BRAIN INJURY SERVICES

Brain Injury 101 for Mental Health Professionals: Adapting Practice for Clients with Brain Injury

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Goal of this Training:

Participants will learn the basics of brain injury and become more aware of the impact of acquired brain injury on the individual with the injury and for those who care for and about those individuals. They will also learn practical strategies and skills for effectively helping these individuals in a clinical setting.

Objectives:

- Identify severity levels, types, causes and impact of acquired brain injury
- Identify physical, cognitive and emotional symptoms of acquired brain injury
- Understand how to apply effective strategies when providing services to all individuals impacted by brain injury

True or False?

A person must have lost consciousness to be diagnosed with a TBI

85% of people recover after a first brain injury

A person can be born with an acquired brain injury

Symptoms of brain injury and mental illness can mimic each other

Which of the following acts like the CEO of the brain?

A. Frontal Lobe
B. Temporal Lobe
C. Occipital Lobe
D. Parietal Lobe

What are the two types of aphasia?

A. verbal and non-verbal

B. receptive and expressive

C. tbi-related and non-tbi related

TBI Facts and Statistics

According to the CDC:

- There were over 69,000 TBI-related deaths in the United States in 2021 (about 190/day)
- There were approximately 214,110 TBI-related hospitalizations in 2020
- Those 75 years and older had the highest rates of TBI-related hospitalizations and deaths
- These estimates do not include the many TBIs that are only treated in the emergency department, primary care, urgent care, or those that go untreated [or unreported]

Centers for Disease Control (2024) https://www.cdc.gov/traumatic-brain-injury/data-research/index.html

Incidence and Prevalence of **Traumatic Brain Injury** in the United States

According to the Centers for Disease Control (CDC) an estimated **5.3 million Americans (2%!)** are living today with disability related to traumatic brain injury

https://www.cdc.gov/traumaticbraininjury/pubs/tbi_report_to_congress.html

Most studies indicate that males are far more likely to incur a TBI than females. The highest rate of injury occurs between the ages of 15-24 yrs. Persons under the age of 5 or over the age of 75 are also at high risk

https://www.internationalbrain.org/resources/brain-injury-facts

In Virginia:

- Prevalence of TBI: 863,139
- Prevalence of Stroke: 258,942
- Prevalence of overall BI: 1,122,081
- 302,099 were disabled as a result of a brain injury

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Acquired Brain Injury
Causes, Types and Severity

What is a Brain Injury?

TERMINOLOGY

Acquired Brain Injury (ABI)

The “umbrella” term for **all brain injuries**:

Regardless of cause, ABIs affect the physical integrity and/or functional ability of the brain

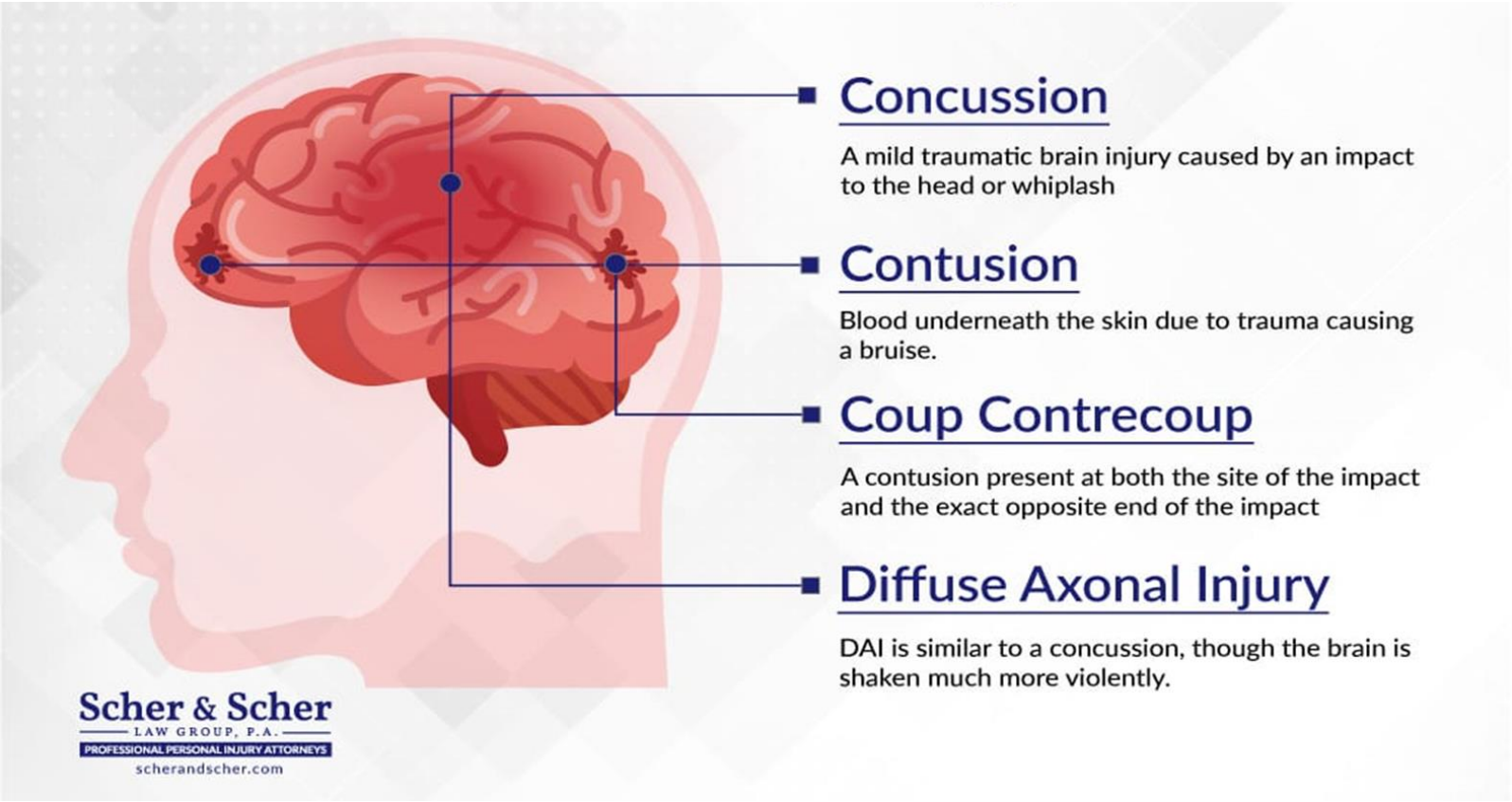
TYPES OF ABI:

Traumatic Brain Injury (TBI)

Non-Traumatic Brain Injury (Non-TBI)

Traumatic Brain Injury (TBI)

defined as an “alteration in brain function, or other evidence of brain pathology, caused by an external force”.



