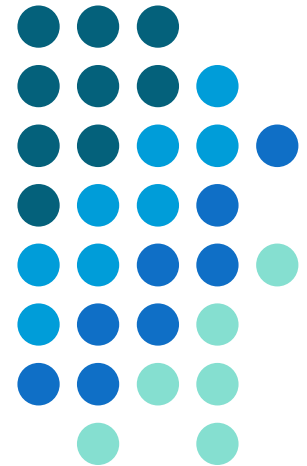


The views of a neuropsychologist

Dr Gail Robinson

Clinical Neuropsychologist
Senior Lecturer/ ARC Research Fellow
The University of Queensland



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Neuropsychology and Brain Tumours



- Neuropsychology is concerned with the effect of a brain tumour on cognition, emotions and behaviour.
- Brain tumours can impact these because:
 - Tumour location
 - Surgery, chemotherapy, radiotherapy
 - Medications
 - Psychological reaction (anxiety, depression)
 - Lack of sleep, fatigue, poor diet, etc!

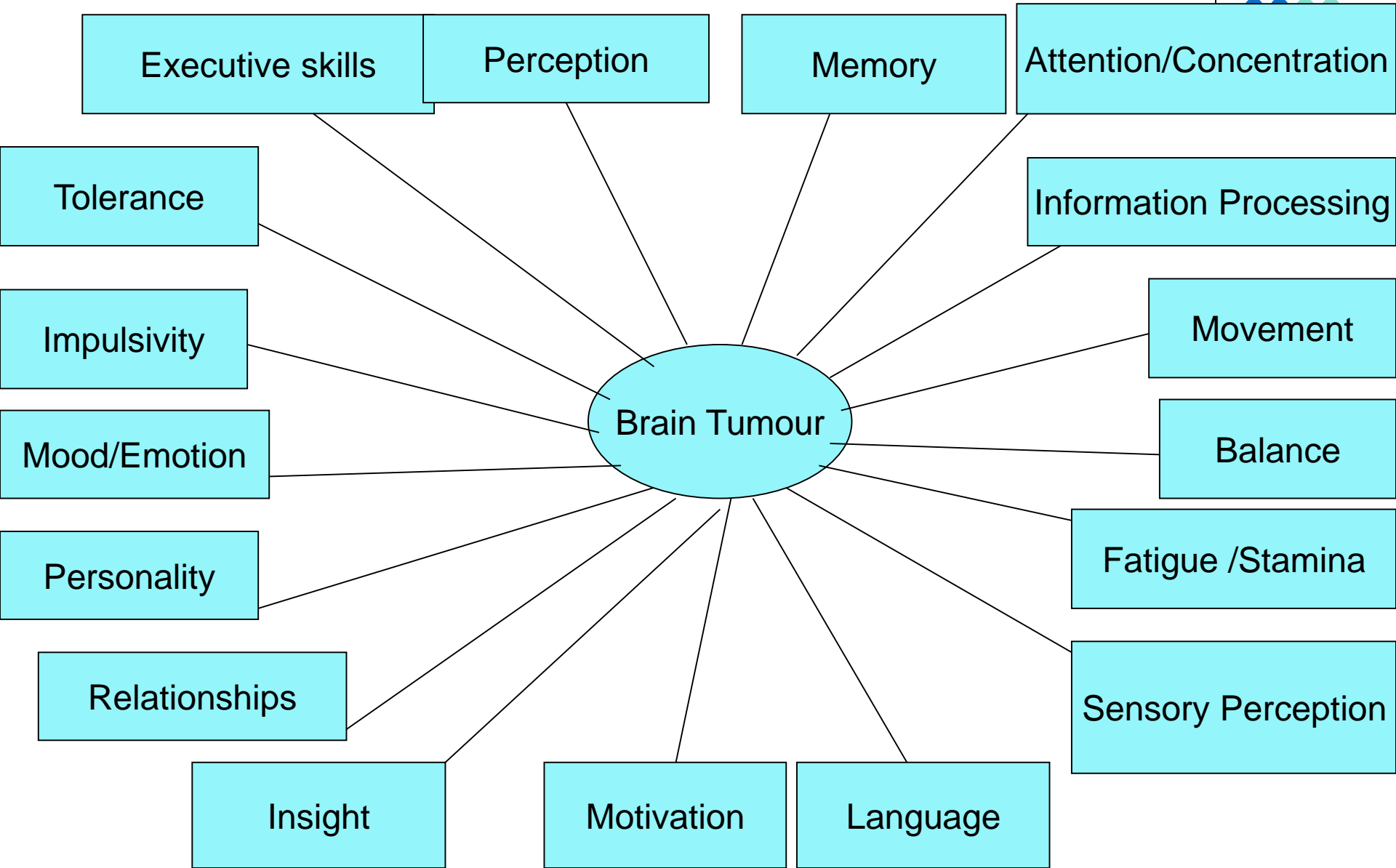


What can a neuropsychologist do?

- Assess cognitive functioning
- Monitor change over time
- Devise strategies for managing cognitive problems / rehabilitation techniques
- Provide feedback and information about the specific effects of brain tumour

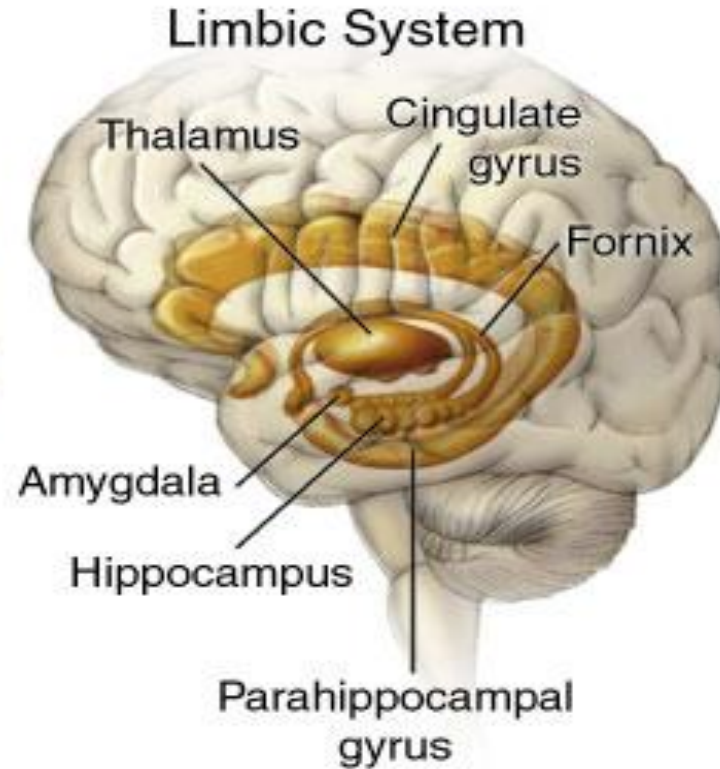
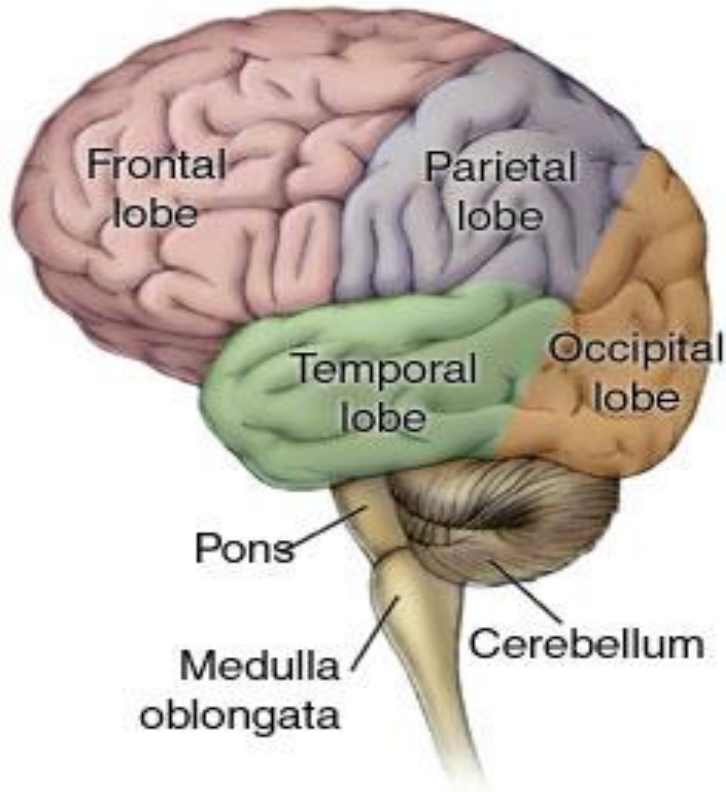
- Research

