



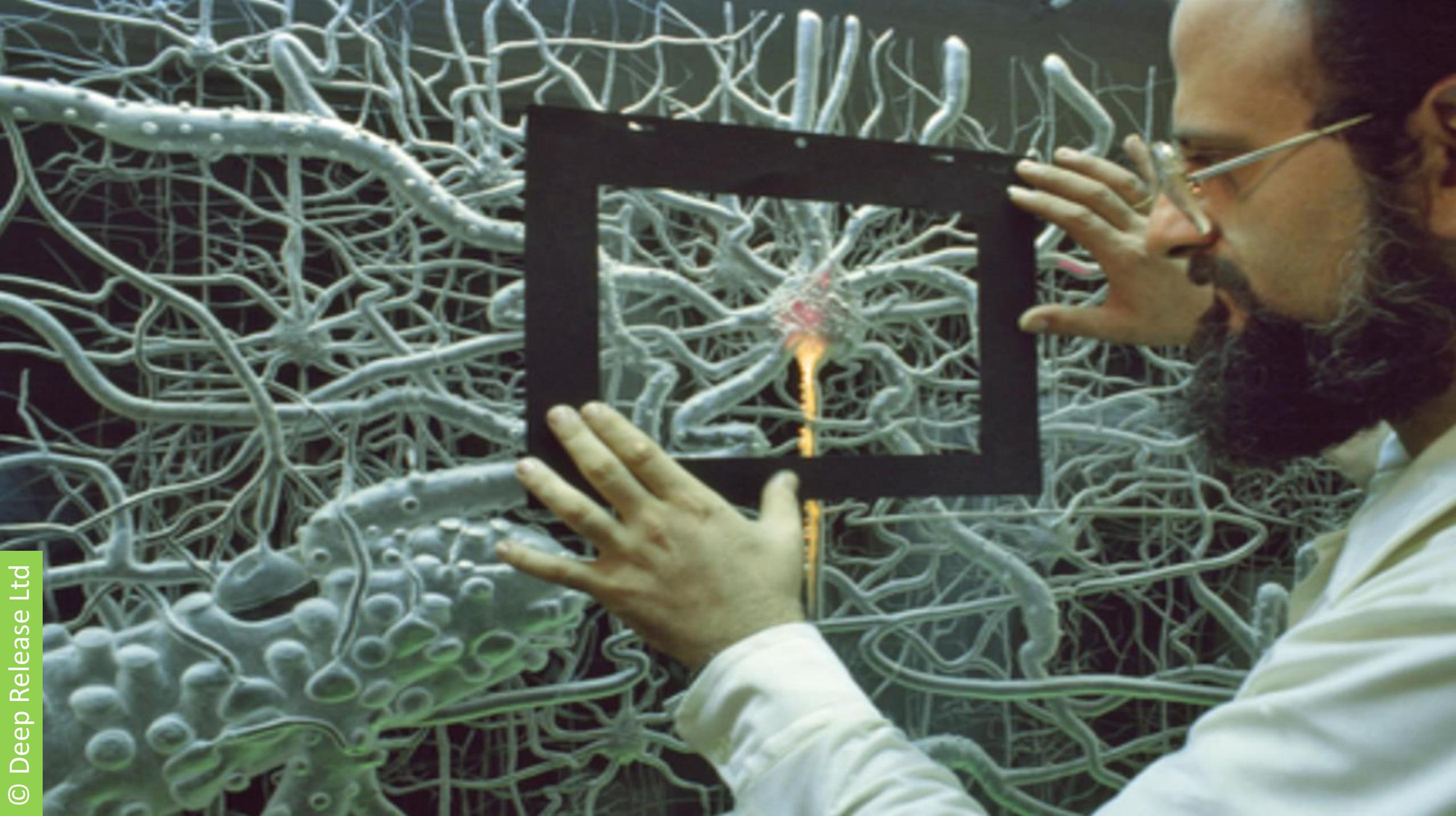
NEUROSCIENCE IN A NUTSHELL FOR COUNSELLORS

Dr Chris Andrew

NEUROSCIENCE IN A NUTSHELL



SESSION 1: THE AMAZING POWER OF THE BRAIN



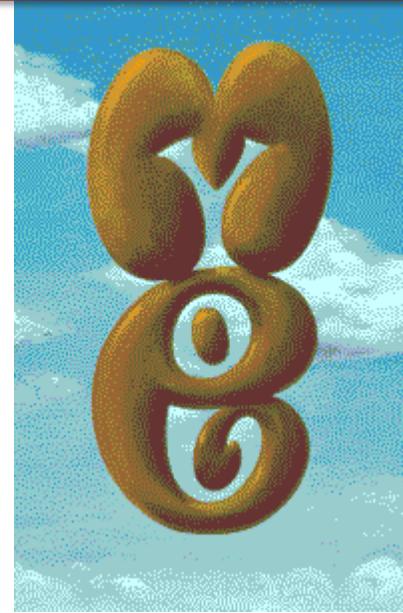
The Amazing Power of the Brain

10 000 000 000 000 000

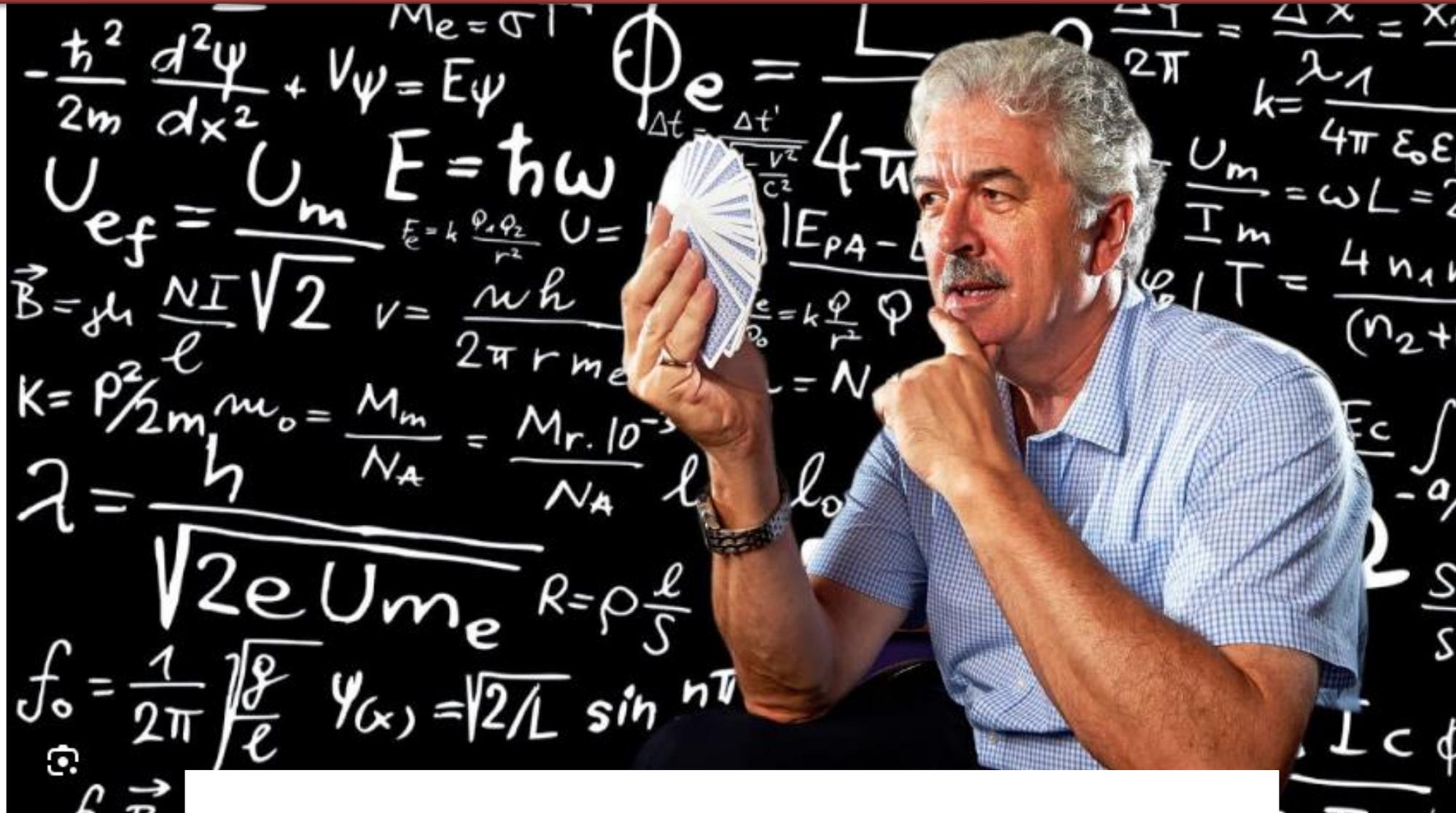
<https://youtu.be/cLqjK3ddSy0>

7H15 M3554G3
53RV35 7O PR0V3
HOW OUR M1ND5 C4N
D0 4M4Z1NG 7H1NG5!
1MPR3551V3 7H1NG5!
1N 7H3 B3G1NN1NG
17 WA5 H4RD BU7
NOW, ON 7H15 LIN3
YOUR M1ND 1S
R34D1NG 17
4U70M471C4LLY
W17H 0U7 3V3N
7H1NK1NG 4B0U7 17,
B3 PROUD! ONLY
C3R741N P30PL3 C4N
R3AD 7H15.

What can you see?



The Man with the World's Greatest Memory?

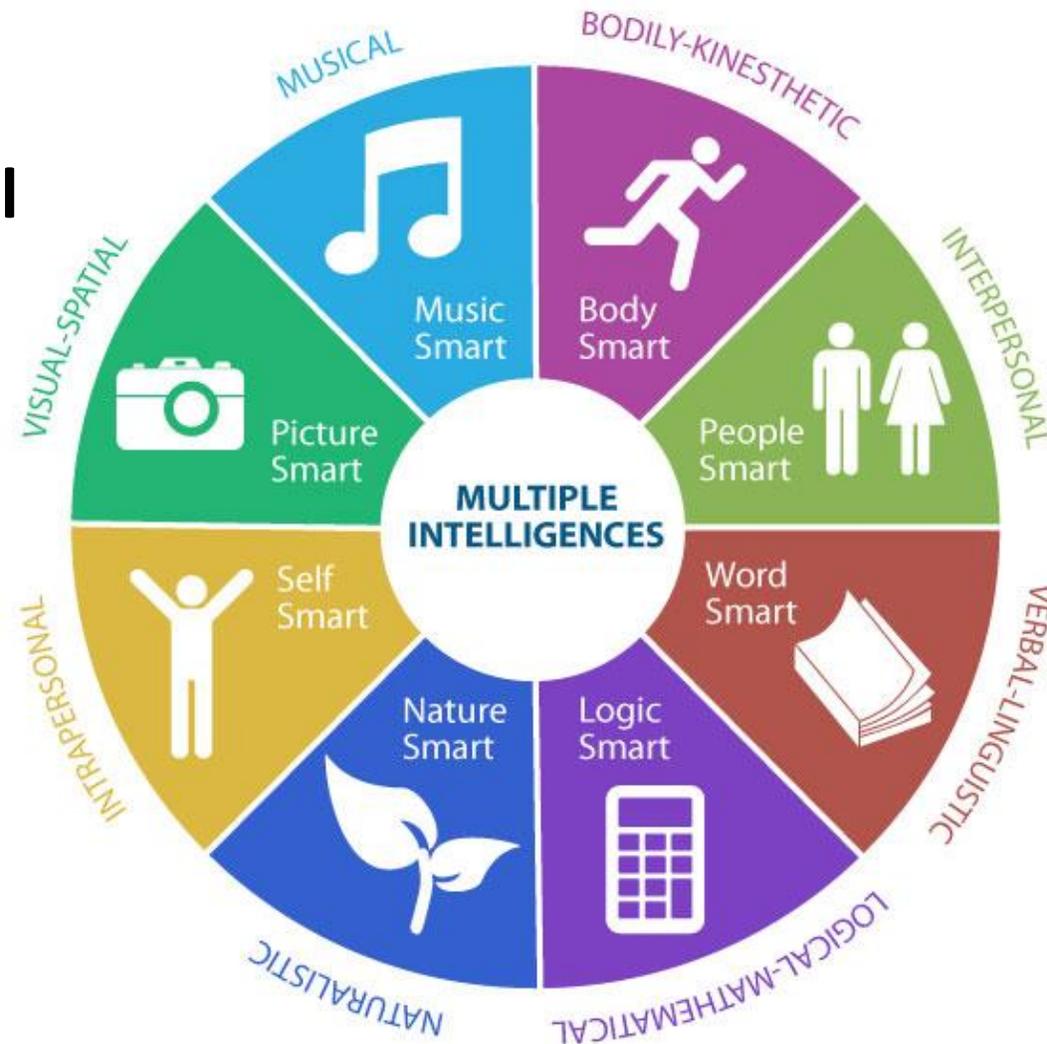


Dominic O'Brien | Eight Times World Memory Champion

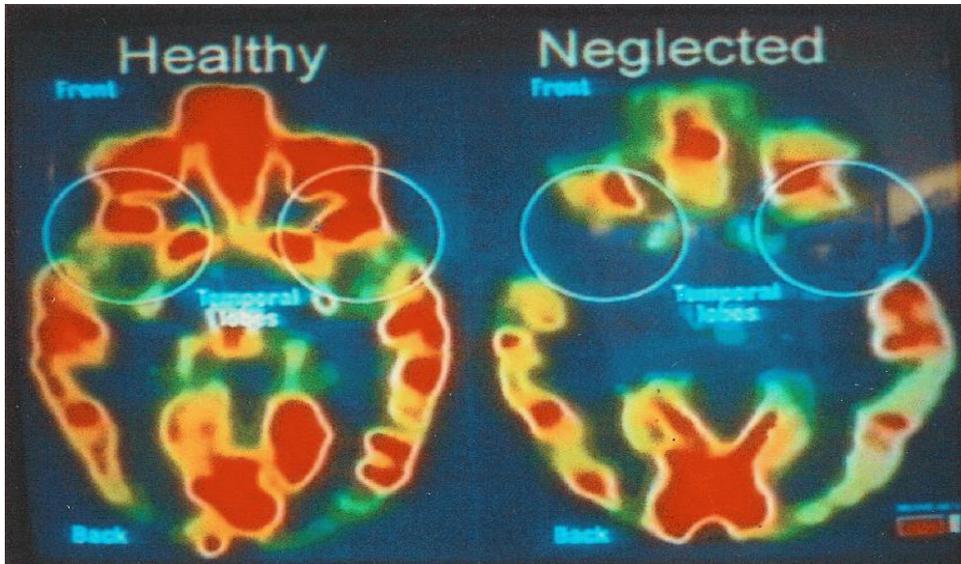
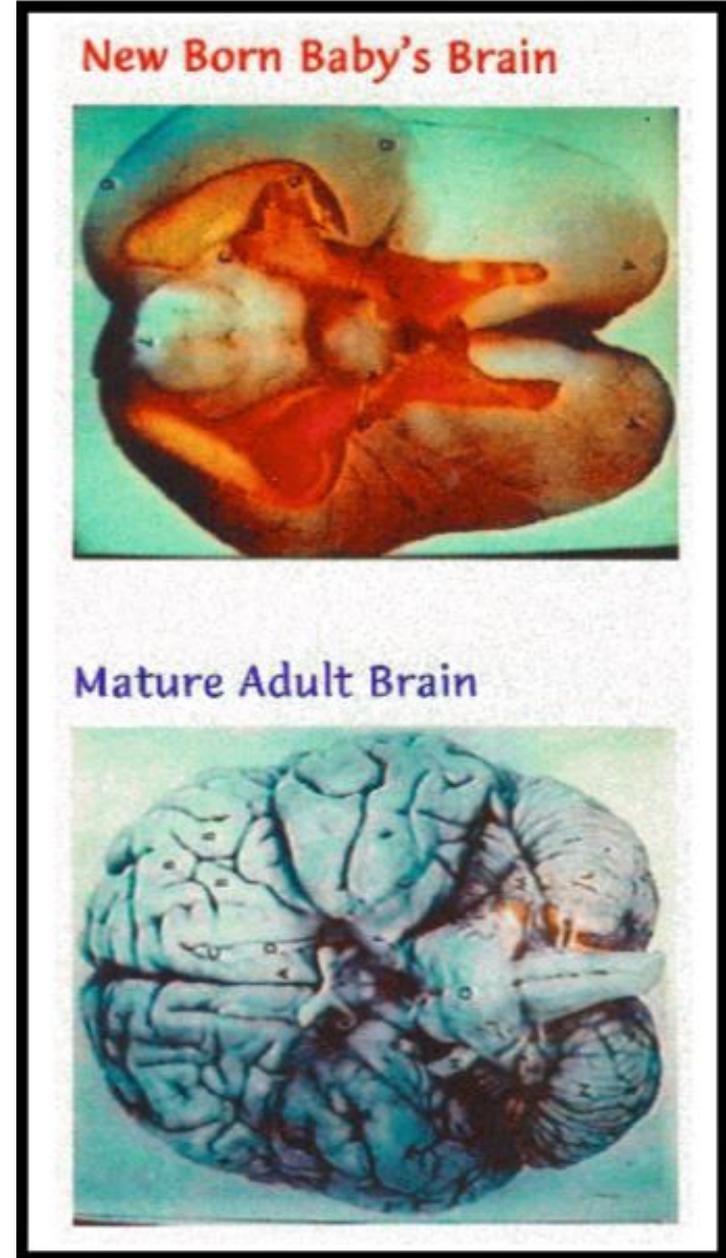
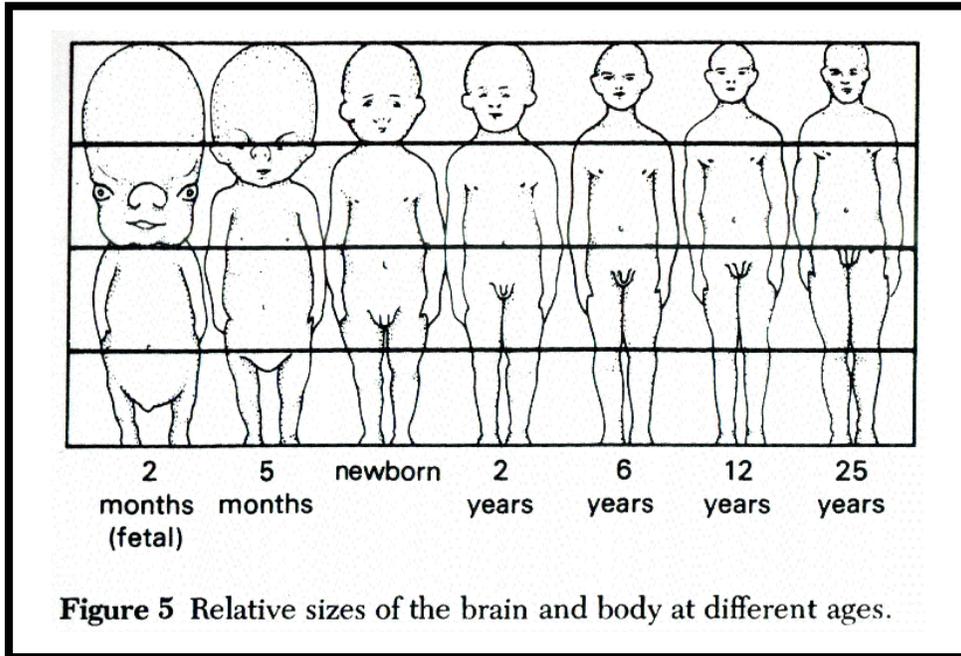
Multiple Intelligences

Gardner, 1999 expanded

- Verbal - Linguistic
- Logical/Mathematical
- Nature
- Intrapersonal
- Visuo-Spatial
- Musical
- Bodily/Kinesthetic
- Interpersonal
- Imaginal
- Spiritual



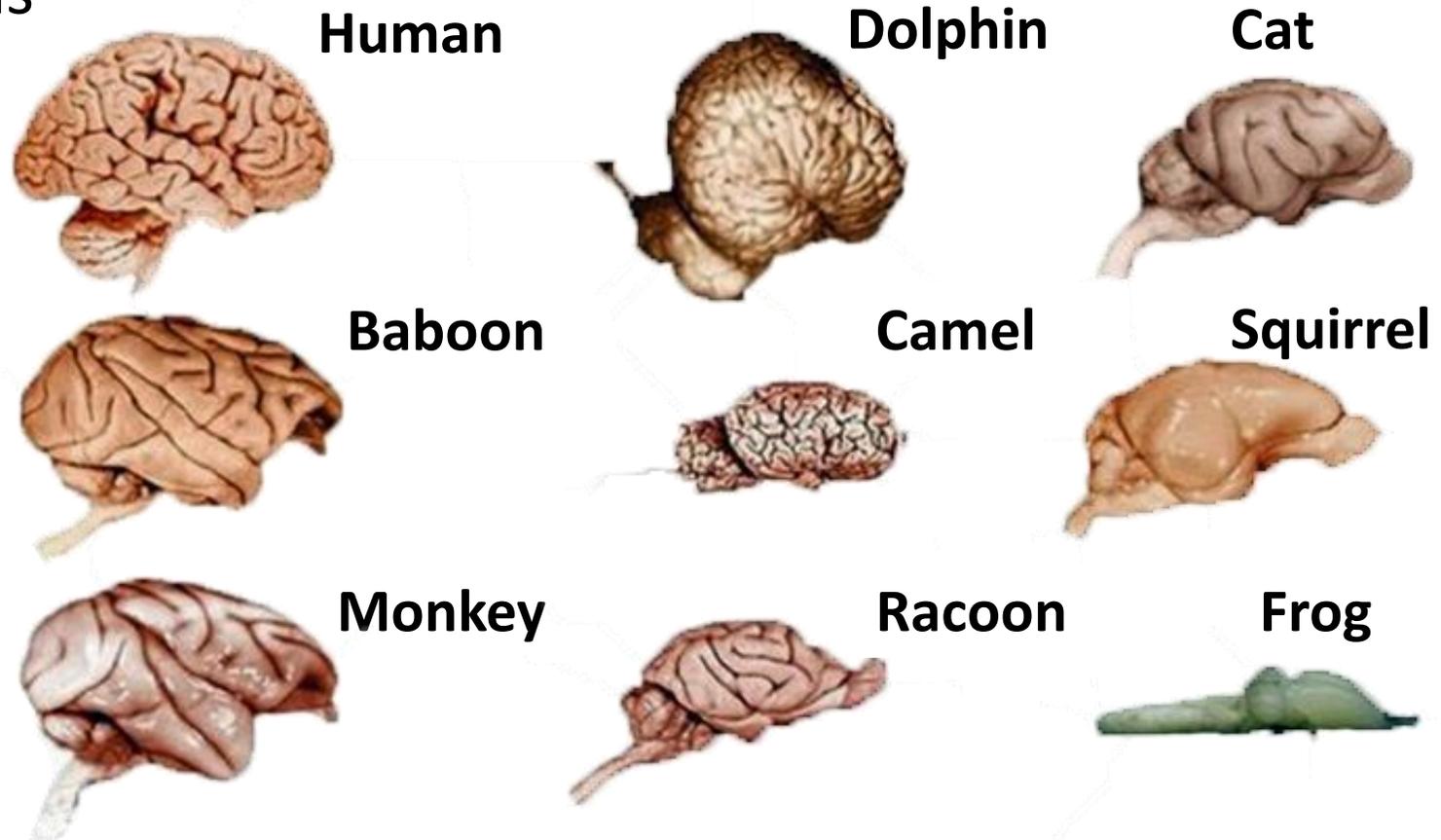
Early Brain Development



OUR WRINKLY BRAINS!