TBIs are either:

1. **closed** (non-penetrating)
2. **open** (penetrating)

Examples of TBI Possible Causes:

Falls

Assaults

Motor Vehicle Accidents

Sports Injuries

Explosive Blasts

https://www.biausa.org/brain-injury/about-brain-injury/basics/overview

Injury Continuum: TBI

MILD / Concussion

LOC - less than 30 minutes

CT and MRI scans will look normal

PTA (disorientation) less than 24 hours

85% will completely recover…if it's the first injury

Not likely to have therapy unless symptoms persist

MODERATE

Usually involves loss of consciousness less than 24 hours

PTA 1 to 7 days

May receive rehabilitative services

SEVERE

Prolonged loss of consciousness

PTA more than 7 days

May or may not have a physical disability

Usually transferred to rehab after they are medically stable

Incidence and Prevalence of **Strokes** in the US

According to the CDC, someone in the United States has a stroke every **40 seconds** and every 4 minutes, someone dies of stroke

- Every year, more than **795,000 people** in the United States have a stroke. About 610,000 of these are first or new strokes
- About 185,000 strokes—nearly 1 of 4—are in people who have had a previous stroke
- About **87%** of all strokes are **ischemic strokes**, in which blood flow to the brain is blocked

Stroke is the leading cause of long-term disability

https://www.cdc.gov/stroke/facts.htm

Non-Traumatic Brain Injury (N-TBI)

defined as an “alteration in brain function, or other evidence of brain pathology, caused by **internal factors**”.

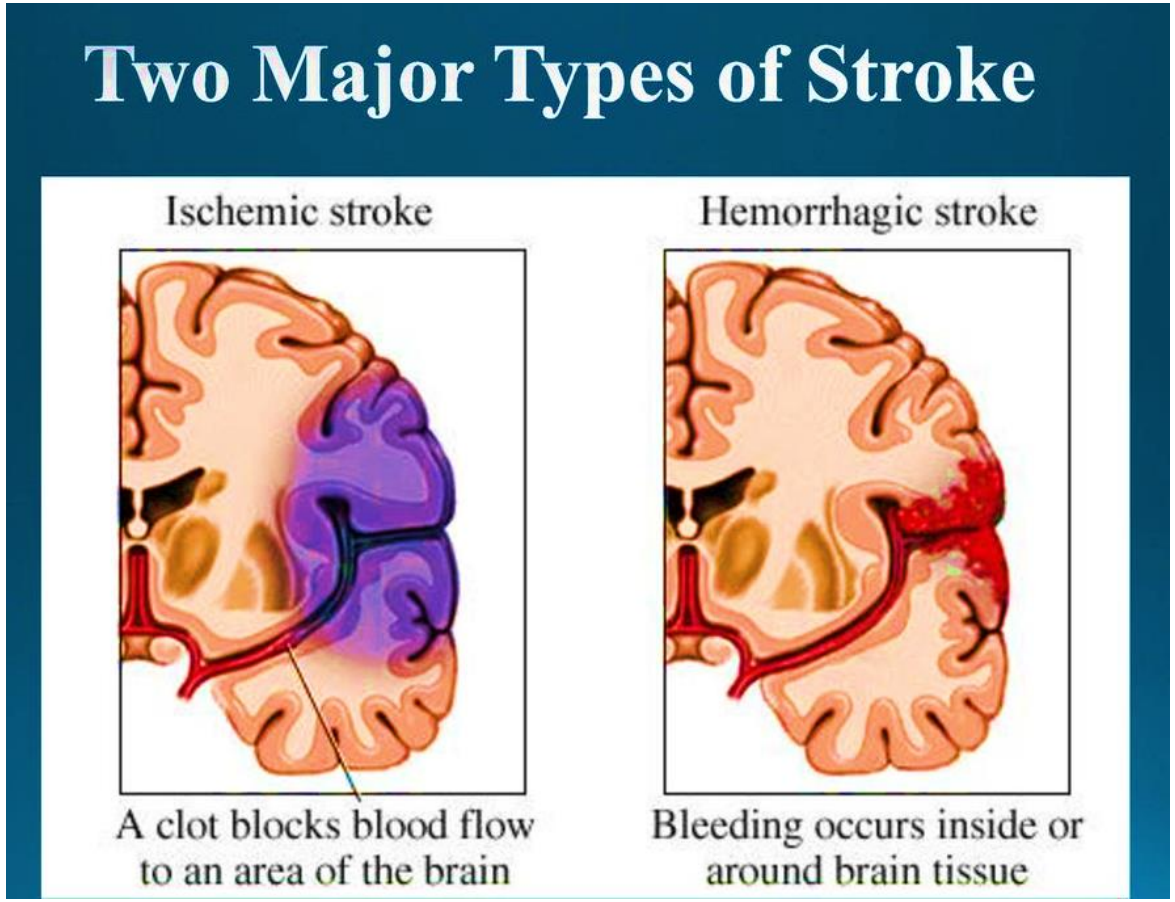


Image credit: https://slideplayer.com/slide/12831142/

Most Common Type of N-TBI:

Cerebrovascular Accident (CVA) AKA Stroke

Types of Stroke:

- **Ischemic Stroke** *(most common)*
- **Hemorrhagic**
- Transient Ischemic Attack *(mini-stroke)*

