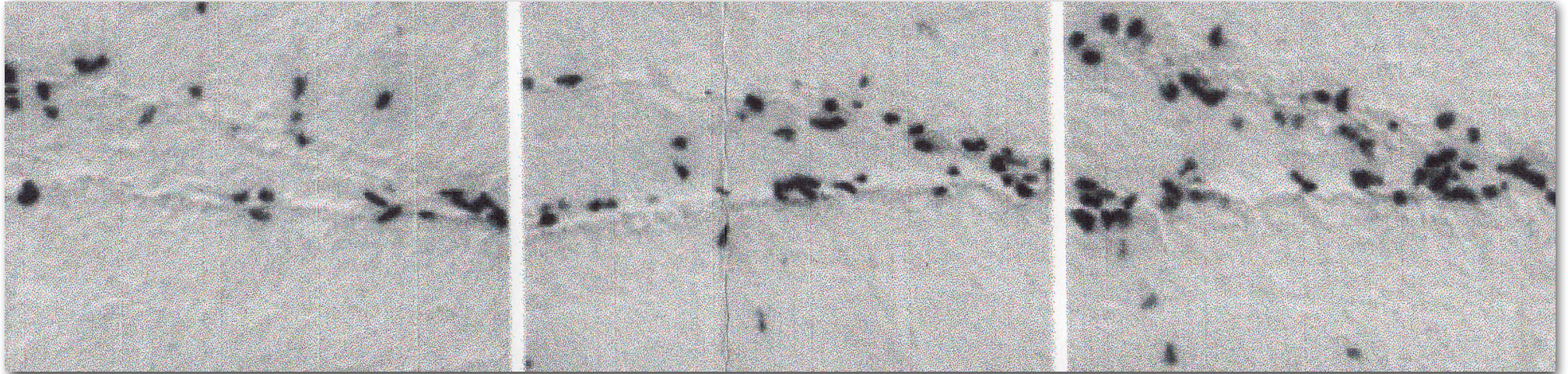
Brown, J., Cooper-Kuhn, C. Kempermann, G, Van Praag, H. Winkler, J, Gage, F. & Kuhn, H.
“Enriched environment and physical activity stimulate hippocampal but not olfactory bulb
neurogenesis. *European J. of Neuroscience*, 17 (10), 2042-2046.

