

BRAIN RELATED CHANGES AS WE AGE

Pattie Gaudio MS Dementia, DC, ADC/MC, CADDCT, CDP
Dementia Services Educator



WILLIAMSBURG LANDING®

The Aging Brain Quiz

Having “Senior Moments” means you should worry about dementia

As we age, we become less creative

Your Brain shrinks as you get older

Writing things down is a crutch that weakens the memory.

Older people recall and process information more slowly than younger people

Poor memory is often caused by lack of attention

Some dementias are reversible

If your older parents had dementia, chances are great that you will have it

You're most likely to forget this first as you get older:

A Your first day of school

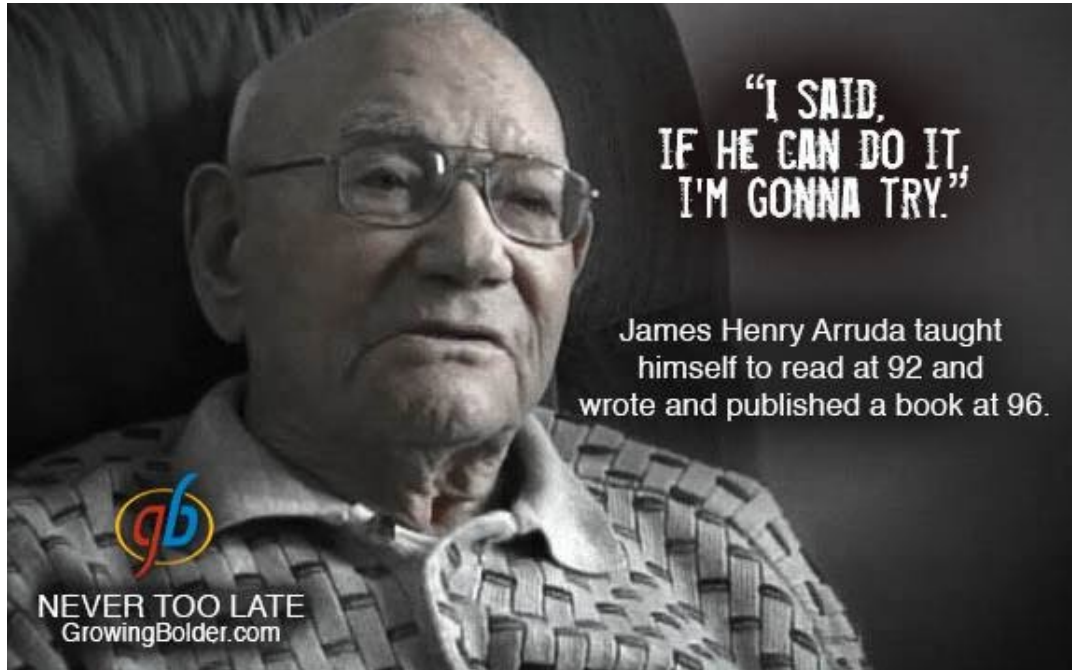
B The capital of France

C How to ride a bike

Taken from www.silvrcentury.org/2017/02/your-aging-brain

<https://www.webmd.com/brain/rm-quiz-your-aging-brain>

Aging...