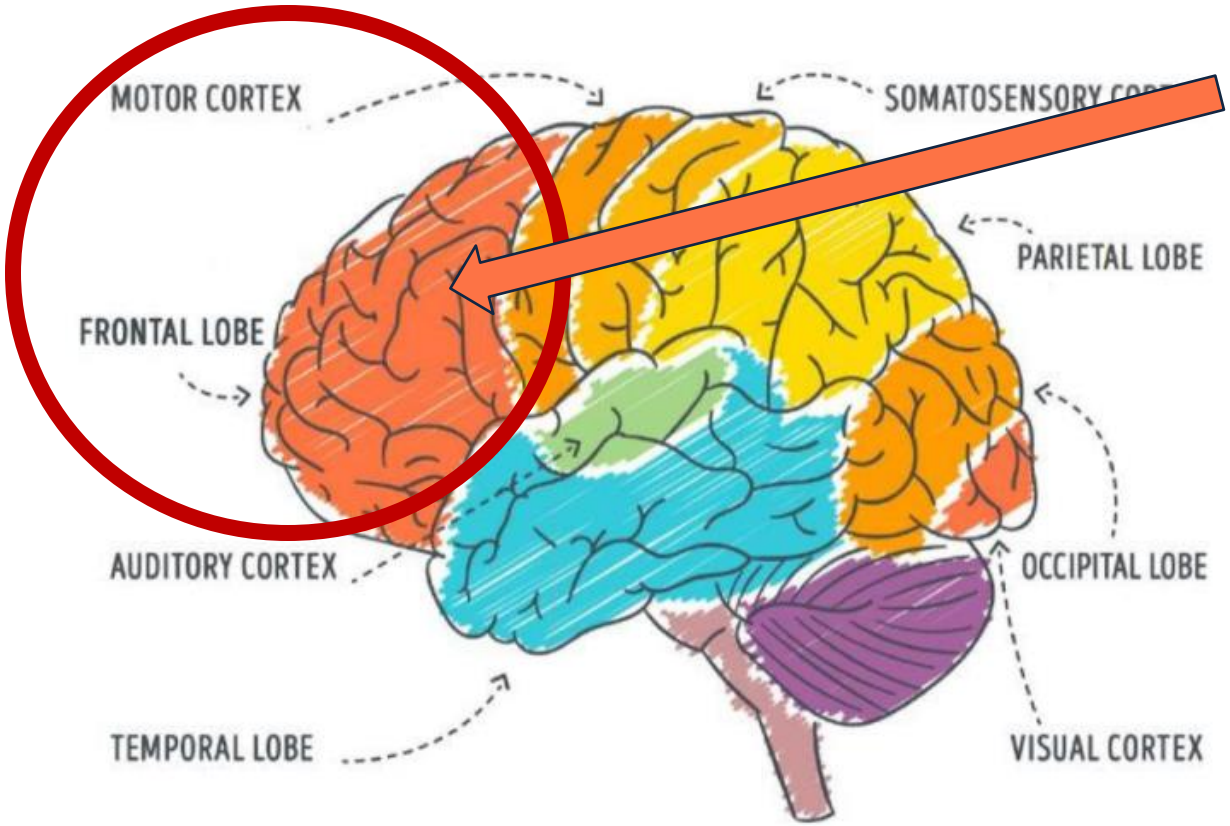
Other Causes of N-TBI:

- Aneurism
- Anoxia *(i.e., near drowning, or heart attack)*
- Exposure to toxins/chemicals
- Tumors/Cysts *(surgery)*

Infectious Disease *(meningitis, COVID-19)*

https://www.biausa.org/brain-injury/about-brain-injury/basics/overview

Neuroanatomy of Cognition and Behavior



Frontal Lobe

The "CEO" of the Brain

Manages executive functions:

organizing, impulse control, decision making

Damage can cause changes in emotional control, motivation, initiation and frustration tolerance

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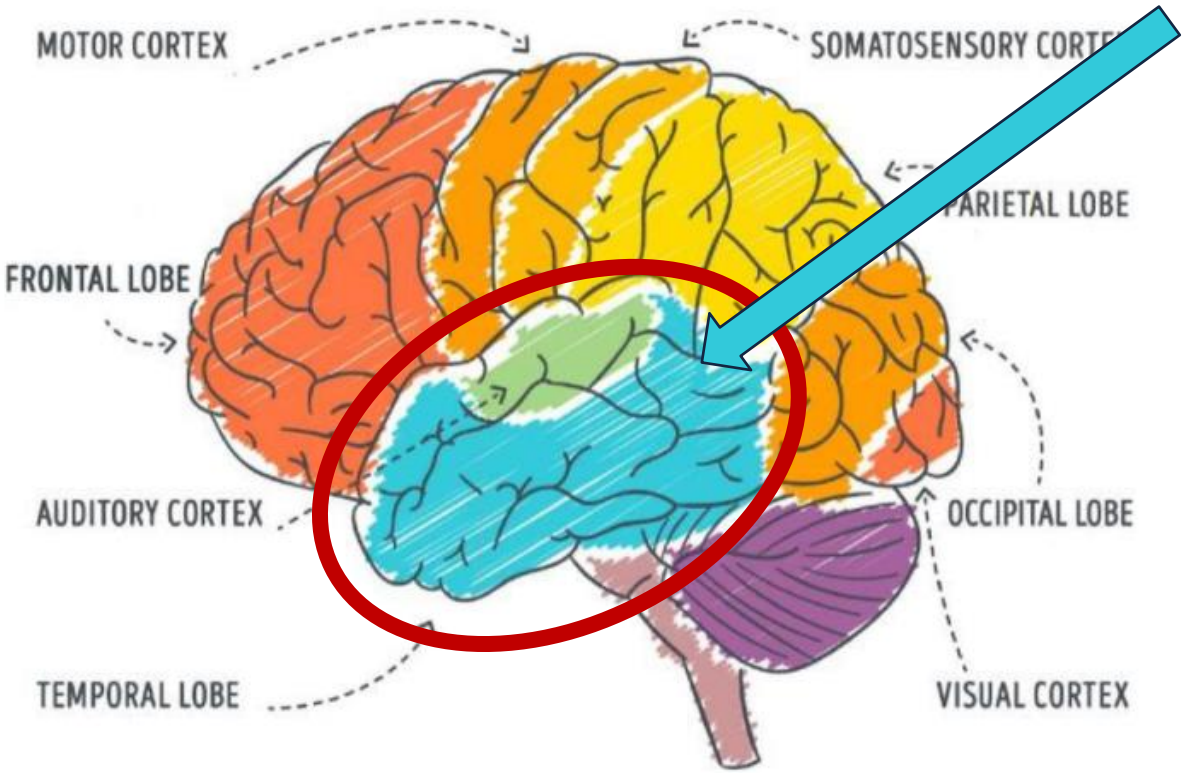
Neuroanatomy of Cognition and Behavior

