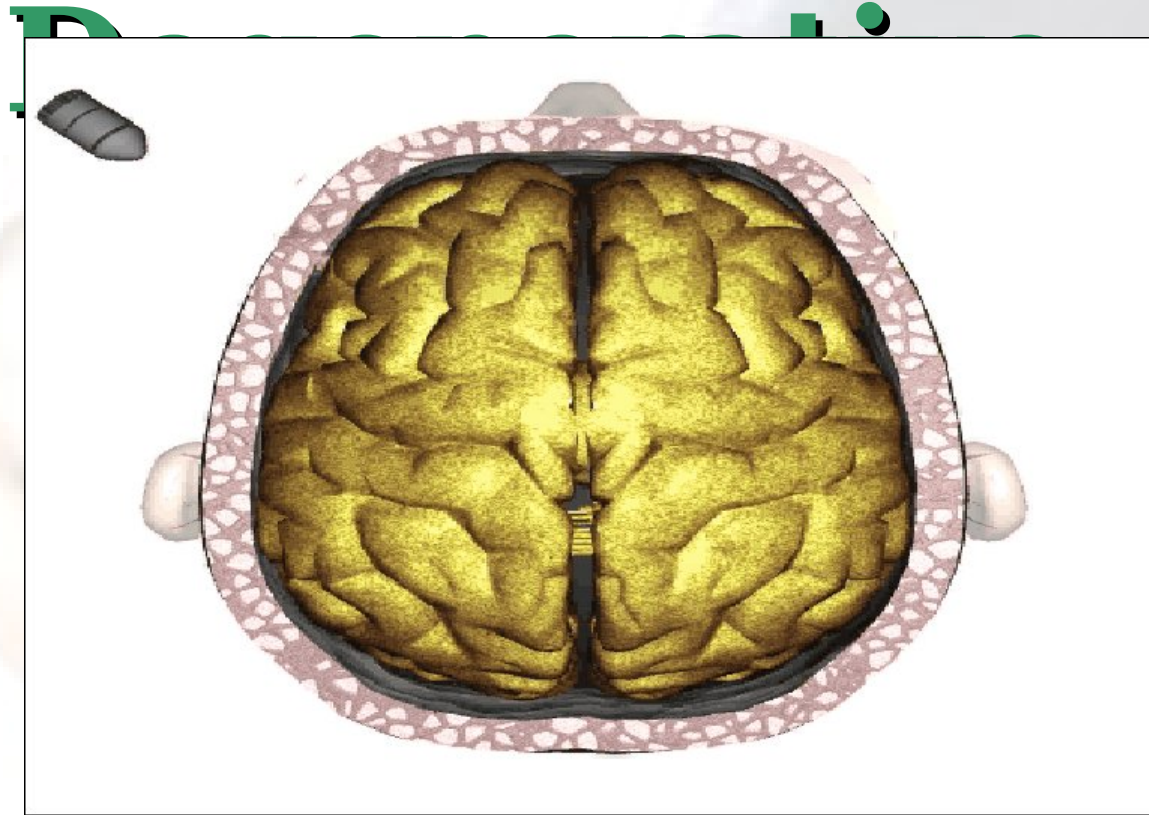


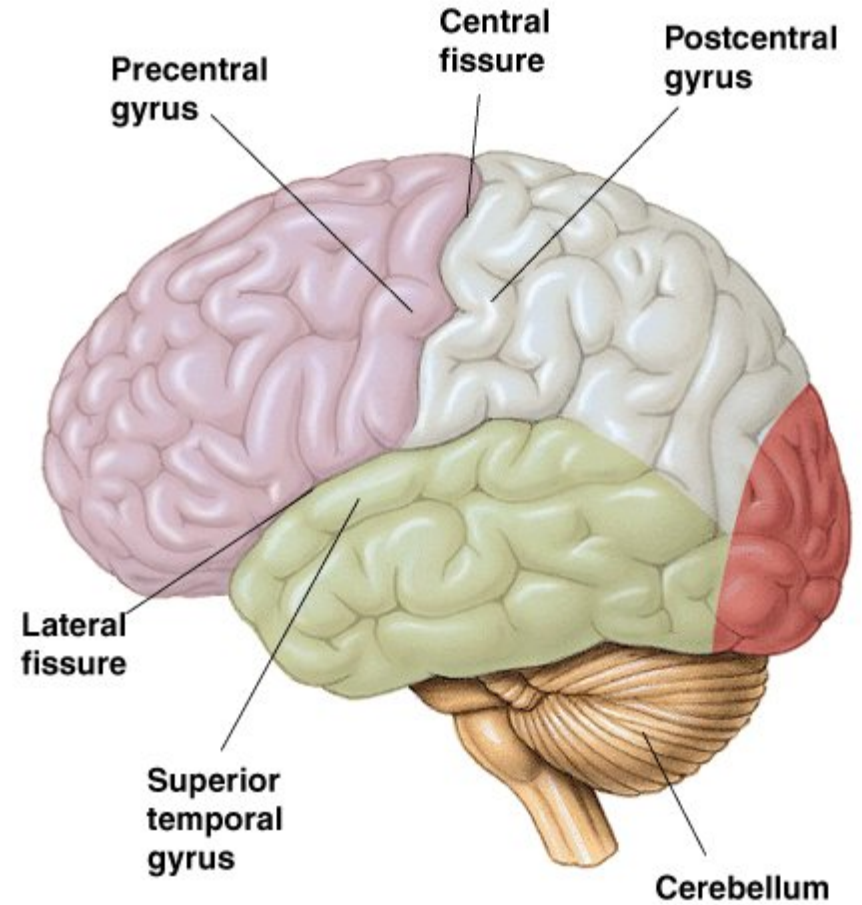
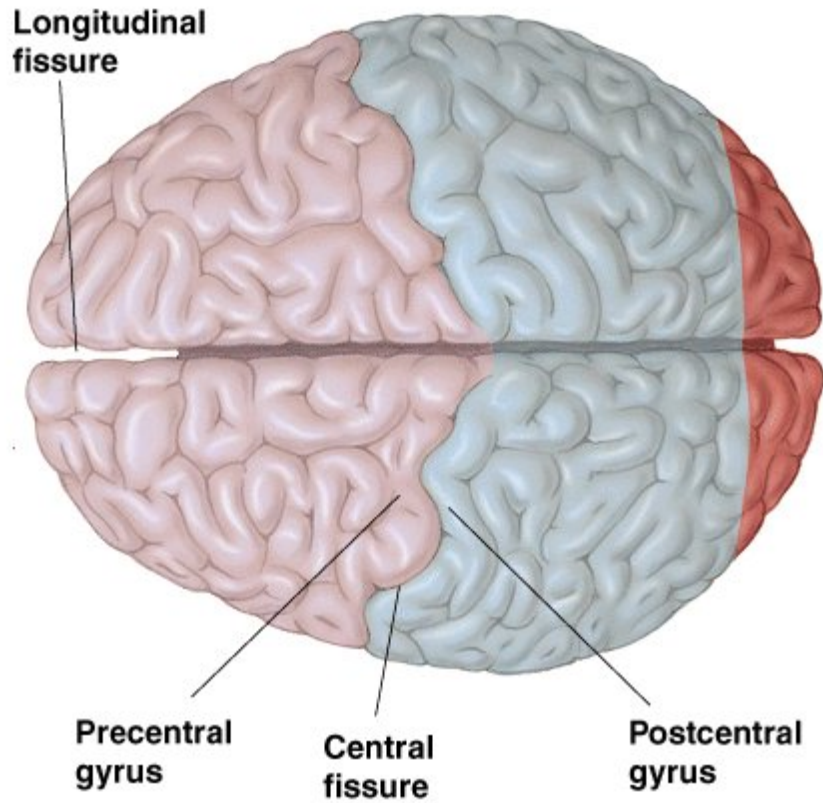
Cerebro Lesioni

Acquisite &



**Salvatore Giangrasso Senior Clinical
Neuropsychologist**

► The Lobes of the Cerebral Hemispheres



Frontal lobe

Parietal lobe

Temporal lobe

Occipital lobe

Left and Right Brain Functions

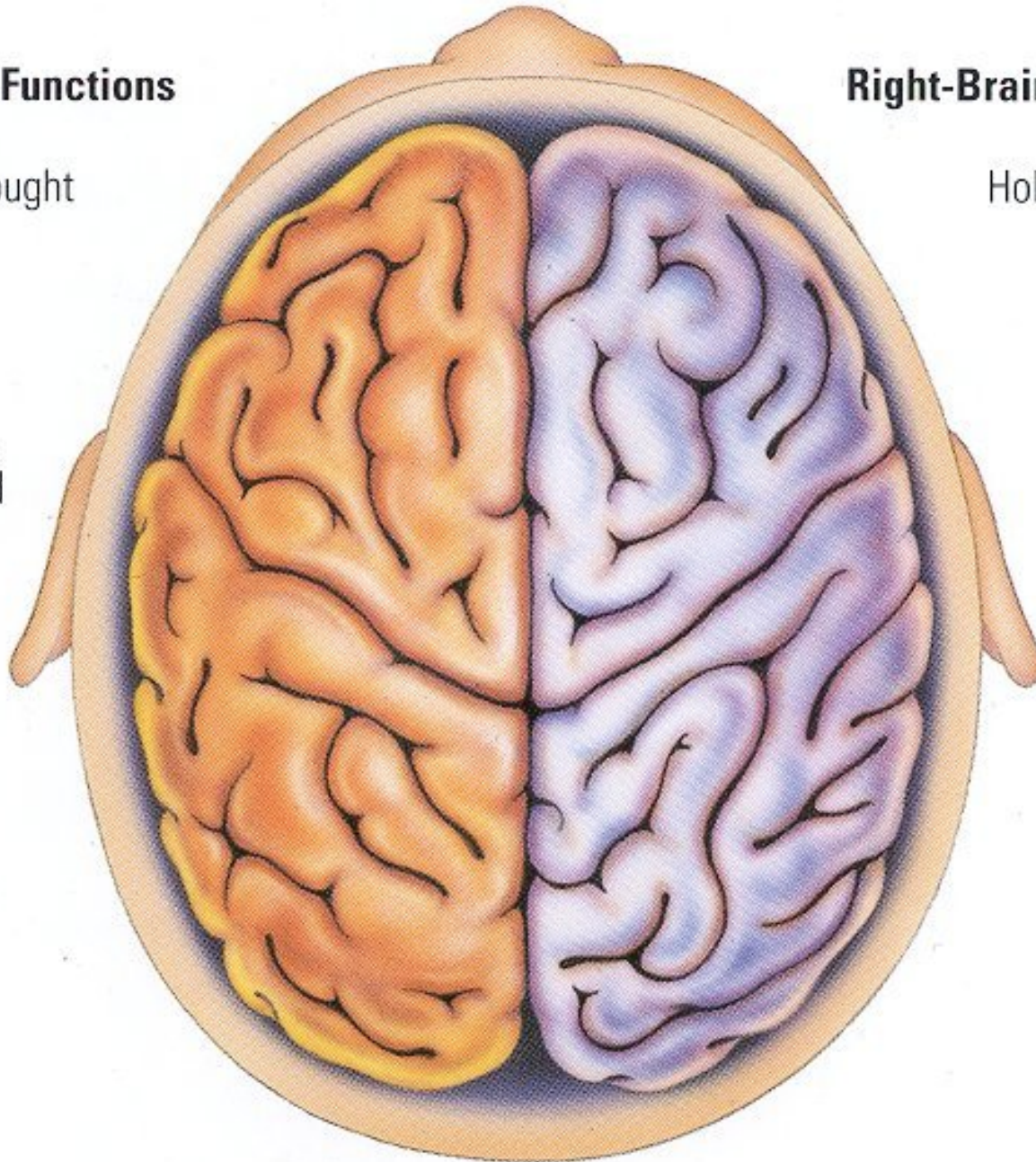
Left-Brain Functions

Analytic thought

Logic

Language

Science and
math



Right-Brain Functions

Holistic thought

Intuition

Creativity

Art and
music

The Story of Phineas Gage



Cavendish, Vermont (September 13, 1848)

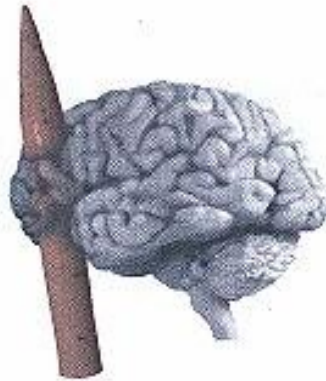
The Story of Phineas Gage

“...scontroso, irreverente, a volte molto sconveniente e sarcastico...”

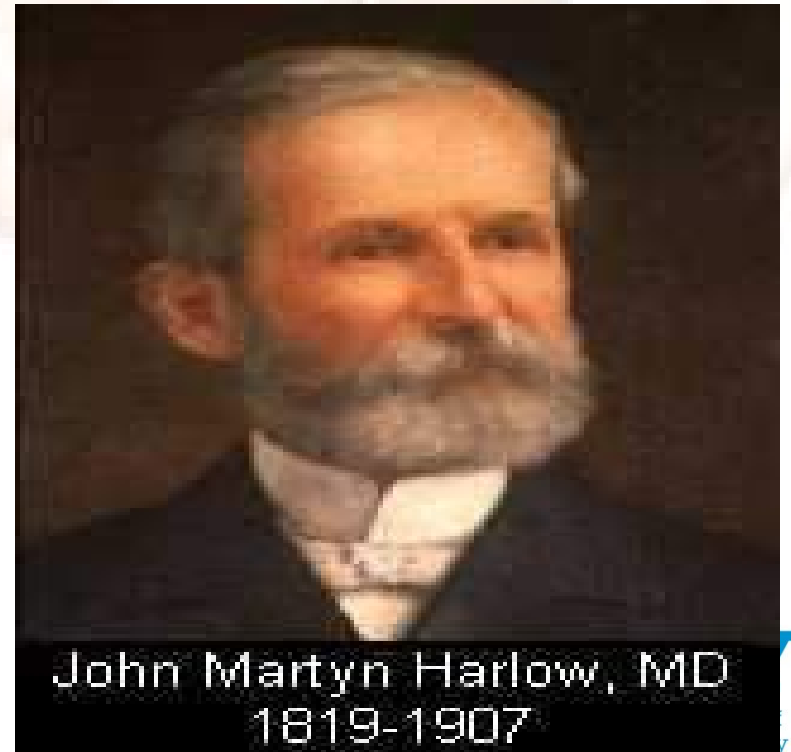
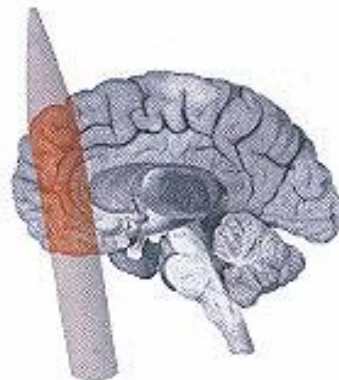
-- Gage's physician



The death mask of Phineas Gage showing the massive injury to the skull.



Reconstruction of the position of the rod which passed through the frontal lobe of Gage's brain.



John Martyn Harlow, MD
1819-1907

ABI Definition

Any injury to the brain received during a person's lifetime and not as a result

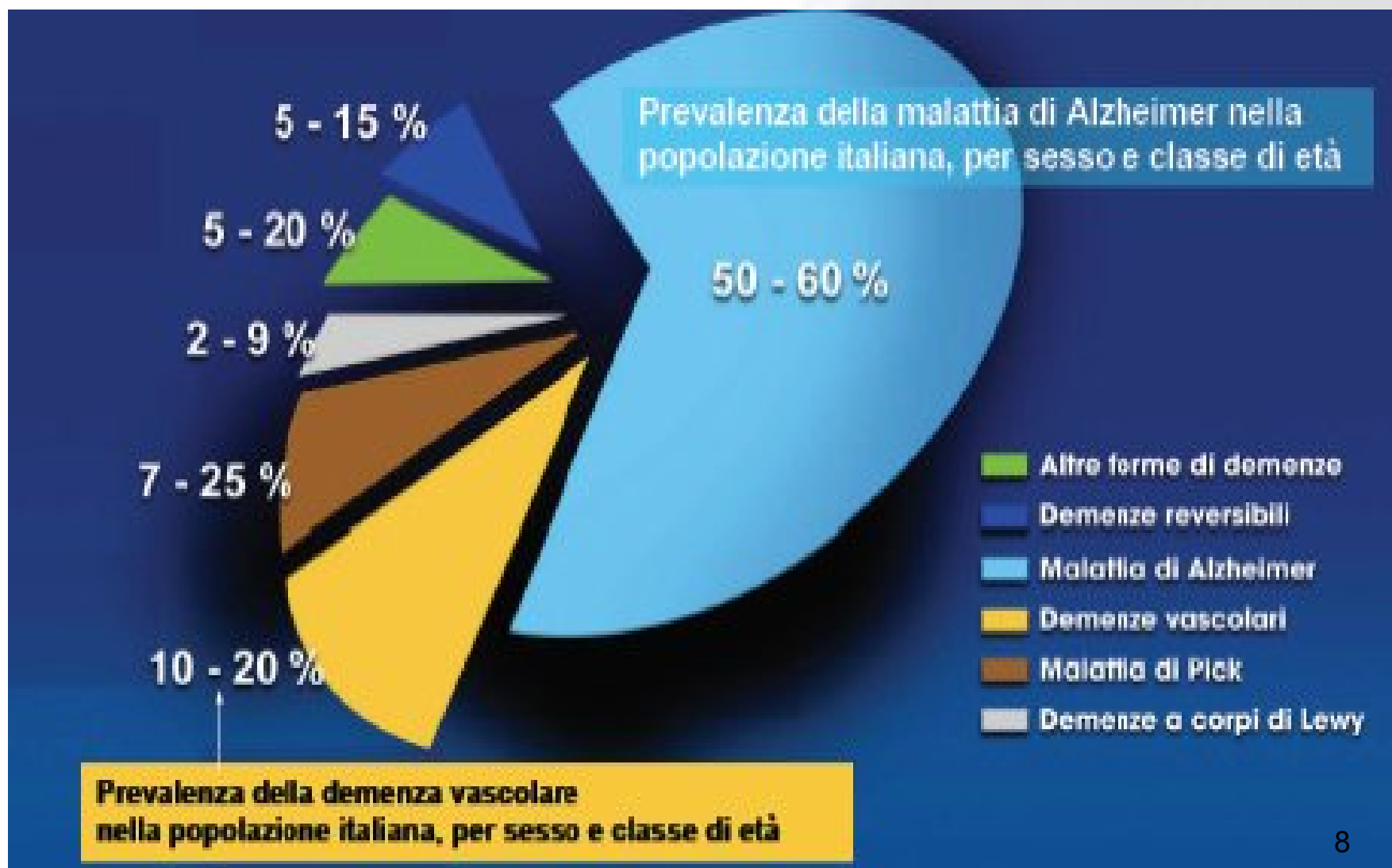
TBI Definition

An insult to the brain caused by an external force that may produce diminished or altered states of consciousness which results in impaired cognitive abilities or physical

Causes of ABI

- Traumatic Brain injury
- Stroke/ cerebrovascular accident
- Haemorrhage
- Tumour
- Anoxia
- Infection
- Alzheimer

Prevalenza delle Demenze



Traumatic Brain Injury

- Road traffic accidents (RTA), falls, assaults and sport accidents most common causes of TBI
- The most common cause of brain damage in children and young adults
- People with TBI often physically intact with a significant impairment in cognitive/emotional functioning

What happens in TBI?