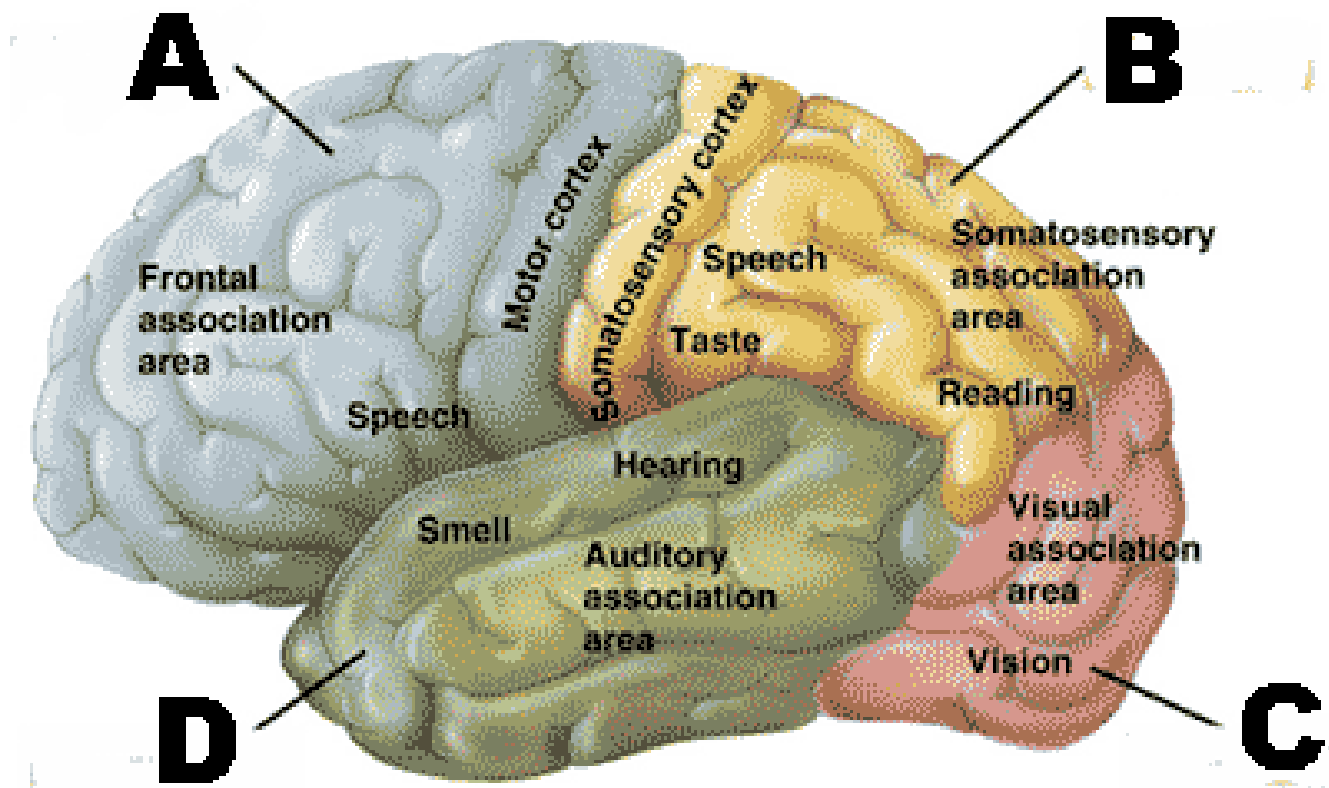




Quality of Life and Wellbeing

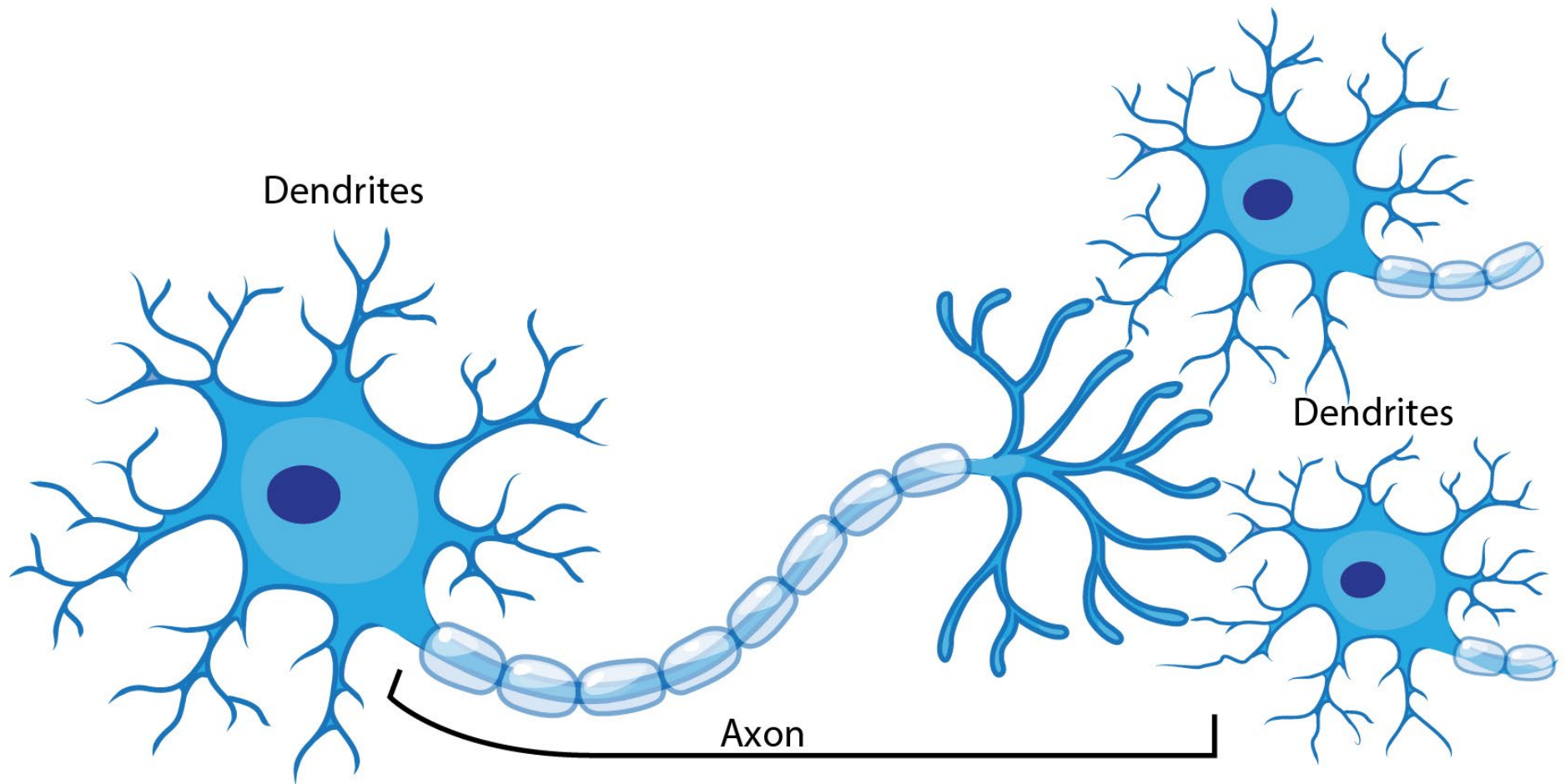
- As we age, everything in our body slows down....
- Quality of Life is very subjective
- Its all about Compensation and Adaptation!!!
- This program is all about Quality of Life and Wellbeing

How Your Brain Is Organized

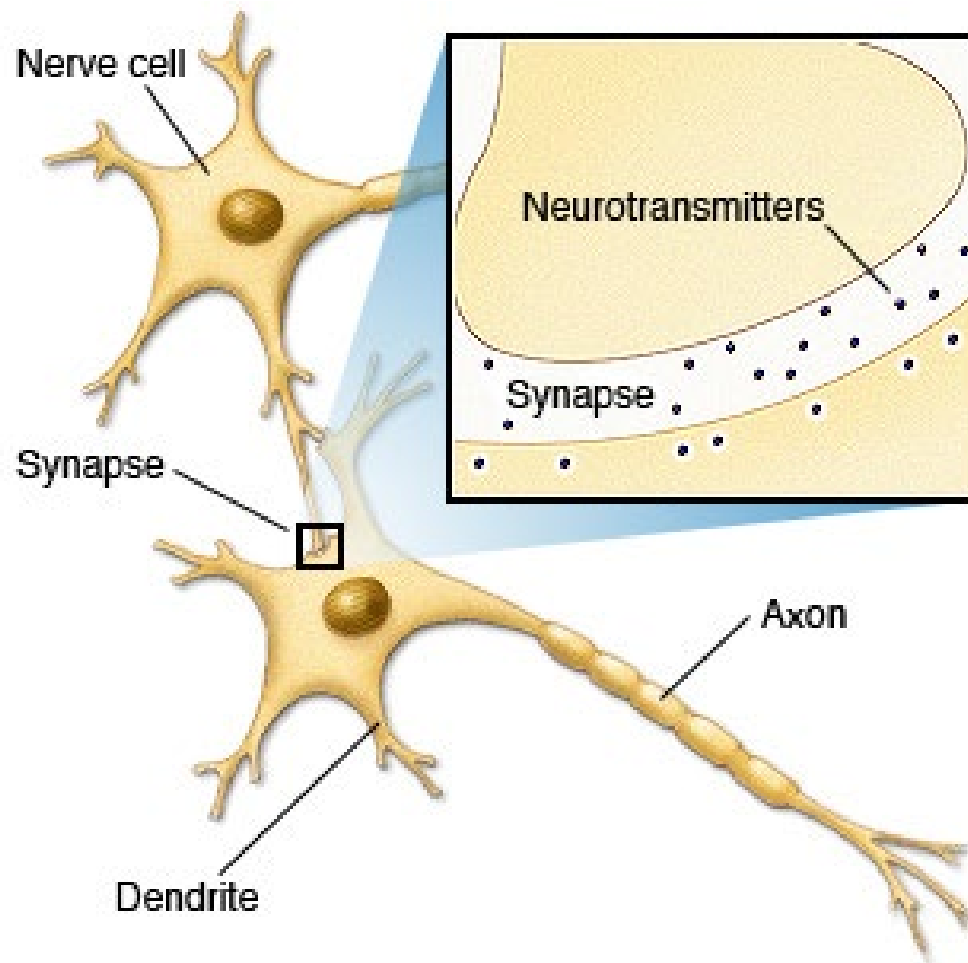


From: <https://www.mybraintest.org/brain-function-areas-structure-map/>

How Neurons Communicate



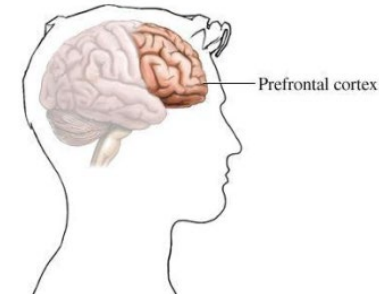
How Neurons Communicate



Areas Affected by Normal Aging of the Brain...