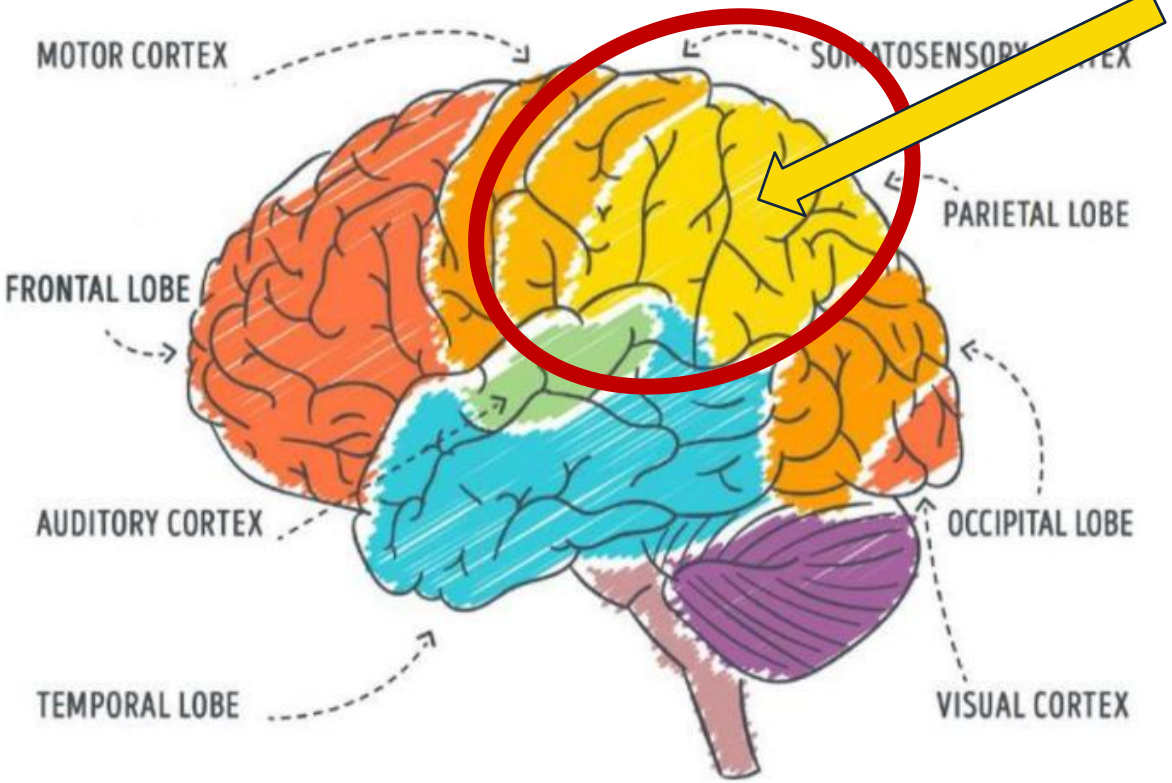


Temporal Lobe

Controls language and memory (hippocampus), and fear emotions (amygdala and basal ganglia)

Damage here can cause aggression, persistent talking, PTSD

Neuroanatomy of Cognition and Behavior



Parietal Lobe

Sensory perception and integration, including the management of **taste, hearing, touch, and smell**

region where the brain interprets input from other areas of the body

Damage here can result in an inability to coordinate movement, understand where your body is in space, and respond to sensory info in an appropriate way

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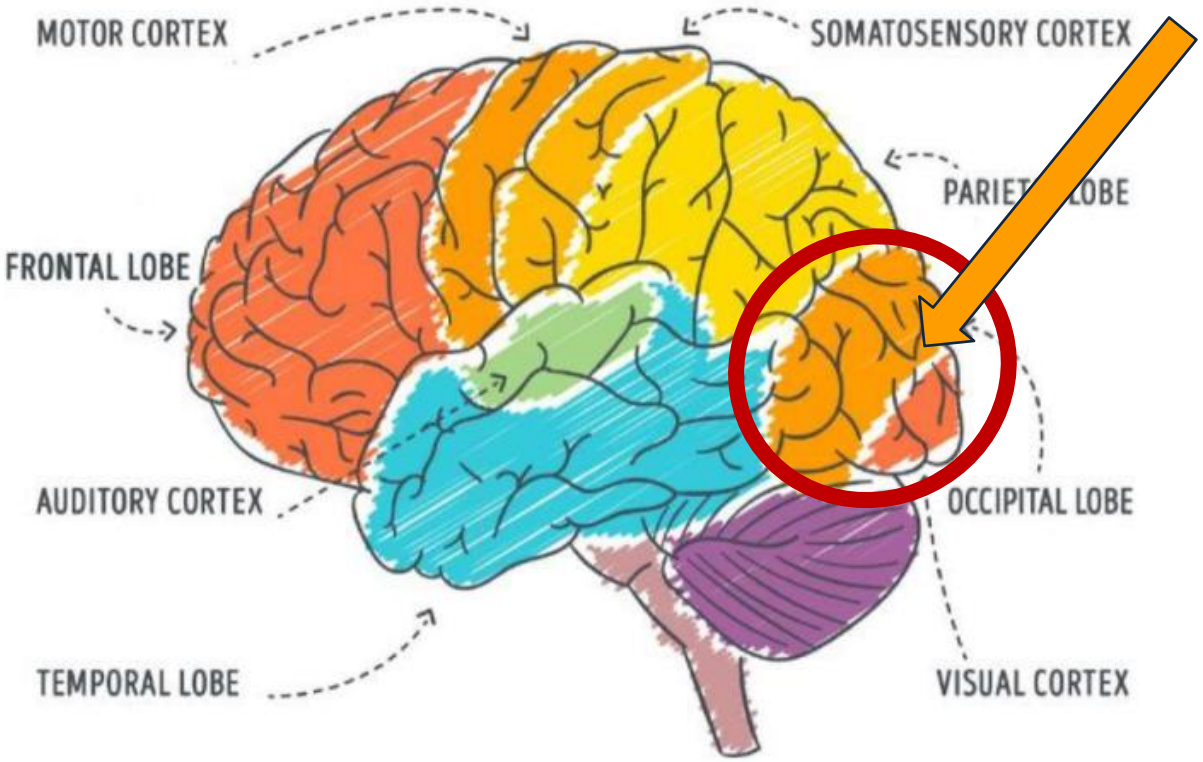
Neuroanatomy of Cognition and Behavior