Damage to the brain may occur at the time of impact, or it may develop some time after the injury (e.g. from swelling or bleeding). Bleeding can

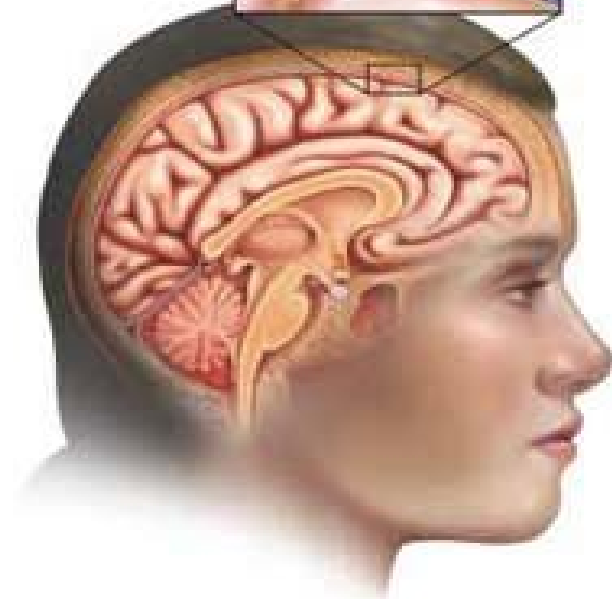
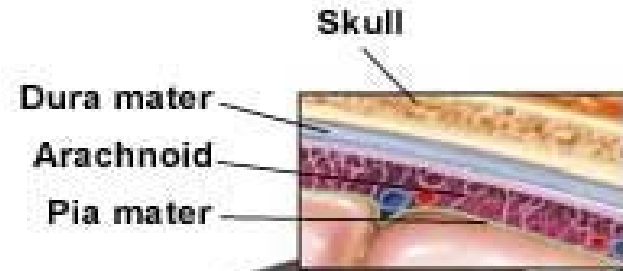
Extradural haemorrhage

between skull and dura

Subdural: between dura and subarachnoid

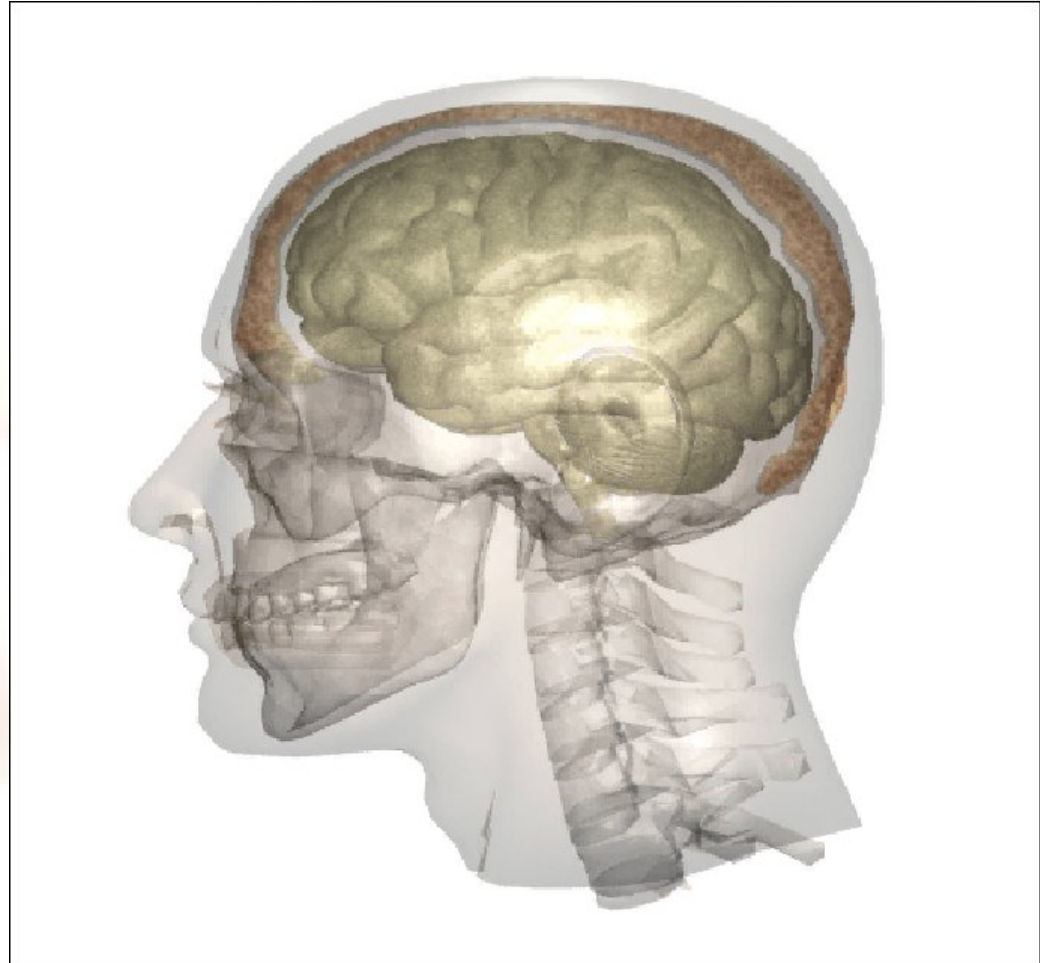
Subarachnoid: between subarachnoid and brain

Intracerebral: within the brain substance



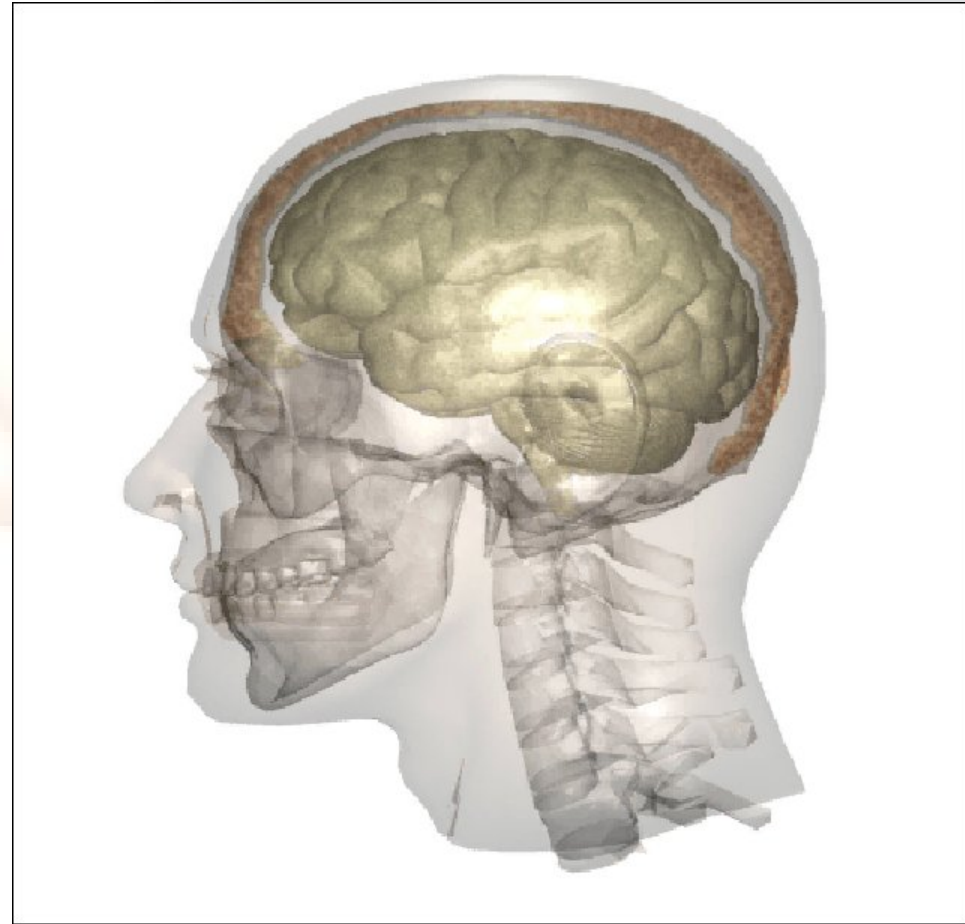
What happens in TBI?

As a result of the impact,
In addition to the immediate area of injury (**coup**), the brain may also rebound against the opposite side of the skull (**contra-coup**)



What happens in TBI? Diffuse Brain Damage

Together with a coup and contra coup motion, a torsion motion can effect the movement of the brain in the head which can result in diffuse brain injury.



What happens in TBI?

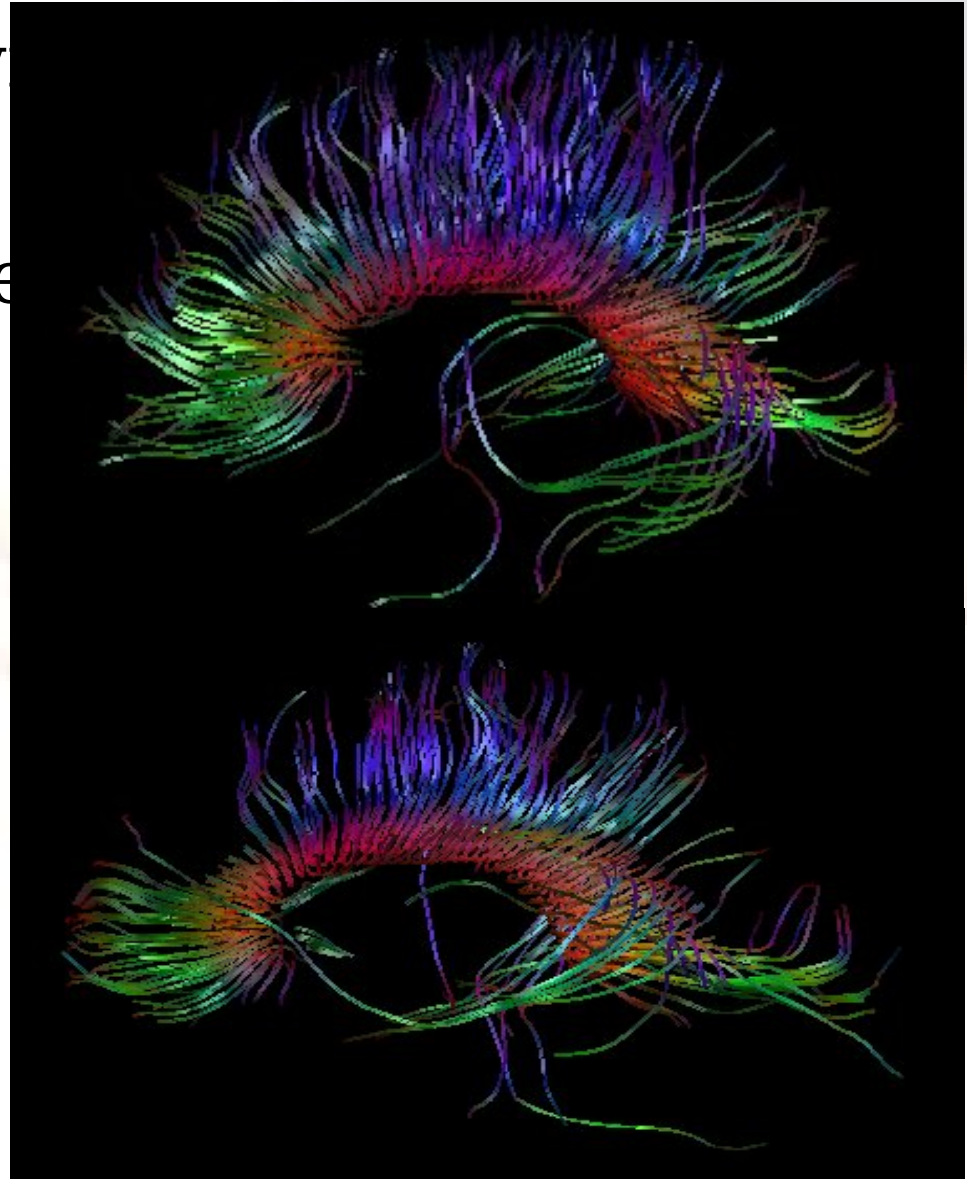
When the head is hit with force, twisting and rebounding often cause diffuse axonal damage

Normal

Post TBI

When the head is hit with force the brain stem turns and twists causing a loss of consciousness;

prolonged consciousness = coma

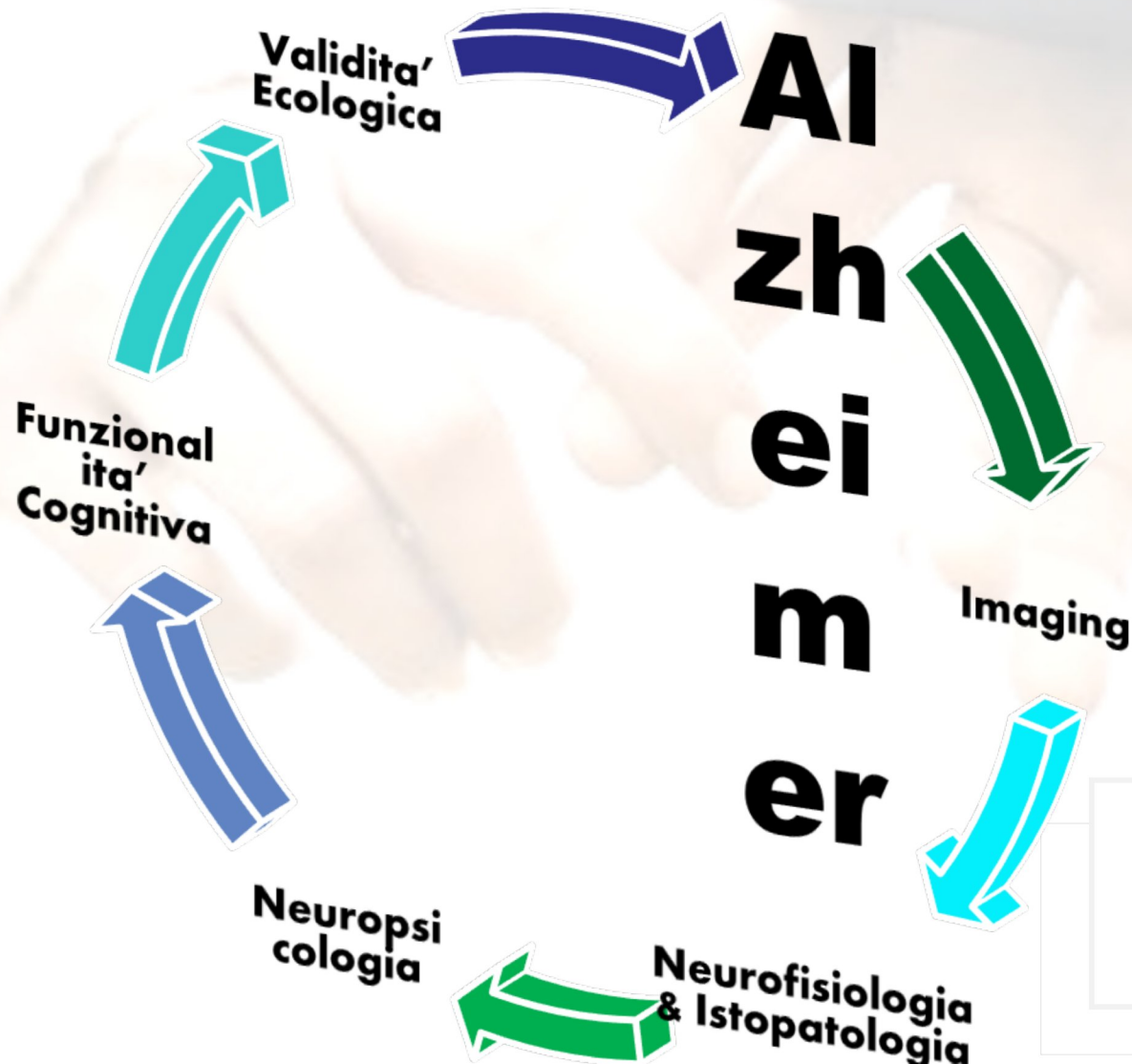


Non-Traumatic Brain Injury

Cause	Example	Cause	Example
<p>Anoxic injuries (lack of oxygen to the brain)</p>	<ul style="list-style-type: none"> • Near drowning • Suffocation • Chocking 	<p>Inhalation or ingestion of toxic substances</p>	<ul style="list-style-type: none"> • Sniffing glue, paint or carbon monoxide • Drug use
<p>Vascular injuries (disruption in blood supply to the brain)</p>	<ul style="list-style-type: none"> • Stroke (blocked blood vessels in the brain) • Aneurysm (broken blood vessels in the brain) 	<p>Infectious diseases</p>	<ul style="list-style-type: none"> • Meningitis • Encephalitis

La demenza di tipo Alzheimer

I Livelli d'analisi



92 con Demenza di Alzheimer

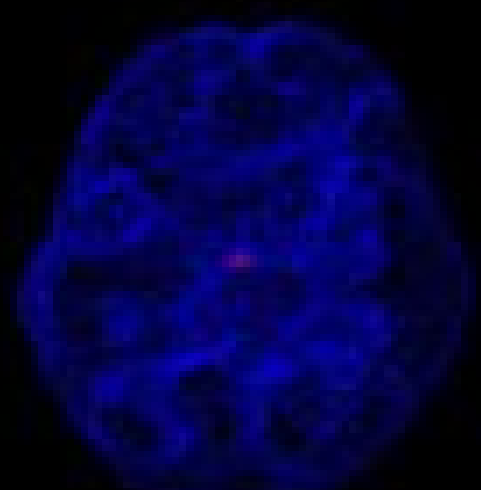
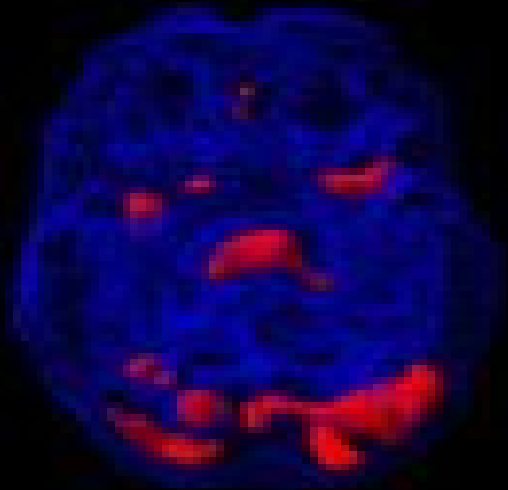
Extensive frontal lobe involvement, marked overall suppression, especially in the parietal lobes and temporal lobes