- The brain has around 100 billion neurons – there are more potential connections between the neurons than there are atoms in the universe
- If you look at a human brain, you only see about a third of its surface – the other two-thirds are hidden in its folds

- If you smoothed out all the wrinkles in the cortex, the brain would cover an area of about 2,500 sq cm (a small tablecloth)

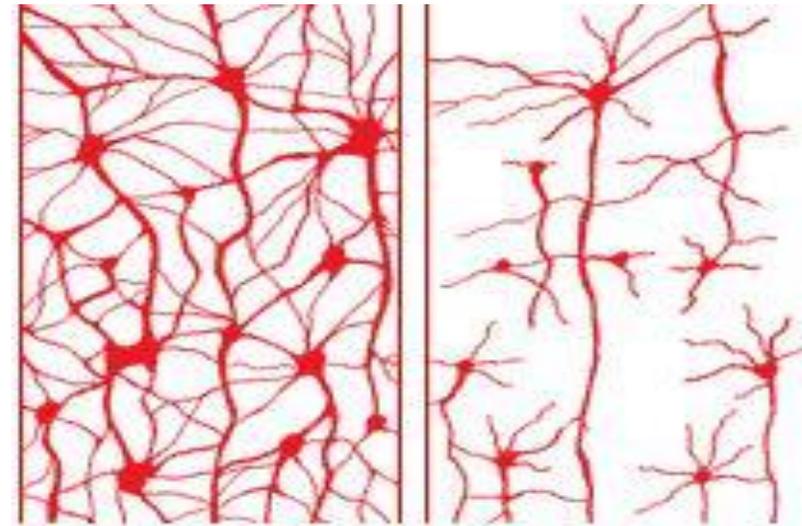
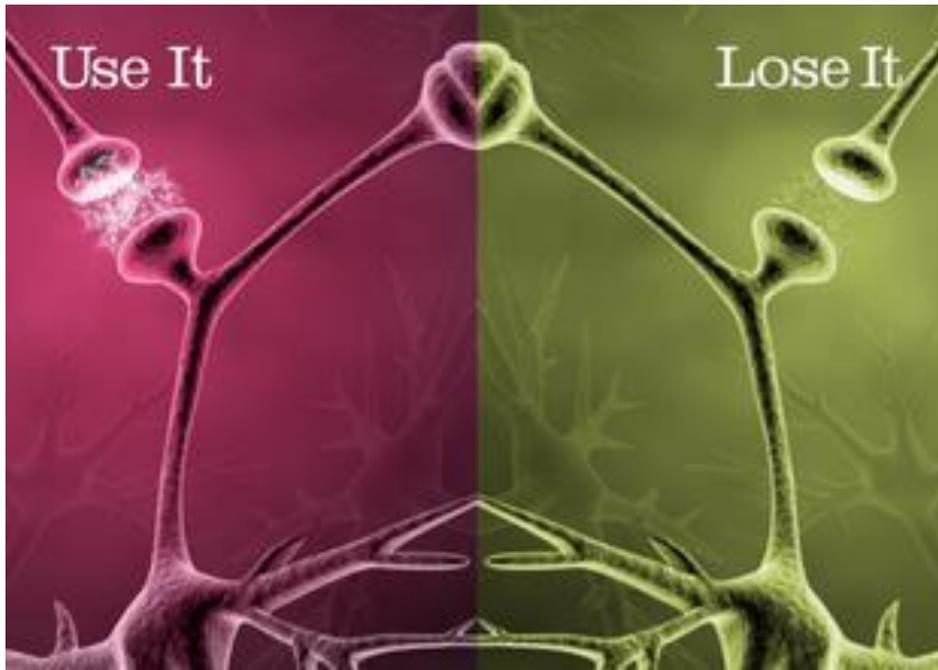


NEURONAL DEVELOPMENT

There are rapid growth of neurones and their connections at particular times:

1. In the womb
2. In the first year
3. In early teenage years

Cells that fire together wire together!



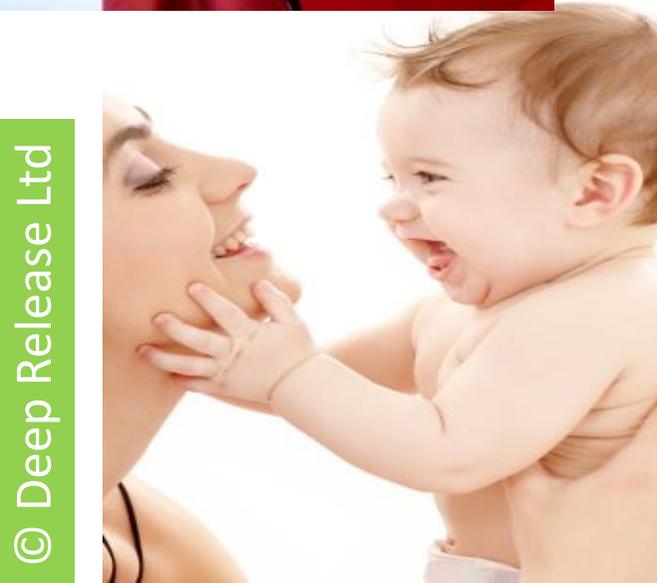
Stimulated Brain Cells

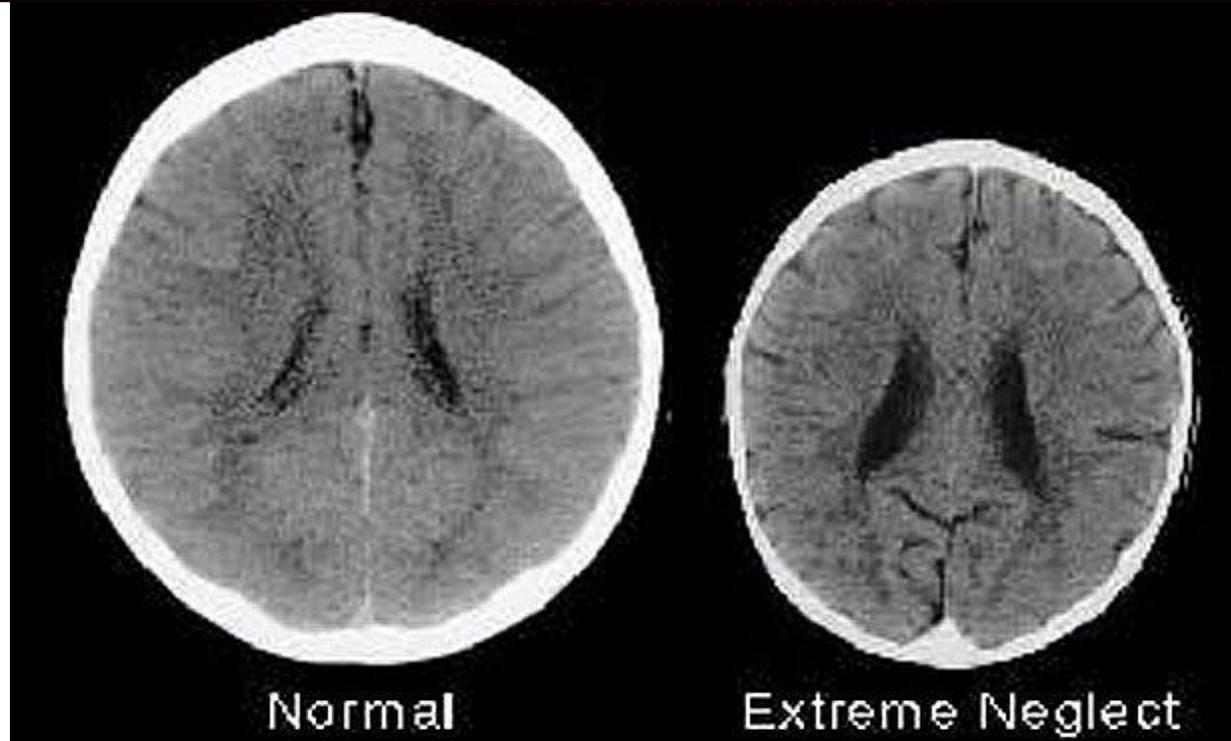
Unstimulated Brain Cells

EARLY BRAIN DEVELOPMENT

By the age of 3, the neurons in the brain have made 1,000 trillion connections! A single cell can connect with 15,000 or more other cells. If you don't use it, you lose it!

In the first year of life, JOY is the key to Attachment. As the parent plays with the child and has fun and laughter, high levels of rich emotion are achieved and brain development progresses rapidly.





- The child with the much more fully developed brain was cherished by its mother, who was constantly and fully responsive to her baby.
- The child with the shrivelled brain was neglected and abused.

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

0 - 2

The child begins to interact with the environment

SENSORIMOTOR STAGE



PREOPERATIONAL STAGE



2 - 6/7

The child begins to represent the world symbolically

CONCRETE OPERATIONAL STAGE



7 - 11/12

The child learns rules such as conservation

FORMAL OPERATIONAL STAGE



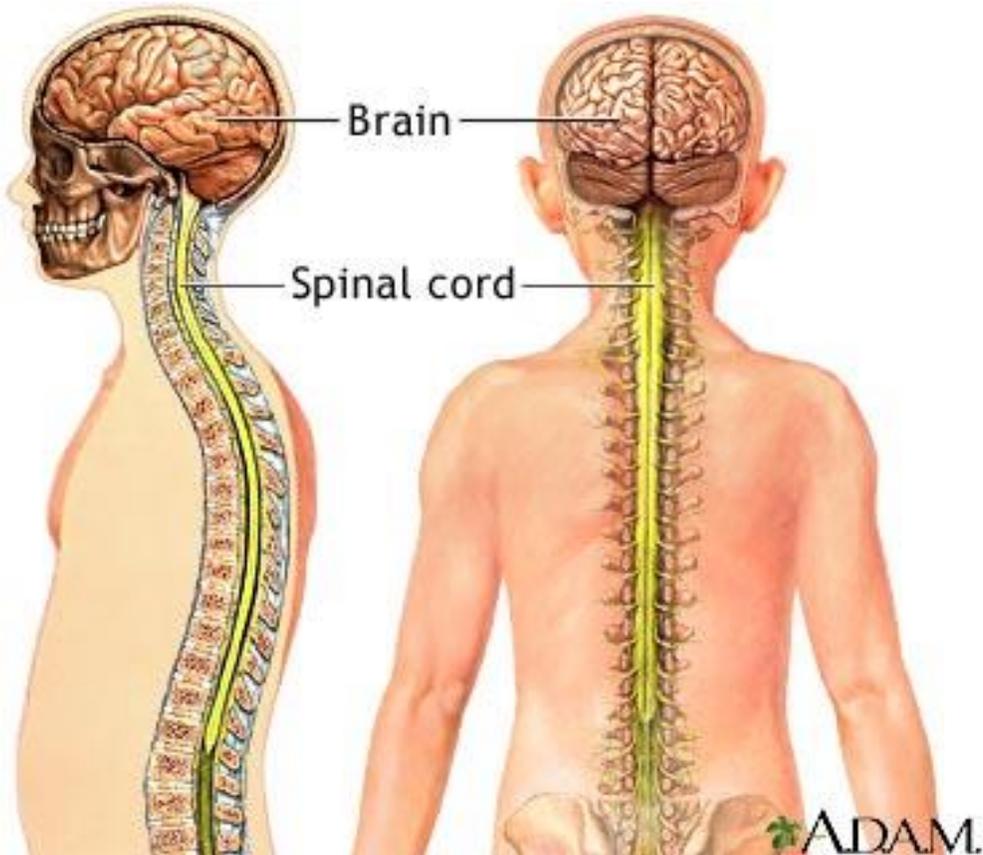
12 – adult

The adolescent can transcend the concrete situation and think about the future

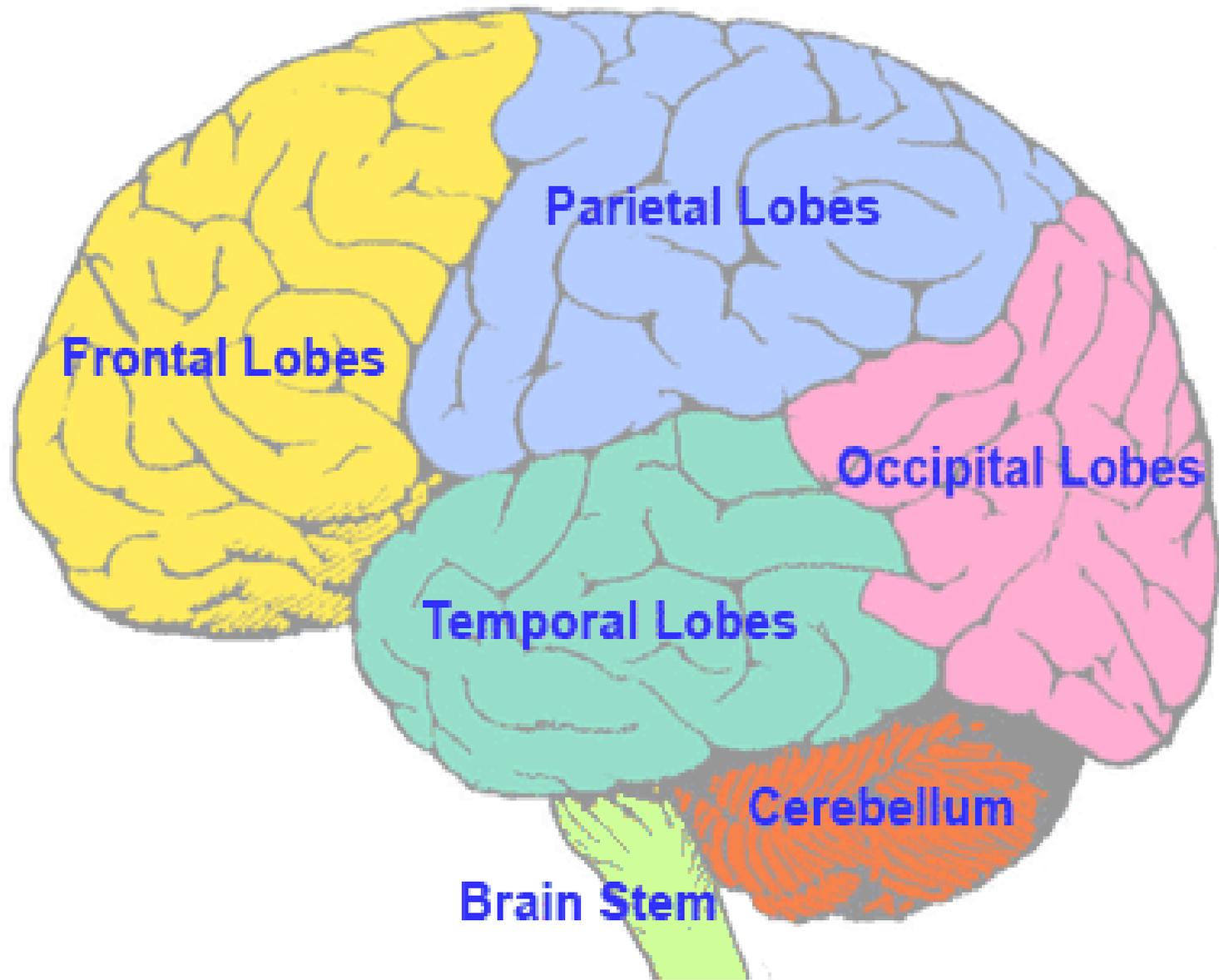
THE NERVOUS SYSTEM

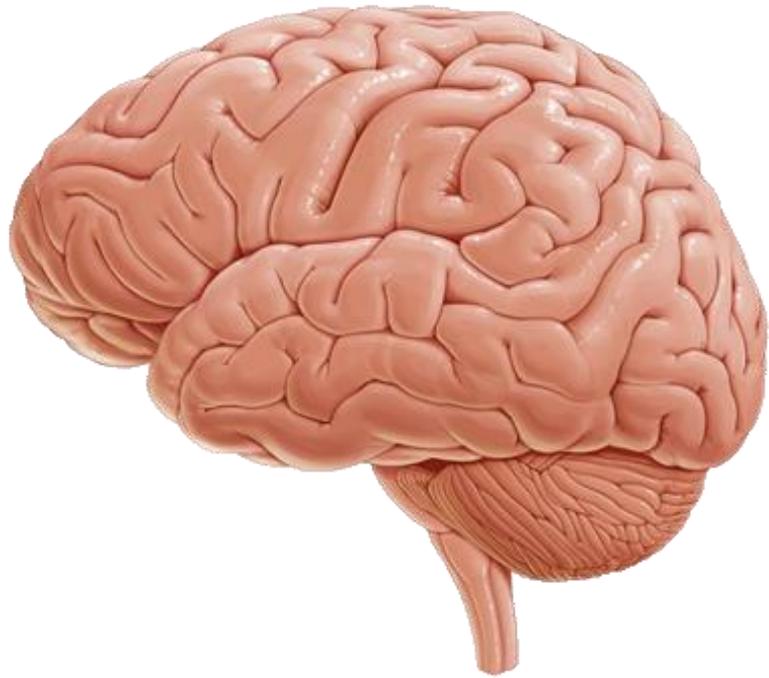
Divided into :

- **the Central Nervous System (CNS)**
The Brain
The Spinal Cord
- **the Peripheral Nervous System (PNS)**
communicates with the whole body
The Autonomic Nervous System (ANS)
The Somatic Nervous System