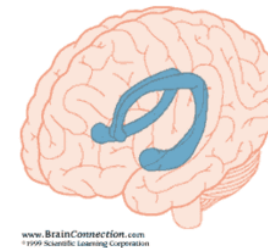
✓ PREFRONTAL AREA

- Executive Function Declines
- Harder to Focus Attention
- Harder to Multitask



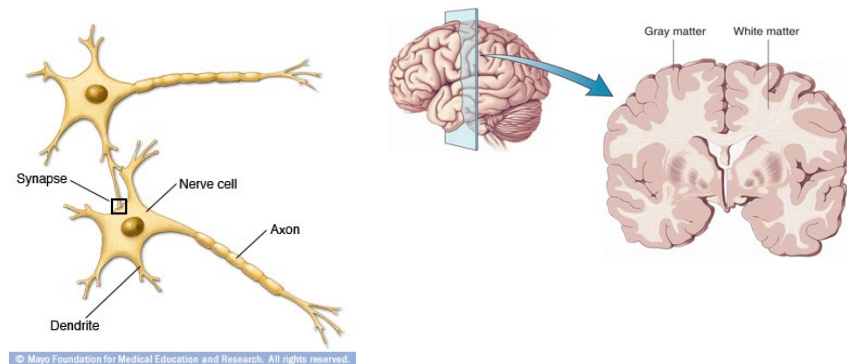
✓ HIPPOCAMPUS

- Memory
- Loss of Receptors Makes it Harder to Concentrate



✓ AXONS-

- Processing Speed Slows



This Translates Into...

- ✓ It is harder to learn new things. You can always learn, but it will take longer than a younger person.
- ✓ Slower in Problem Solving and less apt to change strategies in decision making.
- ✓ It is harder for you to focus your attention. You are more easily distracted and sensitive to interruptions.
- ✓ It is harder to perform different tasks at the same time.
- ✓ Spatial relationships diminish- ability to visualize objects affecting reading a map or finding your car in a sprawling parking lot
- ✓ Retrieval of information and takes longer
- ✓ Tip Of The Tongue Syndrome!

When You Can't Come Up With The Word...



“Tip of the Tongue Syndrome”
is normal!

BLOCKING

The memory is properly stored, but something is keeping you from finding it.

Some of the increased activity inhibits other areas. A similar memory “blocks” the one you are trying to retrieve

Scientists think that memory blocks become more common with age.

GOOD NEWS- the information will come after you relax!!!

More Good News!!!

Age-related changes in the brain may slow down your learning and recall, but they do not impair your ability to function effectively.

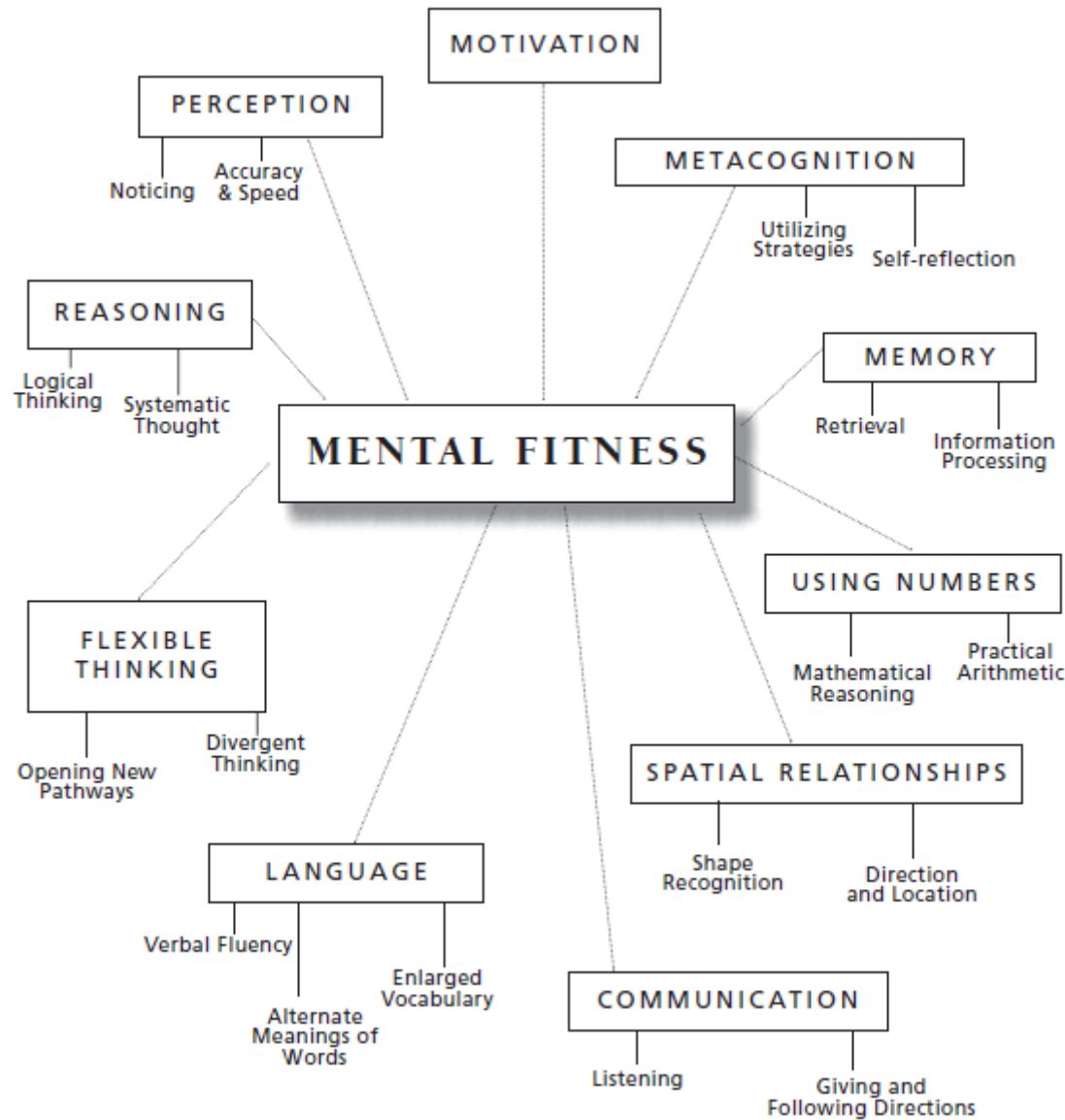
Wisdom you have gained over the years remains unscathed!