Pseudodementia

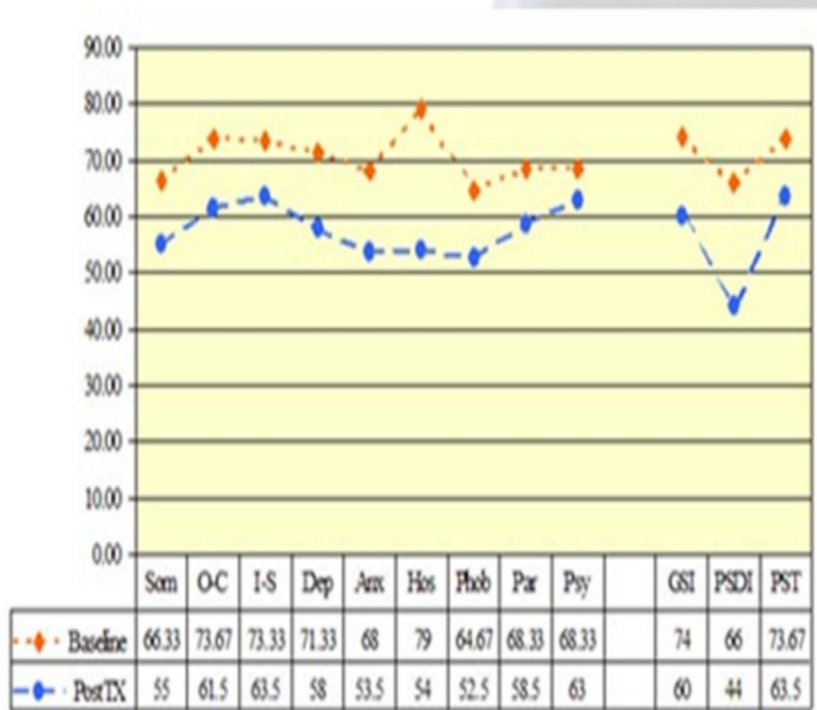
Good temporal and parietal lobe perfusion, with increased limbic and/or decreased prefrontal cortex activity

Before treatment notice good overall activity, with increased limbic system activity after treatment with antidepressant the limbic system normalizes

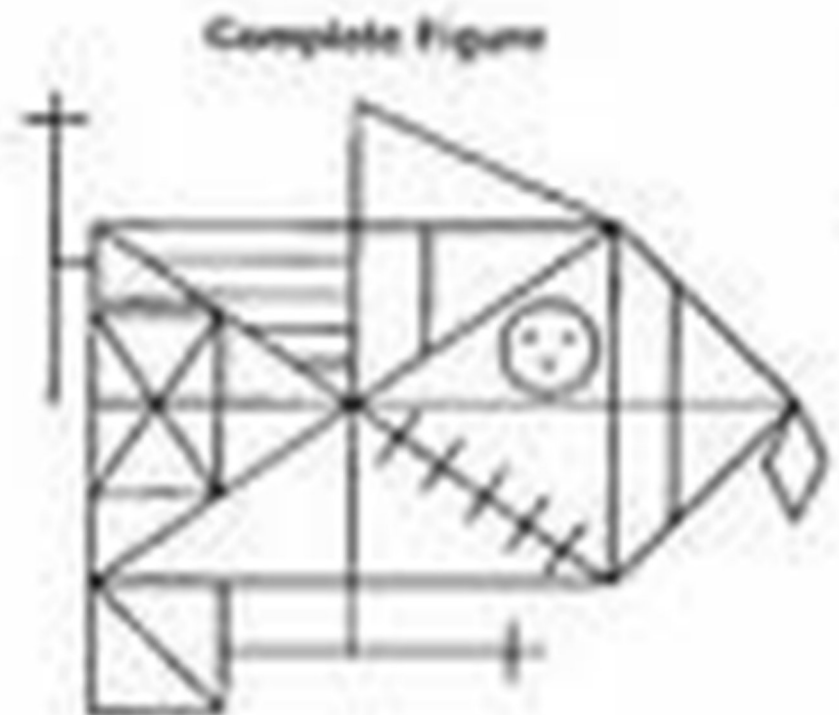


Pseudodemenza

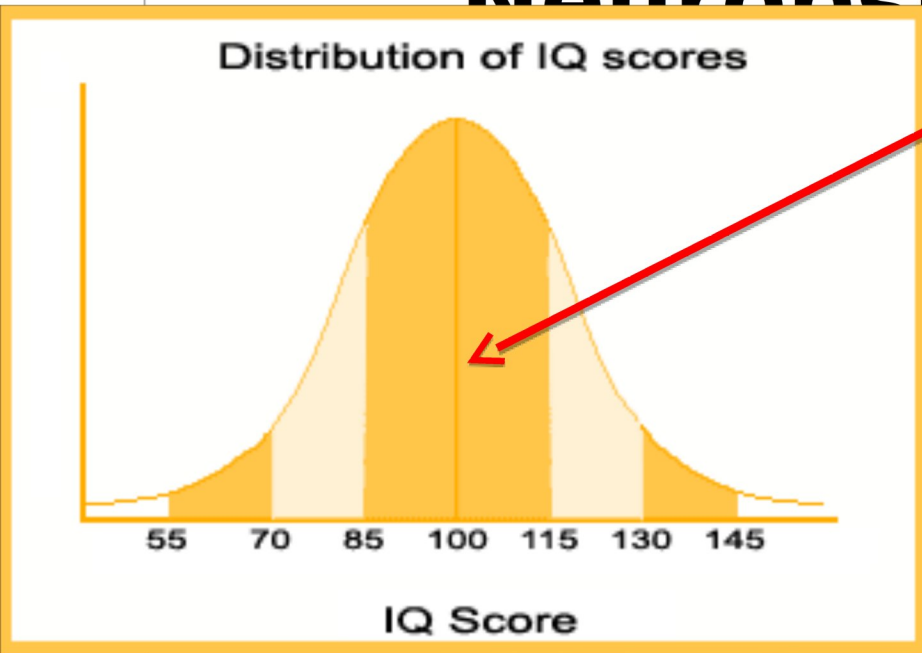
SCL-90



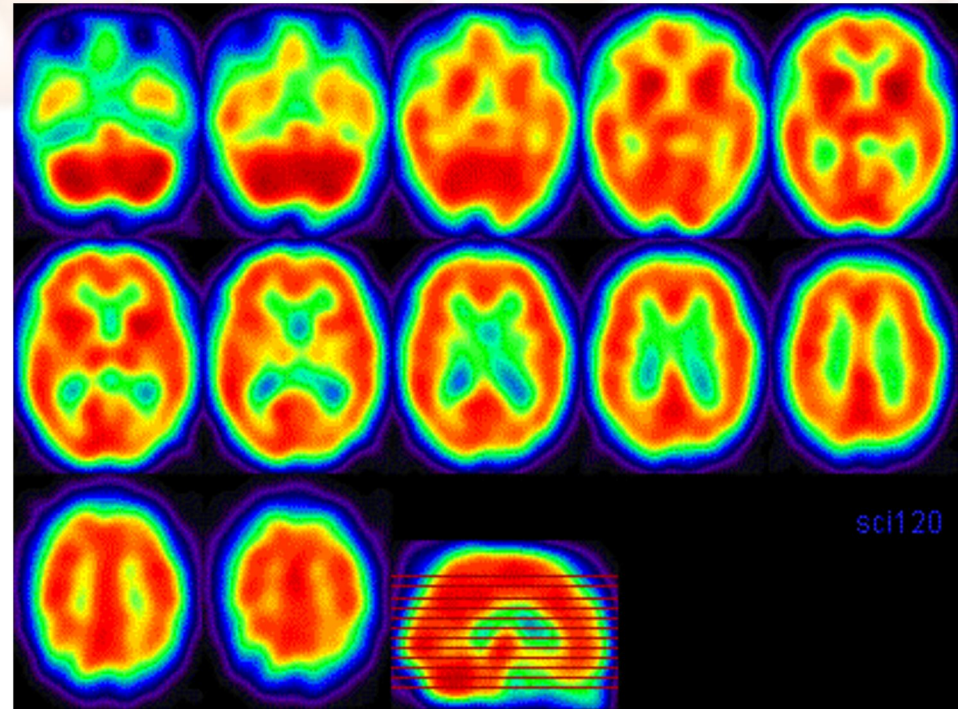
Testare i Limiti



In assenza di evidenze Neurologiche e Neuropsicologiche



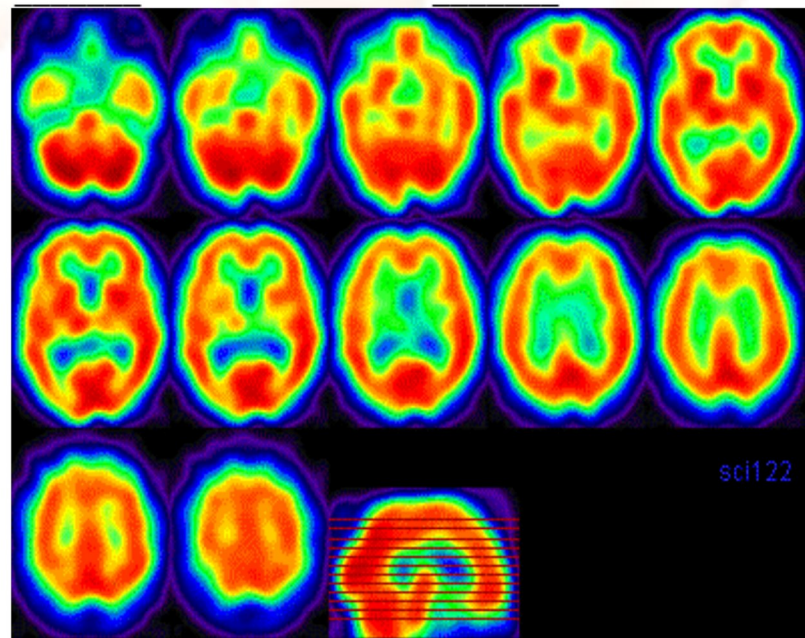
**Normale: Perfusione
corticale ottimale** →



Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
1.Violin	Violin	Violin	Violin	Violin
2.Tree	Tree	Tree	Tree	Tree
3.Scarf	Scraf	Scarf	Scarf	Scarf
4.Ham	Ham	Ham	Ham	Ham
5.Suitcase	Suitcase	Suitcase	Suitcase	Suitcase
6.Cousin	Cousin	Cousin	Cousin	Cousin
7.Earth	Earth	Earth	Earth	Earth
8.Stairs	Stairs	Stairs	Stairs	Stairs
9.Dog	Dog	Dog	Dog	Dog
10.Banana	Banana	Banana	Banana	Banana
11.Town	Town	Town	Town	Town
12.Radio	Radio	Radio	Radio	Radio
13.Hunter	Hunter	Hunter	Hunter	Hunter
14.Bucket	Bucket	Bucket	Bucket	Bucker
15.Field	Field	Field	Field	Field
Total _____				
Total Score _____				

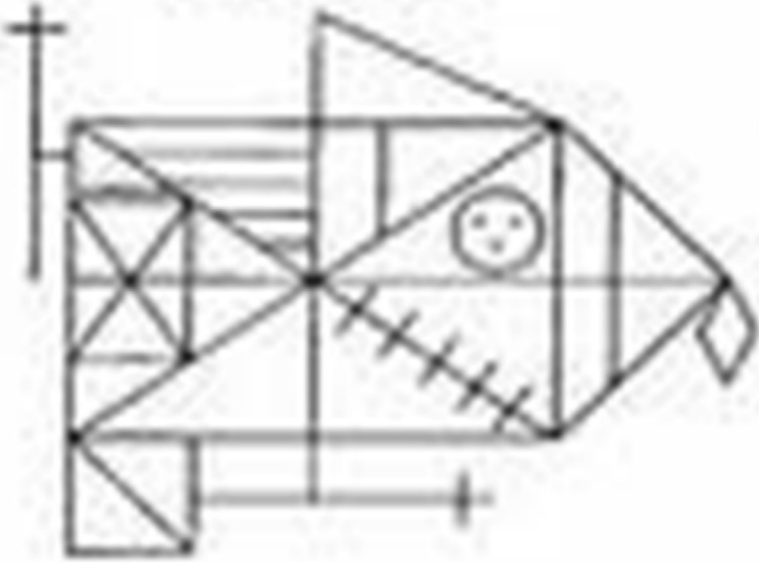
Ray Auditory Verbal Learning Test RAVLT

Mild: riduzione minima della perfusione nelle aree fronto temporali



visuo- truzione

Complete Figure

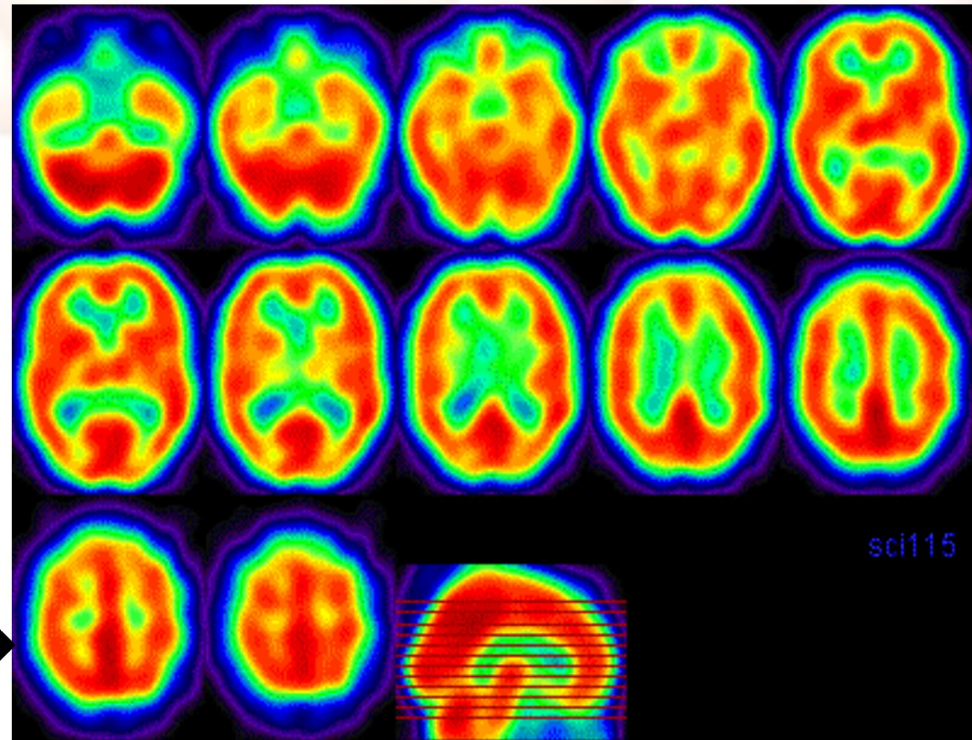


WAIS-R Block Design



Results form the combination of perceptual activity and motor response

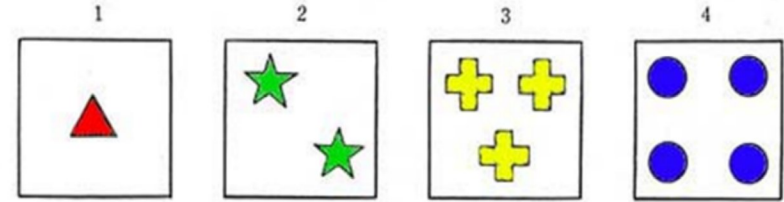
Moderato: Evidente riduzione della perfusione nell'area



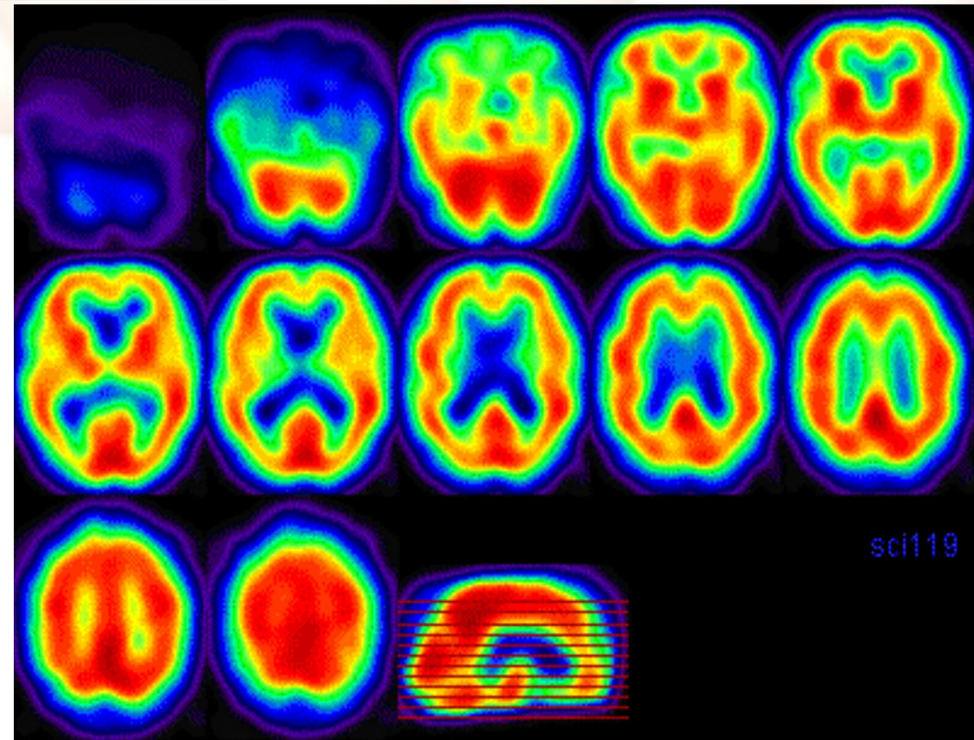
Lobo Frontale e Funzioni Esecutive

Hayling Section 1: Sensible Completion

1. He posted a letter with a _____
2. In the first space enter your or: In the first blank enter your
3. The old house will be torn _____
4. It's hard to admit when one is _____