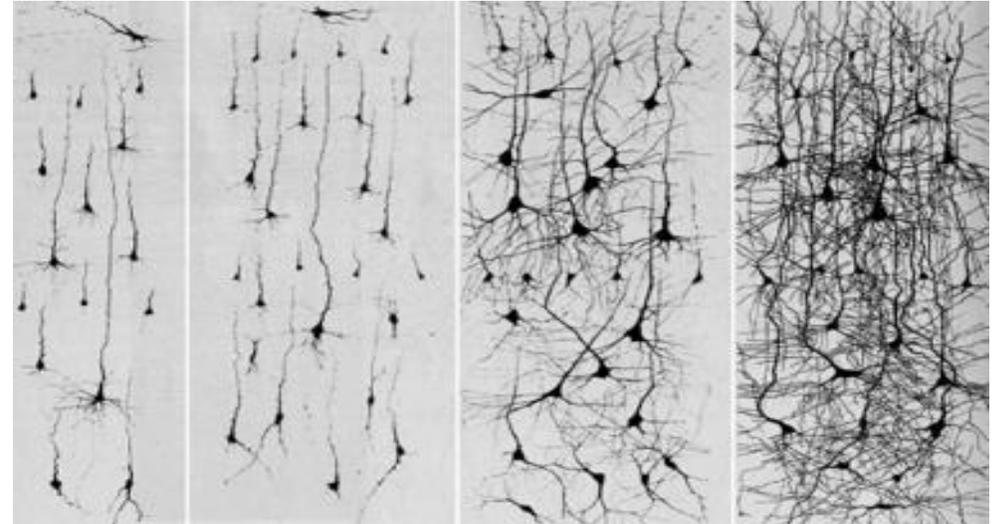


THE OUTSIDE OF THE BRAIN





Brain cell connections



Newborn

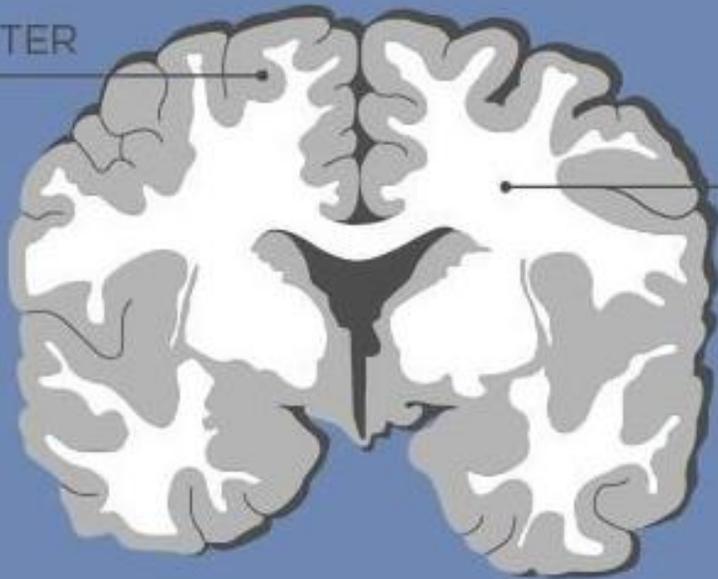
1 month

6 months

2 years

GRAY MATTER

WHITE MATTER



TANGLED WEB



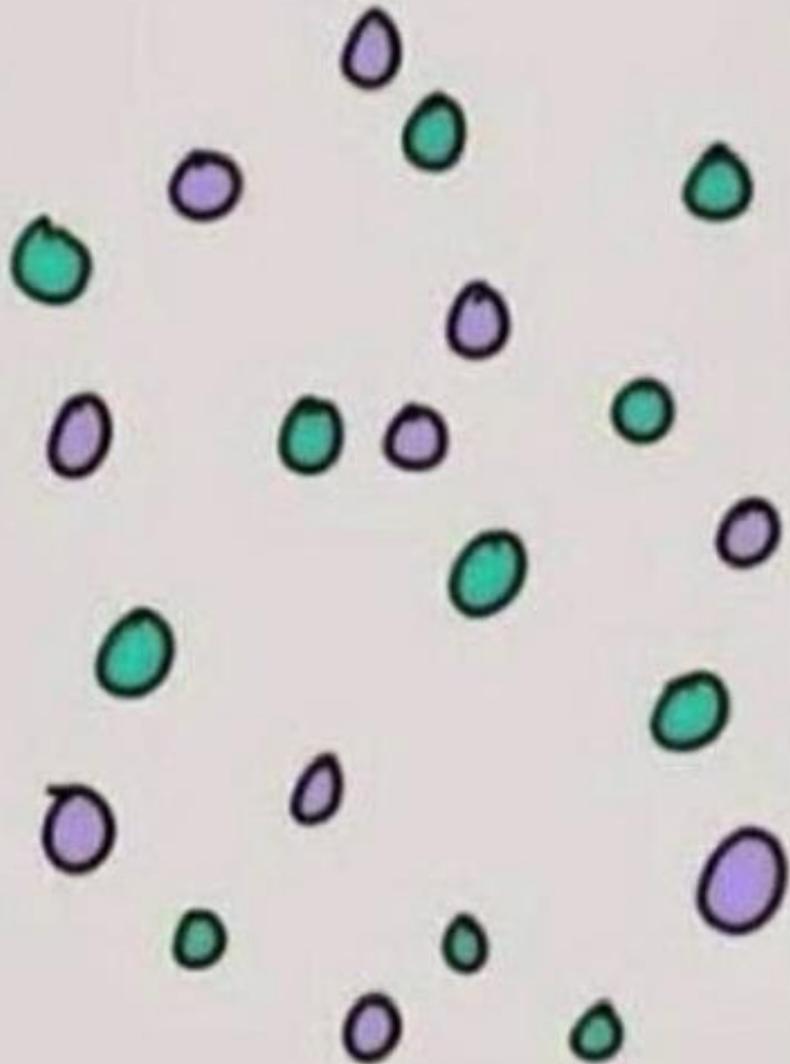
THE "WALLED CITY", KOWLOON



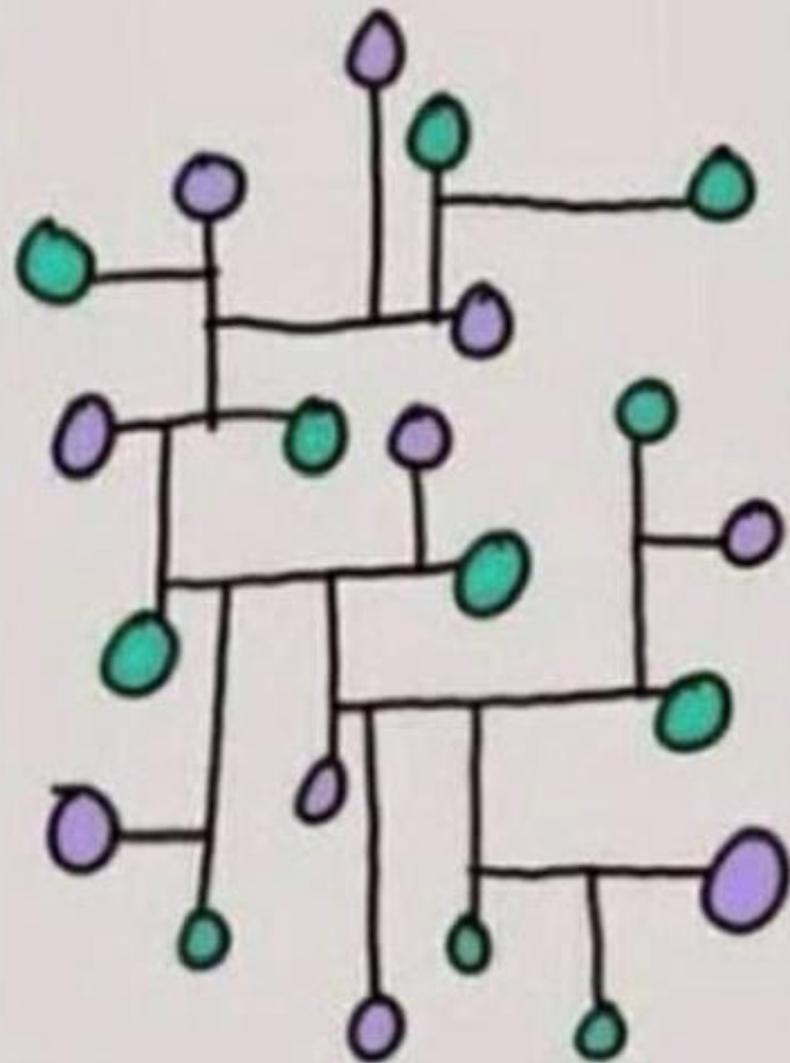
AERIAL VIEW



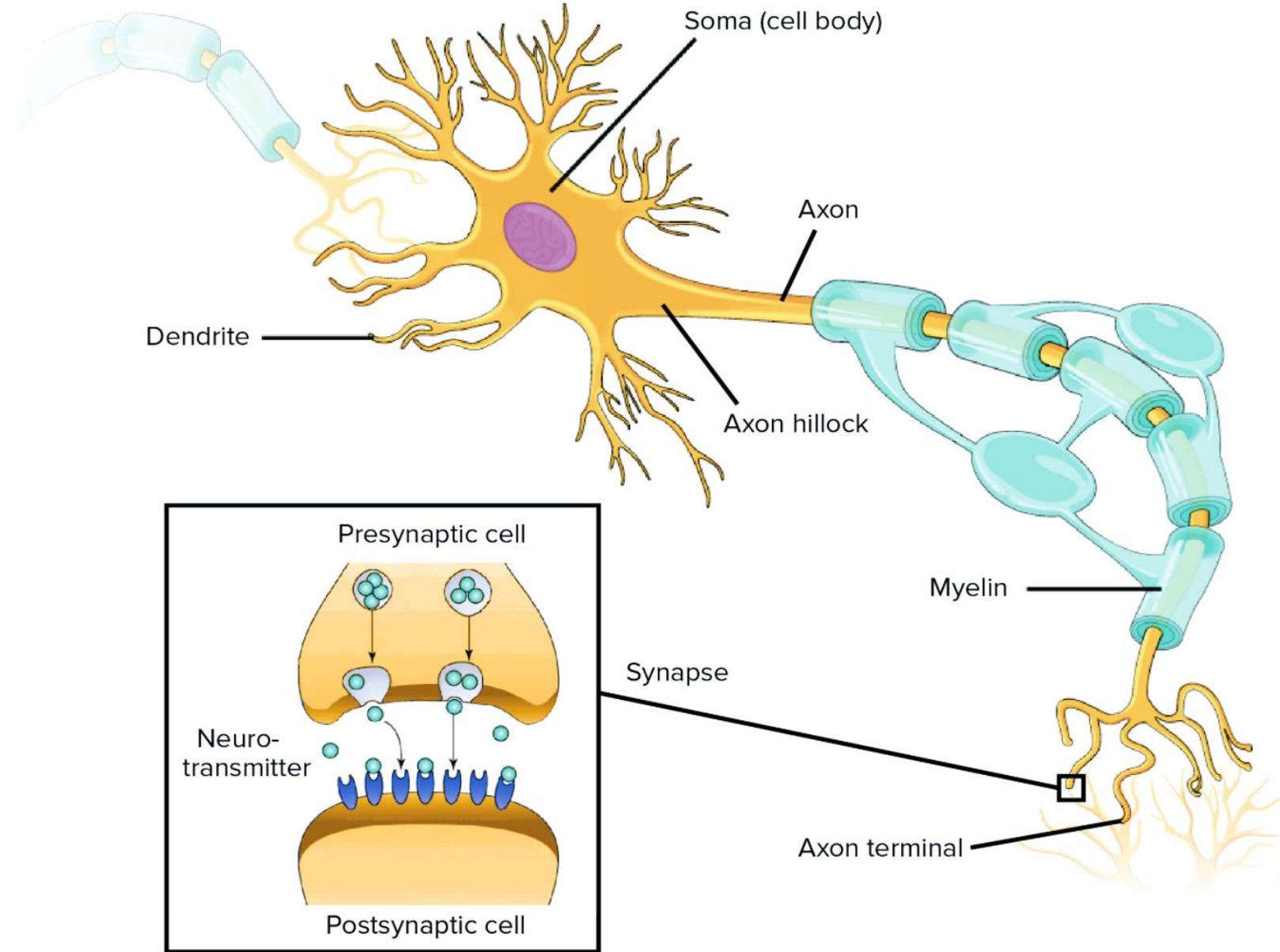
information:



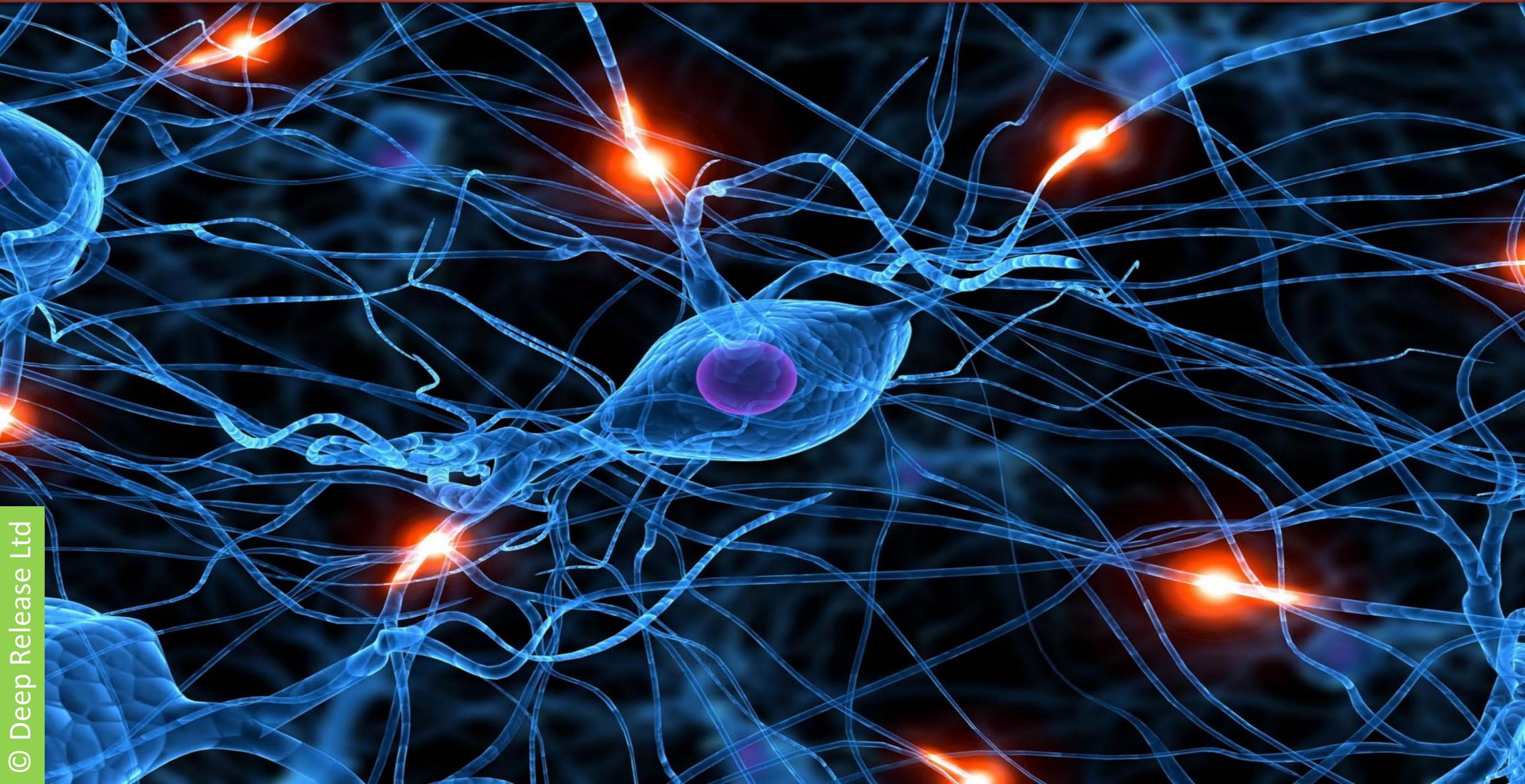
knowledge:



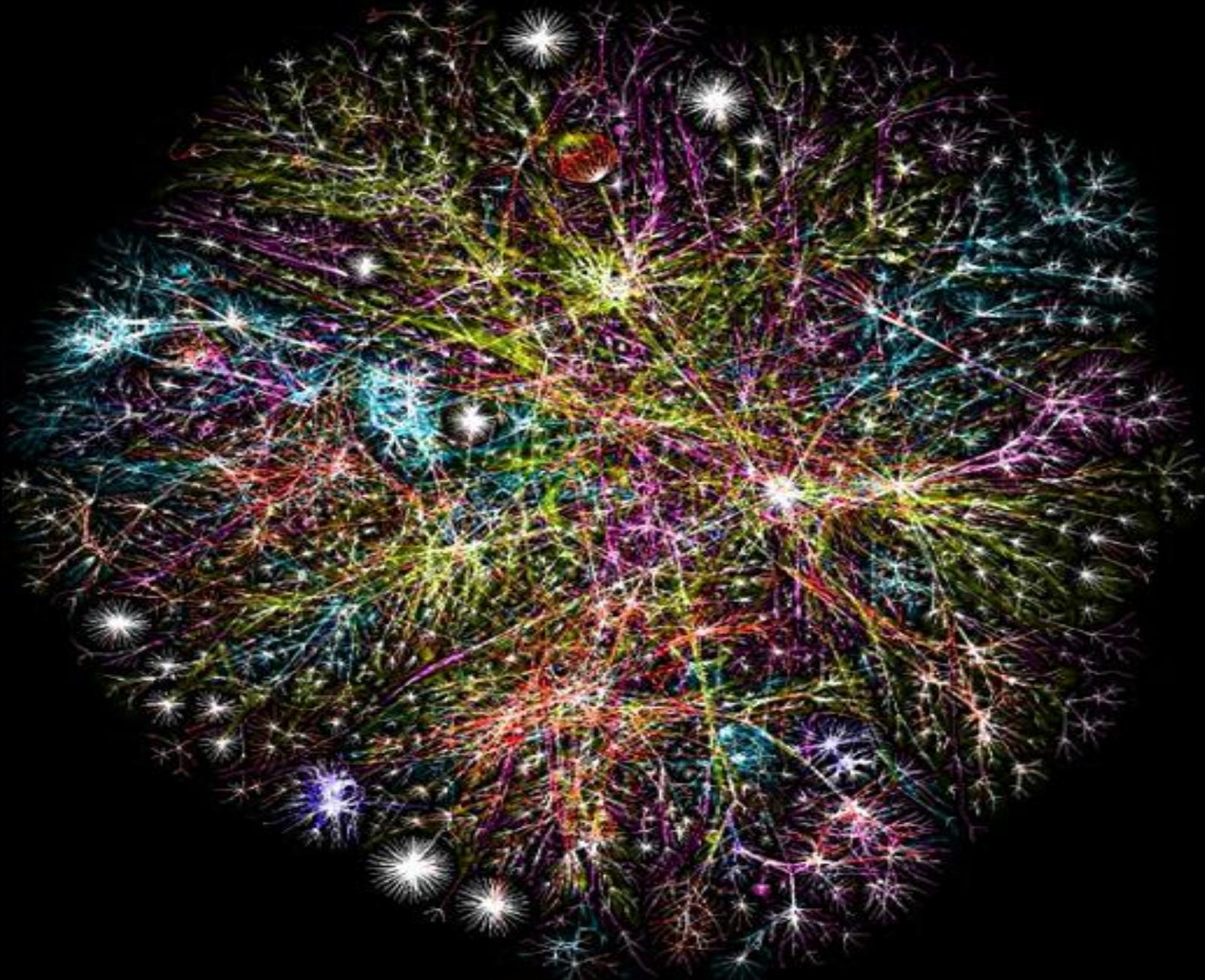
BRAIN CELLS



COMPLEX NEURAL NETWORKS

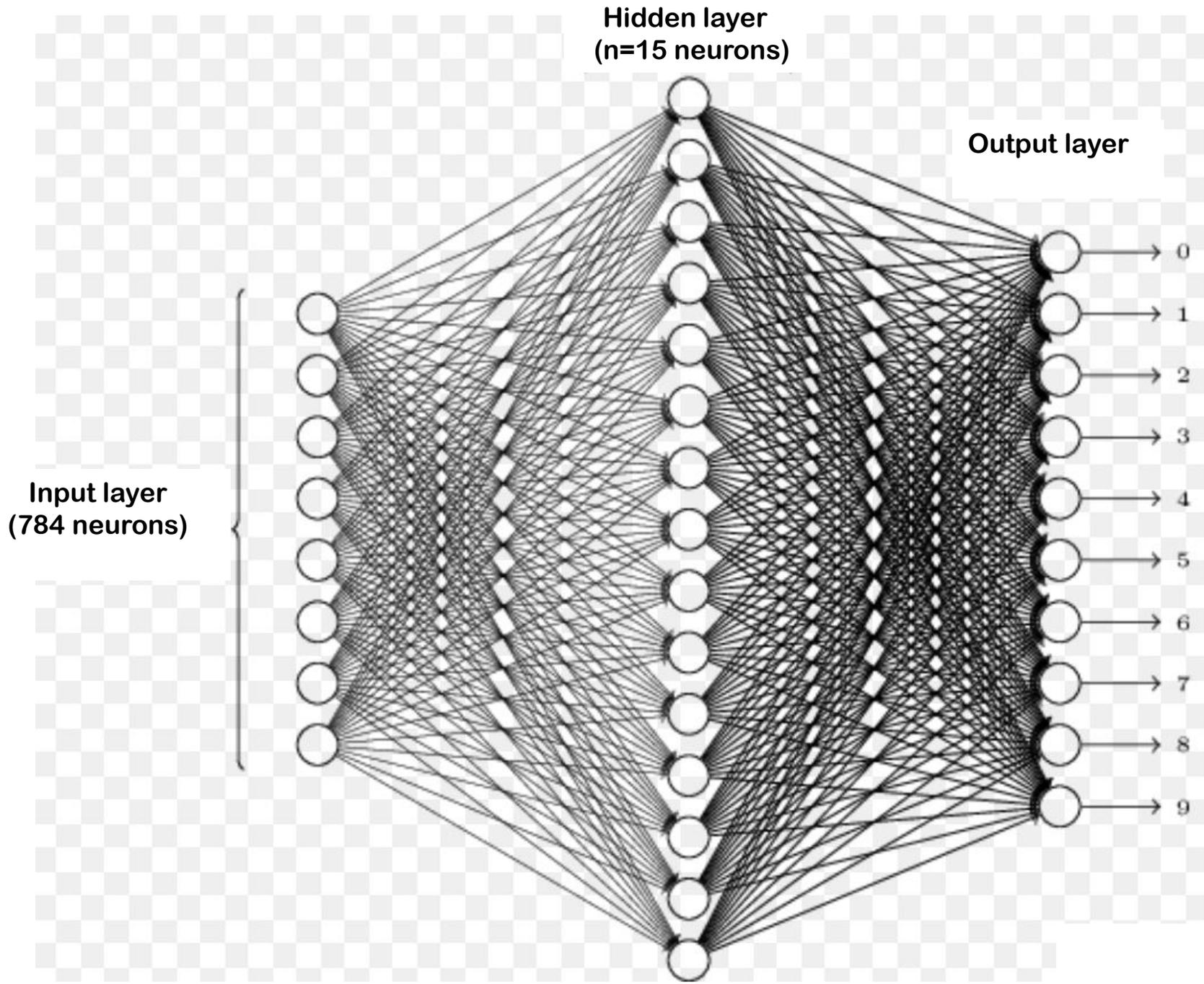


COMPLEX NEURAL NETWORKS



BRAIN FIBRES – WHITE MATTER





Share in Buddy Groups

Reflect on your amazing brain!

15 minutes



NEUROSCIENCE IN A NUTSHELL



SESSION 2: MIND THE GAP!

SCANNING THE BRAIN - EEG



SCANNING THE BRAIN



CAT (CT) Scans
Computed Tomography Scans use a computer linked to an x-ray machine to make a series of detailed pictures



PET Scans
Positron Emission Tomography Scans produce detailed three-dimensional images

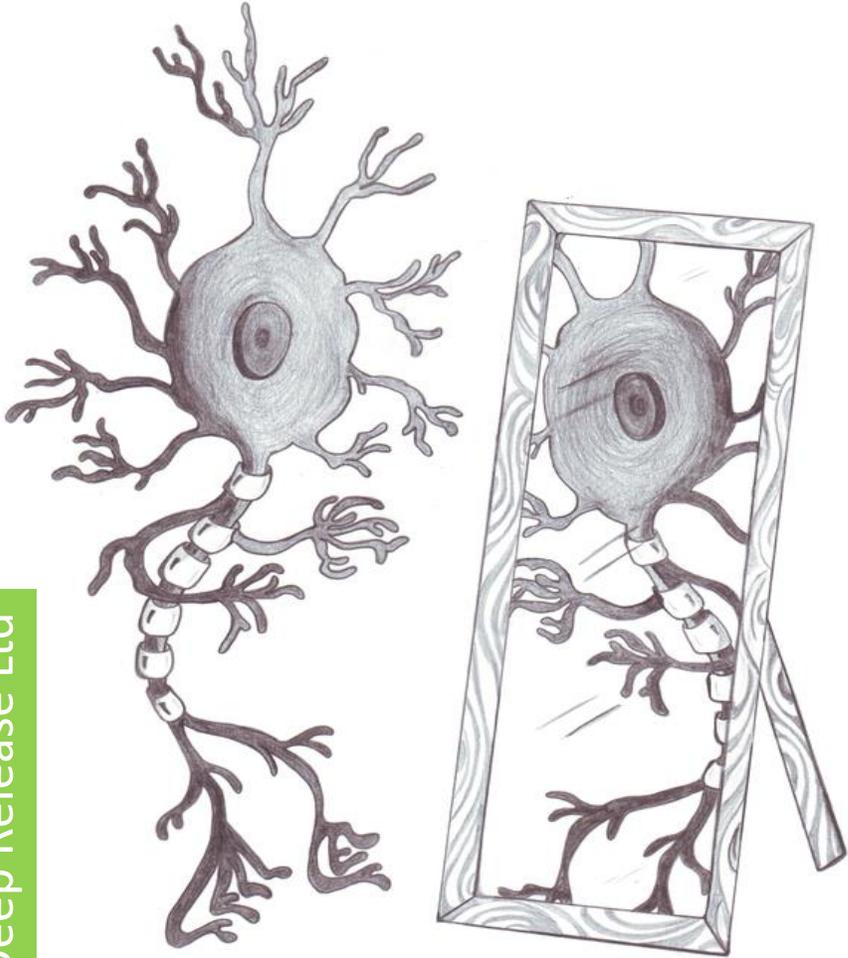


MRI Scans
Magnetic Resonance Imaging Scans use strong magnetic fields and radio waves to produce detailed images

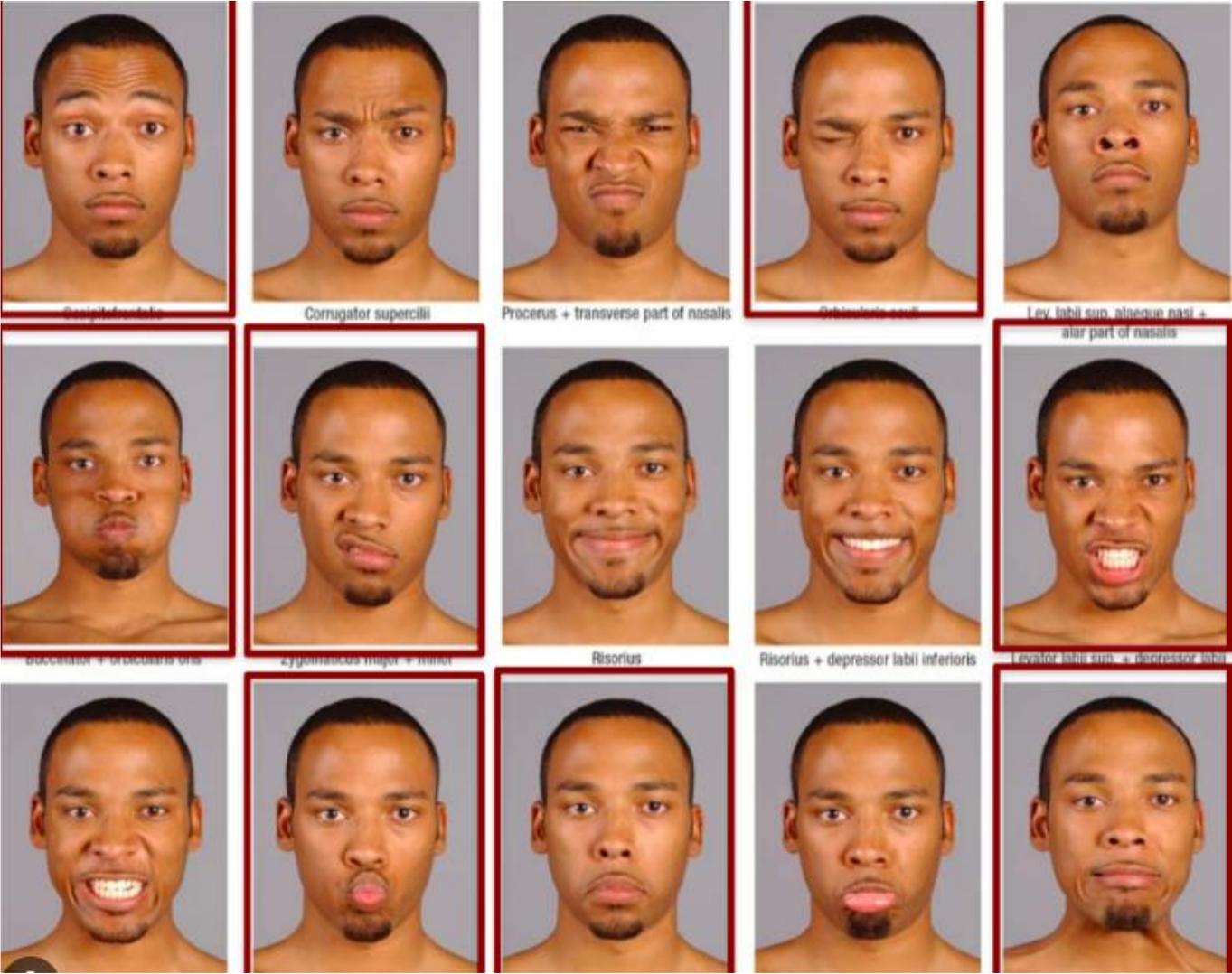
MIRROR NEURONS

1991

Mirror neurons are discovered by **Giacomo Rizzolatti** in Parma, Italy.