Occipital Lobe

the visual processing area of the brain

Controls visuospatial processing, distance and depth perception, color determination, object and face recognition, and memory formation

Damage here can result in full or partial blindness, or visual conditions that can hinder recognizing faces or familiar objects

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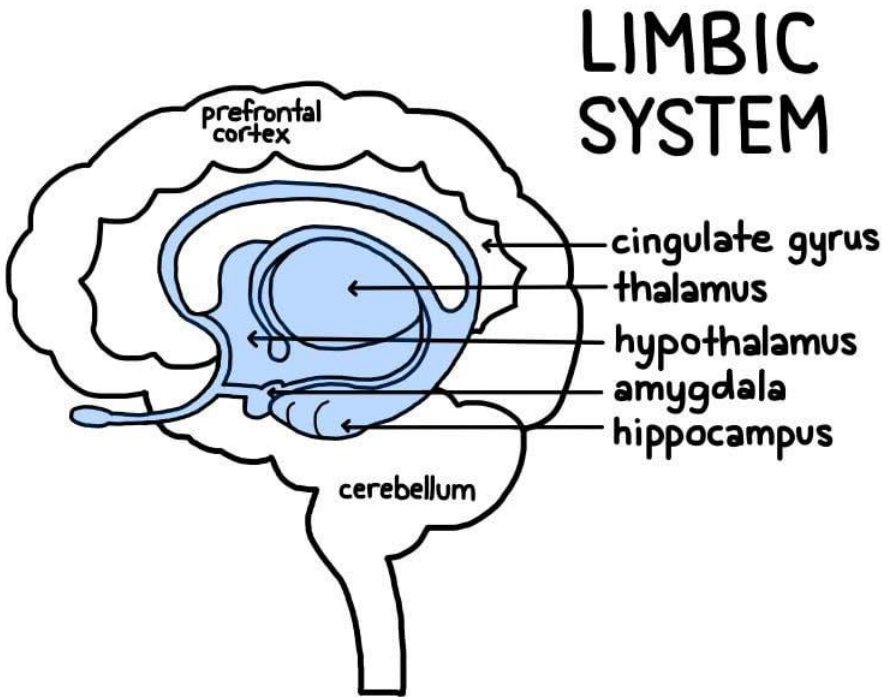
Neuroanatomy of Cognition and Behavior

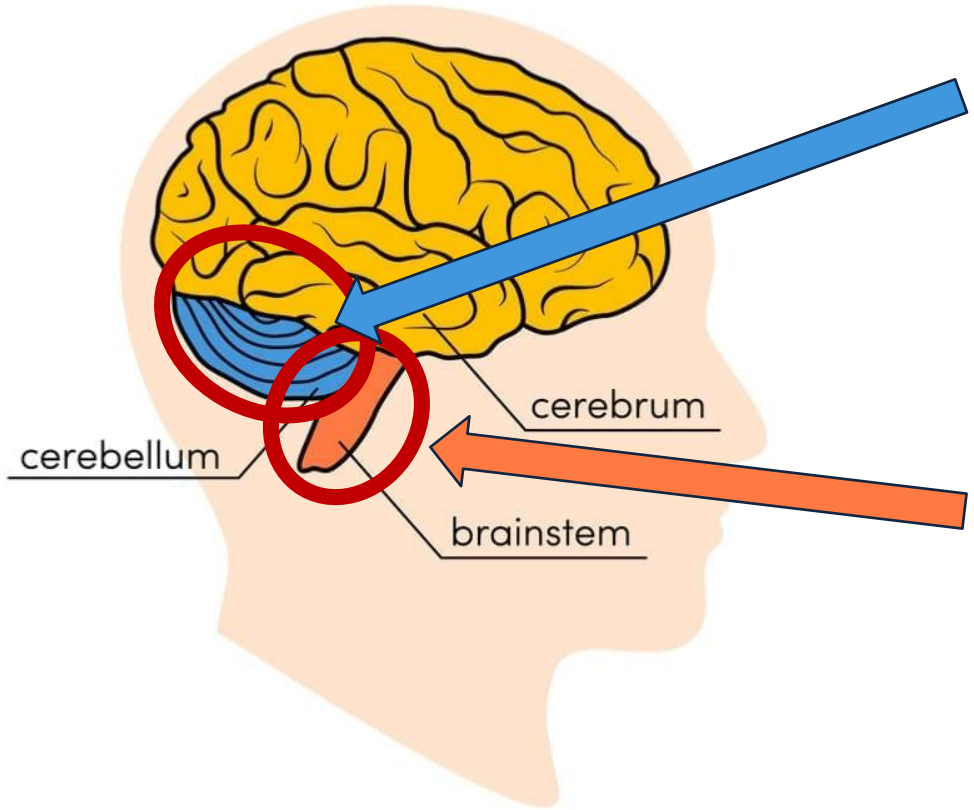


Limbic System

Involved in our behavioral and emotional responses, especially when it comes to behaviors we need for survival: feeding, reproduction and caring for our young, and fight or flight responses