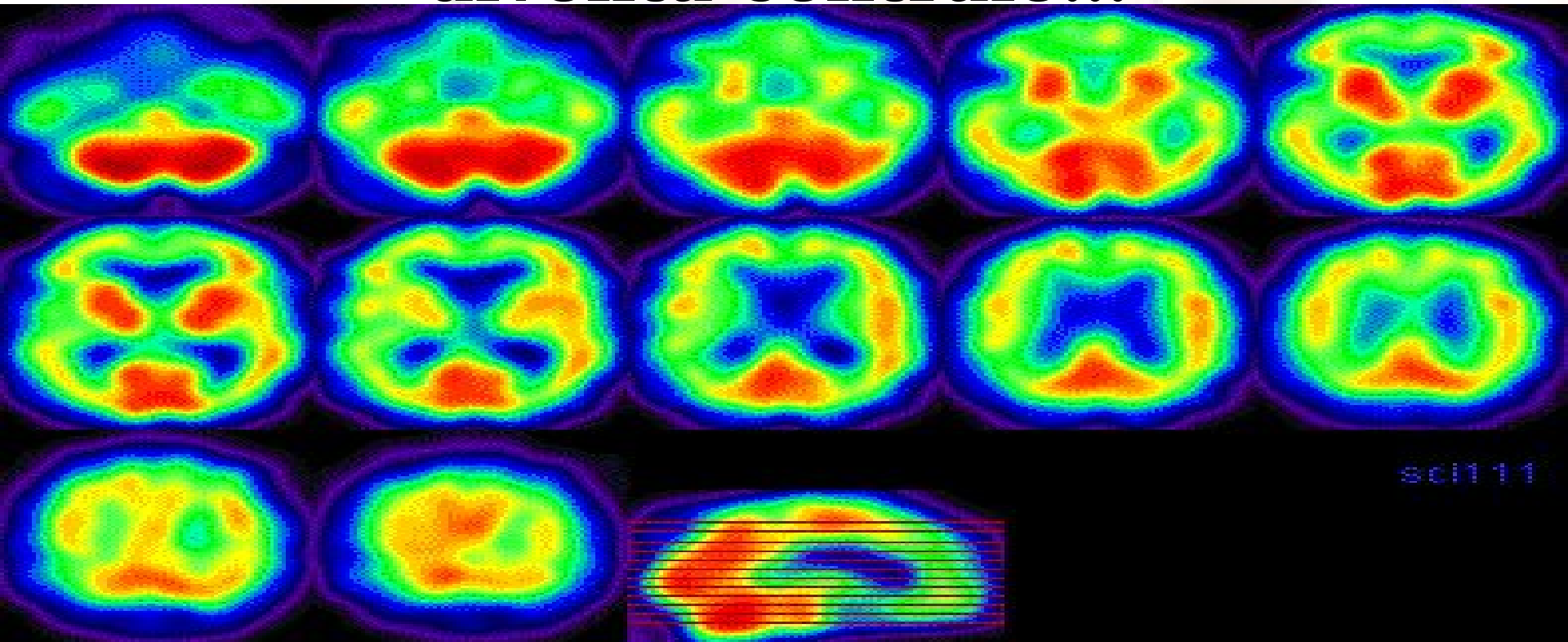


Moderato-severo: Riduzione importante della perfusione in ambito corticale e allargamento ventricoli →

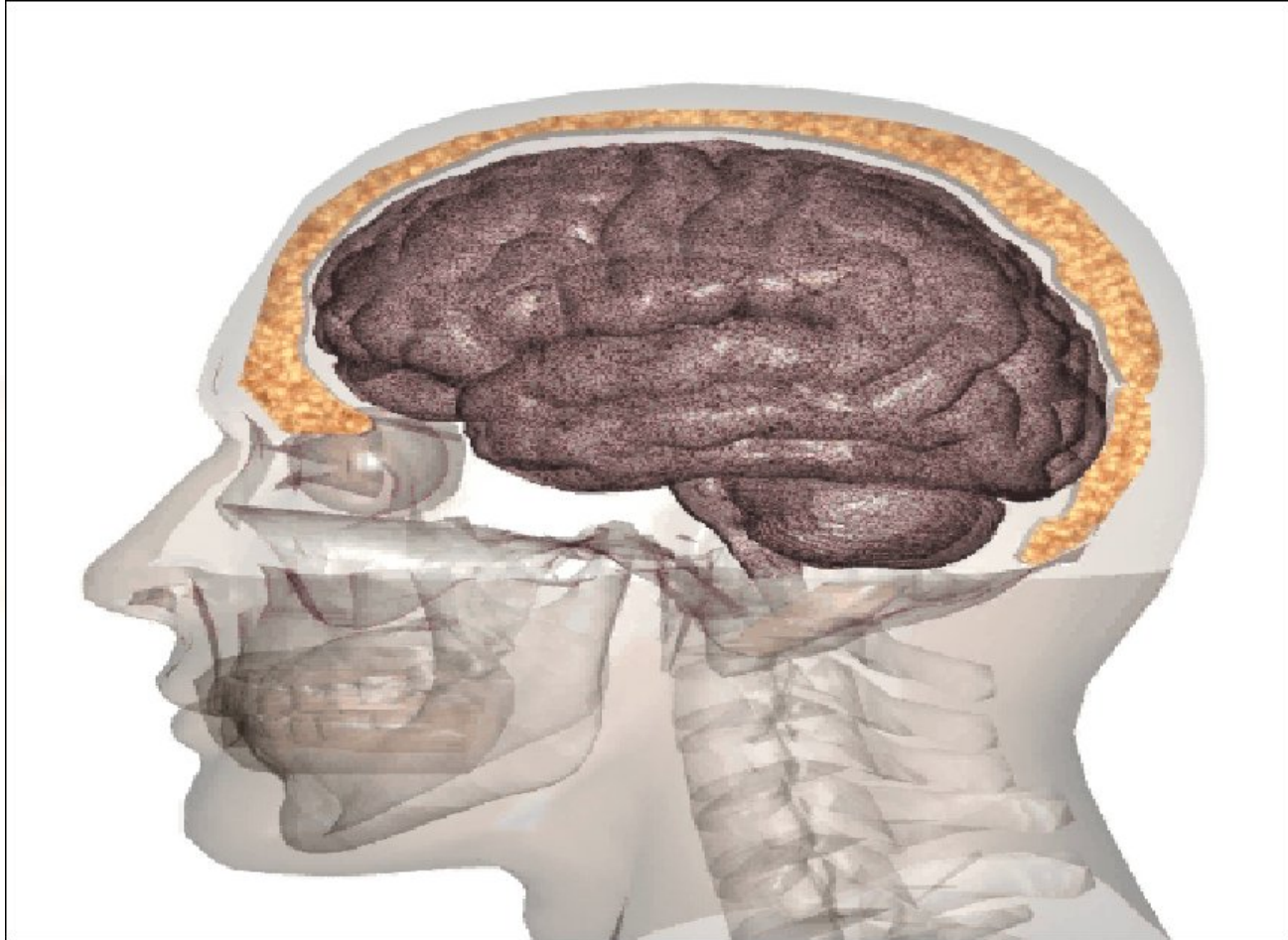


Severo: Riduzione massima in perfusione corticale

Quando la modificazione ambientale e il supporto al carer diventa centrale...



Vascular Disorders - Stroke



Bacterial or Viral Infections

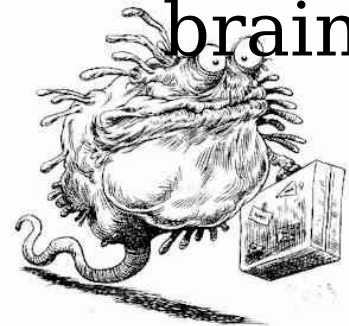
Bacterial Infection:

Localised causing an abscess or diffuse causing a cerebritis or encephalitis

Viral Infection:

Diffuse causing encephalitis

Meningitis: infection in the covering of the brain



Levels of Severity of Brain Injury I

<u>Mild</u>	<u>Moderate</u>	<u>Severe</u>
<ul style="list-style-type: none">• Altered state of consciousness at onset• Can have a negative CT scan or MRI• Typically good physical recovery• Frequent headaches• Some poor motor coordination• Limited attention span and/or concentration	<ul style="list-style-type: none">• Loss of consciousness• Seizures may occur• Frequent headaches• Motor coordination difficulties• Limited attention span, concentration and/or ability to attend to multiple aspects of the environment• Slowed information processing speed	<ul style="list-style-type: none">• Coma/loss of consciousness exceeding 24 hours• Frequent concern of seizures• May often be accompanied by multiple physical injuries• Limited ability or inability to voluntarily swallow

The Severity of ABI

- Determined according to the presence, degree and duration of **coma** and/or **Post-Traumatic Amnesia (PTA)**
- Severity scales from very mild (e.g. less than 5 minutes PTA) to profound (over 4 weeks PTA)

Fig. 2

Glasgow Coma Scale for Head Injury

**Glasgow Coma Scale,
Eye opening**

Spontaneous	4
To loud voice	3
To pain	2
None	1

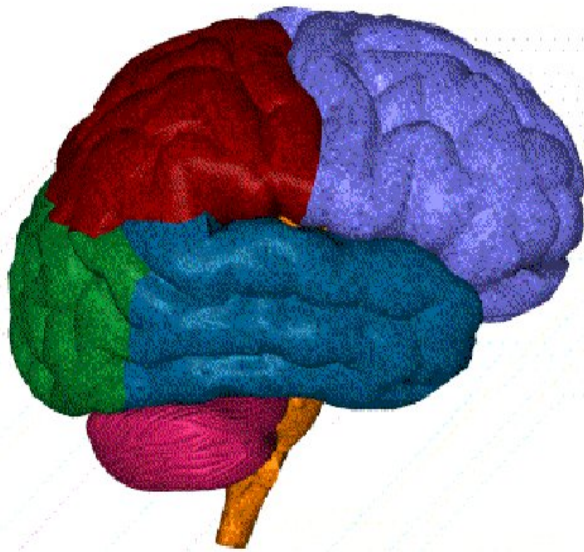
Verbal response

Oriented	5
Confused, disoriented	4
Inappropriate words	3
Incomprehensible sounds	2
None	1

Best motor response

Obeys	6
Localizes	5
Withdraws (flexion)	4
Abnormal flexion posturing	3
Extension posturing	2
None	1

Occipital Lobe



Function

Primary visual reception area.

Visual association area: allows for visual interpretation.

Decodes information taken from the eye

Breaks down each picture

Symptoms of Injury

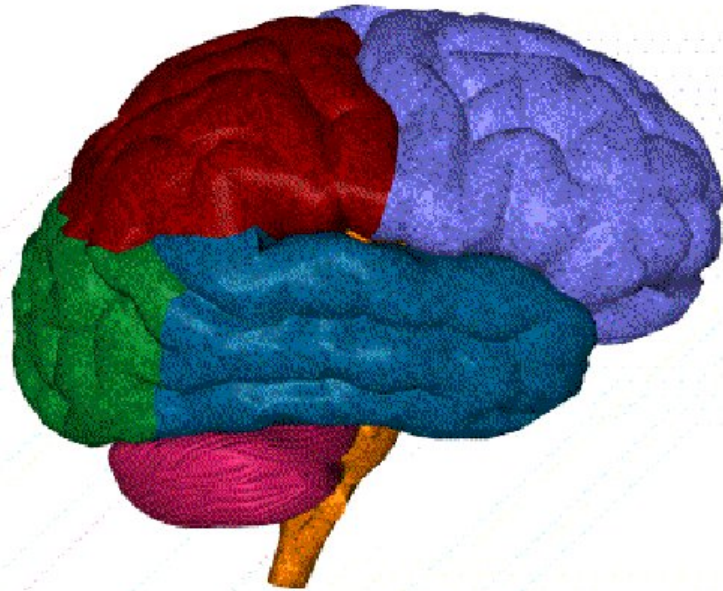
**Visual field deficits
Difficulty locating objects**

**Colour agnosia
Hallucinations
Visual illusions**

Word blindness

**Movement agnosia
Difficulty with literacy
Difficulty recognising drawn objects**

Temporal Lobe



Function

Auditory receptive area.

Expressed behaviour.

**Language:
Understanding speech.**

Memory

Symptoms of Injury

Hearing deficits

**Agitation, irritability,
childish behaviour**

**Receptive aphasia
(inability to
understand speech)**

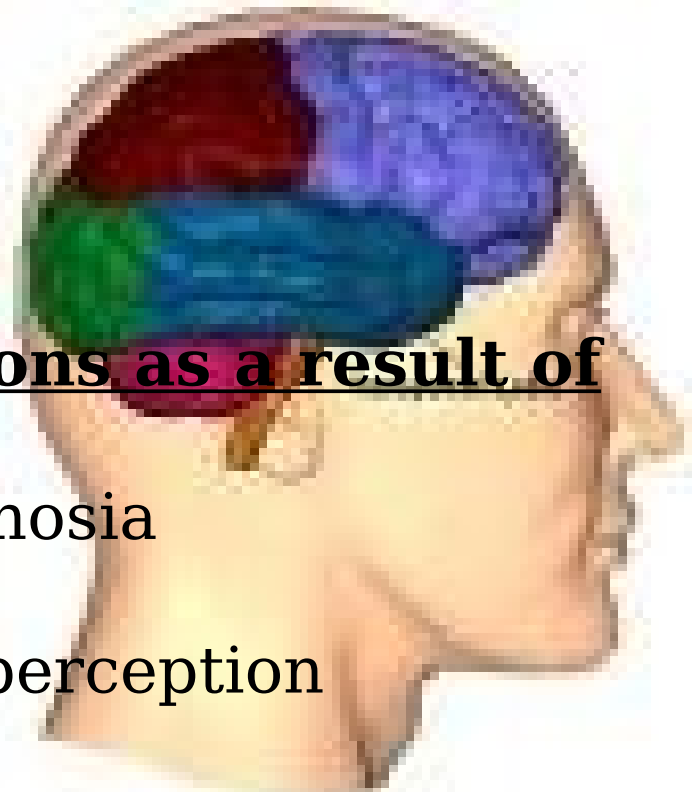
Temporal lobe

Functions:

- Memory acquisition
- Hearing, taste
- Recognition & categorisation of words
- Receptive Language

Dysfunctions as a result of damage

- Prosopagnosia
- Auditory sensation/perception problems
- Wernicke's Aphasia
- Persistent talking
- Selective attention difficulty
- ST memory loss
- Interference with LT memory
- Changed sexual I
- Categorisation
- Increased aggression



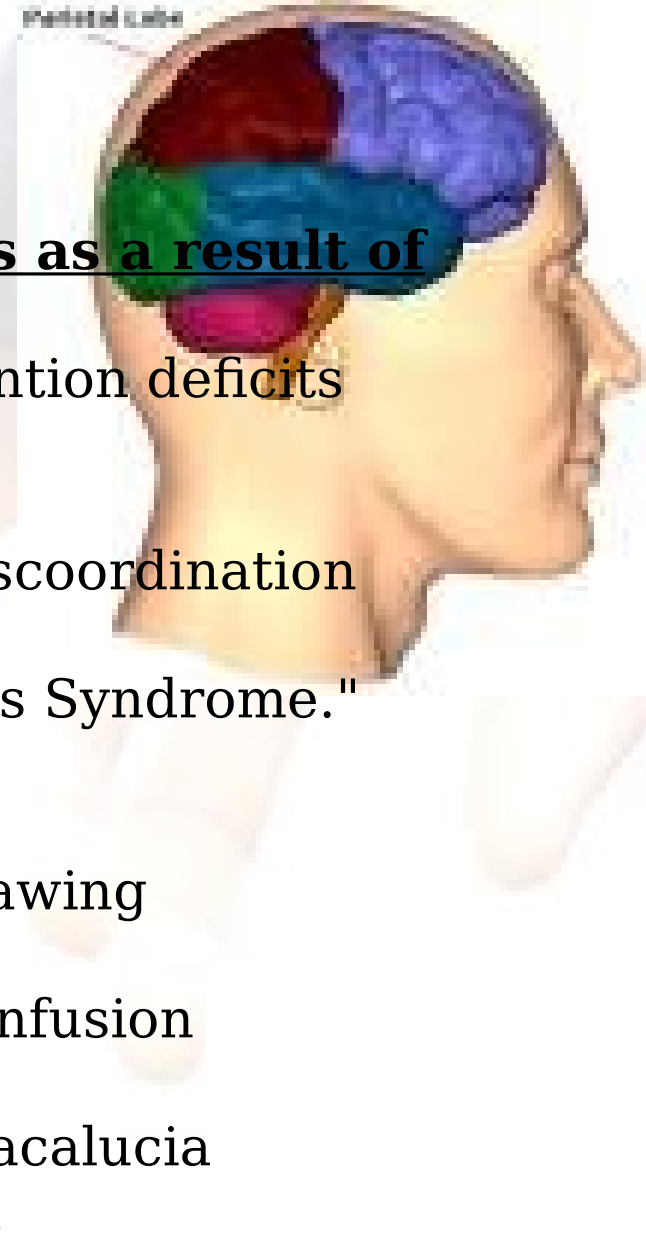
Parietal Lobe

Functions:

- Visual attention
- Touch sensations
- Perception
- Integration of different senses
- Manipulation of objects
- Goal directed voluntary movements

Dysfunctions as a result of damage

- Divided attention deficits
- Apraxia
- Anomia
- Hand-eye discoordination
- Agraphia
- "Gerstmann's Syndrome."
- Alexia
- Neglect
- Difficulty drawing
- Aphasia
- Right/left confusion
- Agnosia
- Dyscalculia/acalucia
- Anosagnosia
- Difficulty with visua
- "Balint's Syndrome,
- Ataxia



Cerebellum

Functions:

- Control fine movement
- Muscle Co-ordination
- Balance & equilibrium

Dysfunctions as a result of damage

Inability to walk
Tremors
Vertigo
Dysphonia
Slowed movements
Asynergia
Dysmetria
Inability to coordinate movements
Hypotonia
Abnormal eye m