EMPATHIC RESONANCE!



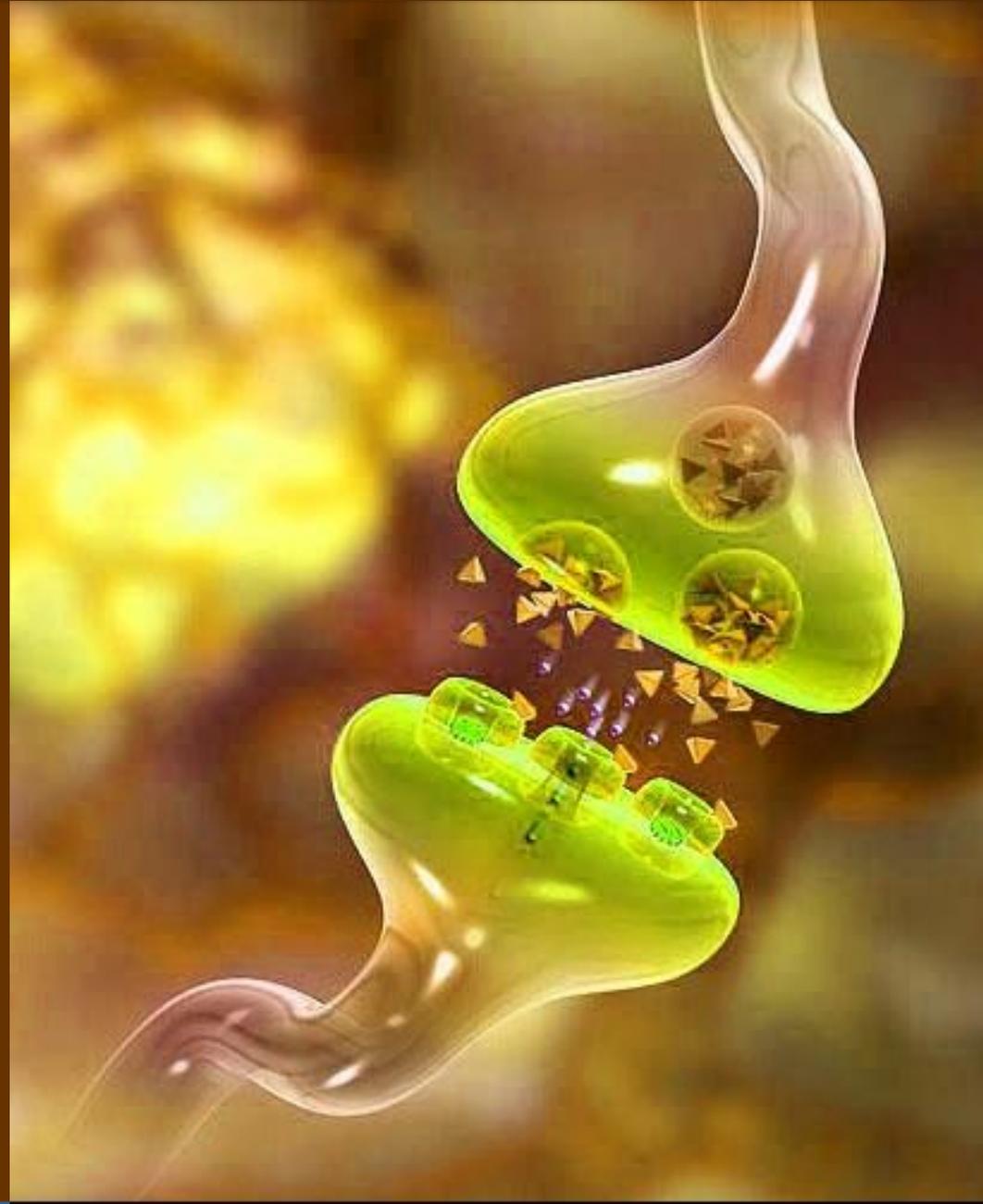
It takes 17 muscles to smile and forty three to frown.




www.DrGluck.com

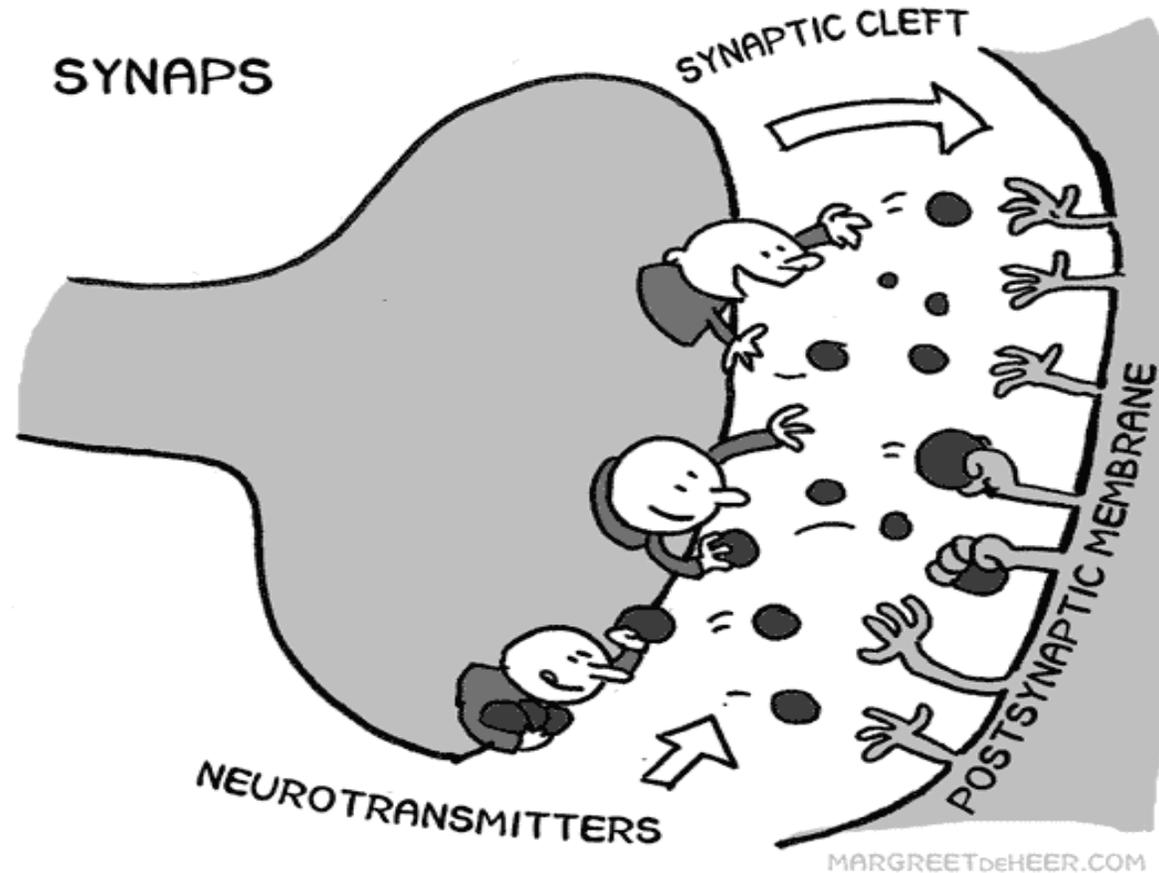
 **GLUCK**
ORTHODONTICS

THE SYNAPTIC GAP

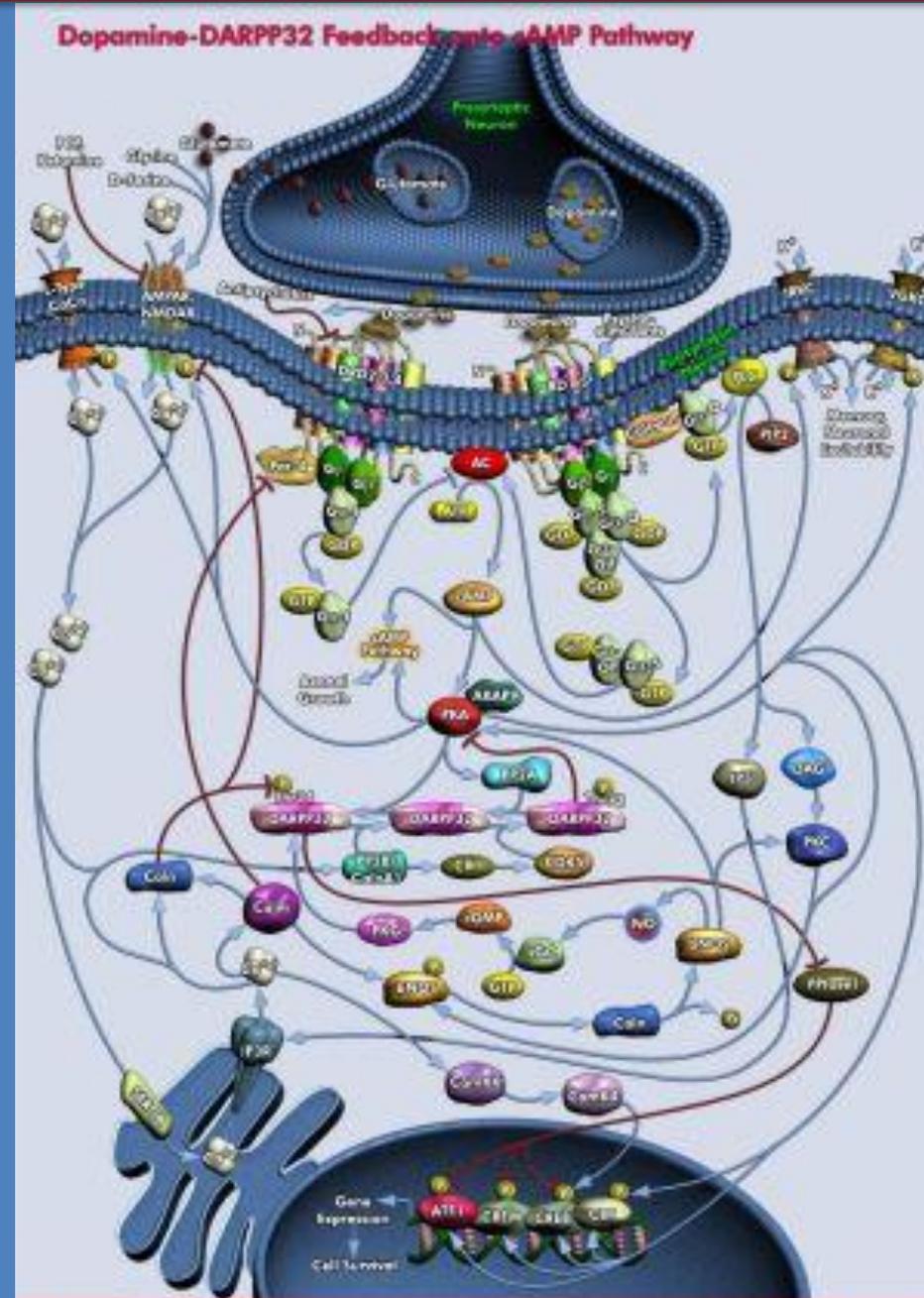


BRAIN FUNCTIONS

- This signal transmission makes brain function different from any other bodily process.
- The mode of transmission between the cells is chemical –the signals are passed on by **neurotransmitters**.



ACTUALLY IT'S MUCH MORE LIKE THIS!



MIND THE GAP!

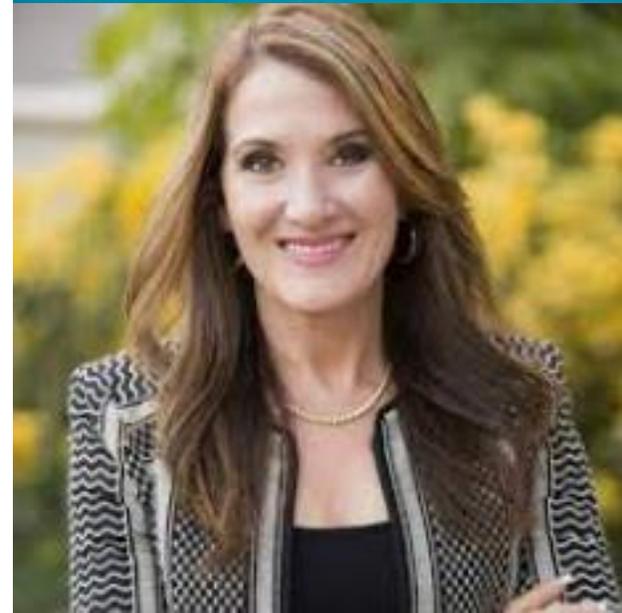
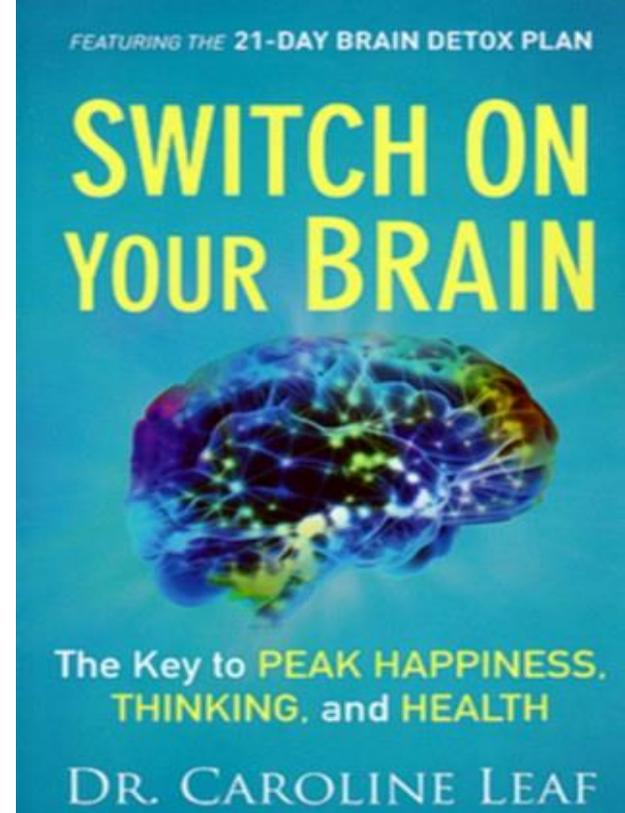


According to researchers, the vast majority of the illnesses that plague us today are a direct result of our thought life.

What we think about truly affects us both physically and emotionally. In fact, fear alone triggers more than 1,400 known physical and chemical responses in our bodies, activating more than thirty different hormones!

Today our culture is undergoing an epidemic of toxic thoughts that, left unchecked, create ideal conditions for illnesses.

“Switch on Your Brain”, Dr Caroline Leaf





"Try thinking about something else."



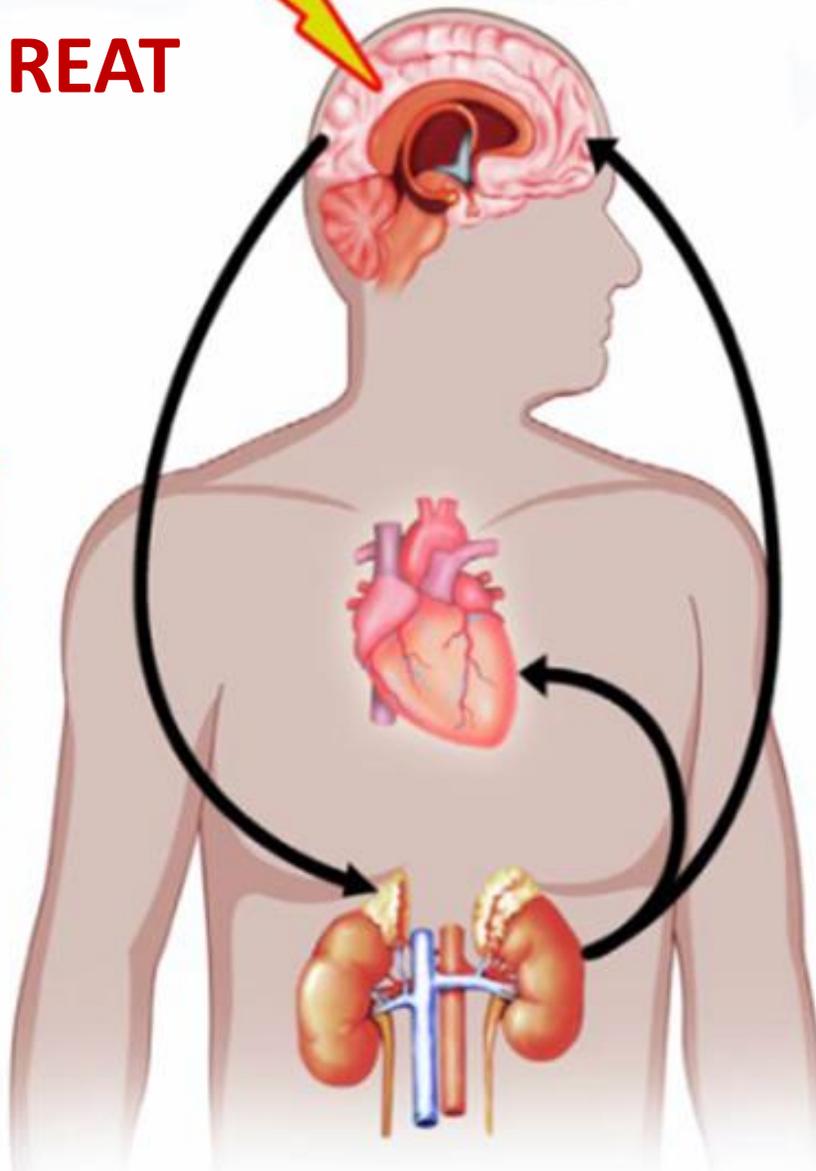


THREAT

Stress

ACTH (hormone)

Cortisol (hormone)



Fear
Flight – Fight – Freeze
Performance Anxiety
Avoidance Behaviours
Memory impairment

Some of the Transmitter Chemicals

- Serotonin
- Adrenaline
- Noradrenaline
- Dopamine

Some of the Hormones

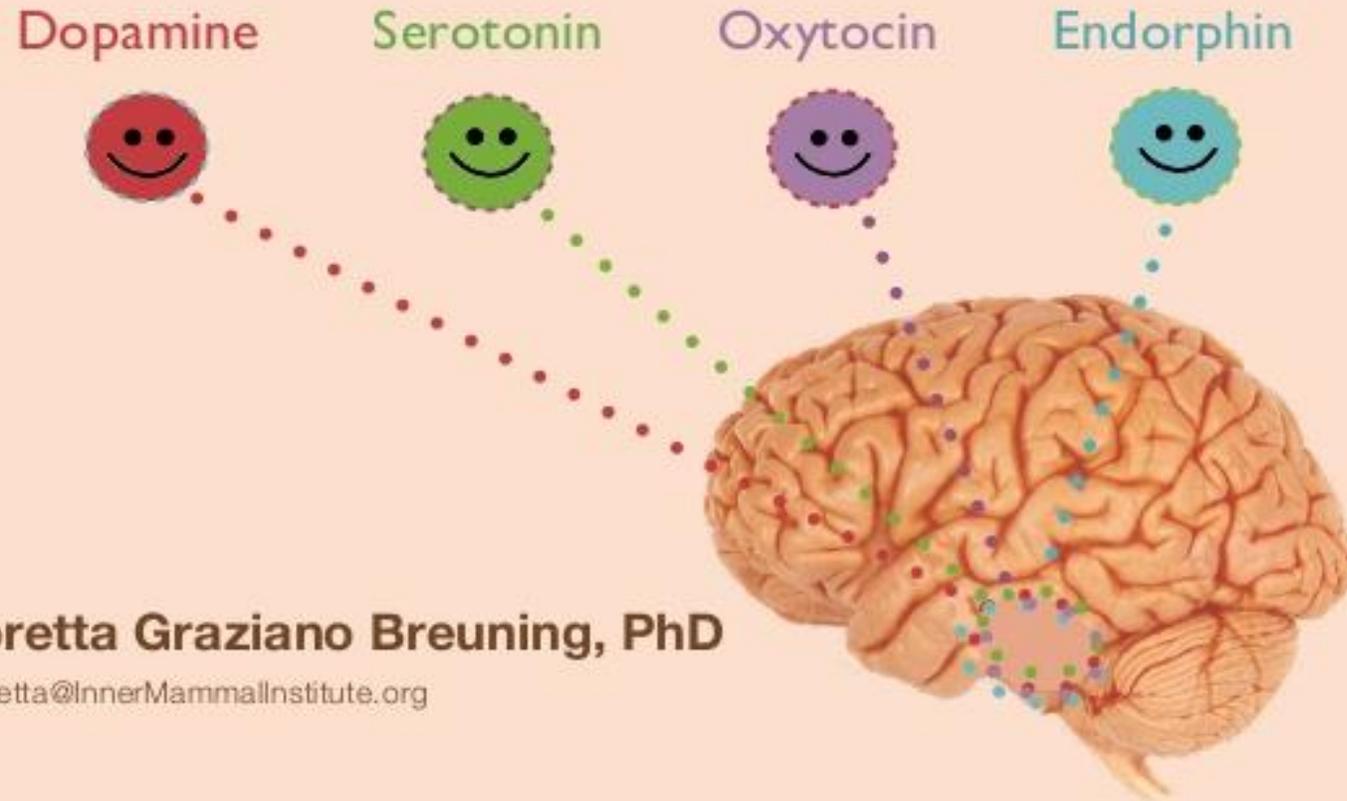
- Oxytocin
- Melatonin
- Endorphins

...and many more!