You can compensate for natural changes by working harder to pay attention to any new information you are trying to learn.

As brain areas begin to get compromised, imaging studies indicate a redistribution and neural recruitment from other brain areas to assist in compensation for declines

This knowledge allows you to compensate and make adaptations!

Exercise Map For The Mind

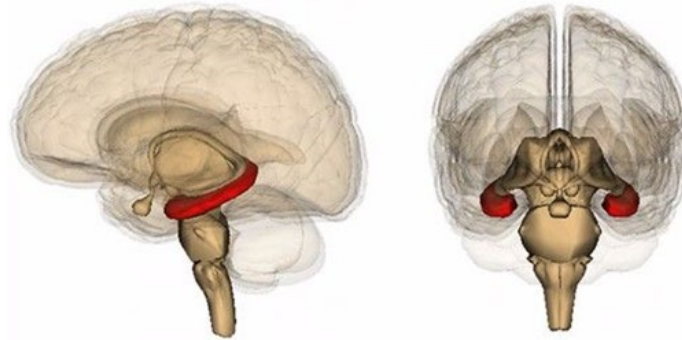


Memory

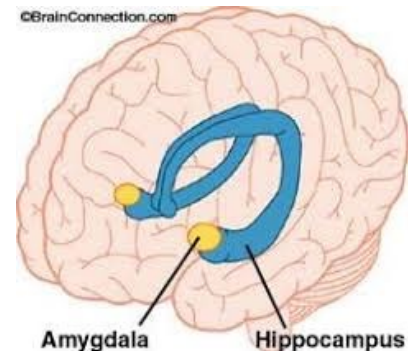
How Memory Works:

ACQUIRING-----CONSOLIDATING----RETRIEVING

The Hippocampus-
Acquiring and Consolidating



The Amygdala –
reacts and tags emotionally
powerful information



Memory

How Memory Works:

ACQUIRING-----CONSOLIDATING-----RETRIEVING

- Once a memory is established, pieces of it are stored among different areas of the Cerebral Cortex brain
- More likely to be consolidated if tied to an anchor memory
- Memories are actively consolidated during sleep.

Memory

How Memory Works:

ACQUIRING-----CONSOLIDATING-----RETRIEVAL

- *Transience*- memories not called up tend to be forgotten
- *Absentmindedness*- usually occurs when you do not focus
Use cues to recall things
- *Misattribution*- when you mix up the facts
This becomes more common with age
- *Blocking!*

Attention...

“The most important principle for improving your memory is focusing your attention on what you are trying to learn”

Professor Richard Resak
Clinical Professor Neurology
George Washington School of Medicine

Attention Test



<https://youtu.be/vJG698U2Mvo>

STROOP EXERCISE

RED

GREEN

BLUE

BLUE

GREEN

WHITE

PURPLE

RED

WHITE

YELLOW

BLUE

GREEN

RED

PURPLE

YELLOW

PURPLE

RED

WHITE

YELLOW

BLUE

GREEN

Useful Tools for Remembering...

METACOGNITION

Rehearsal—Write the item and say it out loud

Grouping —Find some relationship and
organize the names into categories

Visualization—Get a mental picture in your mind

Make up a story- The more bizarre the better!

Mnemonics - H.O.M.E.S Or Every Good Boy Deserves Favor

Use As Many Senses as Possible

Use The Tools To Remember The List

CAT

GLOVE

HORSE

COUCH

ORANGE

TABLE

BAKING POWDER

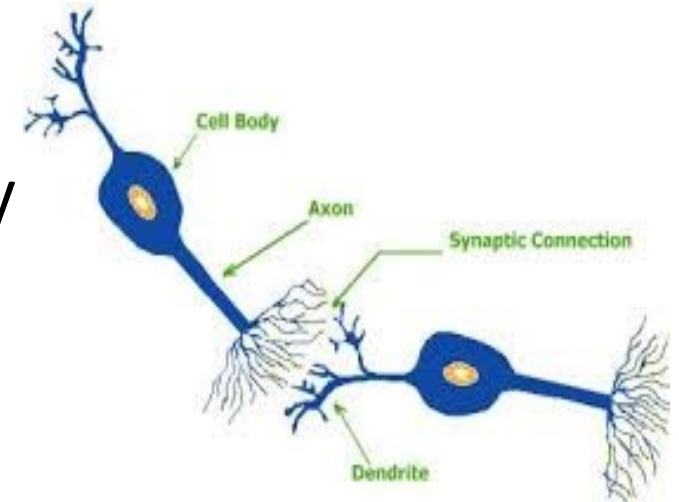
PIGEON

COAT

BED

Neuroplasticity

Neuroplasticity refers to our Brain's ability to change in response to experience.

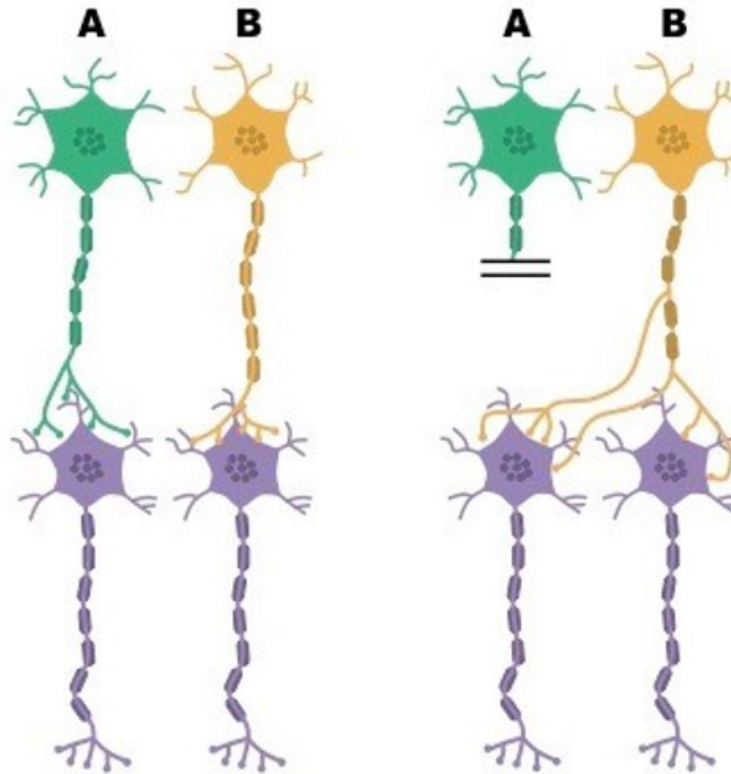


We now know that the brain has the capability to form and reorganize synaptic connections, especially in response to learning, experience or following injury.