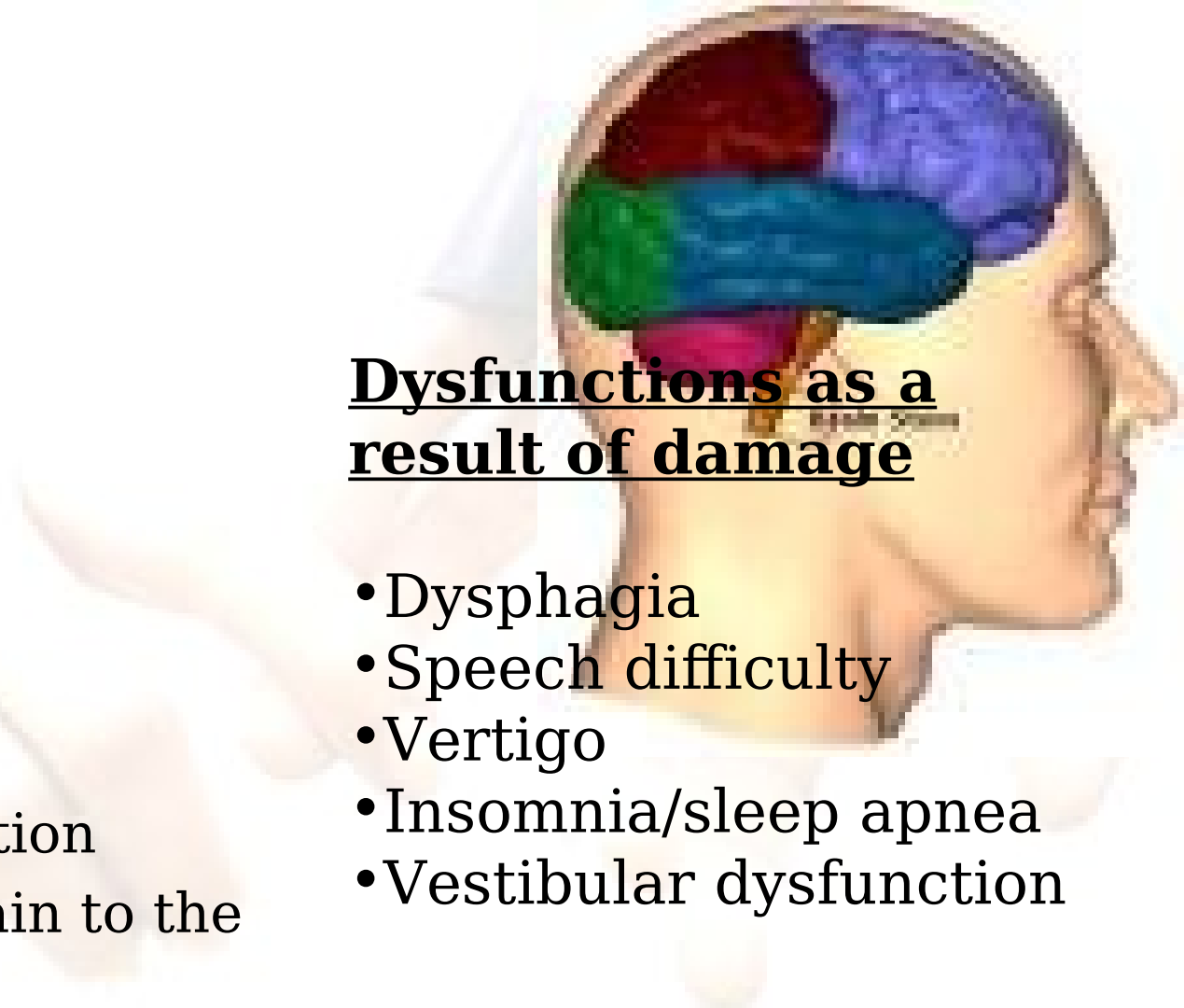
Brain stem

Functions:

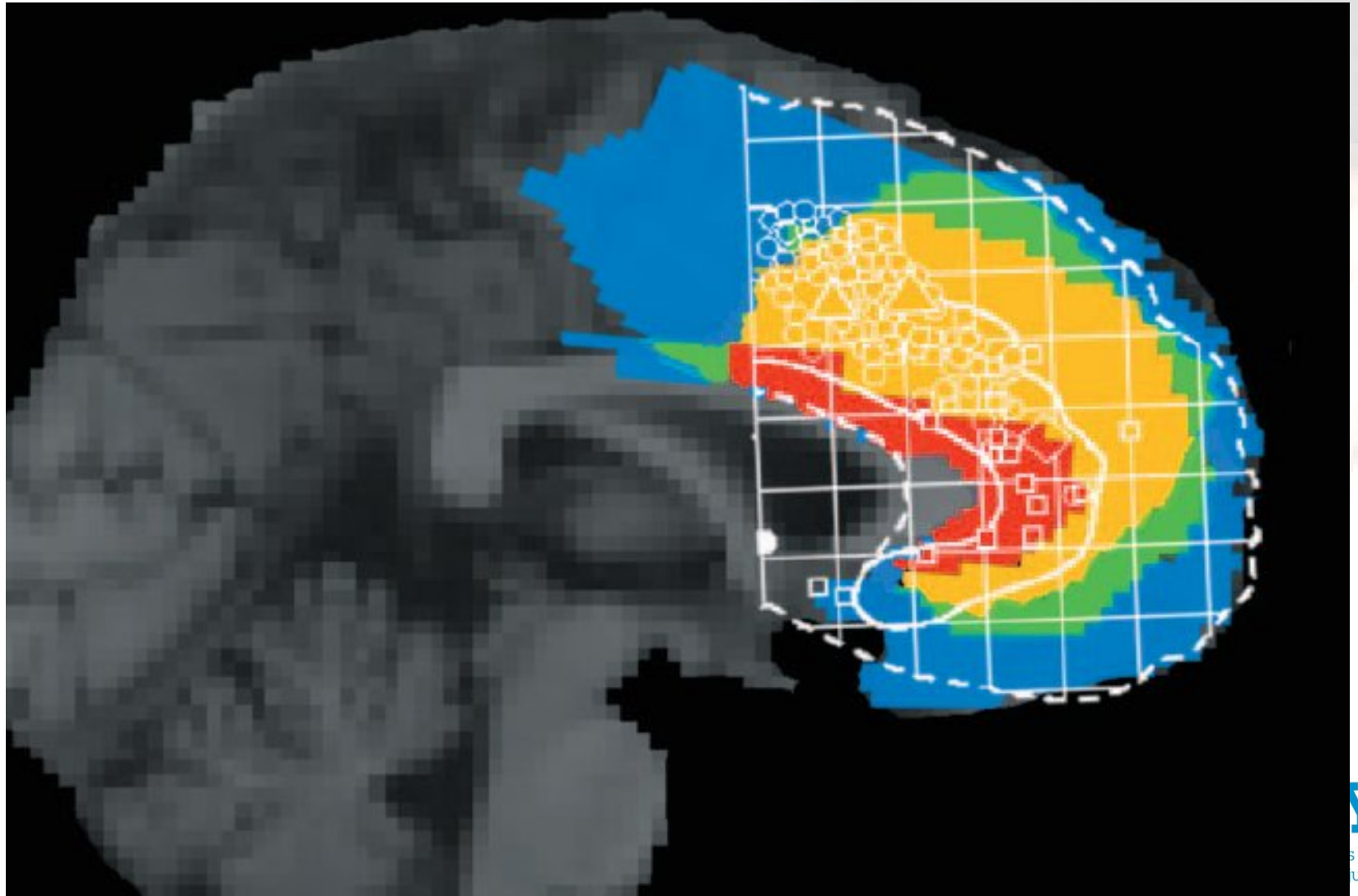
- Breathing and Heartbeat
- Alertness
- Eye movement
- Swallowing
- Vestibular function
- Anchors the brain to the spinal cord
- Controls ANS
- Ability to sleep
- Startle response

Dysfunctions as a result of damage

- Dysphagia
- Speech difficulty
- Vertigo
- Insomnia/sleep apnea
- Vestibular dysfunction



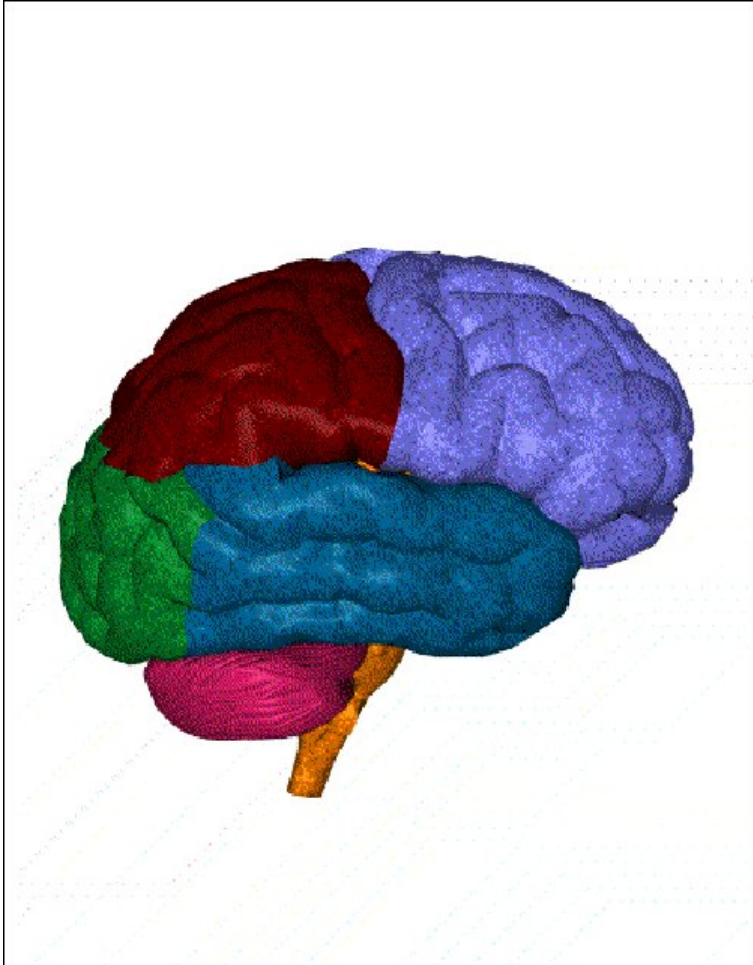
Ruolo della corteccia prefrontale



Funzioni “Esecutive” frontali

- **Concentrazione**
- **Resistenza all’interferenza**
- **Apprendimento strategico**
- **Working memory**
- **Flessibilità Cognitiva**
- **Formazione di concetti e ipotesi**
- **Pianificazione e pensiero astratto**
- **Controllo risposte impulsive/ autocontrollo**
- **Motivazione/ iniziativa psicomotoria**
- **Consapevolezza / Coscienza**
- **Modulazione affettiva**
- **Sarcasmo / autoironia / moralità**

Frontal Lobe



Function

- **Cognition and memory.**
- **Ability to concentrate.**
- **“Gatekeeper” on behaviour (judgment and inhibition).**
- **Personality and emotional traits.**
- **Movement**
- **Language: Motor speech**

Symptoms of Injury

- **Impairment of short term memory, inattentiveness, inability to concentrate, behaviour disorders.**
- **Difficulty learning new information.**
- **Emotional lability**
- **Flat**
- **Expressive**

Frontal

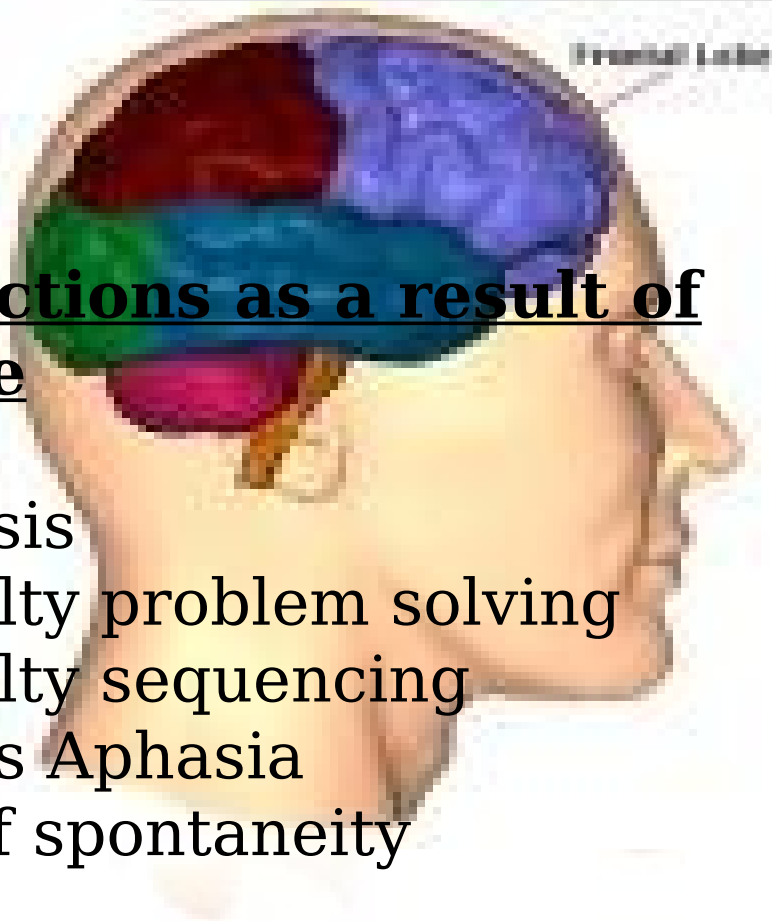
Lobe

Functions:

- Emotional control
- Initiation
- Expressive Language
- Working Memory and attention
- Social and sexual behaviour
- Impulse control
- Making judgements
- Executive Functioning
- Motor Function
- Voluntary movements

Dysfunctions as a result of damage

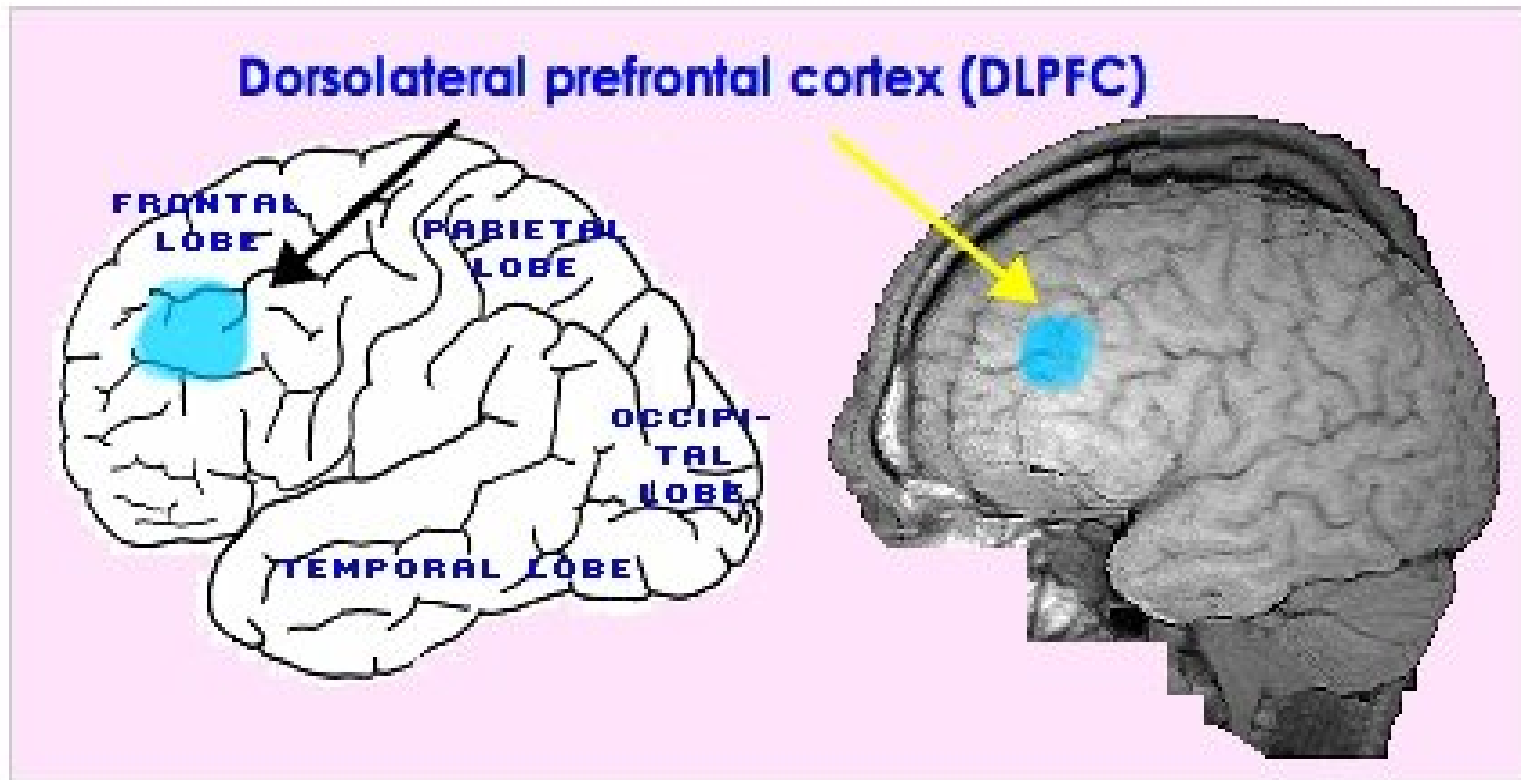
- Paralysis
- Difficulty problem solving
- Difficulty sequencing
- Broca's Aphasia
- Loss of spontaneity
- Disinhibition
- Inflexible concrete thinking
- Character change
- Perseveration
- Changed sexual behaviour



Localisation and Function

- **Dorsolateral Frontal Syndrome/Dysexecutive syndrome.**
- **Mesial Frontal/Anterior Cingulate Syndrome.**
- **Orbital Frontal Syndrome.**