YOUR HAPPY HORMONES

Meet Your Happy Chemicals



Loretta Graziano Breuning, PhD

Loretta@InnerMammalInstitute.org

DOSE: Dopamine, Oxytocin, Serotonin, Endorphines

Share in Buddy Groups

What triggers your stress response?

How do you cope?

15 minutes



BREAK TIME



5 MINUTES

Questions and Comments

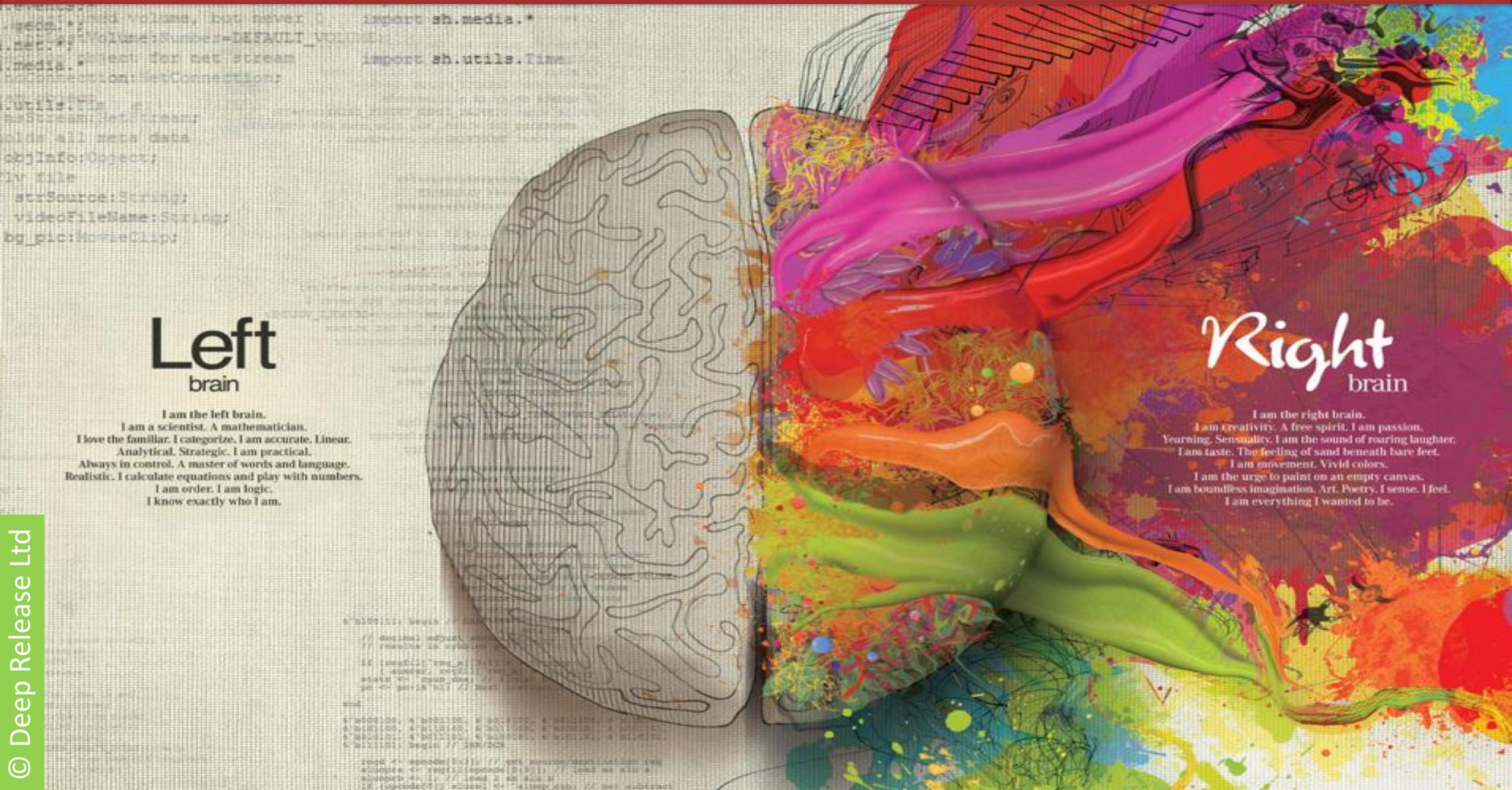


NEUROSCIENCE IN A NUTSHELL



SESSION 3: LEFT-RIGHT, TOP-DOWN BRAIN

THE TWO HALVES OF THE BRAIN



Left brain

I am the left brain.
I am a scientist. A mathematician.
I love the familiar. I categorize. I am accurate. Linear.
Analytical. Strategic. I am practical.
Always in control. A master of words and language.
Realistic. I calculate equations and play with numbers.
I am order. I am logic.
I know exactly who I am.

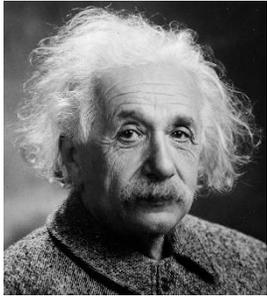
Right brain

I am the right brain.
I am creativity. A free spirit. I am passion.
Yearning. Sensuality. I am the sound of roaring laughter.
I am taste. The feeling of sand beneath bare feet.
I am movement. Vivid colors.
I am the urge to paint on an empty canvas.
I am boundless imagination. Art. Poetry. I sense. I feel.
I am everything I wanted to be.

THE TWO HALVES OF THE BRAIN



THE TWO HALVES OF THE BRAIN



The Left Hemisphere

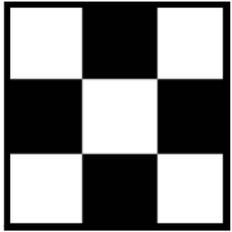
LOGICAL

LEGAL

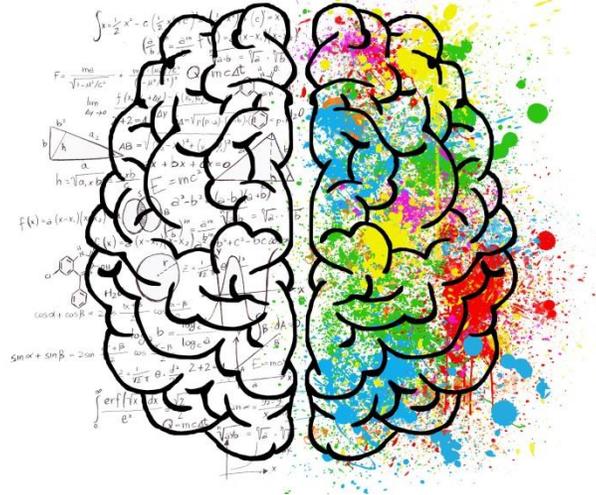
LINEAR

LINGUISTIC

LITERAL



> "NO!"



The Right Hemisphere

RELATIONAL

ARTISTIC

RHYTHM

RHYME

RESPONSIVE

REACH FOR THE STARS

RISK-TAKING



"Why Not?" <

THE LEFT-RIGHT AXIS

Sciences
Objective
Particular
Prose
Analyse
By the book
Hardware
Law
Quantitative

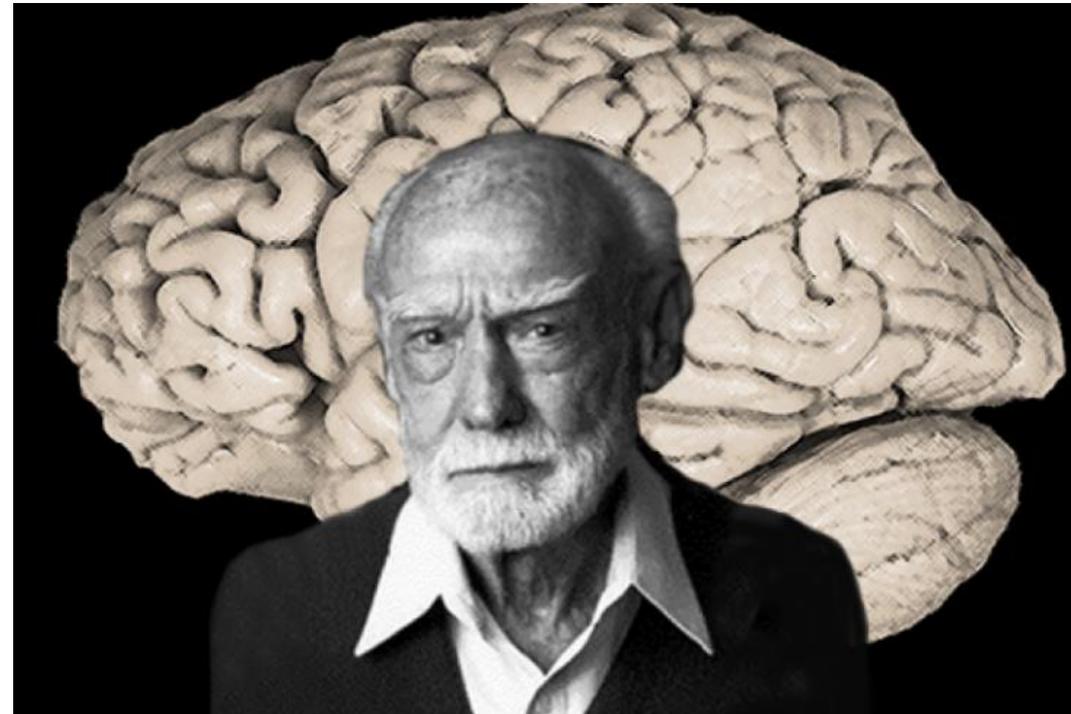
Arts
Subjective
General
Poetry
Synthesise
Extemporise
Software
Liberty
Qualitative



Roger Wolcott Sperry (1913 – 1994)

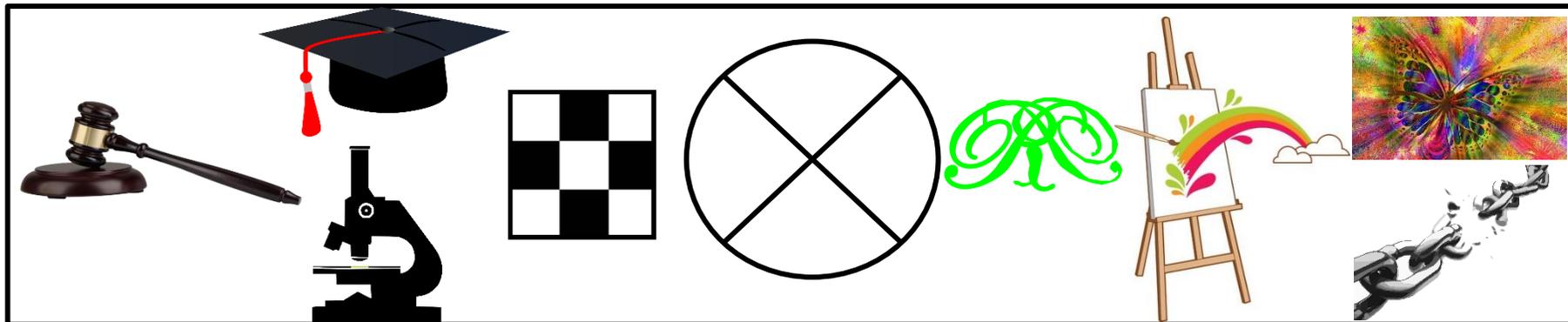
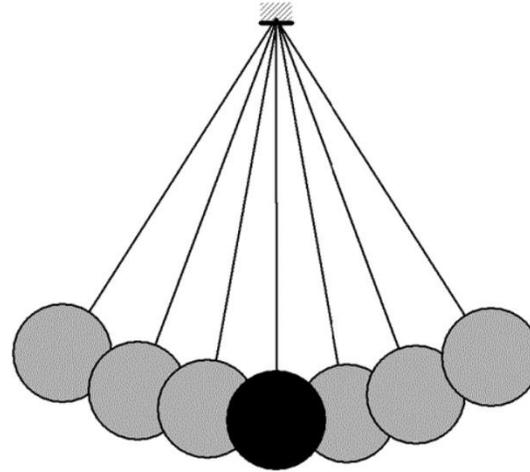
Neurobiologist Sperry conducted split brain experiments on people whose brain hemispheres were surgically separated in the course of treatment for epilepsy.

He discovered that, under certain conditions, each hemisphere could hold different thoughts and intentions. This raised the profound question of whether a person has a single 'self'.

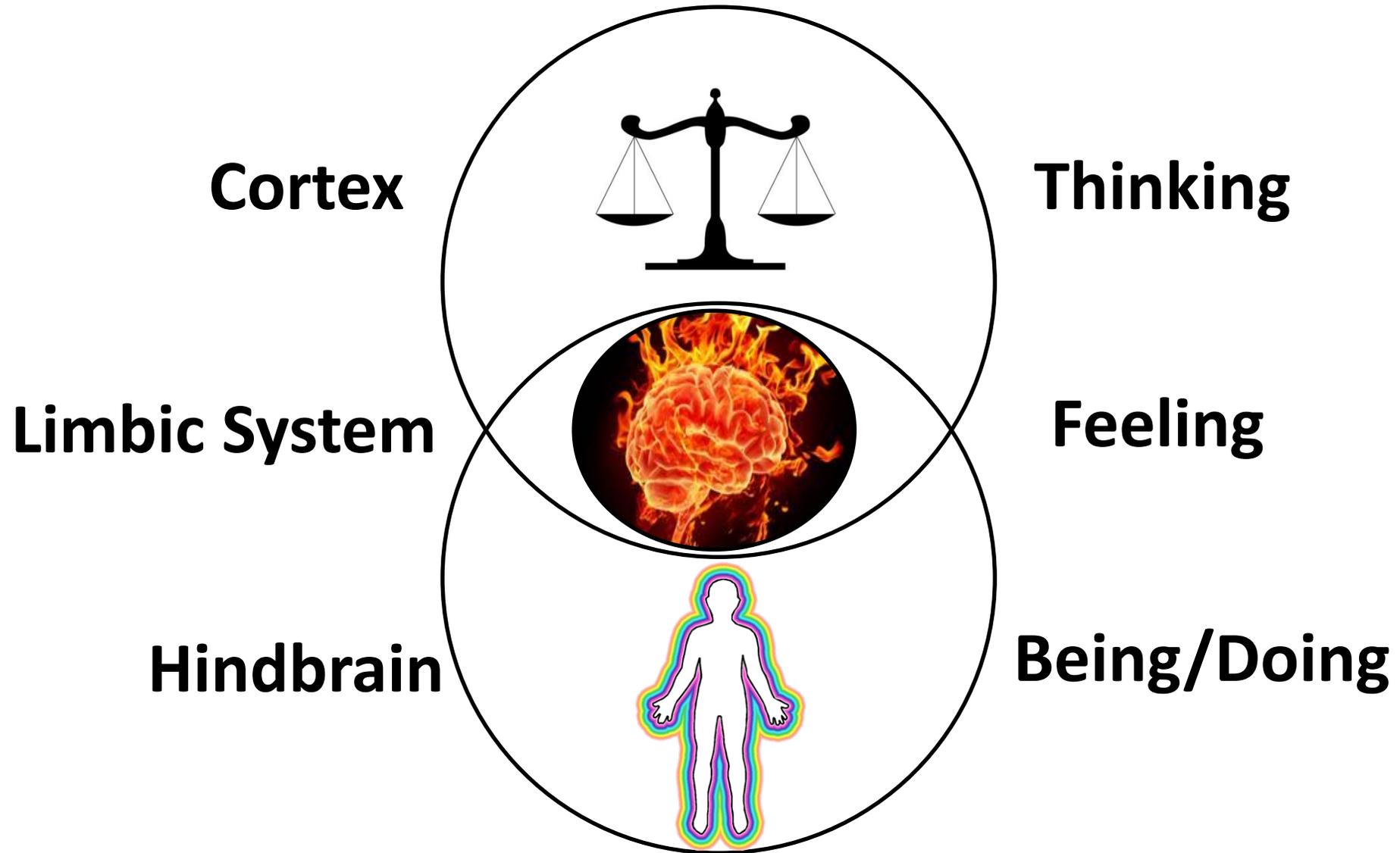


THE LEFT-RIGHT AXIS

Legalism	Law	Liberty	Licence
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THE TOP-DOWN BRAIN



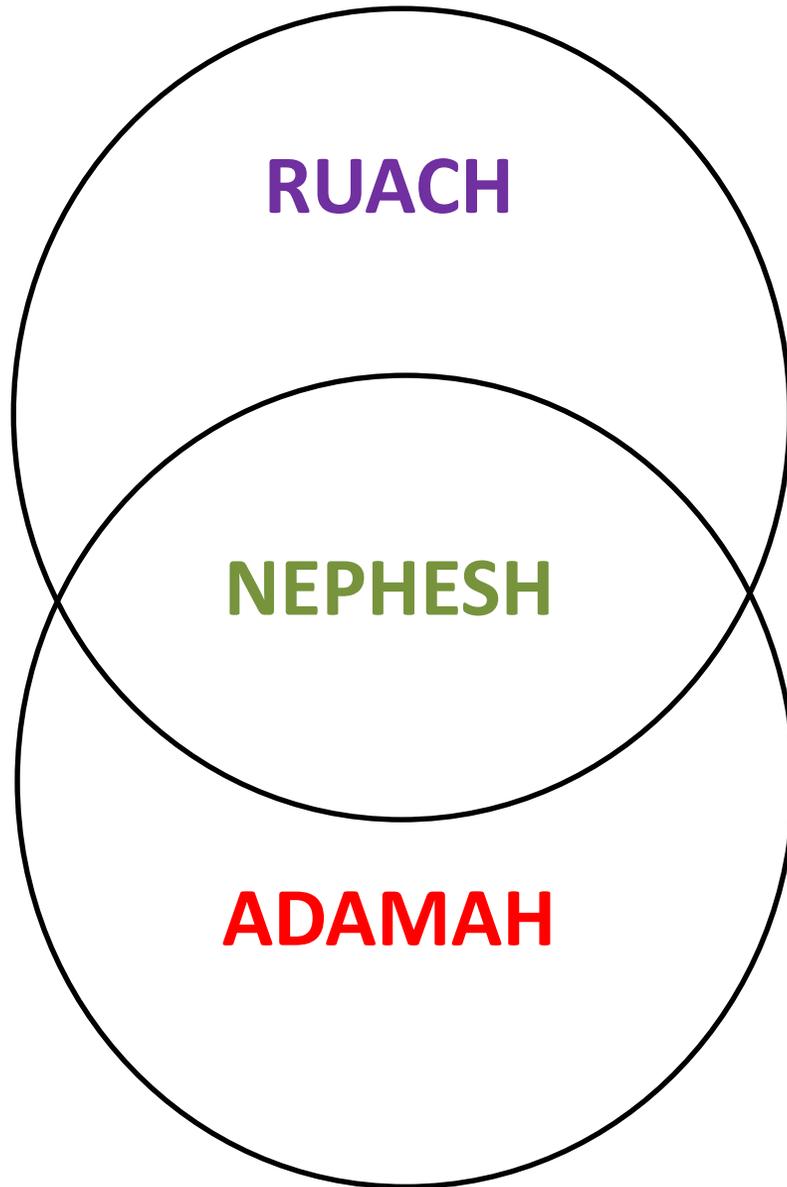
**OUTER
WORLD**

BRAIN

**INNER
WORLD**



BODY SOUL SPIRIT



SPIRIT



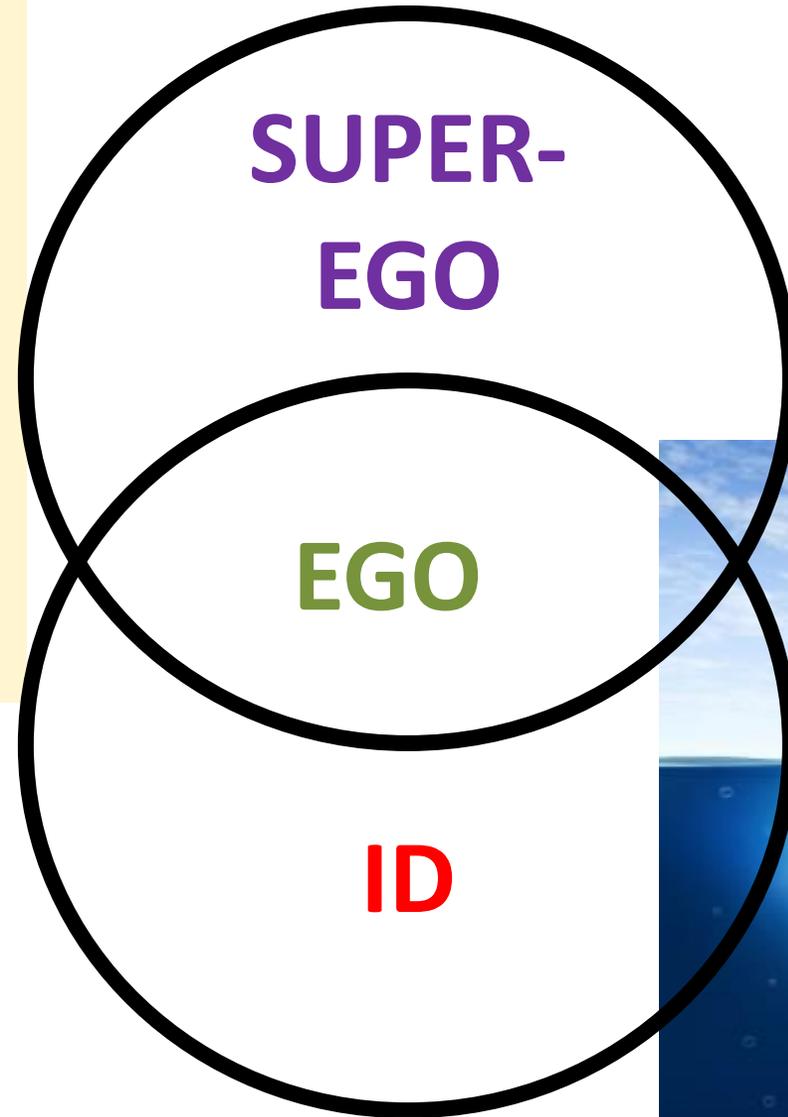
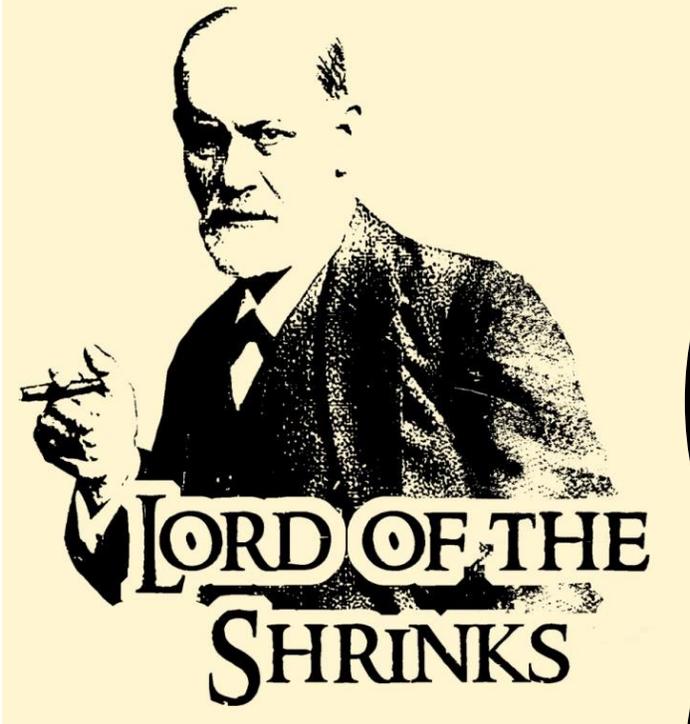
SOUL