In this way, alternate circuits or pathways can be established for lost or injured neurons.

“CELLS THAT FIRE TOGETHER, WIRE TOGETHER”

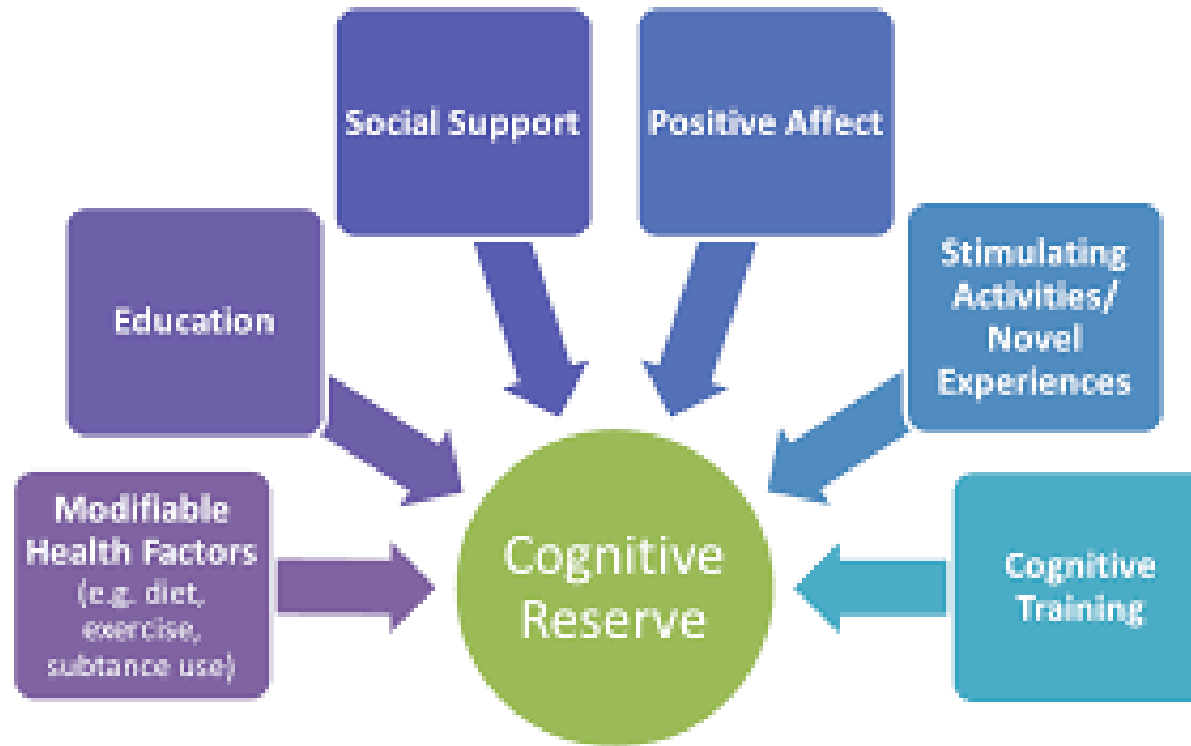
Sprouting: New axon and dendrite extensions allow existing neurons to form new connections



Neural connections by neuron A and neuron B prior to degeneration

Collateral sprouting of neuron B after damage to axon of neuron A

Cognitive Reserve and Brain Health



- Results from a lifetime collection of cognitive stimulating experiences
- Research suggests increased cognitive reserve results in decreased expression of pathologies as dementia due to neuronal compensation

What Is the Best Way to Exercise the Brain???

DO SOMETHING YOU DO NOT ORDINARILY DO!

- ✓ Try different puzzles
- ✓ Do art Work
- ✓ Do Activities with your non-dominant hand
- ✓ Learn something such as a new language or musical instrument
Library has a free app for learning a new language
- ✓ Socialize more
- ✓ Stimulating Activities
 - Join a Choir
 - Try a new exercise as Tai Chi or Yoga.



What You Can Do!

Develop a Brain Healthy Lifestyle!

- ✓ Diet- Mediterranean/ MIND Diet: Fish, Chicken, Whole Grains
Lutein- Green Leafy Vegetables (Kale, Spinach, Avocado)
- ✓ See your Doctor for regular checkups
- ✓ Exercise
- ✓ Sleep- short term memory is laid down
into long term memory.
- CSF removes amyloid proteins from the day
- ✓ Brain Exercises
- ✓ Lower Stress
- ✓ Watch Your Head!
- ✓ Laugh more

Questions



My Number One Question

What is the Difference Between
Alzheimer's Disease
And
Dementia?

Where Does Dementia Fit in?

According to the Alzheimer's Association:

Dementia is a general term to describe a group of symptoms associated with a decline in memory or other thinking skills severe enough to reduce a person's ability to perform everyday activities.

- Reversible vs. Non-Reversible Dementia
- There are close to 100 types of Dementia
- We are now looking at the progression of dementia as a continuum



Image Address: <https://www.ocbrain.org/img/mcidementia.png>

Dementia

Need Assistance To Navigate The Day

1. Experiencing memory loss, poor judgment, and confusion
2. Difficulty speaking, understanding and expressing thoughts, or reading and writing
3. Wandering and getting lost in a familiar neighborhood
4. Trouble handling money responsibly and paying bills
5. Repeating questions
6. Using unusual words to refer to familiar objects
7. Taking longer to complete normal daily tasks
8. Losing interest in normal daily activities or events
9. Hallucinating or experiencing delusions or paranoia
10. Acting impulsively
11. Not caring about other people's feelings
12. Losing balance and problems with movement