Dorsolateral frontal

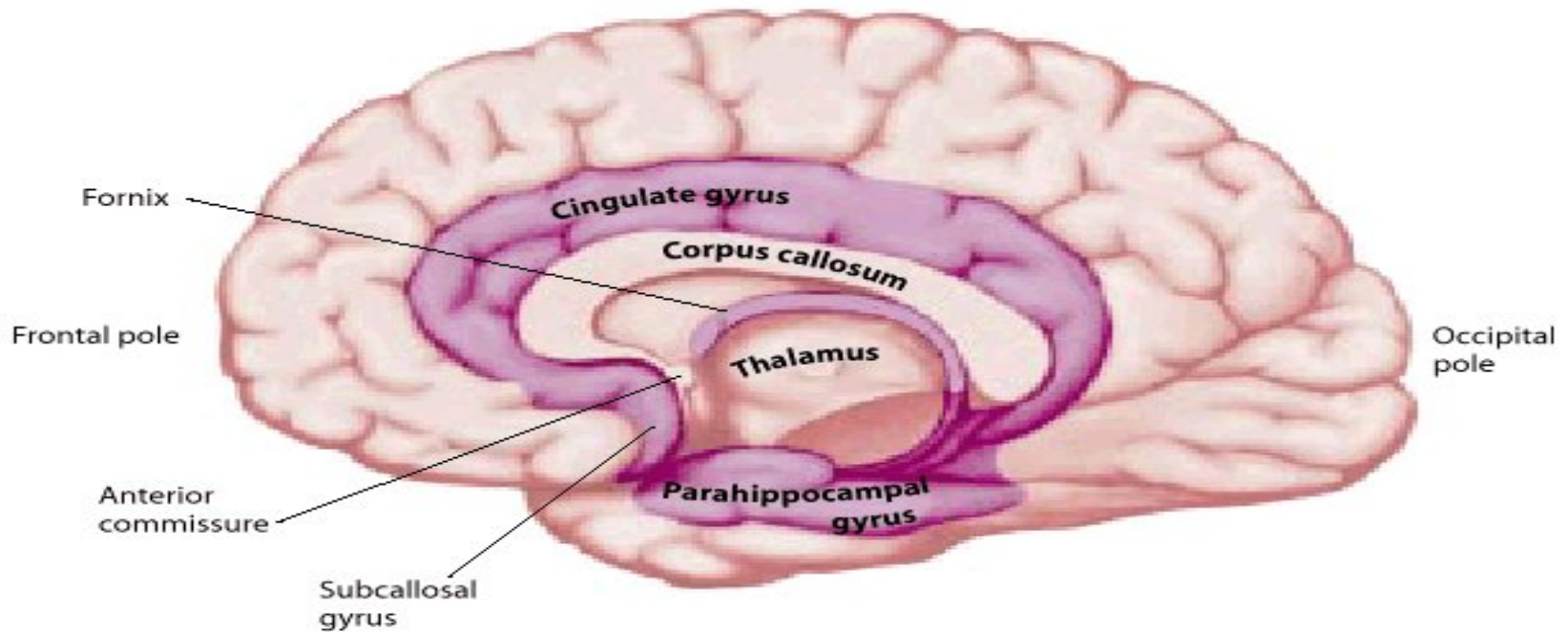


<http://web.lemoyne.edu/~hevern/psy340/graphics/dorsolateral.jpg>

Dorsolateral Frontal Syndrome/ Executive Dysfunction Syndrome/ Dysexecutive Syndrome

- **Primarily Cognitive impairments**
- **Deficits in Executive functions**
- **Problems with Planning and meeting goals**
- **Deficits in cognitive flexibility**
- **Impaired working memory.**

Mesial Frontal/Anterior Cingulate Syndrome

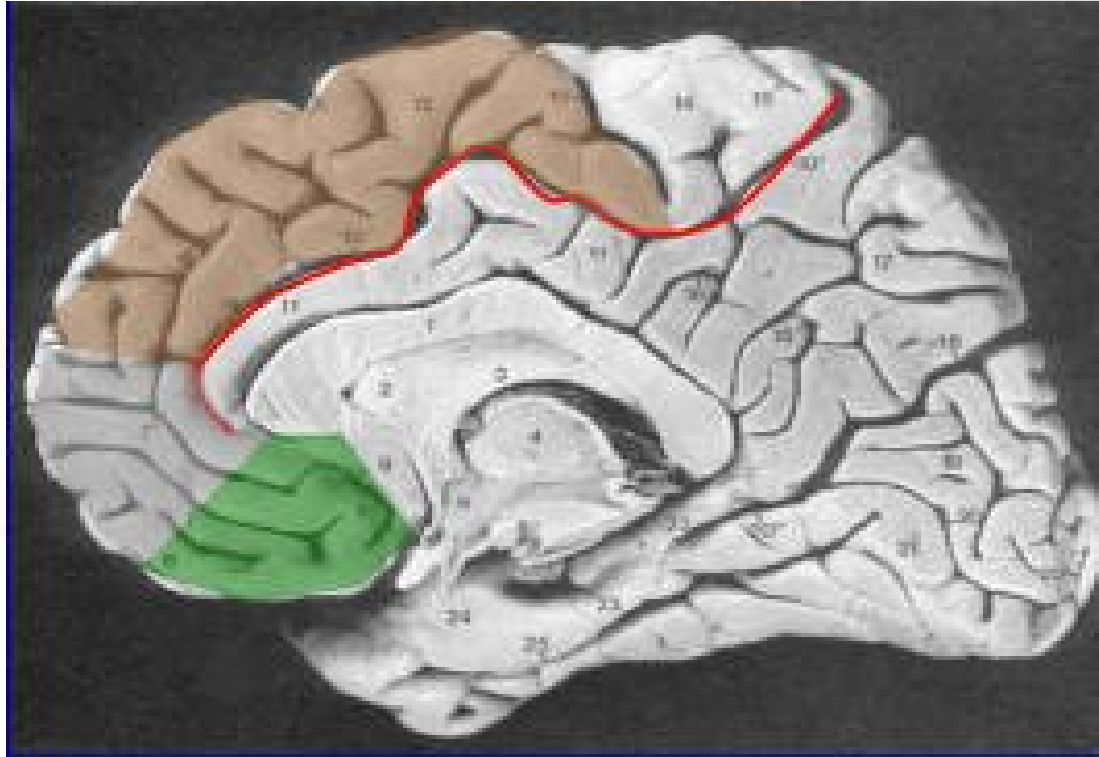


<http://www.neuromod.org/courses/ecba1999/image4.gif>

Mesial Frontal/Anterior Cingulate Syndrome

- **Midline frontal cortex.**
- **Depression misdiagnosis.**
- **Apathy.**
- **Can be treated with stimulants.**
- **Abulia, disinterest.**

Orbital Frontal



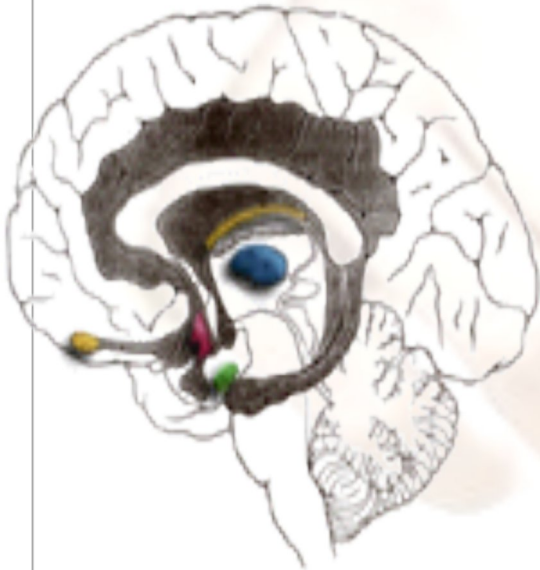
http://defiant.ssc.uwo.ca/Jody_web/fMRI4Dummies/brains/corticalsulci/medial_frontal_view_small.jpg

Orbital Frontal Syndrome

- **Primarily behaviour problems.**
- **Disinhibition, poor judgment, inappropriate affect, poor decision-making.**
- **Impulsivity.**
- **Poor self monitoring, lack of concern about deficit**
- **Decision-making test**

Limbic System

Brain Structure



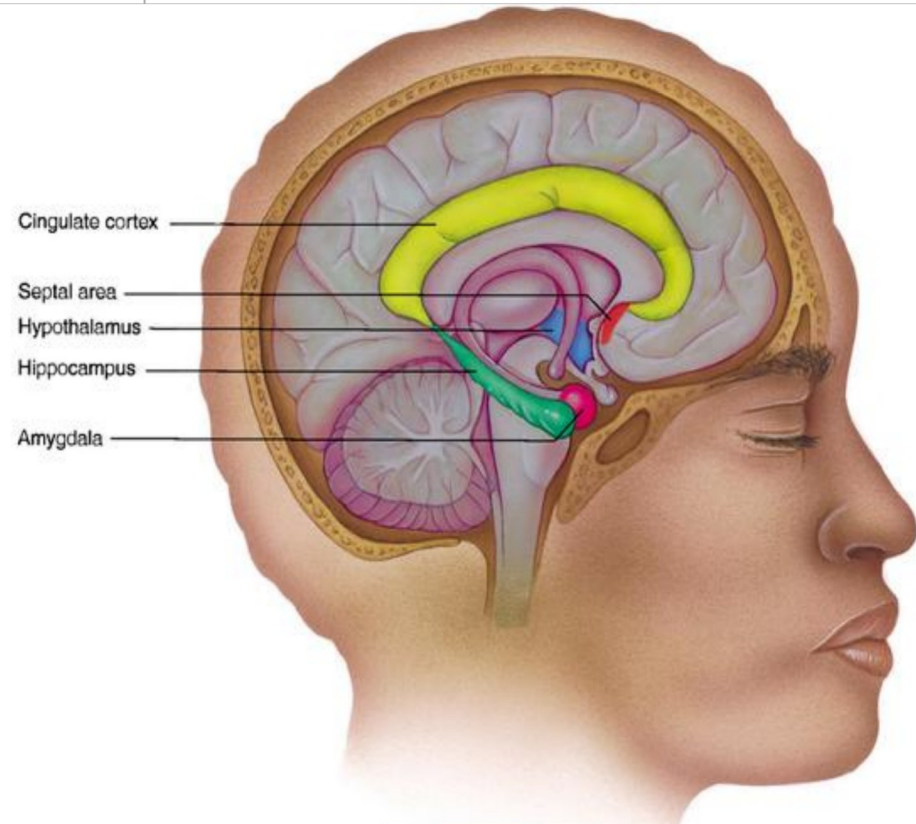
Function

- Sense of smell.
- Emotions (i.e. rage, fear)
- Sexual urge.

Symptoms of Injury

- Loss of sense of smell.
- Agitation, loss of control over emotion.
- Loss of recent memory.
- Loss of libido.

CERVELLO e EMOZIONI



- **Right hemisphere** processes negative moods
- **Left hemisphere** processes positive moods
- **Damage to right hemisphere:**
 - patients happy / flat
- **Damage to left hemisphere:**
 - patients sad /depressed

(Sackeim, Heller, Starkstein)

Emozioni Primarie (DX)
Emozioni Sociali (SN)

Consequences of Brain Injury

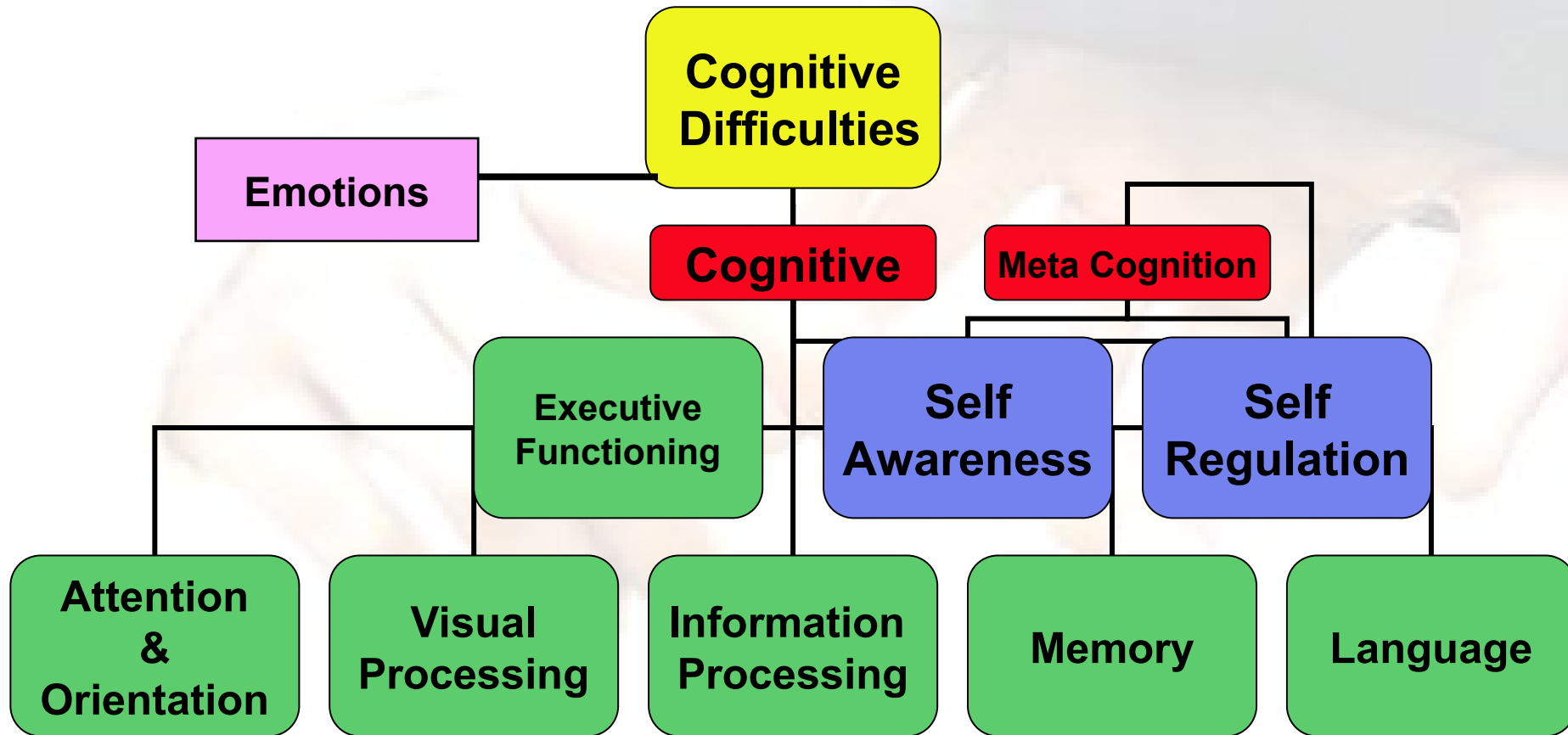
- Physical
- Cognitive
- Psychological/Emotional
- Behavioural
- Social
- Financial
- Family



Consequences of ABI

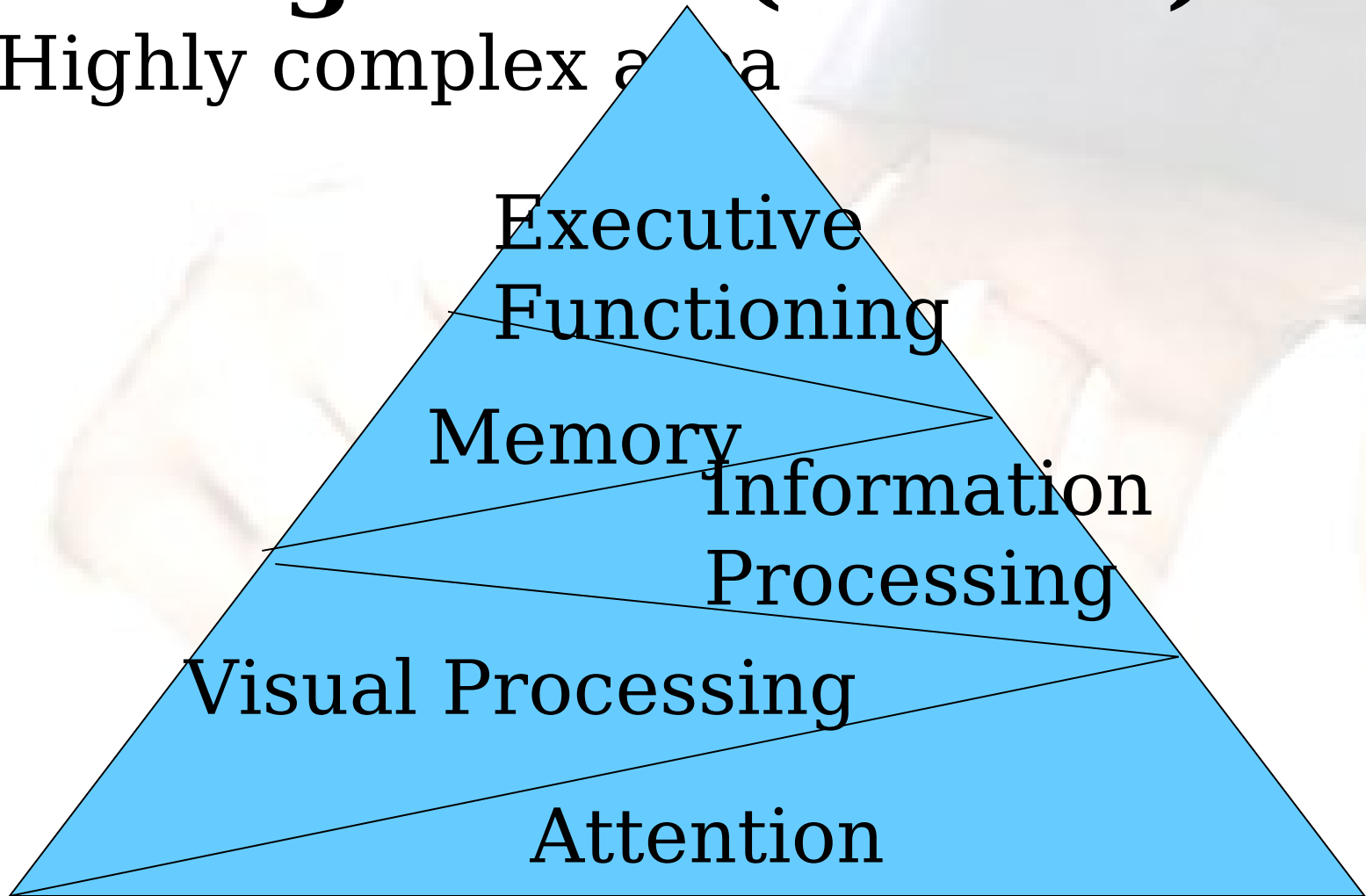
- **Vary greatly**, depending on:
 - the extent of the injury
 - the site of the injury
 - pre-morbid factors

Cognitive Consequences

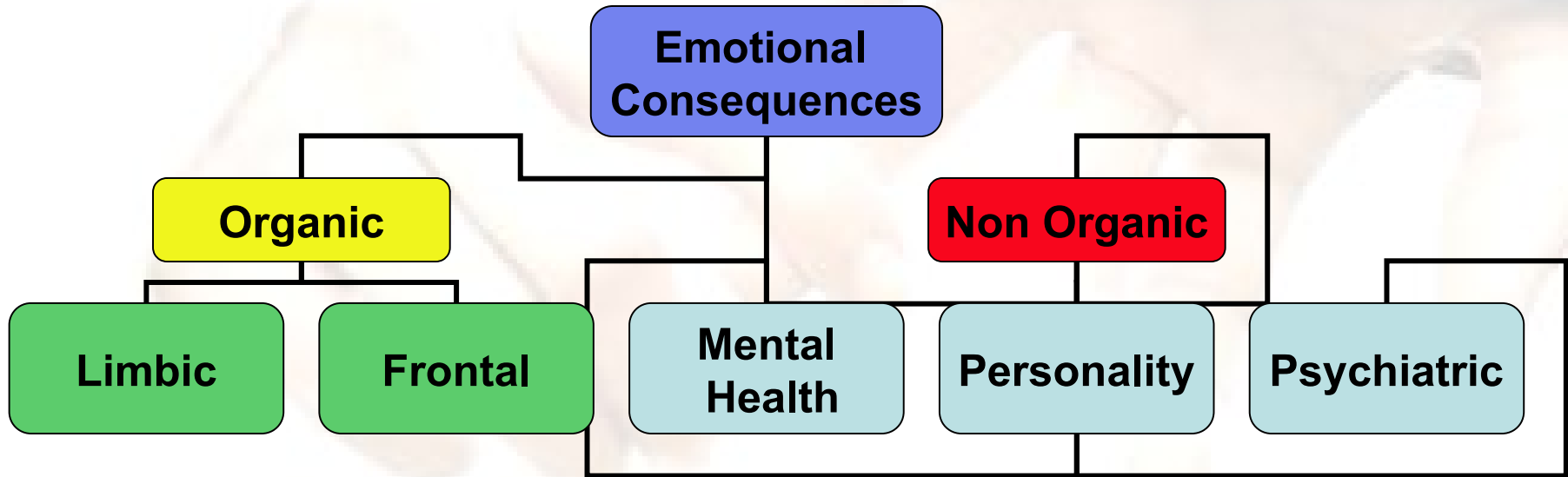


Cognition (Contd.)