BODY/EARTH



FREUD'S THEORIES



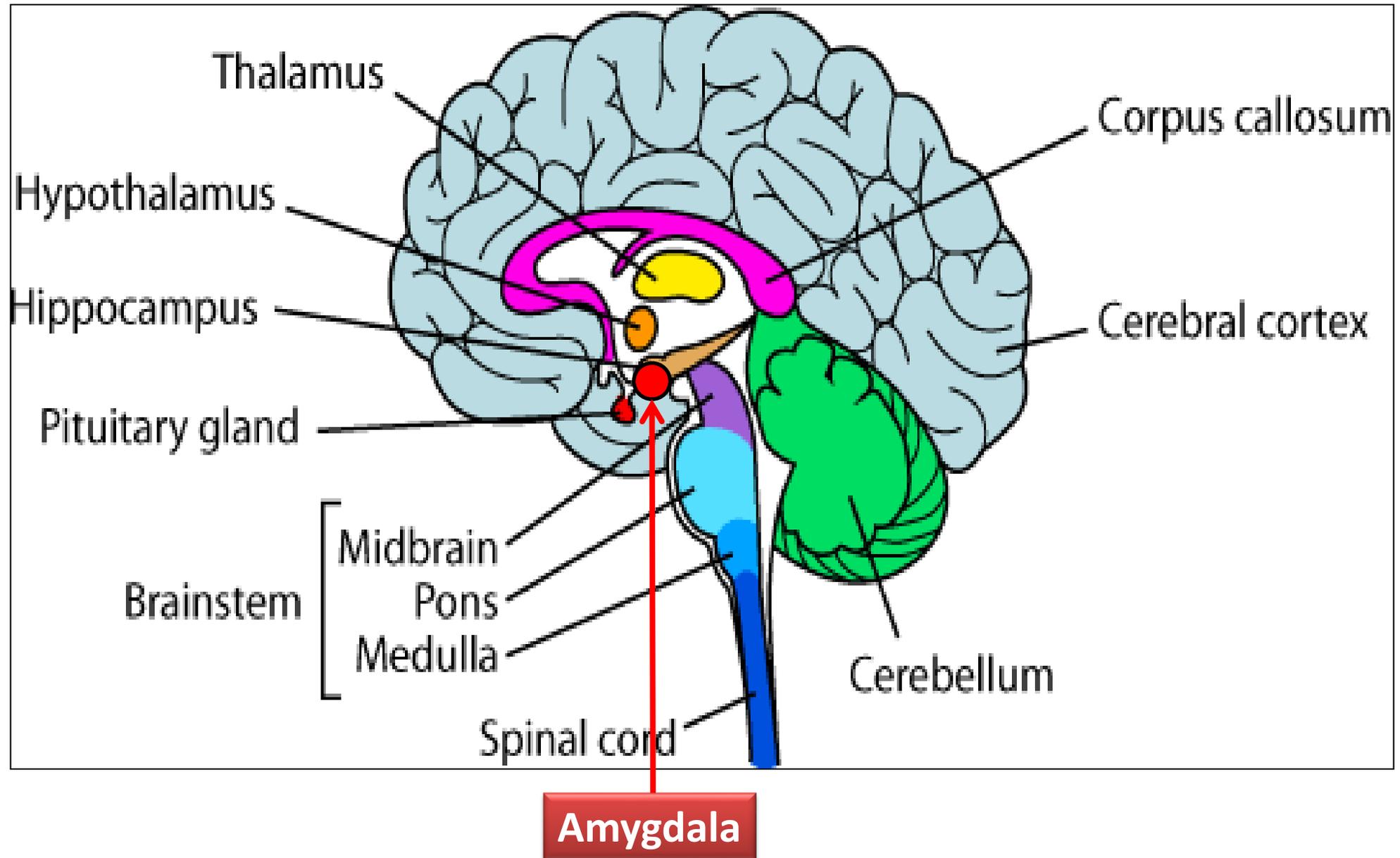


Depths of the Unconscious

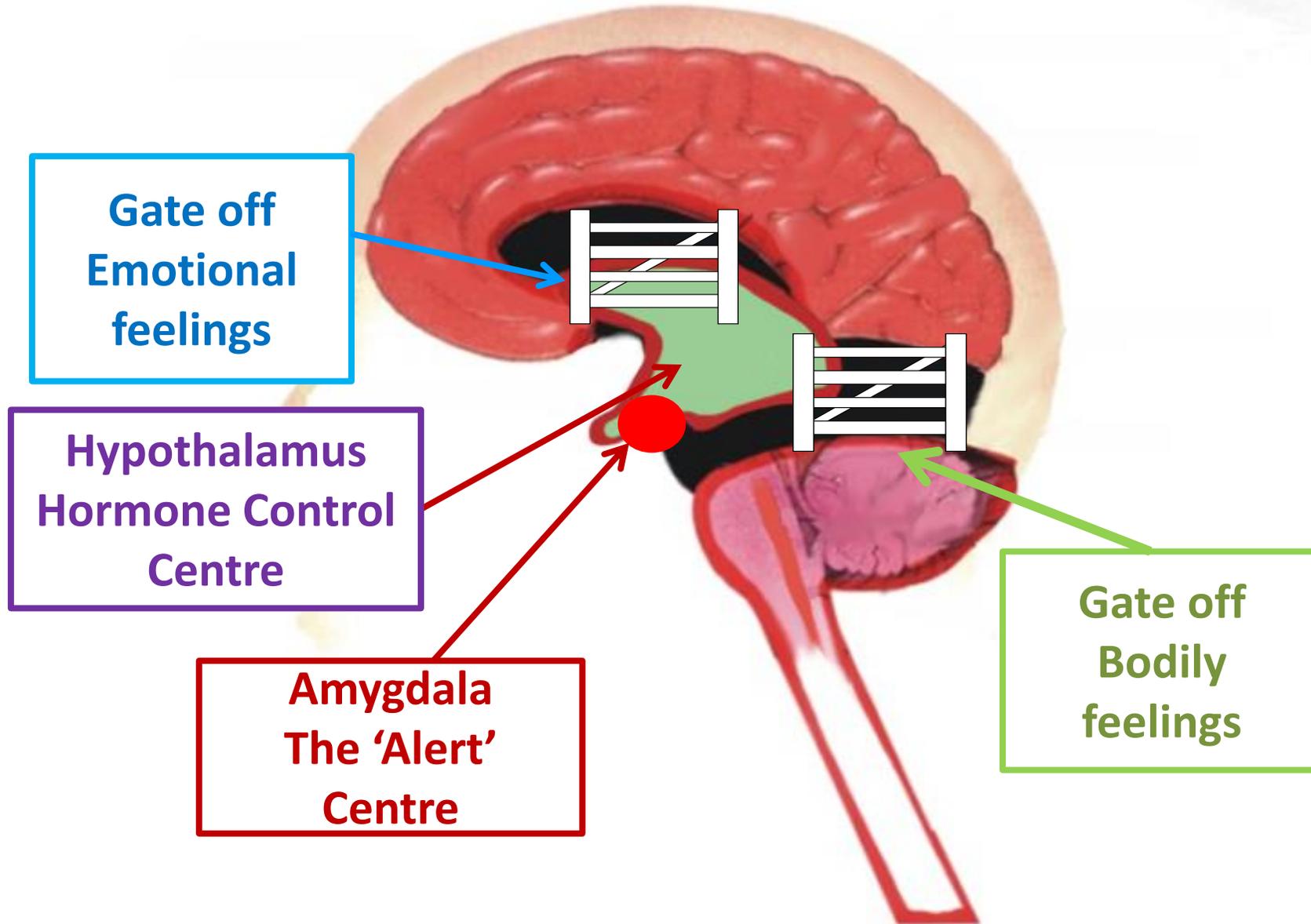
FREUD'S THEORIES : THE ID



THE INSIDE OF THE BRAIN



PRIMAL GATING : THE 'SPLIT' BRAIN



DOWN THE SPIRAL STAIRCASE



β
α
θ
δ

DOWN THE SPIRAL STAIRCASE

EYES OPEN (beta)

Facts

Cognitive Process

EYES CLOSED (alpha)

Going deeper

More Unconscious

Process

EYES CLOSED, LYING

DOWN

(alpha/theta/delta)

Deeper Process





**Down through
the Layers**

**Please stop your video
to improve the quality
of the film**

Share in Buddy Groups

How did you respond to the way Chris processed his story at different levels?

15 minutes



BREAK TIME



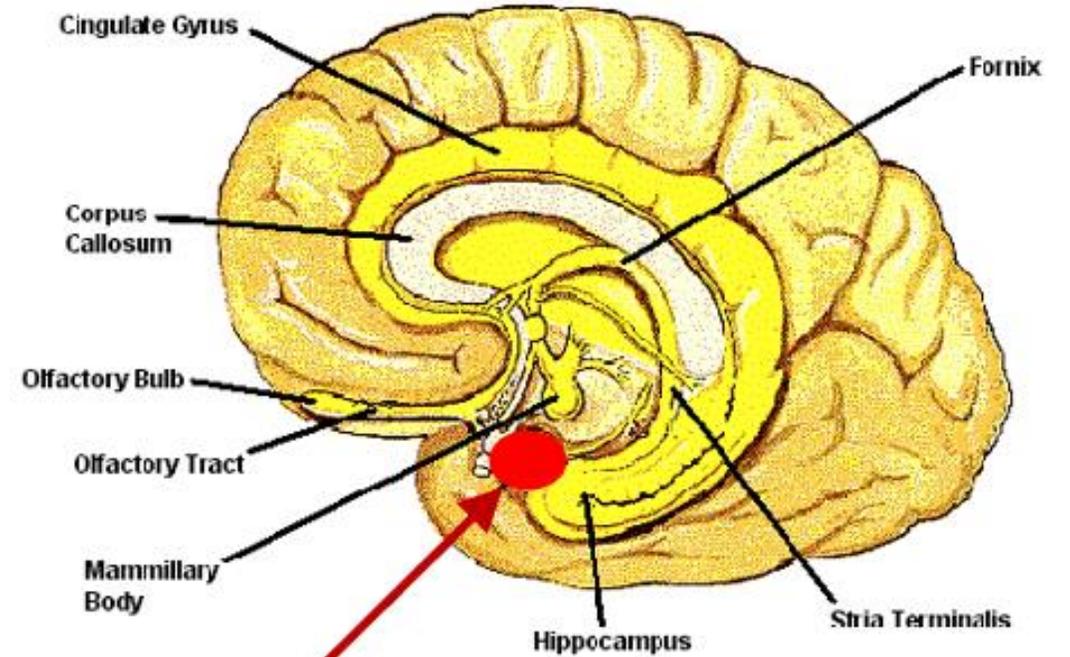
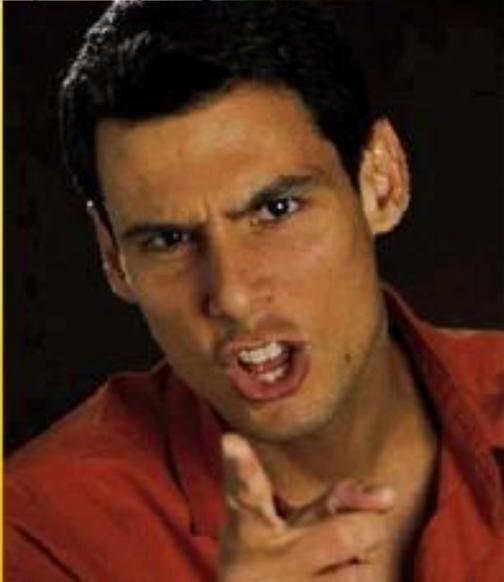
5 MINUTES

NEUROSCIENCE IN A NUTSHELL



SESSION 4: THE EMOTIONAL BRAIN

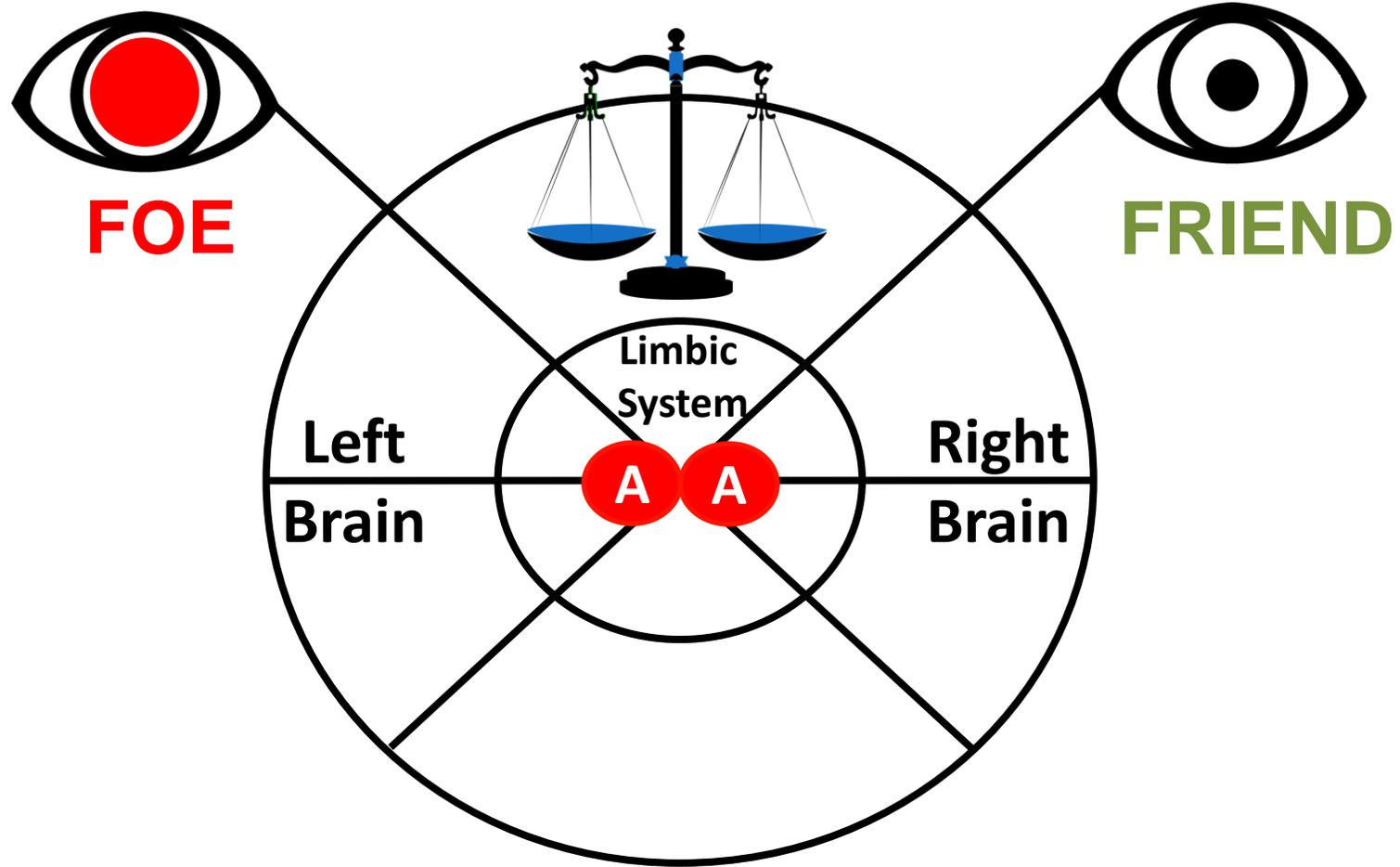
THE AMYGDALA



The Amygdala(e)

The Amygdala is the brain's radar system. It is an almond-shaped brain structure located on the tip of the hippocampus. There are 2 amygdalae, and one on the left and one on the right side of the brain.

FRIEND OR FOE?



Feather-horned Beetle



THE AMYGDALA





Blowing your Top!





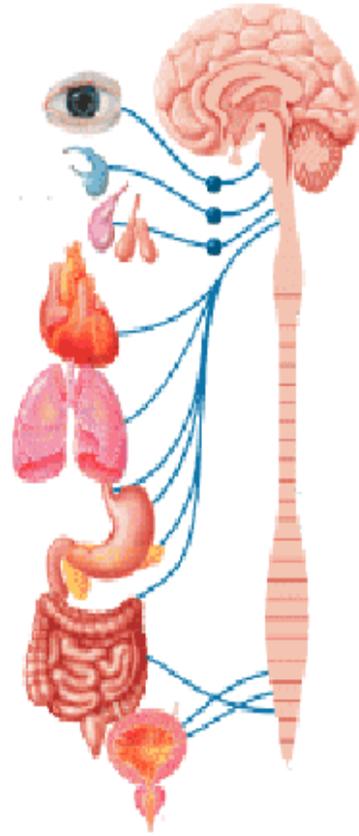
AMYGDALA

THE SYMPATHETIC NERVOUS SYSTEM



THE PARASYMPATHETIC NERVOUS SYSTEM

Pupils constrict
Stimulates tear glands
Stimulates salivary flow
Heart slows down
Breathing relaxes
Feel hungry
Improves digestion
Contracts bladder



HOMEOSTASIS: (Greek – “to stand equally”)

Balance between Sympathetic and Parasympathetic Nervous Systems

Under normal conditions we regulate our internal environment so as to maintain our bodies in a stable, constant condition

THE AUTONOMIC NERVOUS SYSTEM



**It's all about
BALANCE!**



Please stop your video to improve the quality of the film

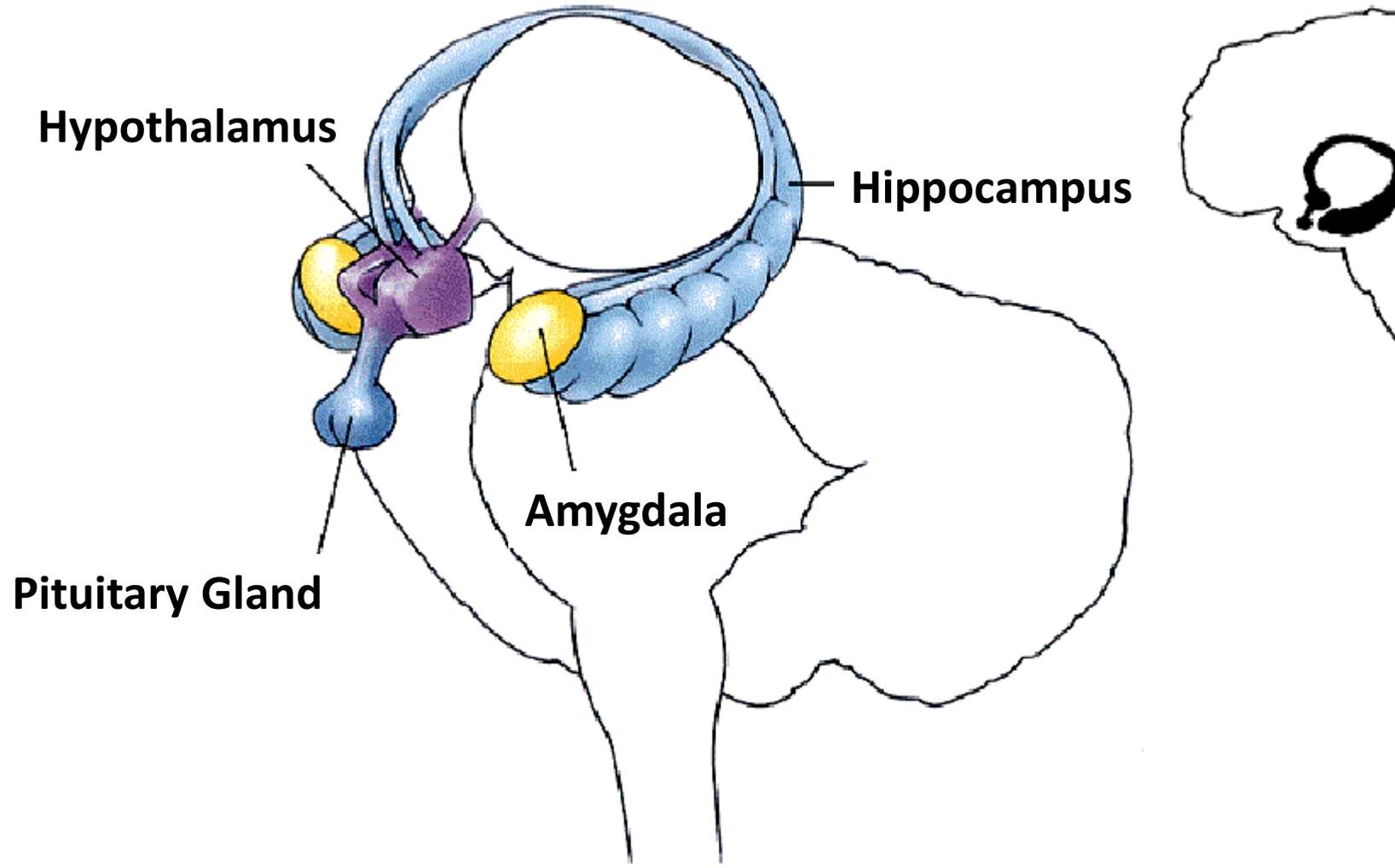
THE POLYVAGAL SYSTEM

Teresa Lewis



<https://youtu.be/SlhFrBoEnxU>

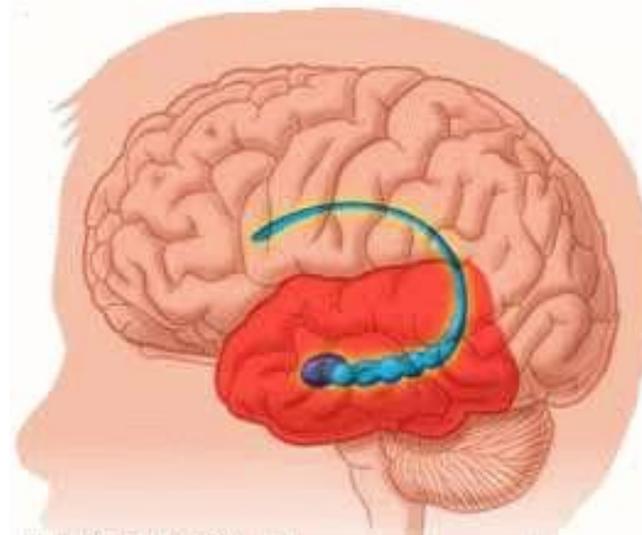
SIMPLIFIED LIMBIC SYSTEM



THE HIPPOCAMPUS

The hippocampus is shaped like a sea horse. It is a paired structure, with one hippocampus located in the left brain hemisphere and the other in the right hemisphere.