BRAIN TIP #4



**WHEN IT COMES TO LEARNING :
EFFORT COUNTS!**

Neurogenesis



STANDARD

ENRICHED

EXERCISE

200% - 300%

COMPARATIVE LEARNING ENVIRONMENTS

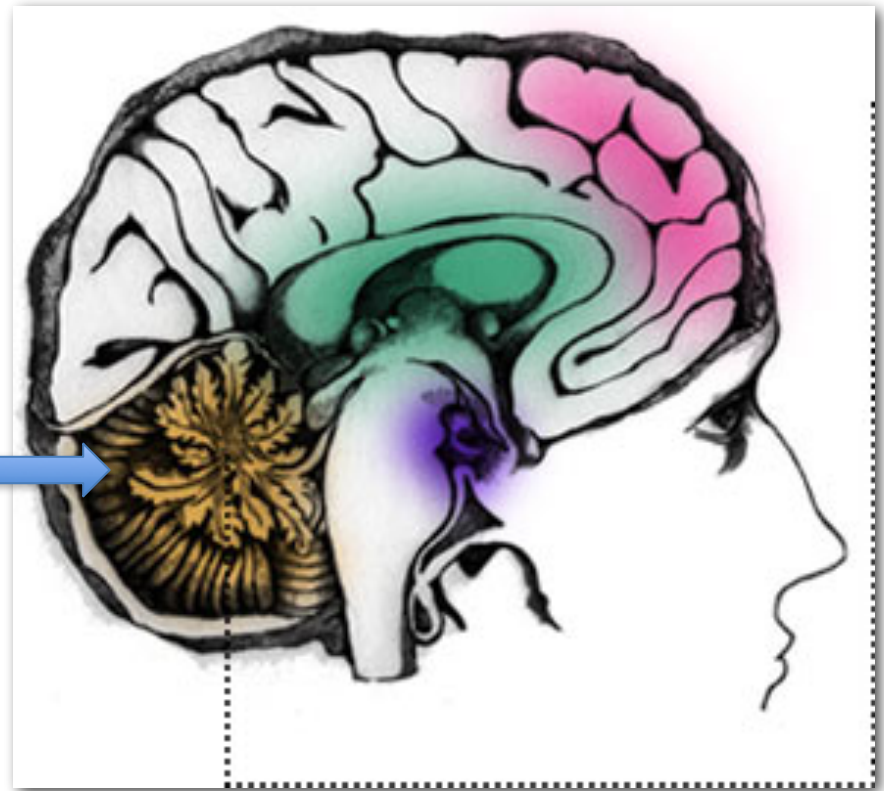
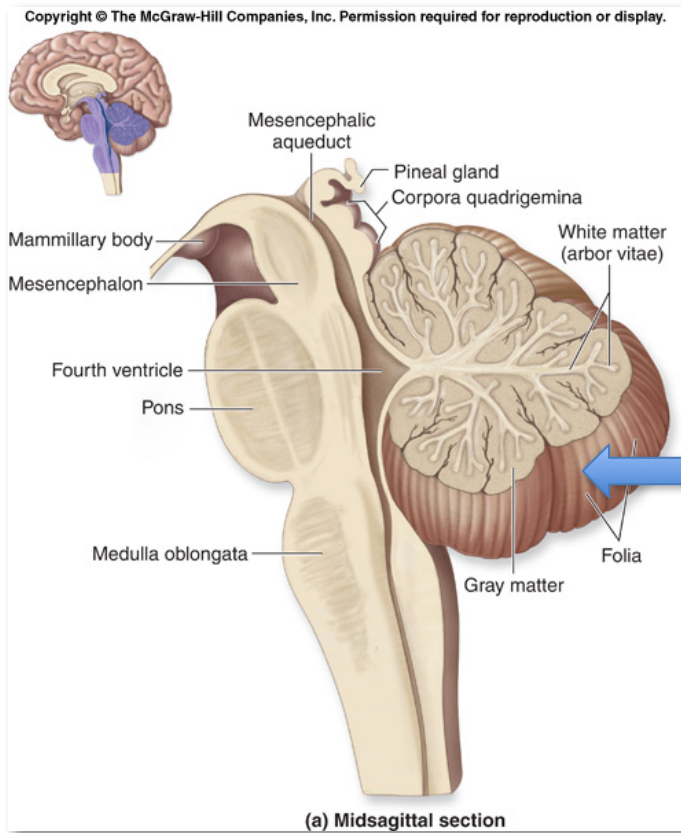
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BRAIN TIP #5