Damage in this area impacts the “fight, flight or freeze” response and leads to hormonal disruptions

Neuroanatomy of Cognition and Behavior



The Cerebellum

Motor Functions; movement, equilibrium, balance, posture

The Brainstem

Involuntary actions of the body; heartbeat, blood pressure, breathing, sleeping, digesting

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Possible Symptoms after Brain Injury

Physical **Cognitive** **Emotional**

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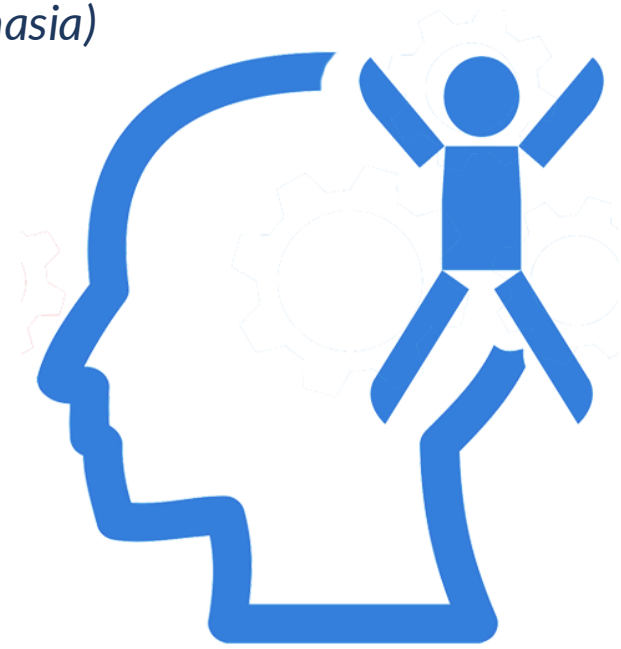
Physical Symptoms

- Motor function loss
- Difficulty with speech *(aphasia)*
- Motor weakness
- Seizures
- Headaches
- Fatigue
- Sleep disorders
- Balance issues
- Dizziness



Physical

Vision Changes

- Light sensitivity, blurry vision, double vision, visual processing, depth perception
- May have 20/20 vision but the brain may not interpret the image correctly

Hearing Changes

- Noise sensitivity
- Difficulty hearing
- Ringing, buzzing, humming.

Cognitive Symptoms

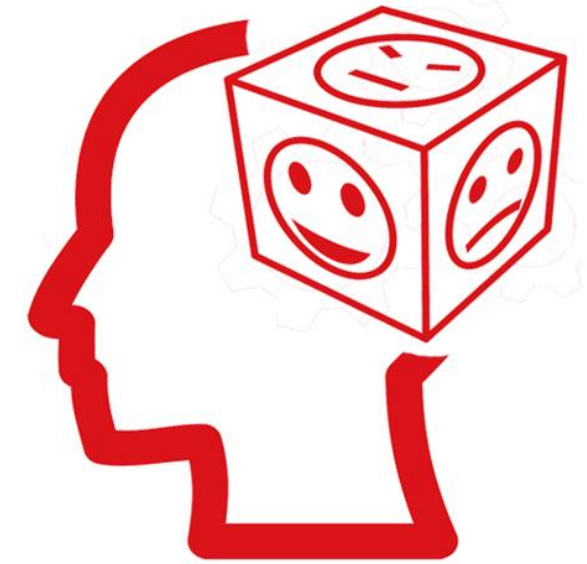
- Trouble concentrating
- Poor attention span
- Feeling confused or “foggy”
- Slowed processing
- Trouble understanding others
- Memory disturbance
- Learning difficulty

Cognitive

- Getting lost in familiar places
- Loss of insight or awareness of deficits
- Communication challenges
- Changes in sleep patterns
- Changes in executive functions – ability to manage life’s challenges

Emotional/Behavioral Symptoms

- Personality changes
- Irritability
- Frustration
- Rage
- Depression
- Anxiety
- Agitation
- Aggression



Emotional

- Disinhibition
- Apathy
- Impulsivity & impulse control
- Narcissism
- Impaired self-awareness
- Poor social skills
- Impaired ability to regulate behavior or use logic to respond

Behavior/Emotional Facts:

- Sometimes brain injury can result in the development of a mental health condition that may be long lasting. Some symptoms such as emotional lability may be a factor in the early stages of recovery but may improve over time as the brain heals.

- One study reveals that approximately 1 in 5 individuals may experience mental health symptoms up to six months after mild traumatic brain injury (Stein et al, JAMA Psychiatry. 2019)

- Brain Injury may exacerbate pre-existing mental health symptoms or new mental health conditions may develop related to the type of injury, situational factors or adjustment to living with a permanent disability.

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Effective strategies: assessment, accommodation and treatment of individuals with brain injury and mental health issues

Brain Injury and Mental Health

After brain injury, traditional mental health assessment and treatment may need to account for fluctuations in cognition or other changes

DSM-5	*ICD-10*
(1) Depressed mood (2) Markedly diminished interest or pleasure (3) Significant weight loss (4) Insomnia or hypersomnia (5) Psychomotor agitation or retardation (6) Fatigue or loss of energy (7) Feelings of worthlessness or excessive or inappropriate guilt (8) Diminished ability to think or concentrate, or indecisiveness (9) Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan or a suicide attempt or a specific plan for committing suicide.	**Typical symptom criteria** (1) Depressed mood (2) Loss of interest and enjoyment (3) Increased fatigability **Common symptom criteria** (4) Reduced concentration and attention (5) Reduced self-esteem and self-confidence (6) Ideas of guilt and unworthiness (even in a mild type of episode) (7) Bleak and pessimistic views of the future (8) Ideas or acts of self-harm or suicide (9) Disturbed sleep (10) Diminished appetite

List of symptoms that could result from brain injury:

- Sleep disturbance
- Flat affect or seeming lack of emotion
- Slow to respond
- Focus or memory challenges
- Fatigue

Who you may see…

It may be a good idea to ask if your client has had a history of falling, hitting their head, or any period of unconsciousness

Not everyone is aware that they've had a brain injury!