- Highly complex area



Emotional Consequences



Emotional Impact on the Family

- Panic/Chaos
- Denial
- Anxiety
- Fear
- Stress
- Anger
- Frustration
- Irritability
- Shame
- Embarrassment
- Guilt
- Grief / Loss
- Isolation/
Loneliness
- Depression
- Helplessness
- Hopelessness

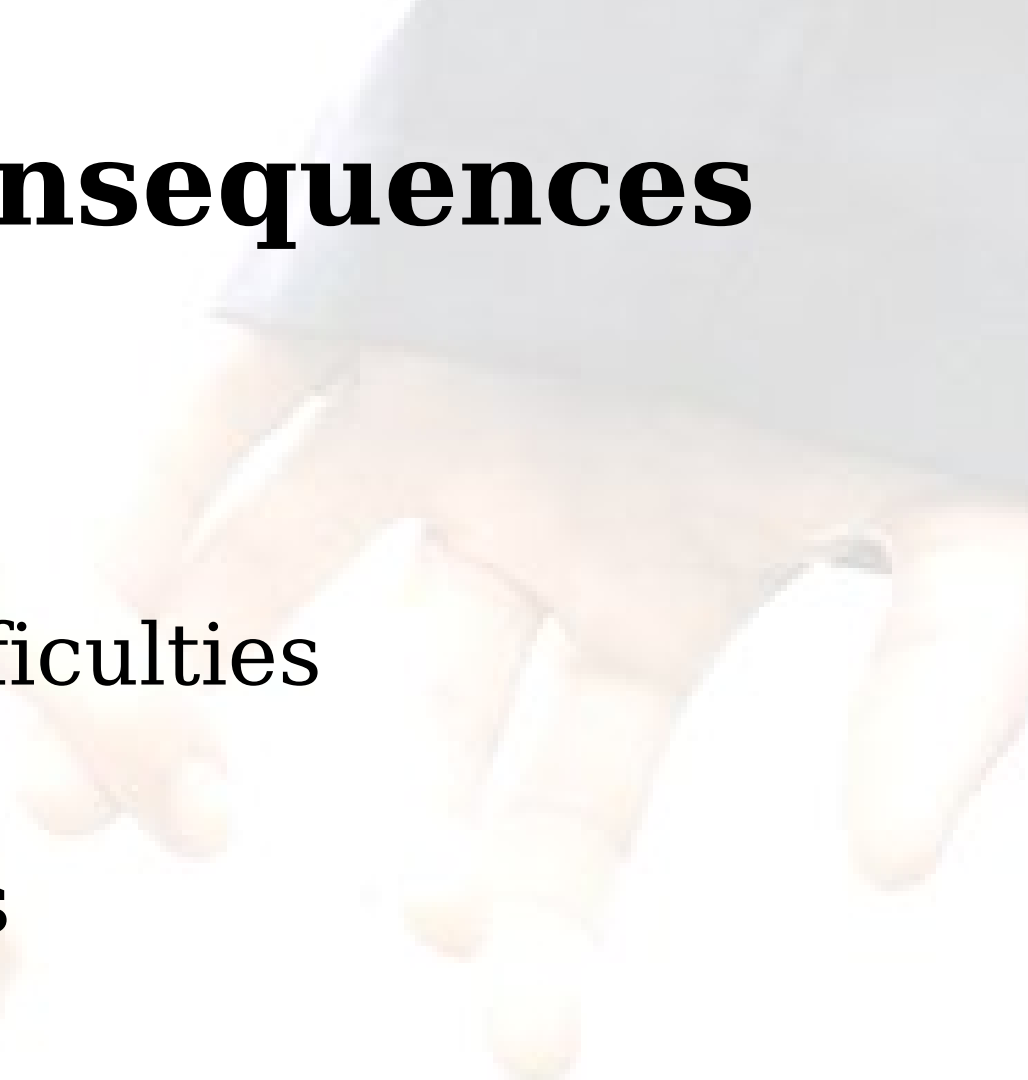
Financial consequences



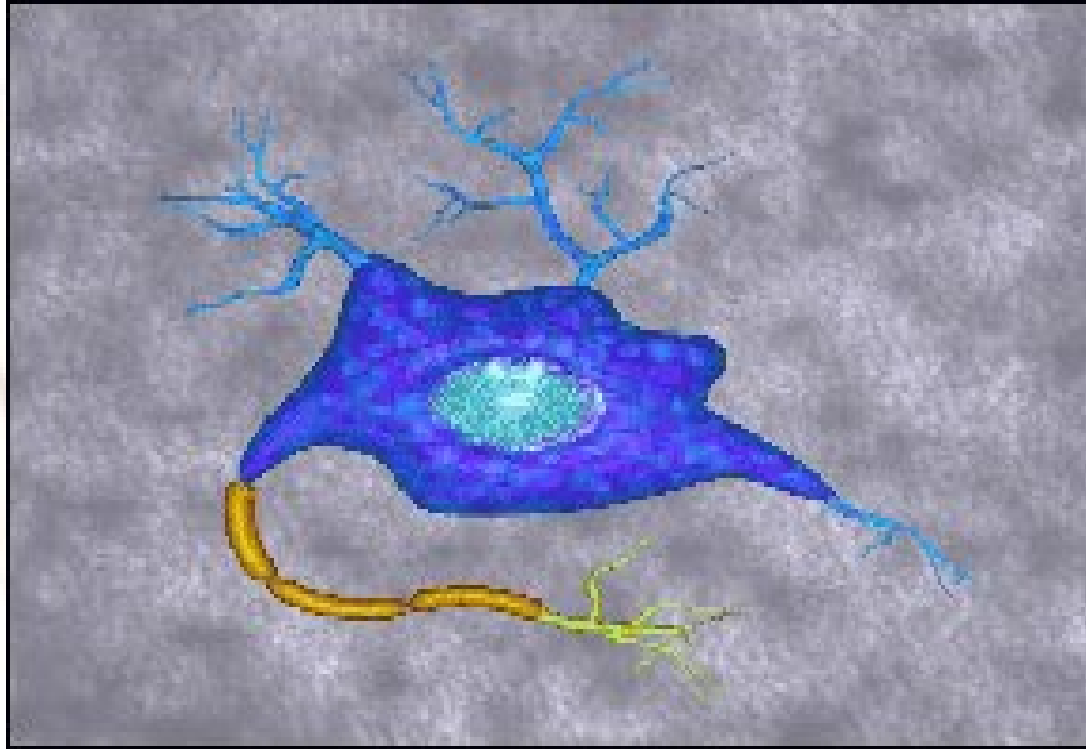
- Financial worries
- Disruption to employment
- Reduced leisure time
- Reduced social network

Social Consequences

- Isolation
- Unemployment
- Relationship difficulties
- Family conflict
- Caregiver stress



Neuropsychology Assessment

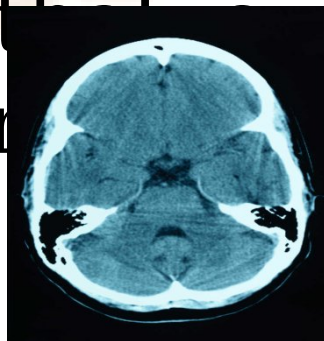


Neuropsychology

- Neuropsychologists are not medical doctors, but doctors of psychology whose field of study is concerned with the brain and its functions. Any qualified neuropsychologist must master four key areas:
 - Clinical Psychological Practice
 - Psychometrics
 - Neuroanatomy/physiology
 - Neuropathologies and their behavioural consequences

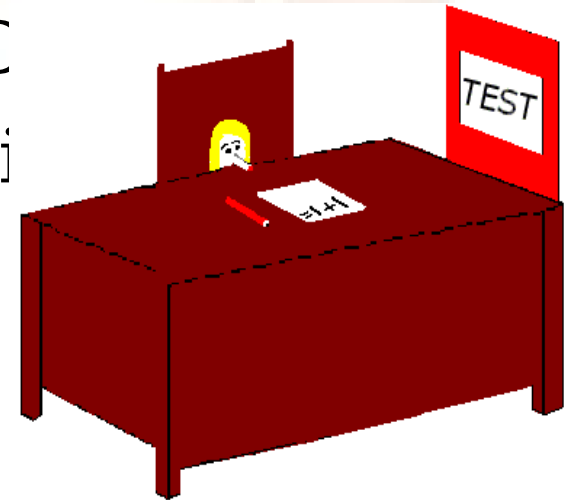
What is Neuropsychology?

- Neuropsychology is a branch of Clinical Psychology.
- Neuropsychologists are specialists trained to assess the effects of various brain injuries and diseases on mental and emotional functioning, the relationship on how people think, feel, and



Purpose of Neuropsychological Assessment

- Five different purposes of assessment:
 - Diagnosis/Differential I
 - Patient Care and Planni
 - Rehabilitation
 - Legal proceedings
 - Research



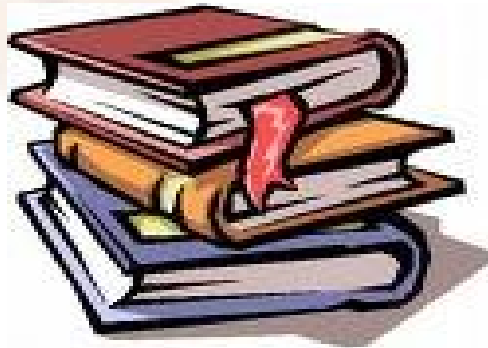
Neuropsychological Assessment

What Happens?

- Neuropsychological assessments provide detailed information on a client's cognitive functioning
- Formulation
- An assessment typically consists of four stages:
Clinical interview; Neuropsych. Testing;
Interpretation & Report Writing; Feedback of
Results

Neuropsychological Battery

- Assessment techniques and tools can be classified into various domains according to the major activities they elicit

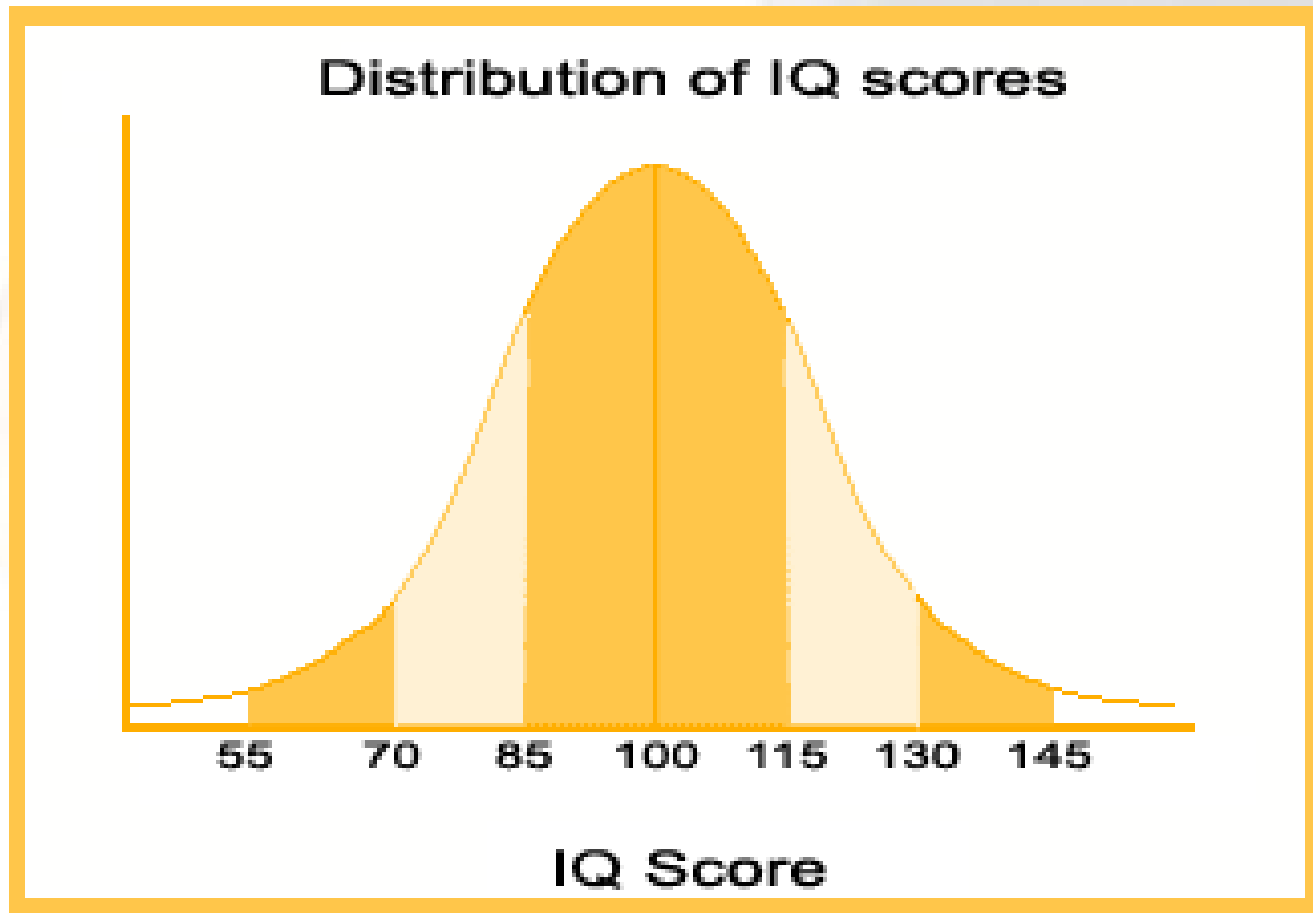


WAIS III	WMS III	RAVLT	RCFT	WCST
Global Cognitive functioning	Types of Memory	Auditory Learning	Visual-spatial construction skills, visual memory	Executive Functioning
Hayling Brixton	BDI	BAI	SCL-90	
Initiation, inhibition, executive	Depression	Anxiety	Axis I symptoms	

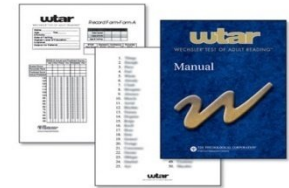
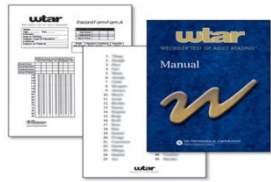
WAIS-III UK

Subtests	Raw Score	Scaled Score
Picture Completion	21	11
Vocabulary	50	12
Digit Symbol-Coding	57	7
Similarities	22	9
Block Design	36	9
Arithmetic	9	6
Matrix Reasoning	6	5
Digit Span	12	7
Information	20	12
Picture Arrangement	16	10
Comprehension	17	8
Symbol Search	25	7
Letter-Number Sequencing	-	-
Object Assembly	-	-

Normal Distribution



WTAR – Wechsler Test of Adult Reading



- Used to estimate pre-morbid intellectual and memory abilities
- Essentially a word list the client is asked to read aloud, the administrator notes pronunciation
- Predicated on the fact that reading recognition is relatively stable in the presence of cognitive declines associated with normal aging or brain injury
- Developed and co-normed simultaneously with the WAIS-III and WMS-III

Ray Auditory Verbal Learning Test RAVLT

Trial 1

1. Violin
2. Tree
3. Scarf
4. Ham
5. Suitcase
6. Cousin
7. Earth
8. Stairs
9. Dog
10. Banana
11. Town
12. Radio
13. Hunter
14. Bucket
15. Field

Trial 2

- Violin
- Tree
- Scraf
- Ham
- Suitcase
- Cousin
- Earth
- Stairs
- Dog
- Banana
- Town
- Radio
- Hunter
- Bucket
- Field

Trial 3

- Violin
- Tree
- Scarf
- Ham
- Suitcase
- Cousin
- Earth
- Stairs
- Dog
- Banana
- Town
- Radio
- Hunter
- Bucket
- Field

Trial 4

- Violin
- Tree
- Scarf
- Ham
- Suitcase
- Cousin
- Earth
- Stairs
- Dog
- Banana
- Town
- Radio
- Hunter
- Bucket
- Field