<https://www.nia.nih.gov/health/what-is-dementia>

Types of Dementia

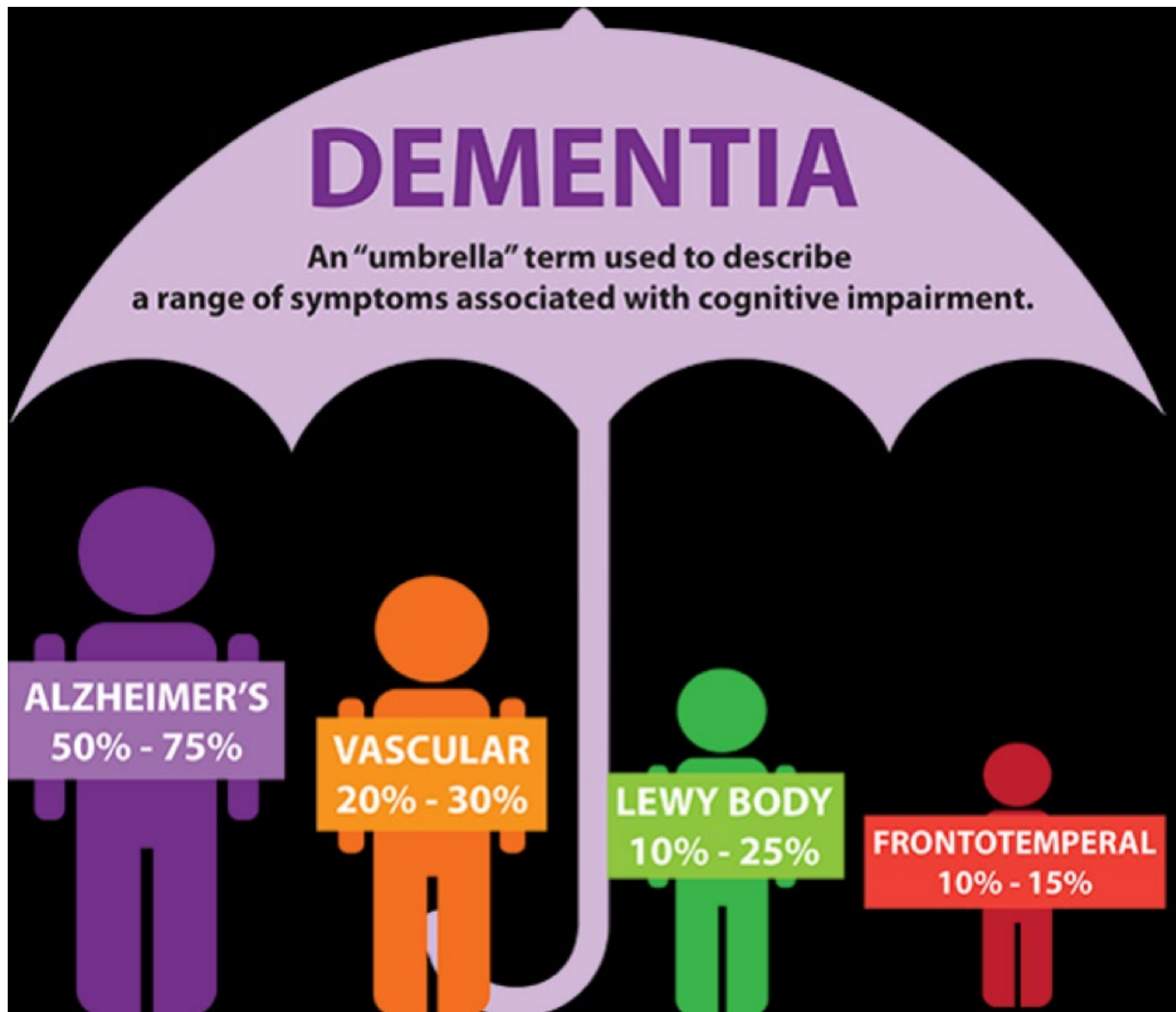


Image From: Dementia Friendly Wyoming. Available Online:

<https://dfwsheridan.org/sites/default/files/images/types%20of%20dementia.png>

Dementia: Treat as a Disease or a Disability?

Why do people resist getting a diagnosis?

Alzheimer's Disease is associated with the aging process

Goal is to

- Keep you as independent as possible for as long as possible
- Find meaning and positive emotions in every moment

Must focus on what people still can do rather than what they cannot do

What do you do for a person with a disability?

Make compensations!

How I Made My Home Dementia Friendly



Fun Brain Stimulation Exercises!

These are simple, can do anywhere and good for people with low vision!

* Go through the alphabet A-Z with words belonging to a specific category.

Ex. Food, First Names, States, Countries, Animals, Cars

* Pick a category of words such as Foods or Animals.

Say a food and then another food that starts with the last letter of the first word.

Name 10 things in that category

* Do Math in your Head:

Figure out problems without the aid of a pencil or computer.

START AT 100 AND SUBTRACT BY 6'S

START AT 90 AND SUBTRACT BY 4'S

FOR MORE OF A BRAIN BUILDING ACTIVITY, DO THE ABOVE WHILE DOING A PHYSICAL EXERCISE AS WALKING!

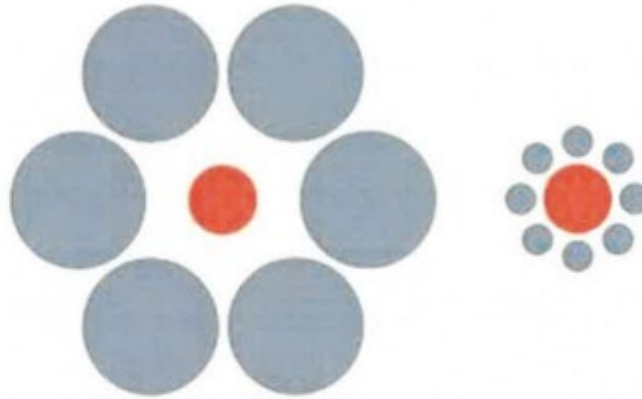
Daniel Kahneman

Two systems in our Brain:

1. Fast Thinking: is impulsive and automatic leading to snap judgements
2. Slow Thinking is thoughtful and calculating

Thinking Fast and Slow

WHICH RED DOT IS LARGER?