What can be affected by a brain tumour?





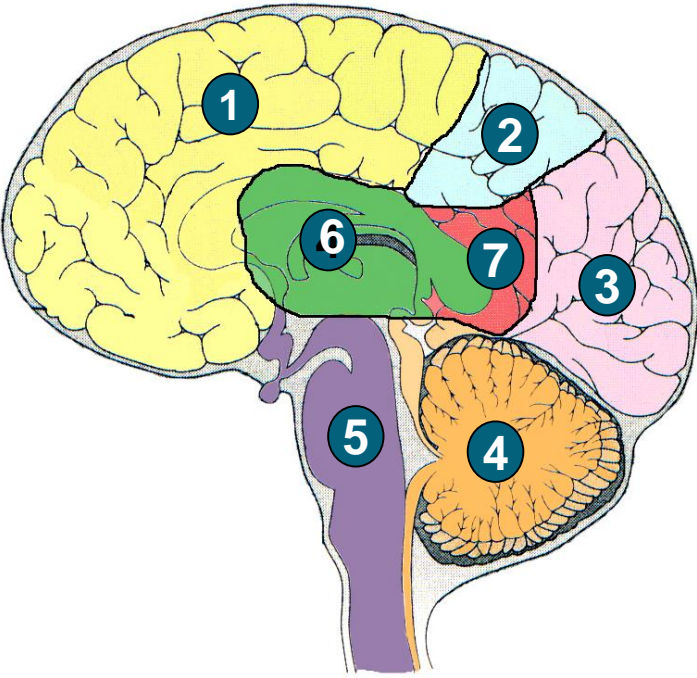
Anatomy of the Brain



LOBES AND FUNCTIONS OF THE BRAIN

1. Frontal Lobe

- Abstraction
- Thinking
- Speech
- Personality
- Regulation of Behaviour
- Problem solving
- Planning/Organisation



5. Brainstem

- Alertness
- Blood press
- Digestion
- Breathing
- Heart rate



2. Parietal Lobe

- Action
- Attention
- Judgement of shape, size, texture, weight
- Sensation
- Perception
- Calculation
- Spelling



6. Hippocampus

- Episodic Memory
 - place
 - words
 - pictures



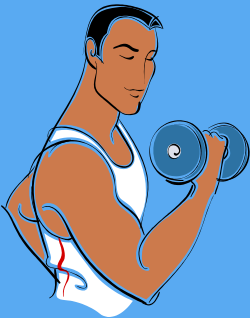
3. Occipital Lobe

- Vision
 - Colour
 - Shape
 - Motion



4. Cerebellum

- Balance
- Muscle co-ordination
- Posture maintenance
- Higher cognitive functions



7. Temporal lobe

- Sensory integration
- Object recognition
- Memory
 - Short/Long
 - Semantic
- Language (naming, comprehension, reading)