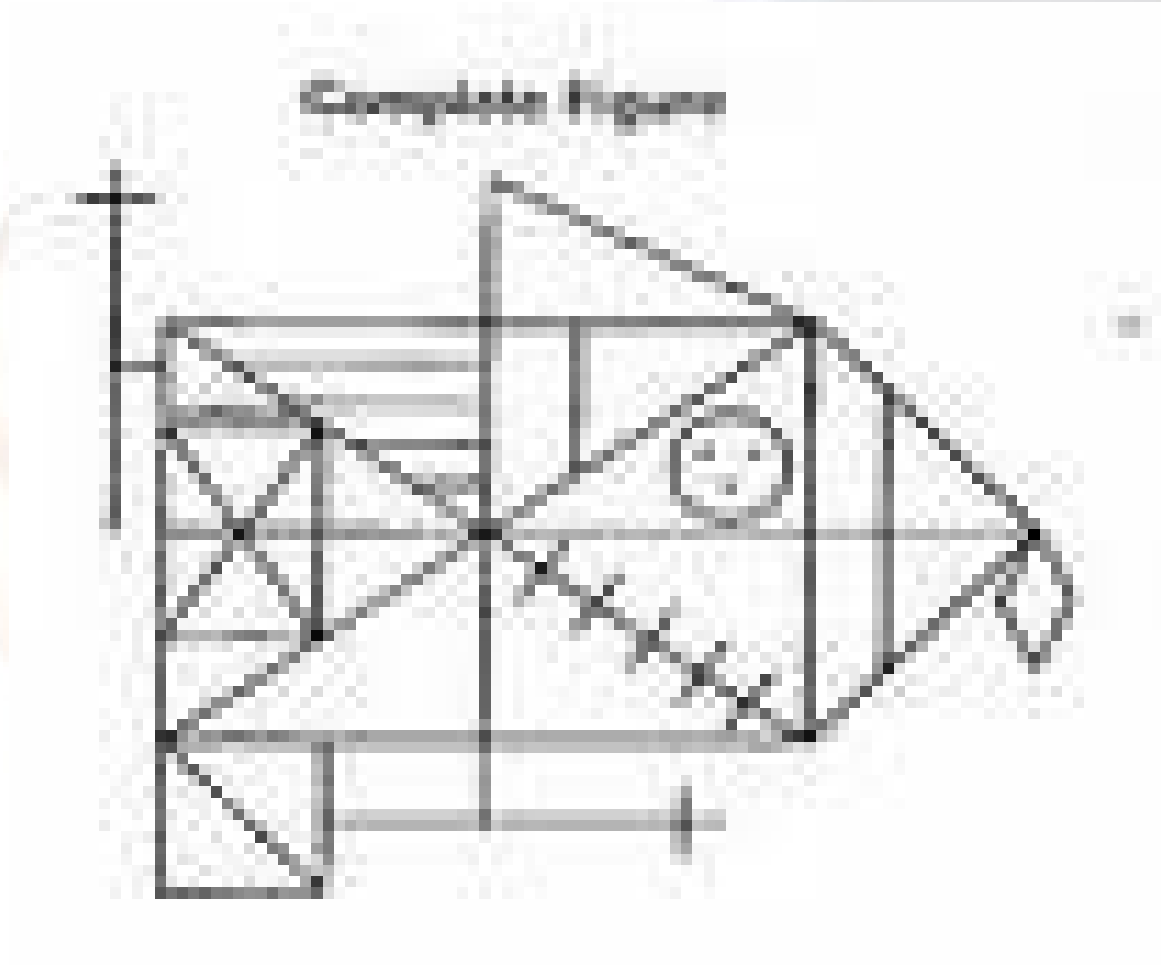
Trial 5

- Violin
- Tree
- Scarf
- Ham
- Suitcase
- Cousin
- Earth
- Stairs
- Dog
- Banana
- Town
- Radio
- Hunter
- Bucker
- Field

Total _____

Total Score _____

Ray Figure Copy



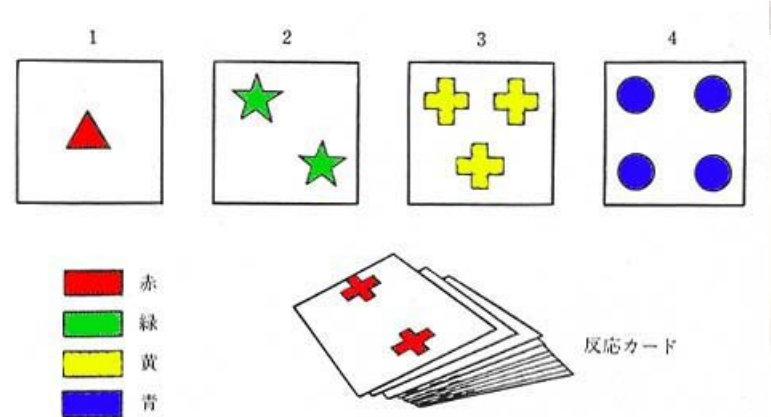
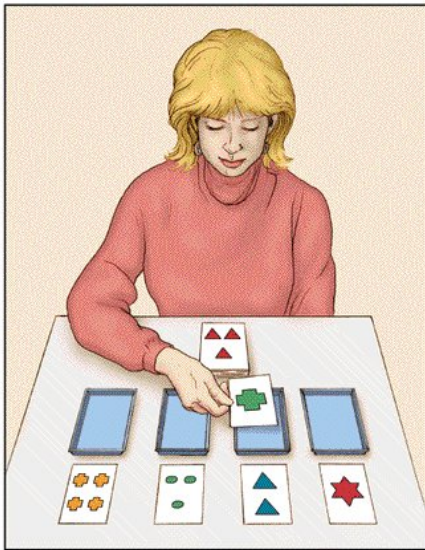
WMS-III UK

Logical Memory I

Story A: Anna Thompson of South London, employed as a cook in a school canteen, reported at the police station that she had been help up on the High Street the night before and robbed of fifty-six pounds. She had four small children, the rent was due and they had not eaten for two days. The police, touched by the woman's story, made up a collection for her.

WCST Executive functioning

▶ Wisconsin Card Sorting Test



Hayling Initiation

Hayling Section 1: Sensible Completion

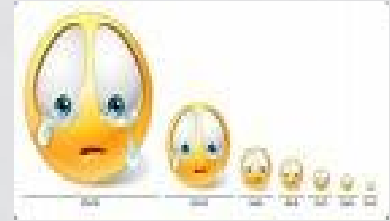
1. He posted a letter with a _____
2. In the first space enter your or: In the first blank enter your _____
3. The old house will be torn _____
4. It's hard to admit when one is _____
5. The job was easy most of the _____
6. When you go to bed, turn off the _____
7. The game was stopped when it started to _____
8. He scraped the cold food from his _____
9. The Dispute was settled by a third _____
10. Three people were killed by a major _____
11. The baby cried and upset her _____

Hayling Inhibition

Hayling Section 2: Unconnected Completion

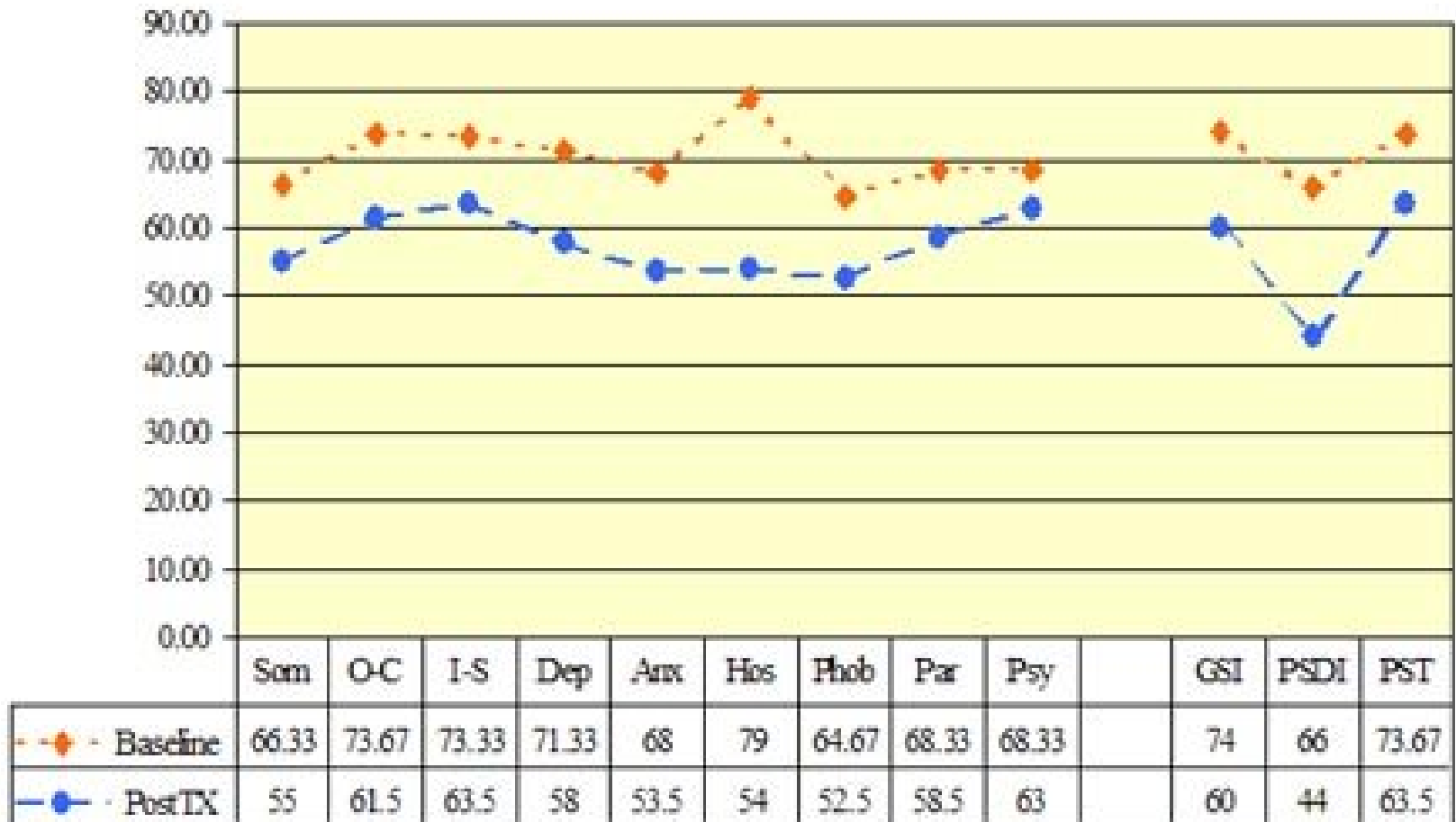
1. The captain wanted to stay with the sinking _____
2. They went as far as they _____
3. Most cats see very well at _____
4. Jean was glad the affair was _____
5. The whole town came to hear the mayor _____
6. Most sharks attack very close to _____
7. None of the books made any _____
8. The dough was out in hot _____
9. She called the husband at his _____
10. All the guests had a very good _____

Emotion



- It is important to assess the emotional impact of any neuropsychological disorders
- Anxiety, depression, apathy, euphoria etc.
- A number of tools exist for this purpose including the SCL-90, which examines 9 areas of symptoms and complaints that are common to medical and psychiatric patients
- BDI and BAI, which measure levels of depression and anxiety, respectively

SCL-90



A close-up photograph of two hands, one from a person with a grey sleeve, reaching towards each other in a gesture of connection or agreement. The background is a soft, out-of-focus white.

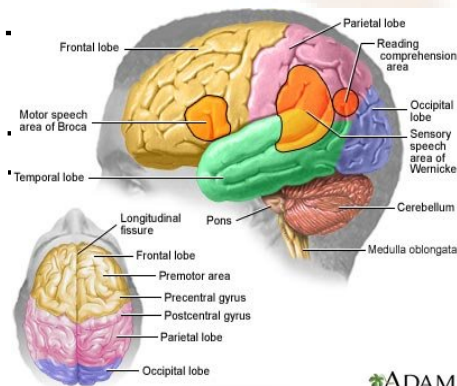
Lets put it all together...

A Neuropsychological Profile

WAIS III	WMS III (LM I & II)	RAVLT	Ray Figure	BAI BDI	Hayling	WCST
FSIQ 80	Immediate Scaled score 6 Percentile 9 th	Learning Total score 34 >2 SD below ave	Copy: >16 Time 172 s	Minimum	Initiation • Preserved	Pr. Sol Cog Fl 37 th Perc.
VIQ 77	Delayed Scaled score 3 Percentile 1 st	Trial 6&7 T6 → 4 (1SD below) T7 → 5 (> 2 SD below)	Immediate T-score <20 Percentile <1	Mild BDI: 15 BAI: 10	Inhibition Impaired	Attention • Track • Set Man 2.5 th Perc.
PIQ 87	Recognition	Delayed Score 5	Delayed T-score <20	Mod		v

Conclusions

- A basic neuropsychological battery should include most of the tests mentioned above
- Interpretation should be the outcome of cross-analysing each single result in the context of the overall neuropsychological profile



Rehabilitation Strategies



Rehabilitation

- Rehabilitation programs use neuropsychological assessment information as an aid to tailor treatments based on their potential
- Application of treatments leads to the need for further assessments - evaluation and efficacy for the benefit of the client, and for rehabilitation, and improving treatment
- Examines a client's relative strengths and weaknesses, ability for rehabilitation, and monitors progress

ABI and Rehabilitation

- Spontaneous Recovery can occur following stabilization of the initial brain injury
- Therapeutic intervention is believed to complement or enhance the natural recovery process
- Restitution and Amelioration

Restitution

- “The process of trying to remedy the defective function itself in an attempt to attain a level of function that closely resembles the client’s premorbid capacity” (Miller, 1980)
- Aim is to restore old skills, which involves challenging damaged parts of the brain, and teach new skills, which stimulates the unaffected areas.

Amelioration

- This involves the acceptance that the specific deficits, or difficulties, that are caused by an ABI will be ongoing.
- The aim of amelioration is to teach the client how to minimise the extent to which these problems impact on their daily lives.

Compensation Strategies

- Use these strategies to cope with the effects of an ABI
- Psychosocial rehabilitation strategies
- Neurorehabilitation strategies

Neurorehabilitation

- This is a complex multidisciplinary process aimed at recovering from, minimising and/or compensating for functional alterations in a person who has suffered from a nervous system injury.
- Effective and high quality neurorehabilitation must be: holistic; client-focused; inclusive; participatory; allow for independence; resolve problems; and allow for integration into the larger community

Neurorehabilitation (Contd.)

- Should be used to deal with cognitive problems that clients are experiencing.
- These can include problems with insight, memory, executive functions, attention, and information processing

Psychosocial Rehabilitation

- Psychosocial rehabilitation, is the process of restoration of community functioning and wellbeing of an individual who has been diagnosed with a psychological disorder
- Can be seen as consisting of eight main areas: psychiatric/psychological; social; vocational/educational; basic living skills; financial; community/legal; health/medical; and housing

Psychosocial Rehabilitation (Contd.)

- Should be used to address behavioural problems the client is experiencing and problems that are occurring within the family and larger social environment
- Can include the use of behavioural interventions etc
- ry - Still some potential for natural recovery of function
- After 3 year - Most improvement due to use of compensatory strategies

Cognitive Rehabilitation

- Focuses on the development of cognitive skills, which have been lost or altered as a result of neurological trauma.
- Aim of treatment is to improve the ability to carry out everyday tasks.
- Process includes reattainment of skills through direct retraining, use of compensatory strategies, education and application into everyday life activities.

Cognitive Rehabilitation Training

- Education
- Processing Training
- Strategy Training
- Functional Activities Training

Strategies to Improve Insight

- Point out the person's difficulties to them as they arise, in a non-judgemental way
- Encourage the person to meet with other people with ABI where possible
- Be gentle, awareness can improve, however denial can be a protective factor
- Only in safe and supervised situations allow the person, where possible to attempt things that you feel they are no longer capable of. Sometimes the experience of failure can help foster awareness

Strategies to Improve Attention

- Minimise distraction
- Time management - planning a programme of activities ahead of time.
- Give warning for preparation time before making a transition to a different activity or place
- Pacing - distribute the activity over a period of time, including frequent breaks
- Rehearsal - Encourage the person to repeat what someone has said in their own words ie ' let me repeat this to you to see if I have it'

Strategies for Improving Attention (Contd.)

- Use cues and prompts – cue the person that what you are saying is important
- Cue the person to write down anything you feel might confuse them or they might forget
- Use the persons name or ask what's happening if you feel they are not paying attention
- Highlight key words in instructions that you leave

Strategies to improve attention (Contd.)

- Model or demonstrate what needs to be done, in case the person isn't listening
- Finish one activity before starting another
- Routine
- Chunking – break complicated tasks into smaller, carefully arranged steps
- Sequencing – sequencing tasks from simplest to most complex

Strategies to Improve Information Processing

- Pacing - Slow down when giving instructions, or during conversation
- Timing - Develop awareness of the best times to complete more complex activities.
- Write lists or notes, encourage the person with the ABI to do the same
- Encourage the person to check and re-check work

Strategies to Improve Information Processing (Contd.)

- Use paper to break up information on a page so as to avoid overloading
- Use index cards to summarise information
- Underline key words or phrases in instructions
- Work in periods of 20-30 minutes with short breaks in between

Strategies for Improving Executive Functioning

- STRUCTURE
- Encourage the person with brain injury to set goals, then break these down into small tasks.
- Encourage them to use checklists
- Help the person to structure their day by writing a plan of tasks they need to do and the time frame. Include all activities

Strategies to Improve Executive Functioning (Contd.)

- Use a structure to solve problems. Write out headings on a piece of paper and get the person with brain injury to complete information under each heading , eg
 - The exact problem is ...
 - Possible solutions to the problem ...
 - Pros and cons of each solution are ...
 - The best solution is ...
 - Action plan ...

Strategies to Improve Executive Functioning (Contd.)

- Encourage the person with the brain injury to use self-questions, use a sheet of paper for them to refer to. Questions include:
 - What is it that I want to achieve?
 - What do I need to do to move towards that goal?
 - What are the steps I need to take and in what order?
 - Are there any other alternatives to this plan-if so what are they?
 - How will I know if I have achieved the goal?
 - How will I know if I am successful?

Internal Strategies to Improve Memory

- Encourage internal repetition
- Introduce the idea of verbal association
- Encourage the use of imagery – sometimes pictures can be helpful cues to memory
- Chunking - break down information into small and relevant “chunks” or categories, rather than long streams of information.

External Strategies to Improve Memory

- Structure
- Central Information Point
- Folder for Correspondence
- Notepads and notice boards
- Place items strategically
- Diary
- Mobile Phones
- Lists and notes
- Wall charts/planners

Managing Emotional Difficulties after ABI

- Structure and Routine
- Exercise
- Diet
- Medication (where appropriate)
- Psychological Intervention/ therapy (where appropriate)
- Encourage the person to seek support from family/friends when necessary

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Behavioural Changes after ABI

- Neurological Damage
- Learned behaviour - due to new situation
- Adjustmental reaction to new situation

Strategies to Improve Problem Behaviour

- Be clear about what is and is not appropriate in a given situation
- Give positive reinforcement and praise for successes
- Ignore negative behaviours, where possible
- Try to remain calm when responding to difficult behaviours
- Adopt a firm but gentle approach – it is important to have and maintain appropriate boundaries



INTERNATIONAL SCHOOL of
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Frontal Lobes

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May 25-27, 2011



I Convegno Regionale ASN

Le Neuroscienze Cliniche in Sicilia



A Drop in the Ocean of Knowledge

Any Questions?