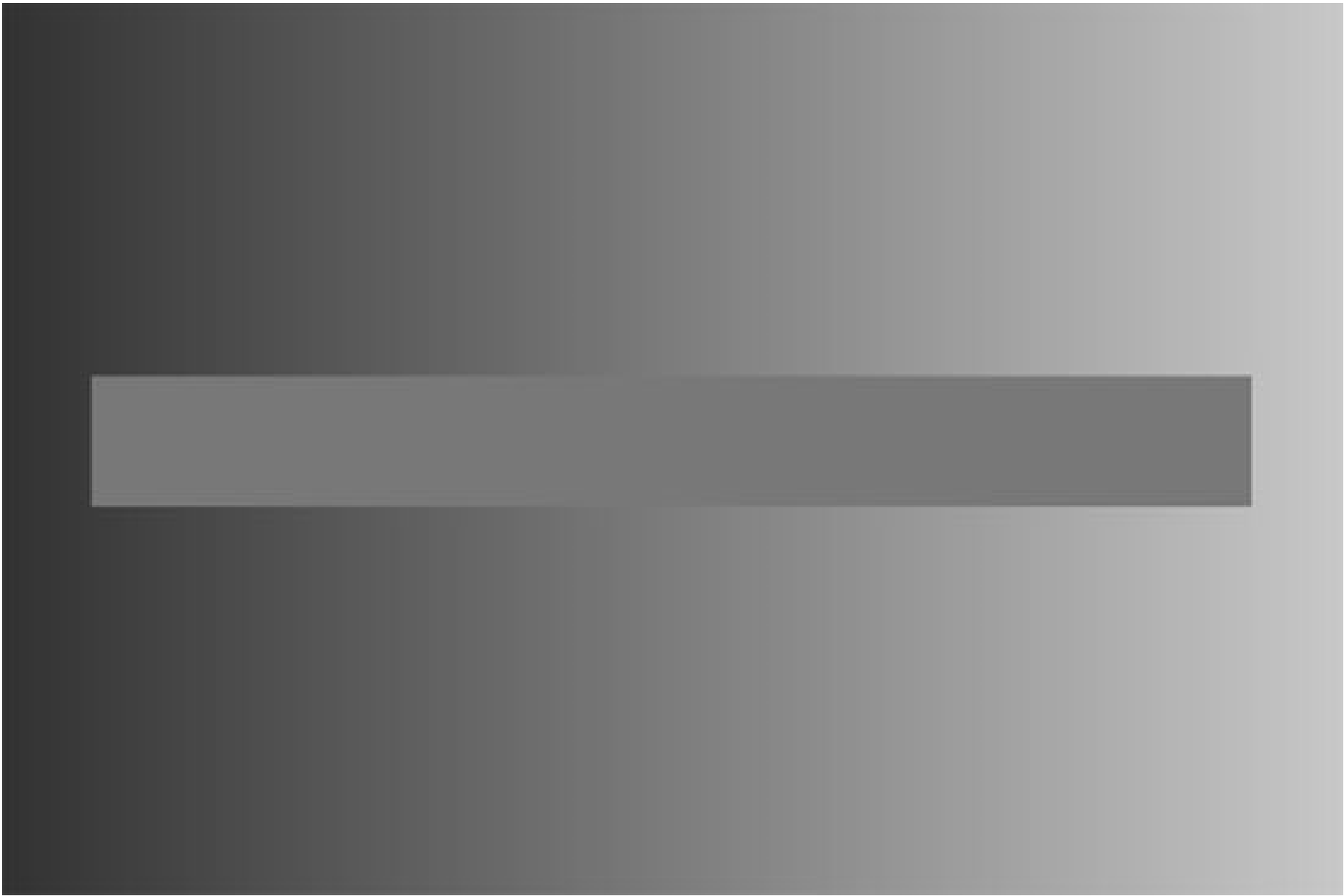


CAN YOU READ WORDS?



HOW DID THEY ACCOMPLISH THIS PICTURE?





Logic and Lateral Thinking

What is Lateral Thinking ?

Let's say that when you think vertically, you go right after the most logical solution to a problem.

Instead, lateral thinking is a creative process that requires you to look at things with fresh eyes and find an alternative answer. It's pretty fascinating because it forces you to think differently about a situation and come up with creative solutions that you might not have considered otherwise.

Logic and Lateral Thinking

Logic or Linear Thinking

- Solving a problem based on rationality and rules
- Uses the left hemisphere of your brain
- It follows one path, methodically and sequentially as in a math problem
- Very valuable in business and science. It leaves little room for creativity or original thought

Lateral Thinking or “Thinking outside the box!”

- Divergent and creative, non-linear type of thinking
- Associated with the right hemisphere of your brain
- Visualization, creativity, intuition
- Produces innovative solutions

Flexible Thinking Puzzles

Lateral vs. Logical Thinking

1. A man has 8 sons and each has 1 sister. In total, how many children does the man have?
2. It occurs once in a minute, twice in a week and once in a year. What is it?
3. How much do 10 pieces of candy cost if one thousand pieces cost \$10.00.
4. If two is company and three is a crowd, what is four and five?
5. What can a box be filled with so it is lighter than when it is full of air?
6. A bottle and a jar cost \$1.10. The bottle costs \$1.00 more than the jar. What does each one cost?

Plexers---Wackie Wordies---Rebuses

These puzzles use letters and pictures to cryptically represent a common word, phrase or saying.

To Solve Carefully Consider:

- The SIZE and color
- The word or meaning of the word you can read
- The position and direction of location in the box or to each other
- Is a word or symbol inside of another one

Examples

milli1on

ONE IN A MILLION

Examples

another one thing

ONE THING AFTER ANOTHER

Wackie Wordies

B		B
U		U
R		R
N		N

Wackie Wordies

FUSS
nothing

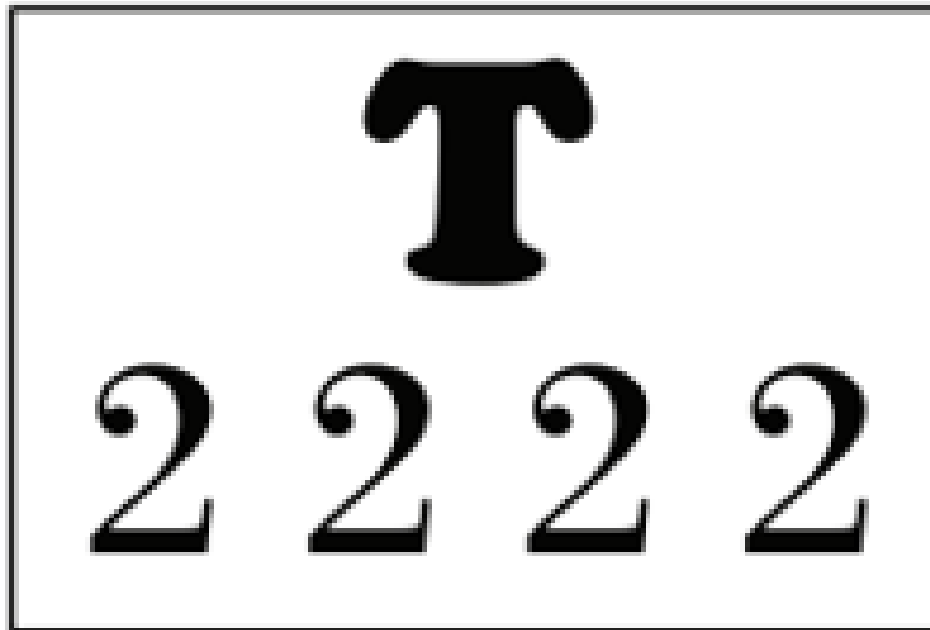
Wackie Wordies

**S
T
ONE**

Wackie Wordies

Gun Jr.