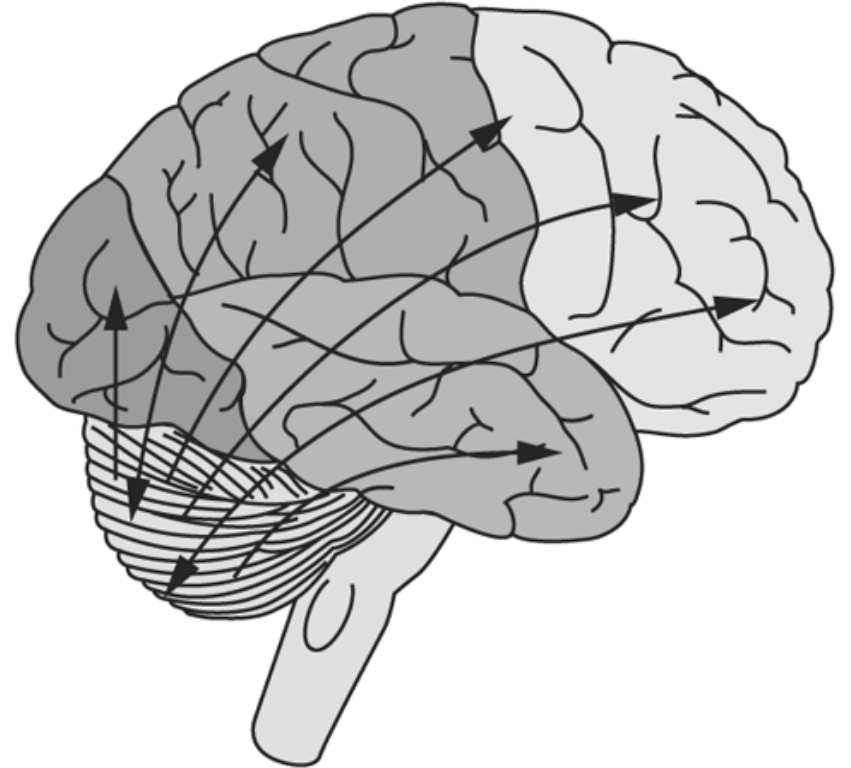
**MUSIC, THE ARTS, SPORTS:
GO FOR IT!**

Cerebellum



Controls Balance and Coordination

Cerebellum



Activates the Frontal Lobes

Corpus Callosum

Controls Problem Solving and Creativity

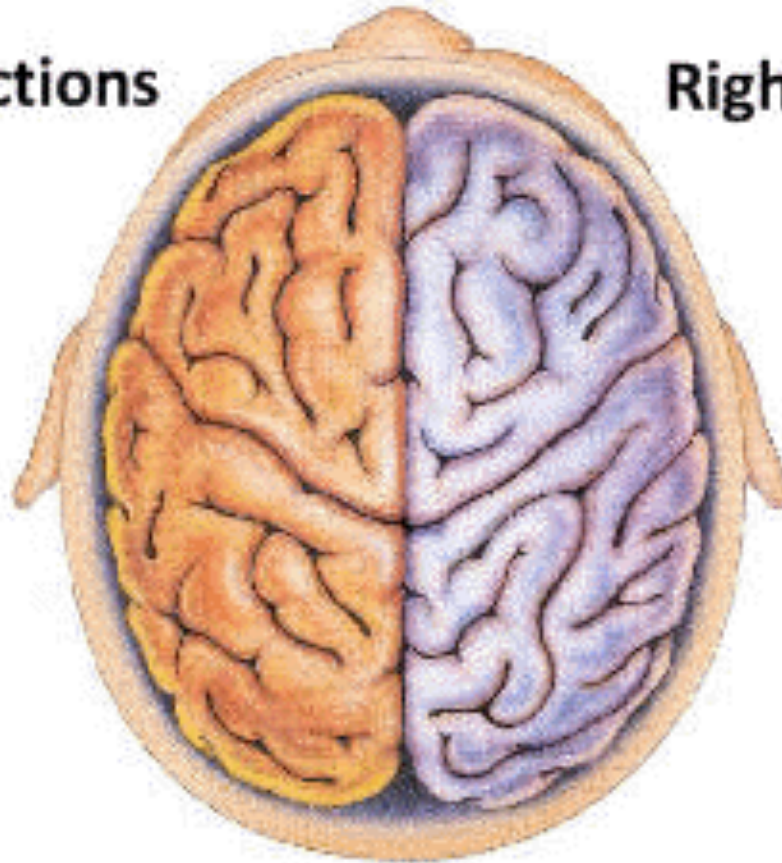
Left-Brain Functions

Analytic thought

Logic

Language

Science & Math



Right-Brain Functions

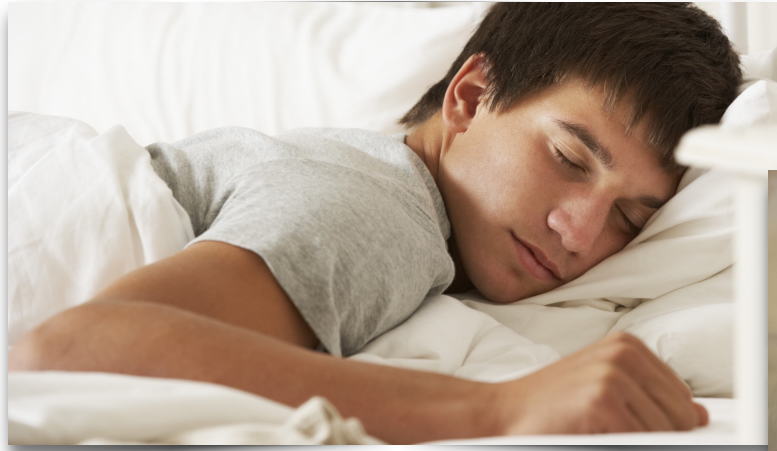
Holistic thought

Intuition

Creativity

Art & Music

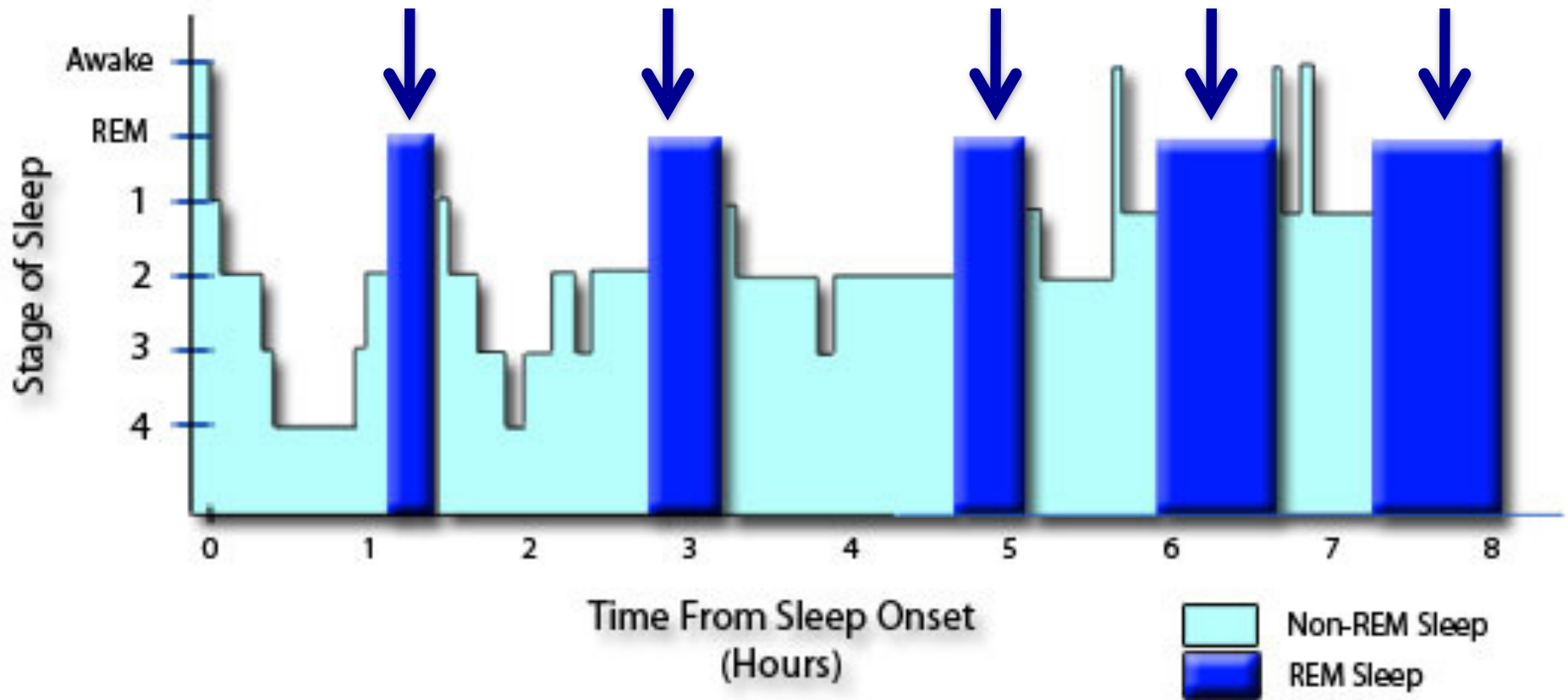
BRAIN TIP #6