You may have clients who:

- Are forgetful
- Have a hard time paying rent or utilities on time
- Have a hard time keeping a job
- Are never on time
- Say things are always "happening" to them
- Are easily overwhelmed

Social/Emotional/Behavioral Assessment:

Obtain as much history as you can by asking about

accidents

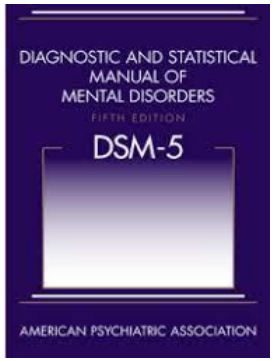
domestic violence

history of stroke or TIAs

viruses

cognitive changes

Mental Health Diagnosis or Brain Injury?



Brain injury may look like a psychiatric disorder if BI is not factored into assessment

Examples:

- **Memory loss related to the incident while still having associated traumatic responses**
  sirens, flashing lights, sound of a helicopter may trigger an emotional response
- **Avoidance of others due to heightened sensory, memory or communication issues**
  loud noises or bright lights may trigger a physical or emotional response
- **Labile mood associated with *pseudobulbar effect***

Pseudobulbar Effect

According to the Mayo Clinic:

Pseudobulbar affect (PBA) is a condition that's characterized by episodes of sudden uncontrollable and ***inappropriate*** laughing or crying.

The primary sign of pseudobulbar affect (PBA) is frequent, involuntary and uncontrollable outbursts of crying or laughing that are exaggerated or not connected to your emotional state.

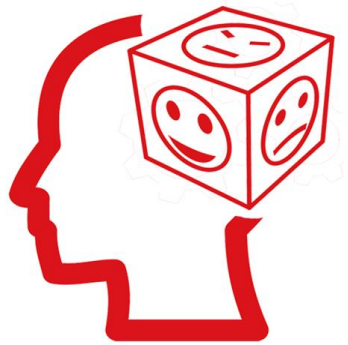
Because pseudobulbar affect often involves crying, the condition is frequently mistaken for depression.

https://www.mayoclinic.org/diseases-conditions/pseudobulbar-affect/symptoms-causes/syc-20353737

Additional Emotional and brain injury symptoms that mimic mental health issues

Mood and other indicators:

- Social avoidance
- Depression
- Flat affect



Emotional

Physical and cognitive symptoms that could appear to be psychiatric:

Physical

Cognitive

- **Double or other vision issues**

  poor eye contact, issues with completing tasks

- **Vestibular issues**

  poor balance or dizziness

- **Fatigue/"brain fog"**

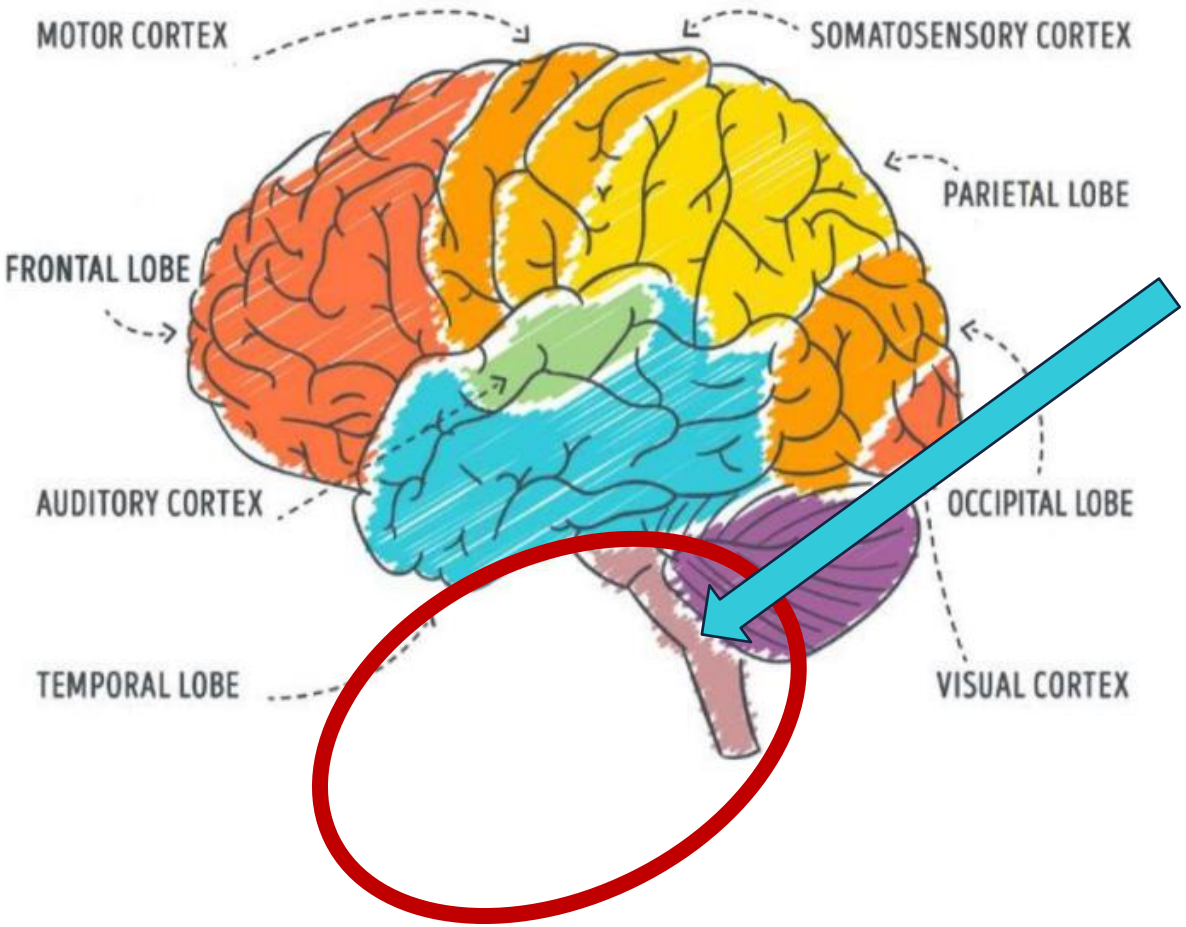
  poor follow through, focus or mood

- **Slow processing** (auditory or visual)
  impacts response, focus or mood

- **Memory**
  impacts relationships, is different than dementia

- **Speech deficit**

  impacts response, confidence, relationships



Temporal Lobe

Controls Language and memory (hippocampus)

Aphasia (expressive & receptive)

Wernicke's = Receptive; Able to speak but does not make sense. Unable to understand.