- **Memory**
- **Learning**
- **Emotion**



Particularly important in forming new memories and connecting emotions and senses, such as smell and sound, to memories.

The hippocampus acts as a Memory Index by sending memories out to the appropriate part of the cerebral hemisphere for long-term storage and retrieving them when necessary.

THE HIPPOCAMPUS

- Studies on people with depression, chronic PTSD (eg war veterans and childhood sexual abuse survivors) have shown that their hippocampus is reduced in volume (most likely related to the stress hormone, cortisol)
- The Hippocampus is one of the most plastic and adaptable of brain areas
This gives hope for survivors that hippocampal damage in PTSD is reversible once they have recovered





London's Cabbies Say 'The Knowledge' Is Better Than Uber And A GPS

THE CONTROL & INTEGRATION CENTRE OF THE BRAIN



THE FOURTH BRAIN

The Visceral Nervous System

One hundred million nerve cells in your guts!



THE FIFTH BRAIN

The Cardiac Nervous System

40,000 nerve cells – *it's heartfelt!*



BALANCE



Serpentine South Gallery, Hyde Park, until September 10, 2023

Tomas Saraceno 'Webs of Life'

BREAK TIME



5 MINUTES

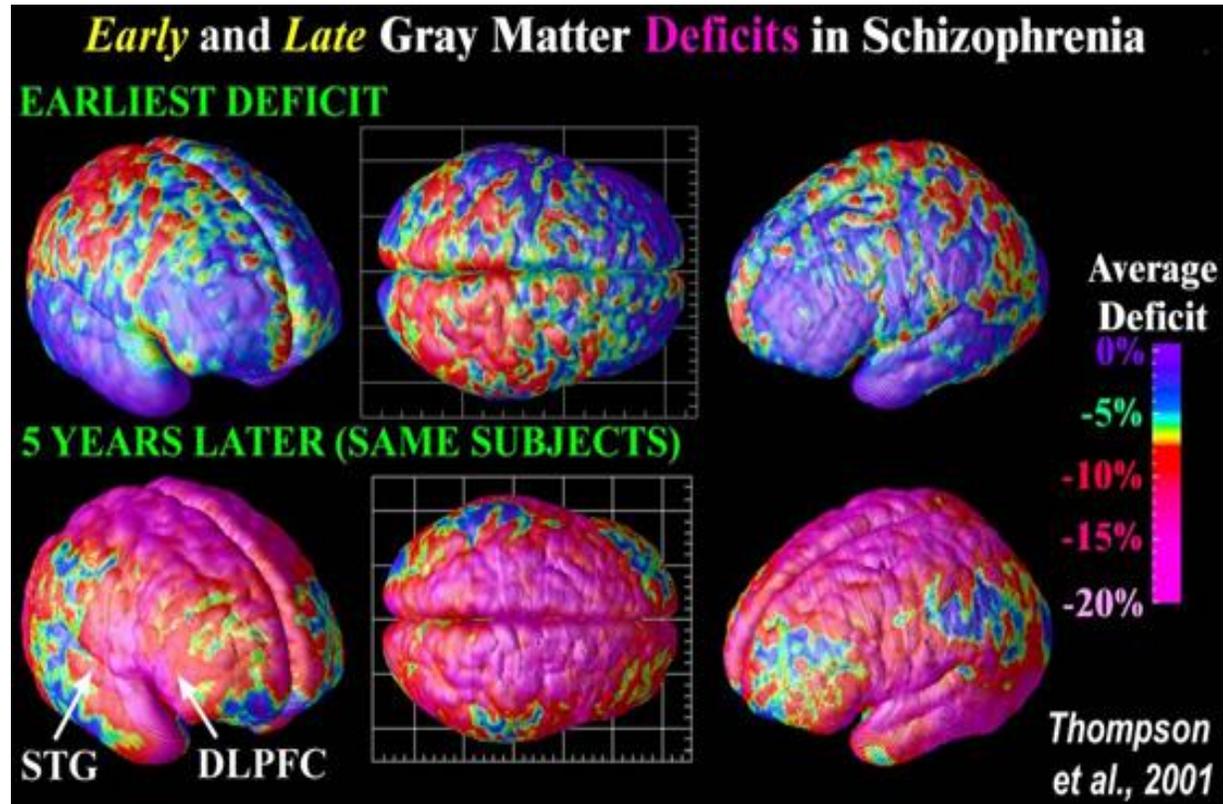
NEUROSCIENCE IN A NUTSHELL



SESSION 5: NEUROPLASTICITY & THE FUTURE

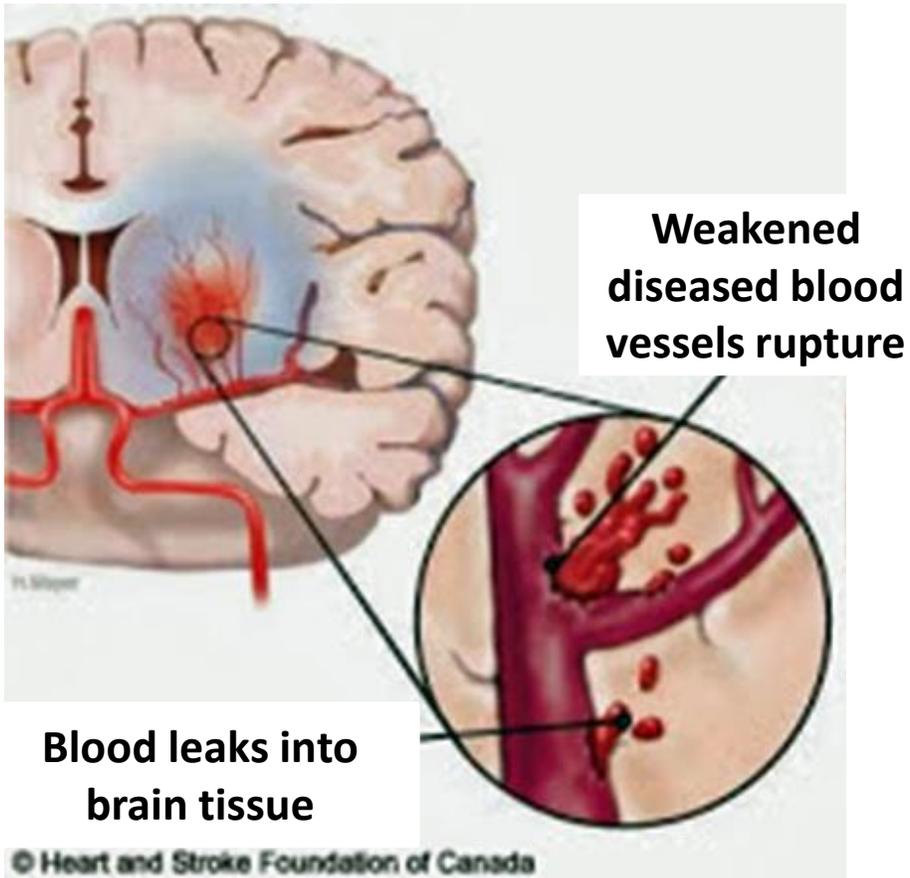


SCHIZOPHRENIA

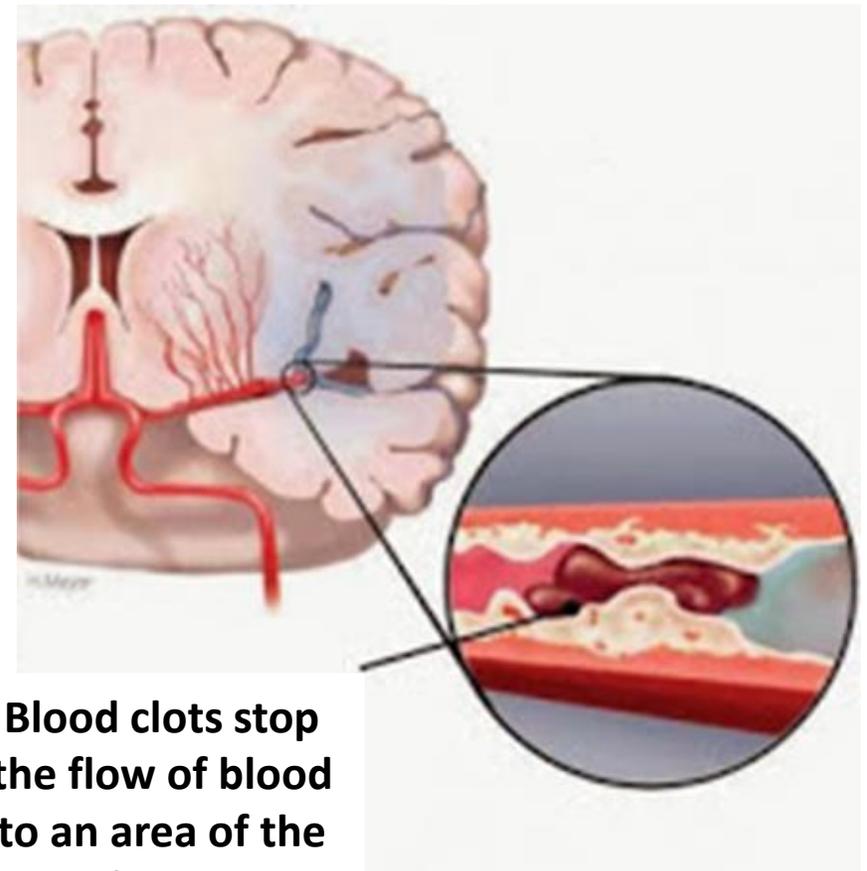


- Considered to be the result of **excessive Dopamine**, causing hallucinations and delusions
- Antipsychotics **block Dopamine** transmission

STROKES



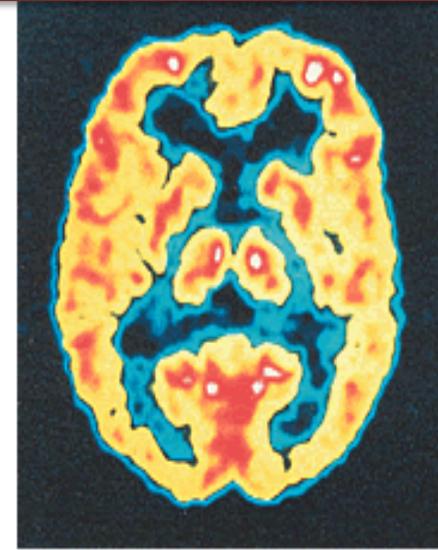
**Haemorrhagic
Stroke**



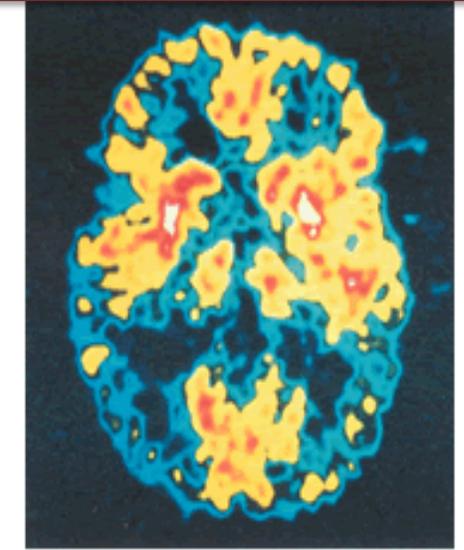
**Ischaemic
Stroke**

DEMENTIA

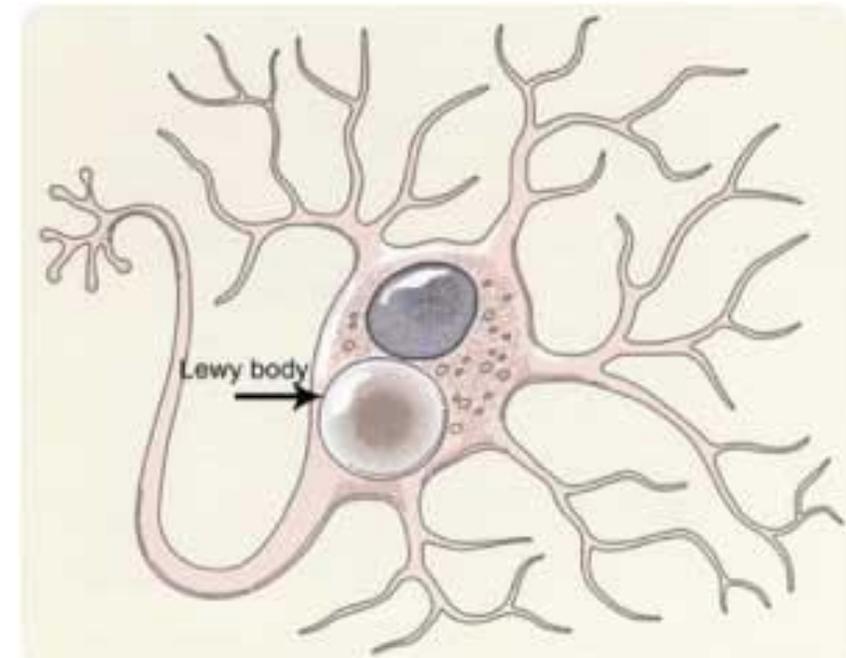
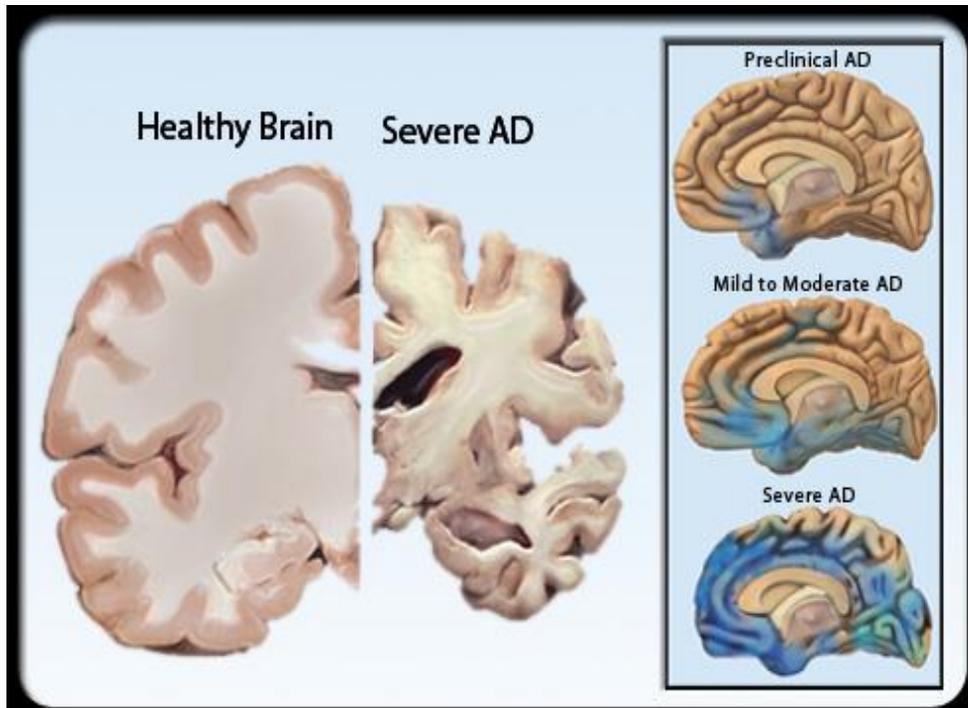
- Alzheimers Dementia
- Cerebro-vascular Dementia
- Lewy Body Dementia – tiny deposits of protein in the nerve cells



NORMAL

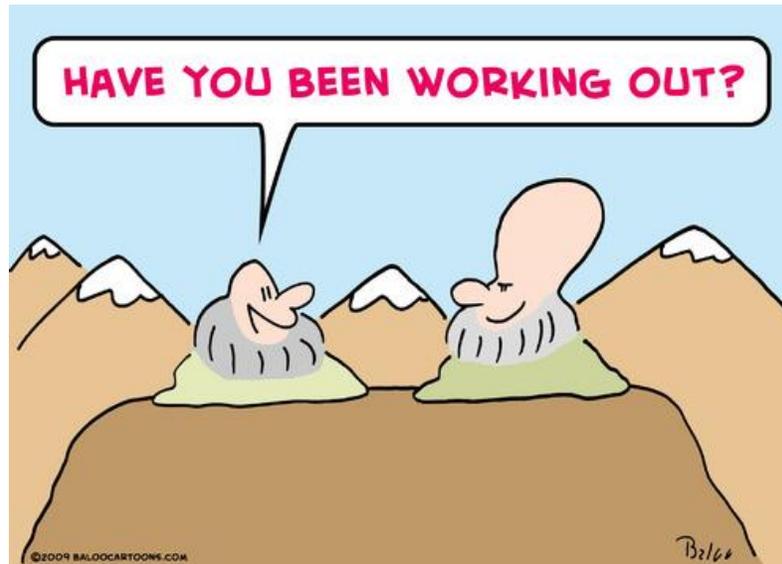


ALZHEIMER'S



Neuroplasticity

For a long time scientists believed that the brain stopped developing during childhood. We now know that the brain continues to make connections throughout our lives.



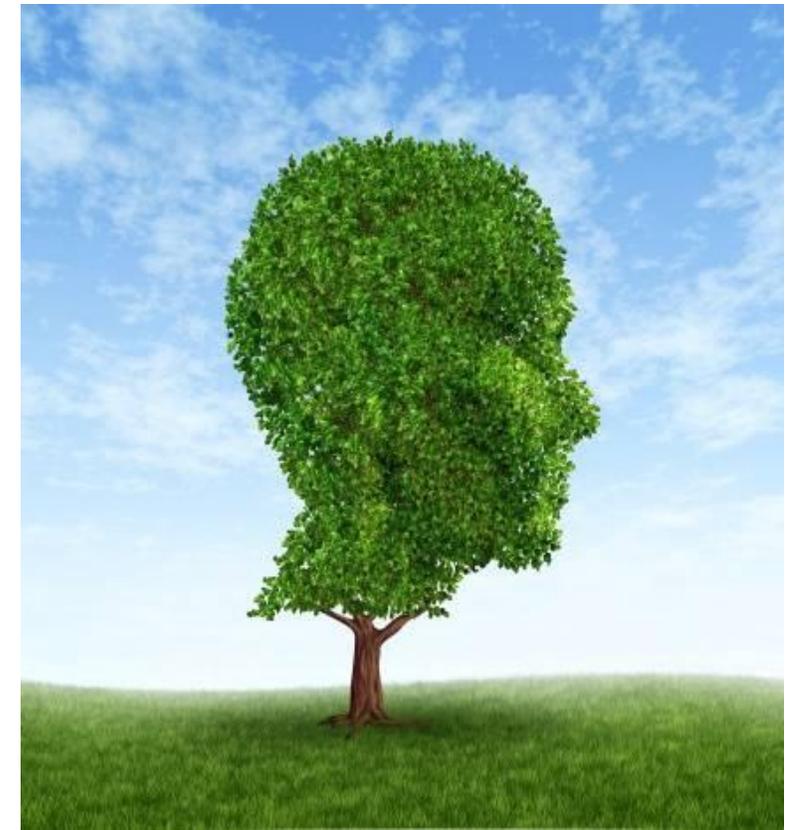
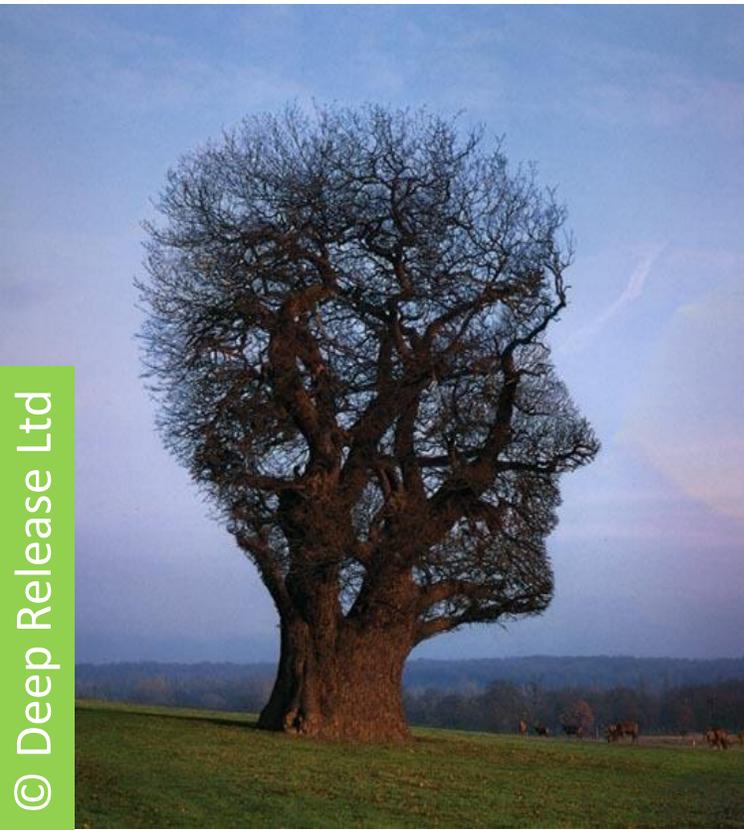
American Neurophysicist **Eric Kandel** won the Nobel Prize in neuroscience for this discovery which is behind many medical advances.