General ‘building blocks’ of thinking

1. **Speed of information processing**
 - Slower to perform tasks or answer questions
 - Slowed reaction times (e.g. driving, walking/running)
 - Can’t keep up with conversations
 2. **Attention and concentration**
 - Reduced attention span
 - Can only undertake 1 task at a time
 - Easily distracted e.g. lose track of the story (read, TV, conversation)
 - Chop and change between tasks
- Trade off between speed and efficiency (errors)



Attention & Concentration

Factors that can disturb attention:

- **External:** surrounding environment, noise, TV, music, others.
- **Internal:** mood (worrying thoughts, stress, anxiety, anger, depression), fatigue, pain, illness.
- Brain Tumour



Types of “Attention”

- Focussed/Selective

“I can’t cook or drive when the radio is on as the distraction upsets me”

- Divided

“I can’t listen to a lecture and take notes at the same time”

- Sustained

“I start watching tv and then just kind of drift off in the middle”

- Alternating



Coping strategies

- Reduce the number of distracters in the environment.
- Reduce background noise by going somewhere quiet or sit away from other people.
- Be honest if you haven't heard all the information.
- Reduce internal distracters (e.g. tiredness, pain, worry, stress).
- Manage fatigue (good quality sleep, take breaks, pace activities).

Retraining attention



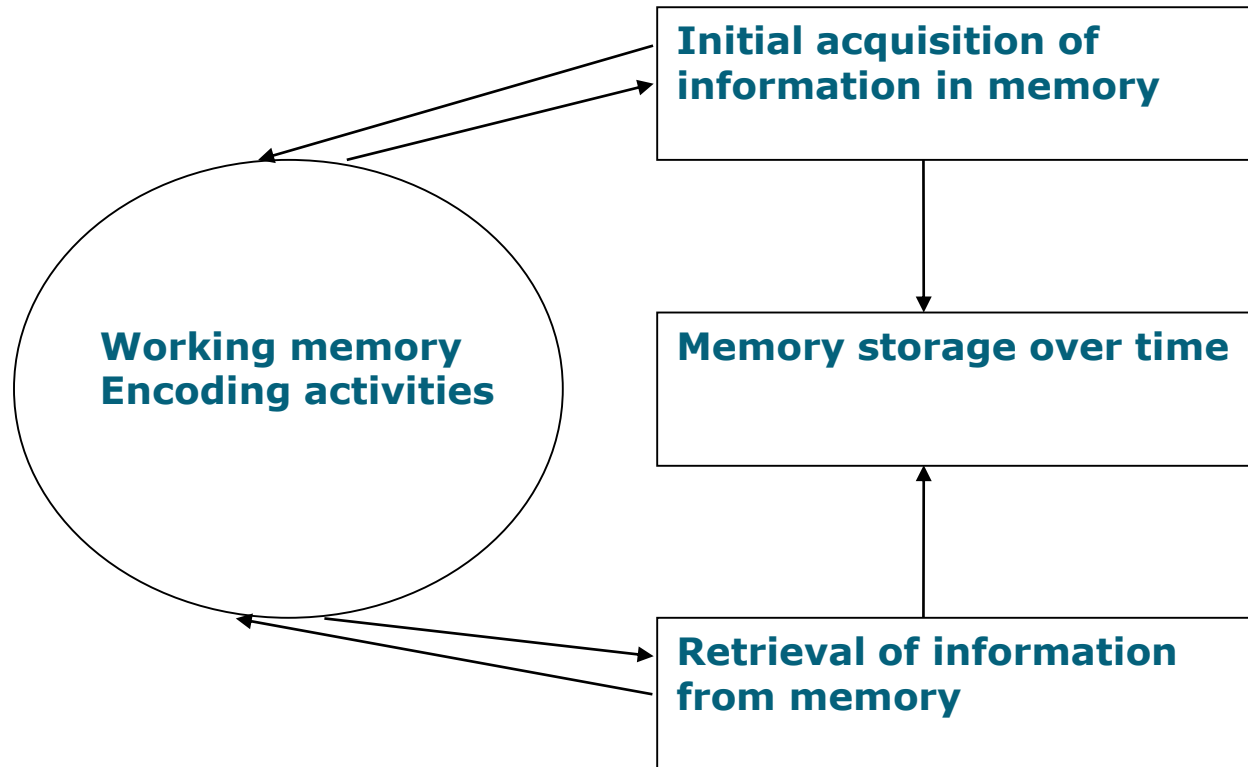
- Set increasingly more complex tasks (snap, dominoes, connect 4).
- Gradually increase time spent on a task e.g. 5 → 10 min TV.
- Gradually increase number of tasks being attempted.
- Cue cards “What now?”
- Ways of dealing with “overload”. eg. *I’ve lost you could you repeat*
- Practice difficult tasks so they become more automatic & place less demands on attention.