**CONSOLIDATE WHAT YOU LEARN:
GET ENOUGH SLEEP!**

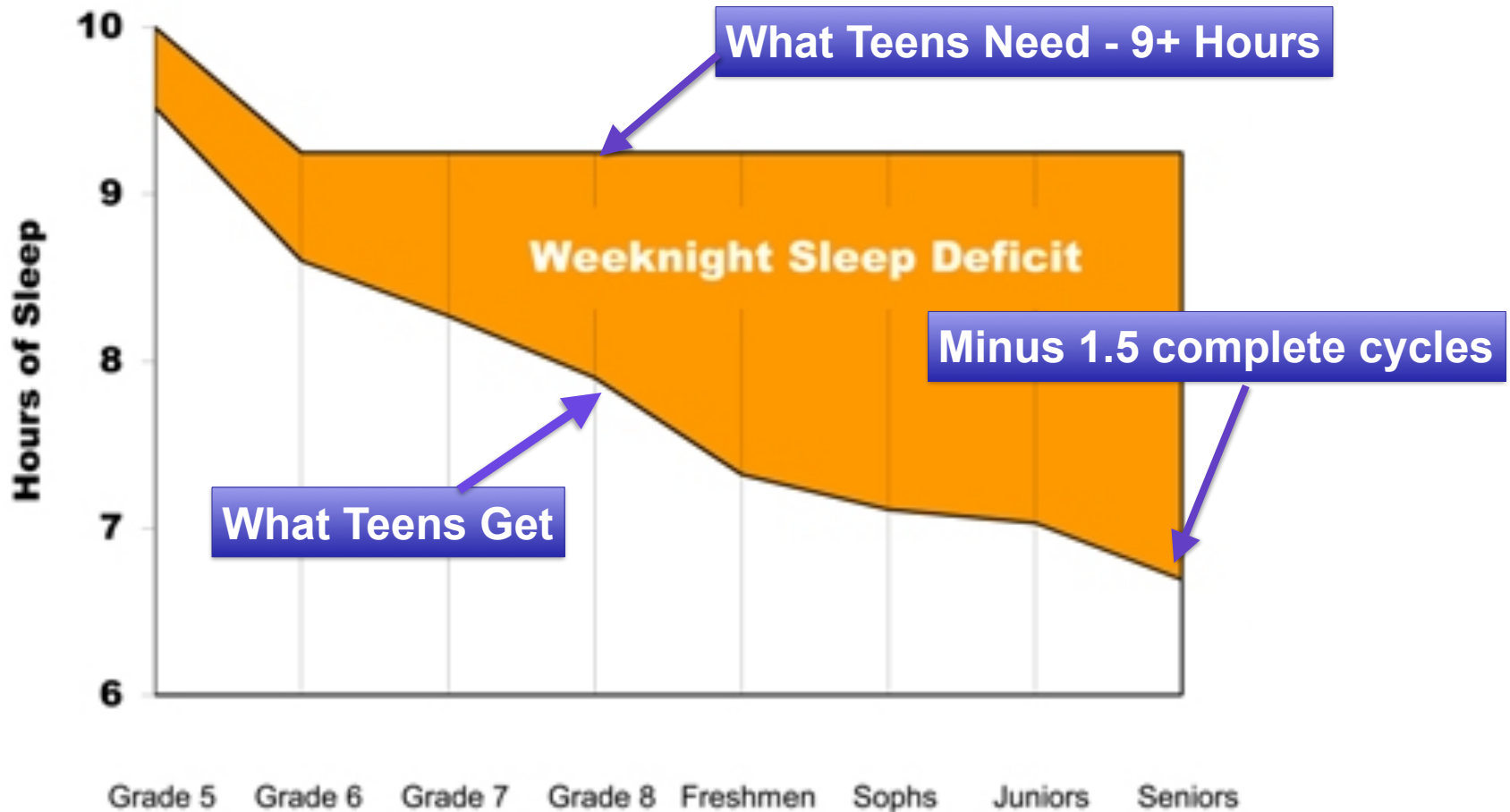
STAGES of SLEEP and LEARNING

Dream Cycles Through the Night



8 hours = 5 sleep cycles

SLEEP REQUIREMENTS



8 hours = 5 sleep cycles

“Poor Sleep Can Negatively Affect a Student’s Grades,” Fred Danner, Ph.D.
American Academy of Sleep Medicine, June 9, 2008

SLEEP and LEARNING

MEMORY ENCODING

'A' students

average 15 more minutes of sleep
than 'B' students,

average 15 more minutes of sleep
than 'C' students

Sleep Disturbance & Screen Tech





Smartphones In Kids' Bedrooms Are Worse Than TV, Study Says

“In the study of more than 2,000 fourth and seventh graders, published Monday, 54 percent said they slept near a smartphone.

Kids who slept in the same room as a cellphone, smartphone or iPod touch—what they call ‘small screens’ — got almost 21 minutes fewer sleep than those who didn’t. They also went to bed, on average, 37 minutes later than those without phones in their rooms.”

BRAIN TIP #7



**TO IMPROVE PERFORMANCE,
QUIET THE MIND!**