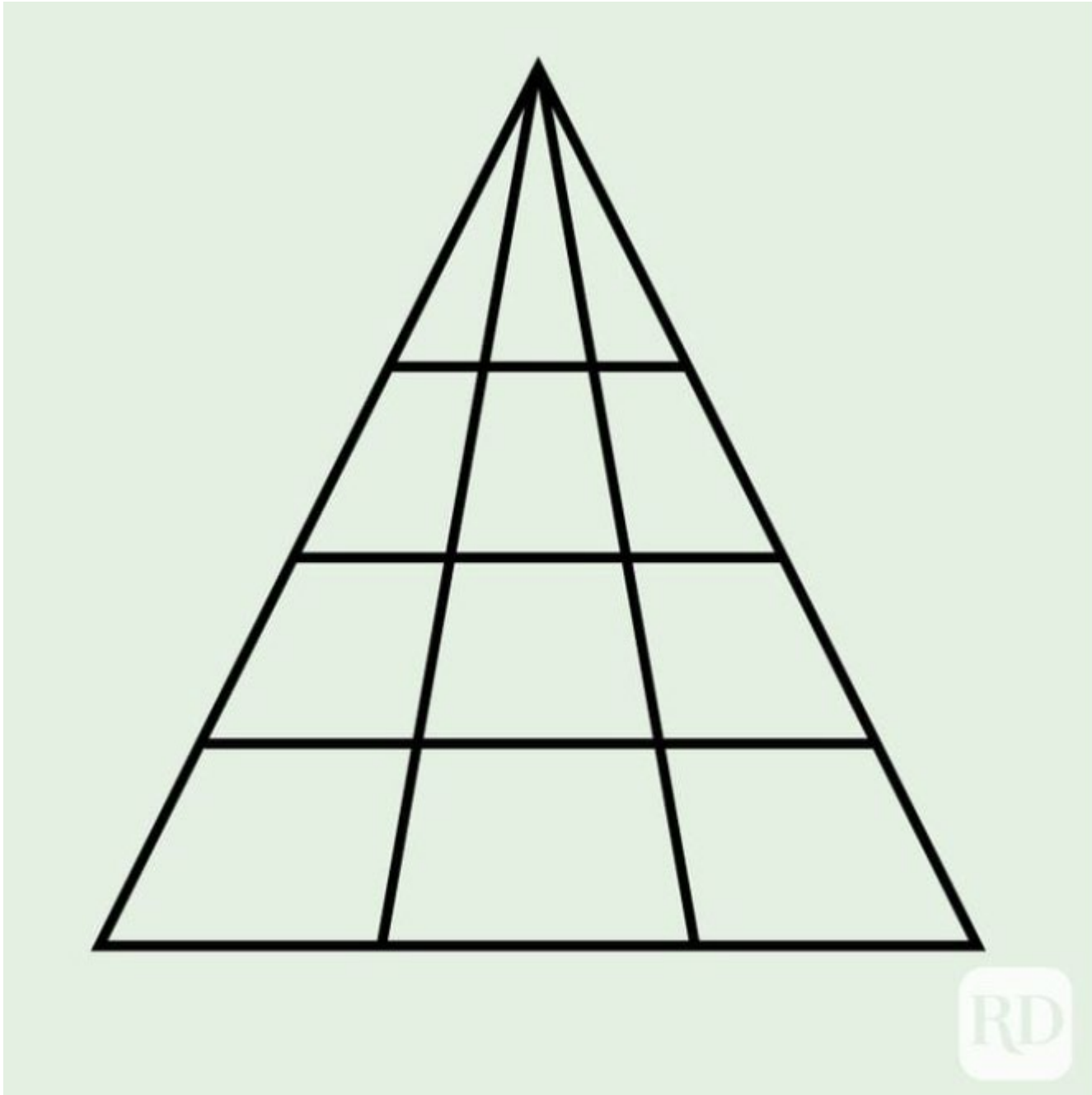
Wackie Wordies



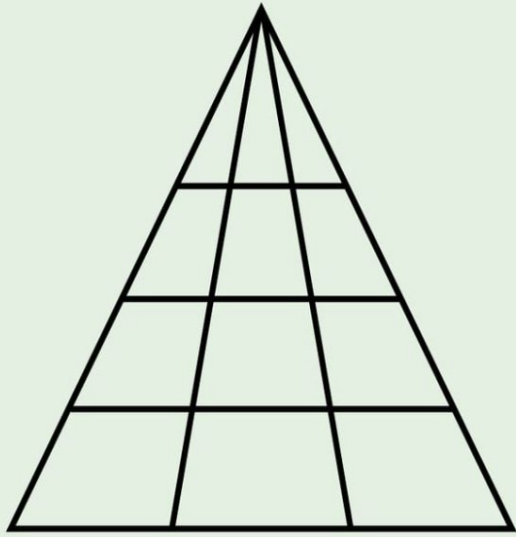
Wackie Wordies

F
E
E
L
I
N
DUGMPS

Spatial Perception- How Many Triangles?



Spatial Perception- How Many Triangles?



RD

Ending Humor



Ending Humor



Ending Humor



Ending Humor



When You Need Some Humor...

Did you hear about the guy whose whole left side was cut off???

He's all right now.

I wondered why the baseball was getting bigger...

Then it hit me.

Police were called to a daycare.

A three year old was resisting a rest.

Ending Humor-----Who Said It???

- A Bank is a place that will lend you money if you can prove you don't need it.
- When I was born, the doctor said to my mother: "Congratulations. You have an eight- pound ham."
- She said that she was approaching 40.
I couldn't help but think from which direction.
- How can you tell if a man is well informed?
His views are pretty much like your own.
- Culture is the ability to describe Jane Russell without moving your hands.
- I grew up with 6 brothers. That's how I learned to dance.
Waiting for the bathroom.

Questions



Further Reading...

This is a very good book that explains brain health, cognition and also gives a number of brain stimulating exercises:

1. *Mind Your Mind: A whole brain workout for older adults*

Beatrice Seagull and Sara Seagull

2007, Attainment Company Wisconsin

ISBN: 1-57861-540-2

2. A series of books of Brain Games:

Brain Games: Love your brain age in minutes a day

Collection 1,2,3,4

Publications International

Collection 1 ISBN:-10 978-1-4127-1450-1

3. Online 140 Wacky Wordies are variable at :

<https://www.pleacher.com/mp/puzzles/mobwakmn.html1>.

References

How I Made My Home Dementia Friendly- Wendy Mitchell, Video
Youtube: <https://youtu.be/k4pAaI11QeE>

Thinking Fast and Slow Daniel Kahneman, Video
Youtube: <https://youtu.be/JiTz2i4VHFw?si=0rCqCQZQAMzYIAv>

Readers Digest: Triangle Puzzle
Available online: <https://www.rd.com/article/triangle-puzzle/>