What is Memory?

- Representation of information across time
 - Information ‘kept in mind’
 - Recovery of knowledge by mental effort
 - The ability to take in, store and retrieve information
-
- Sensory memory (milliseconds)
 - Short term memory (seconds eg. phone number)
 - Long term memory (minutes – years)

Critical components of remembering





Types of long term memory

- Episodic memory (events, personal episodes)
- Semantic memory (facts, knowledge)
- Prospective memory (future events)
- Procedural memory (motor & skill learning)



Memory Strategies

- Compensatory approaches
 - External aids (Diaries, notebooks, alarms, pager)
 - Internal strategies or mnemonics (verbal or non-verbal)
 - Rehearsal techniques (expanded rehearsal, PQIRST)
- Errorless learning
 - Improving learning by preventing mistakes when learning
 - Implicit learning
- Changing the environment
 - Labels & picture, coloured doors, signposts

Focal cognitive problems



- **Frontal Lobes** ⇒ Planning, organisation, initiation, abstract thinking, problem solving, working memory, monitoring, speech
- **Temporal Lobes** ⇒ Memory, comprehension, naming, reading, visual perception, audition
- **Parietal Lobes** ⇒ Spatial orientation, calculation, spelling, action
- **Occipital Lobe** ⇒ Vision (e.g. shape, colour, motion)



Frontal 'Executive' Functions 1

- Planning, organising and Problem Solving
 - Can't break problems down into steps
 - Difficulty sorting many tasks and ideas (eg. loses things, misses appointments, unable to prioritise or make decisions)
- Conceptual and Abstract thinking
 - Concrete, takes things literally (e.g. jokes)
- Initiation/motivation/drive
 - Not lazy! But watches TV all day
 - Decreased spontaneous speech
 - *May appear apathetic, amotivated, unresponsive*



Frontal ‘Executive’ Functions 2

- Non-fluent speech
 - Poor use of grammar or sentence structure
- Flexibility
 - Stuck on 1 idea or thought (may be perseveration)
 - Unable to switch/maintain set
- Self-monitoring and regulation
 - Not learn from mistakes



Frontal ‘Executive’ Functions 3

- Impulsive Behaviour/ Response control
 - Poor suppression of automatic behaviours
 - Emotional Lability eg. Crying, laughing inappropriately
- Insight/Awareness
 - Unaware of own problems
- Social behaviour
 - Poor social judgement
 - Reduced understanding of another person’s thoughts, needs

Management Strategies



- Concrete information
- Provide structure & steps
- Give prompts
- Prompt to slow down
- Repetition
- Ask closed questions
- Personalise rewards
- Immediate and consistent feedback
- Routine and orientation
- Practice tasks, starting with familiar and moving on to novel, complex
- Use 'time out' and 'stop'
- Distraction (for perseveration, lability)
- Introduce changes, switch task overtly
- Education



Psychological Factors

- Emotional response to the diagnosis and uncertainty
 - Depression/anxiety sometimes delay after medical intervention
 - In relation to self-awareness
- Impacts: Whole family, relationships (ALL!), hobbies, work, independence



Thank you

Questions?