Neuroplasticity

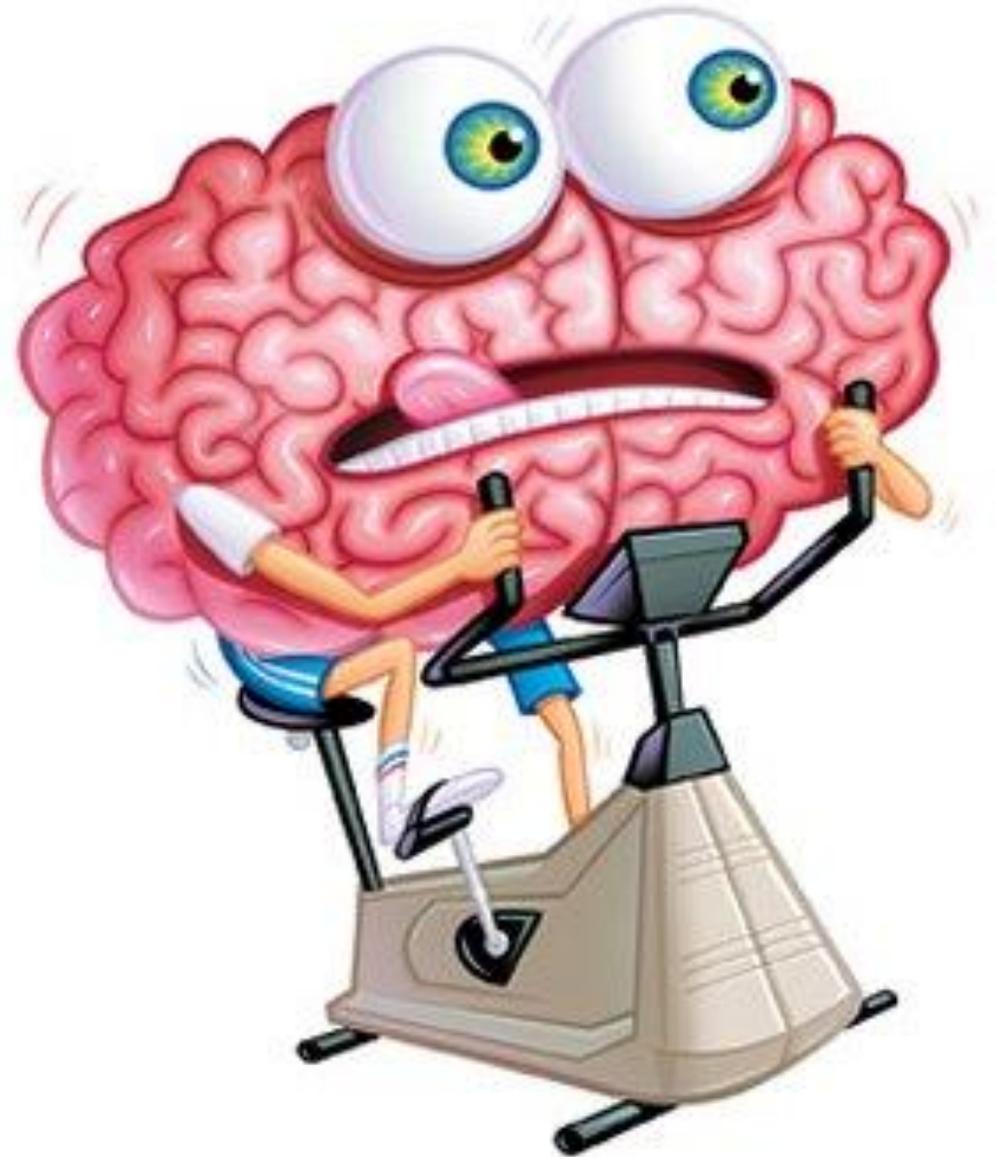
Stress, depression and trauma have all been shown to reduce the neuroplasticity of the brain

The good news is that once stress is reduced the synapses are replaced!

The brain can not only regenerate neural connections but the neurons themselves!



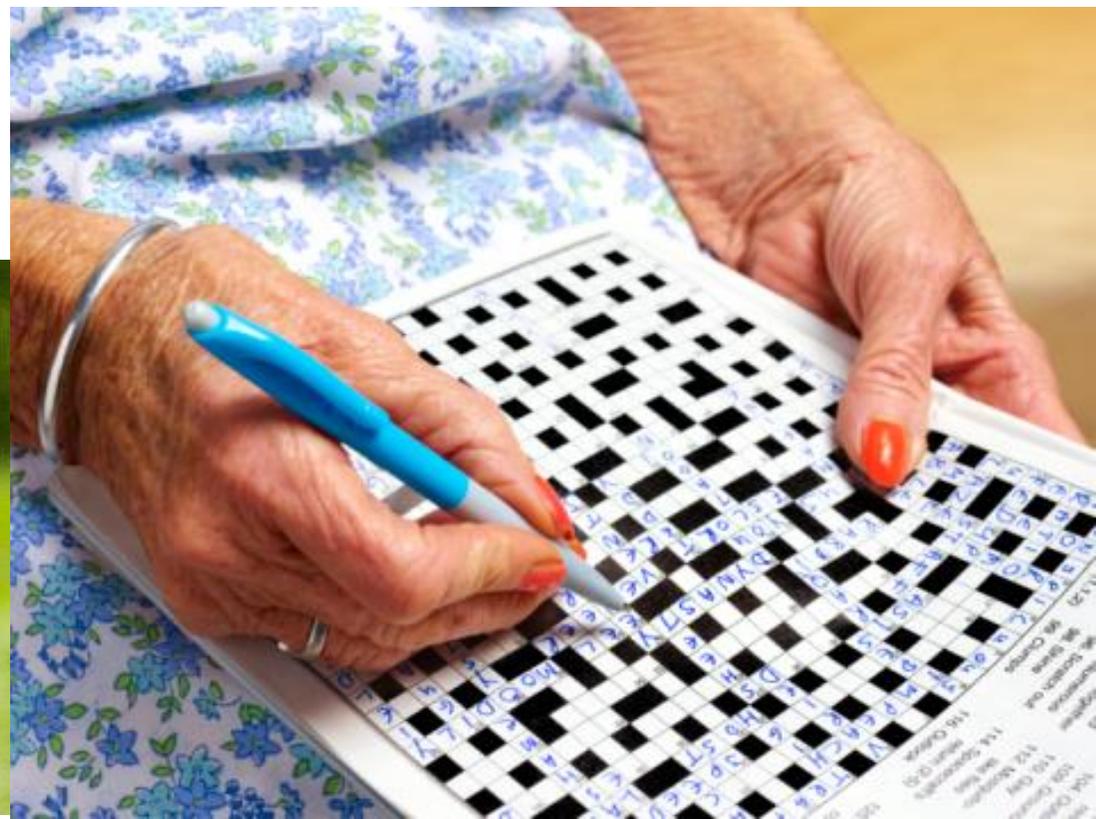
Although some functions may decline you can maintain the networks and form new ones by exercising your brain.



Neurogenesis

***Neurogenesis* is the ability of the brain to regenerate neurons**

Some things that help...



Mindfulness and Mentalising



Exercise helps!

WALK YOURSELF

OUT OF YOUR
BAD MOOD.

STUDIES SHOW
THAT EVEN A
10 MINUTE
WALK

IMMEDIATELY BOOSTS
BRAIN CHEMISTRY
TO INCREASE HAPPINESS.



Don't forget **SHAKEDOWN!**

The Importance of Play

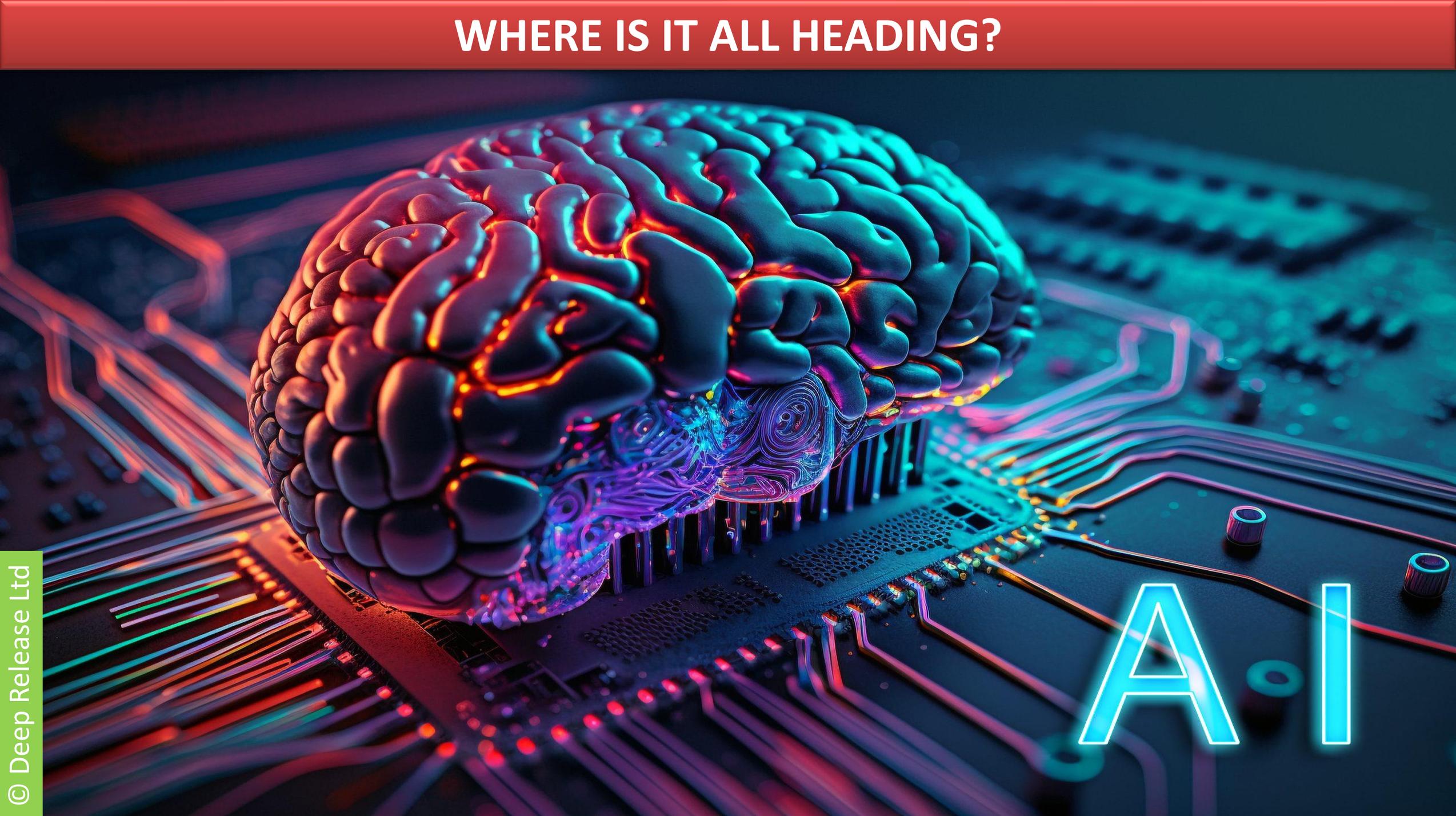
“The therapist who can facilitate play is immediately rewarded with a strong connection to the client, one that colours the activity with a sense of trust and a positive attachment.”

L Carey, *“Expressive & Creative Arts Methods for Trauma Survivors”*



WHERE IS IT ALL HEADING?

AI



AI-DA THE BOT



Ai-Da, a robot with a humanoid face and robotic limbs with a sleek black bob and the ability to paint self-portraits

VIRTUAL REALITY



Offers a wide range of therapeutic techniques such as:

- Gradual exposure
- Relaxation
- Mindfulness
- Systematic desensitisation
- Psychoeducation
- Attention training
- Coping strategies



[ameliavirtualcare.com](https://www.ameliavirtualcare.com)

KEEP LEARNING!



and finally.....



**Please stop
your video for
better film
quality**

<https://youtu.be/ROJKCYZ8hng>

Share in Buddy Groups

**Lots to discuss!
Share the time in
your Buddy Groups.**

15 minutes



Questions and Comments



Share in Buddy Groups

Say goodbye and exchange details if required.

5 minutes





Resources

PACT LTD

**Original & Creative
Counselling Resources**



www.pact-resources.co.uk



**Roles Played
in Families
Extra Set A**



Erikson's Life Stages



Wheel of Life



Working with Animal
Figures Online Pack

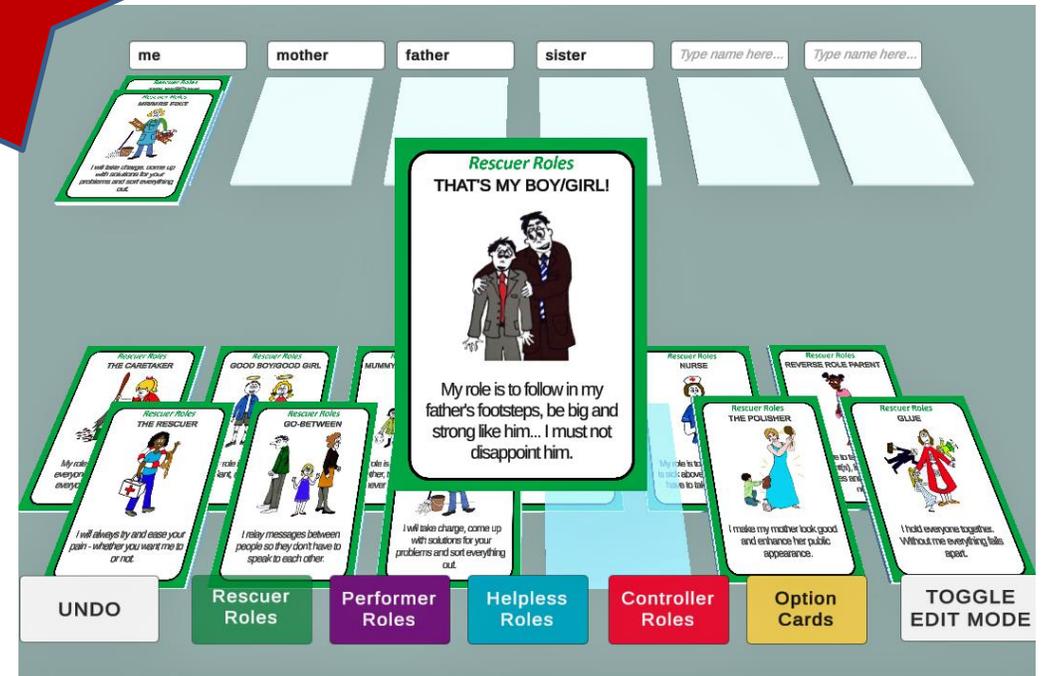
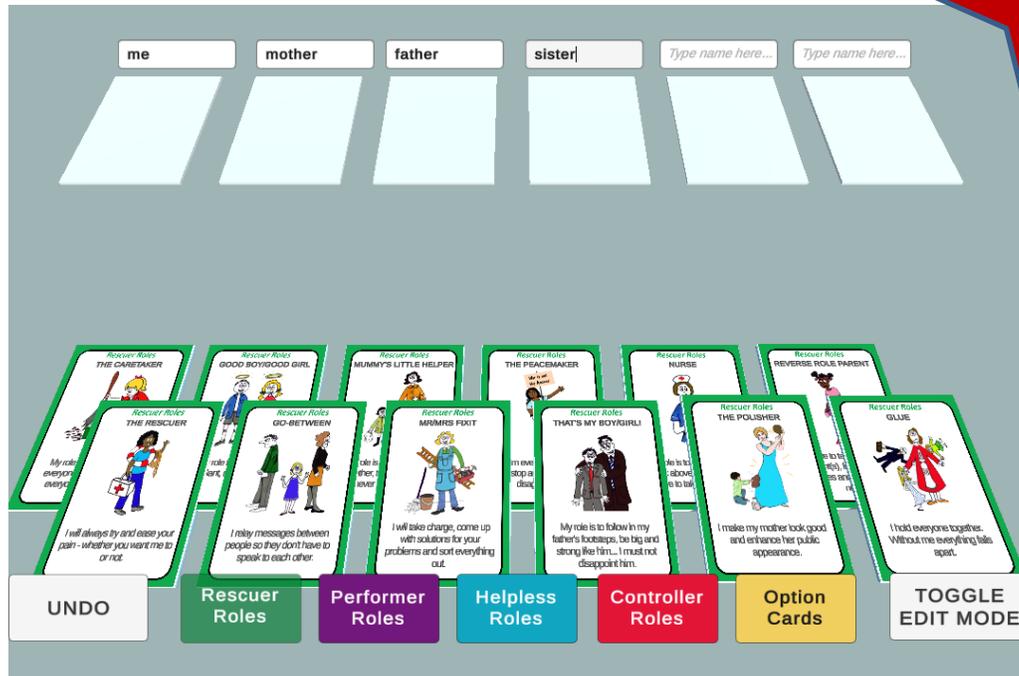


Therapeutic Sandscapes™
Online Pack

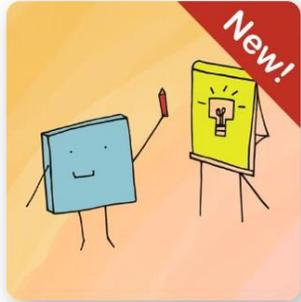
Roles Played in Families Web App

Other sets of cards to follow so

Nearly Ready!!



CHECK OUR OUR TRAINING VIDEO SELECTION AT PACT-RESOURCES.CO.UK!



Psycho-integration for Counsellors – Training Video



Trust and Betrayal – Training Video



Attachment and Shame – Training Video



Making the Most of Supervision – Training Video



Coaching for Counsellors 2 with Dr Chris – Training Video



A Masterclass in Working with the Roles Played in Anger Cards – Training



Taming the Inner Critic – Training Video



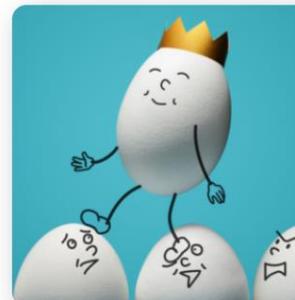
Extreme Reactions – Working with Clients who Self Injure – Training Video



Losing the Will to Live – Working with Suicidal Clients – Training Video



Working with Loss and Grief – Training Video



Narcissism and Echoism – Training Video



Coaching for Counsellors with Dr Chris – Training Video



Attachment Behaviour in the Counselling Room – Training Video

**Buy 2 -
get
another
video
FREE!**



Working Creatively with Blocked Anger – Training Video



Working Creatively with Nesting Dolls in Counselling – Training Video



Working with Gestalt in the Counselling Room – Training Video



Disordered Eating and Attachment – Training Video



Working Creatively with Dreams – Training Video



Working Creatively with Aspects of Self – Training Video



Mending Broken Relationships – Training Video



6 Ways of Working with
the Inner Child – Training
Video

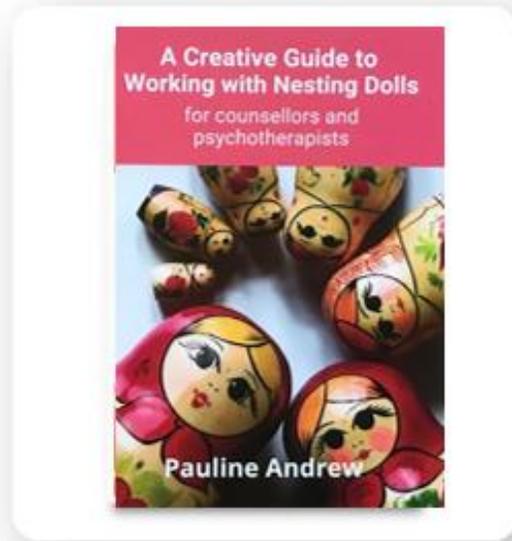


Building Boundaries
Breaking Barriers –
Training Video



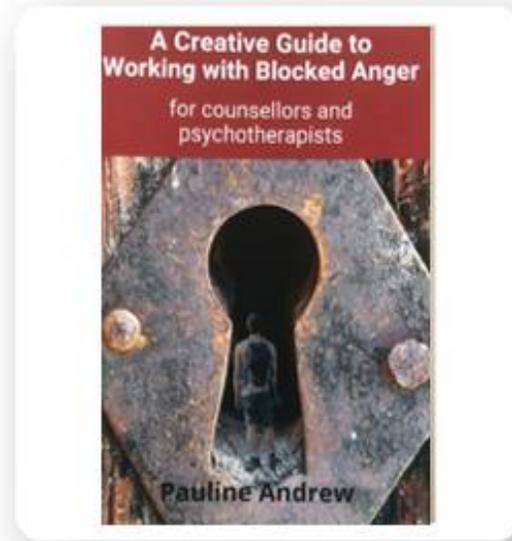
Special offer – save
£2.50 when you buy
all 3 books

£32.00



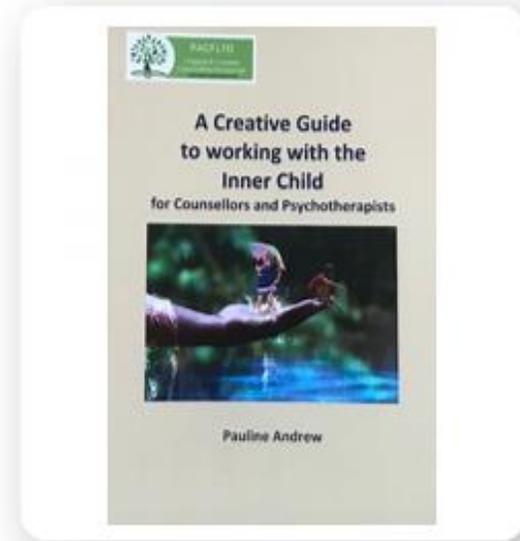
A Creative Guide to
Working with Nesting
Dolls

£11.50



A Creative Guide to
Working with
Blocked Anger

£11.50



A Creative Guide to
Working with the
Inner Child

£11.50

**Also available on Kindle and
as a
Paperback from
Amazon.co.uk**

24 JUN

in person course



Working Creatively with the Inner Child – one day course

Price: £129.00

Location:
 📍 Moor Hall Hotel & Conference Centre,
 Maidenhead

📅 June 24, 2023
 9:00 am - 5:00 pm

Moor Hall Hotel & Conference Centre Cookham, nr

deeprelease.org.uk

15 SEP

Waiting list



2023 Deep Release Counsellors Conference



deeprelease.org.uk

Online training this summer!



29 JUN



Online Event

Introduction to In Womb & Birth Trauma for Counsellors – Thurs June 29

Price Starts from: £10.00

June 29, 2023
9:30 am - 1:00 pm

Prices from £10!



<p>04 JUL</p>  <p>Online Event</p> <p>Working Creatively with Aspects of Self – Tues July 4</p> <p>Price Starts from: £10.00</p> <p>July 4, 2023 9:30 am - 1:00 pm</p>	<p>15 JUL</p>  <p>Online Event</p> <p>Childhood Sexual Abuse and its Effects into Adulthood – Sat Jul 15</p> <p>Price Starts from: £10.00</p> <p>July 15, 2023 9:30 am - 1:00 pm</p>
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For counsellors, trainee counsellors and related professions

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FACEBOOK GROUP

Search: Deep Release Ltd – Counselling & Training



- A closed group for counsellors & trainee counsellors
- Please answer the joining questions!



Deep Release Ltd - Counselling & Training

Private group 1.7K members



+ Invite

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Search: Pauline Andrew Creative Counselling

- Lots of videos on working creatively
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[YouTube.com/c/PaulineAndrewCreativeCounselling](https://www.youtube.com/c/PaulineAndrewCreativeCounselling)

You Tube



YOUTUBE CHANNEL

Search: Brain Body and Beyond

- Videos on Life, the Brain and Relationships
- Please subscribe!

You Tube



Please send
us your
feedback!



Thank you



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