Broca's = Expressive Aphasia; difficulty finding the right words, limited language.

May impact therapeutic relationship as communication becomes a challenge

Clinician ⇄ Client

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Aphasia

aphasia info: asha.org

Accommodations for behavioral/emotional treatment after brain injury

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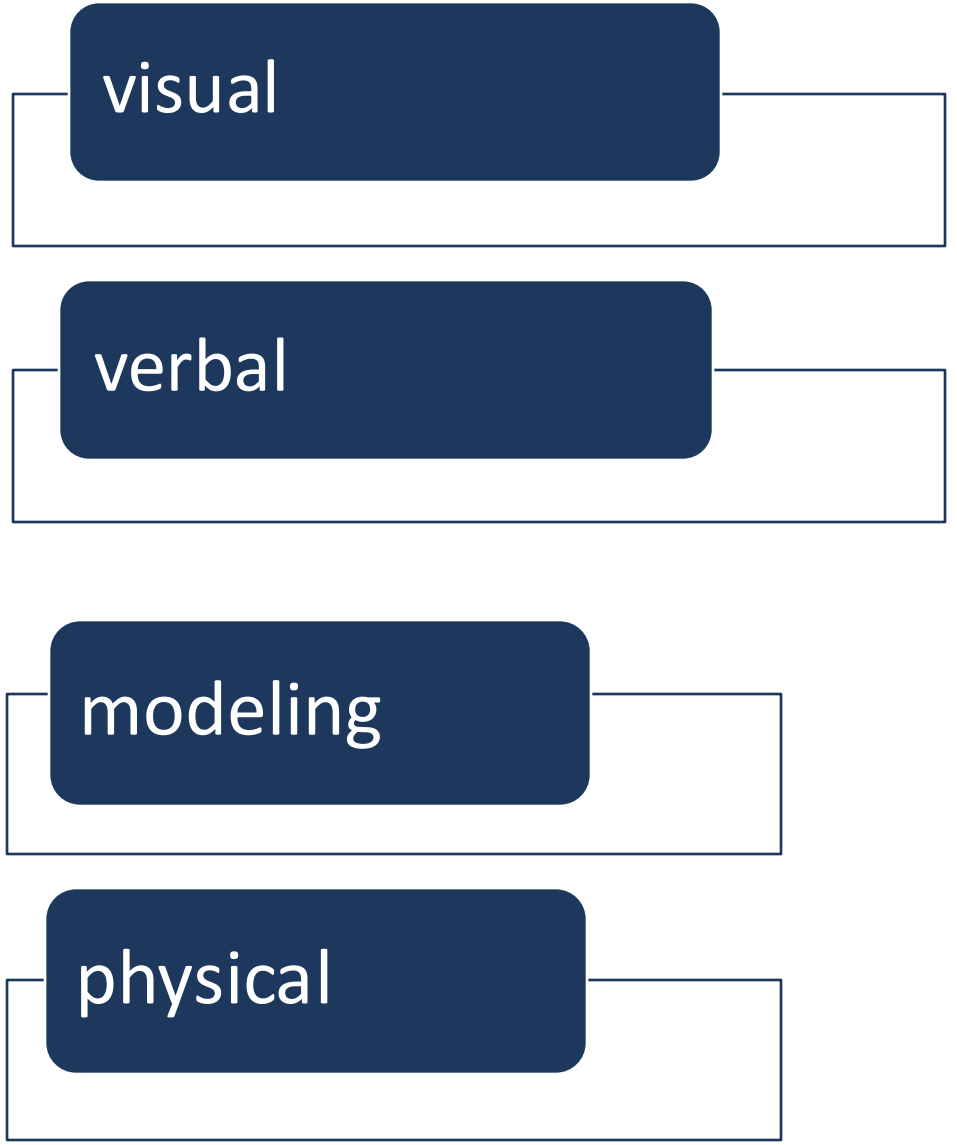
Prompting

may be necessary to compensate for lack of initiation or poor memory



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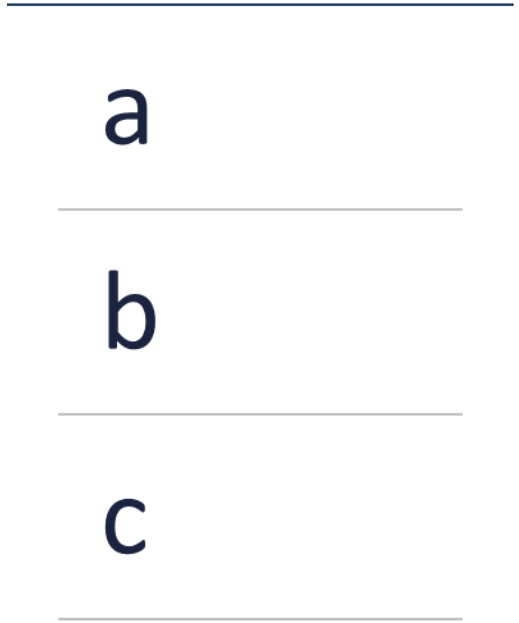
Repetition, Repetition, Repetition…..

to accommodate focus and short-term memory deficits

Offer options for aphasia

It may help to offer choices of answers when asking questions

An individual may understand but is unable to find the words needed



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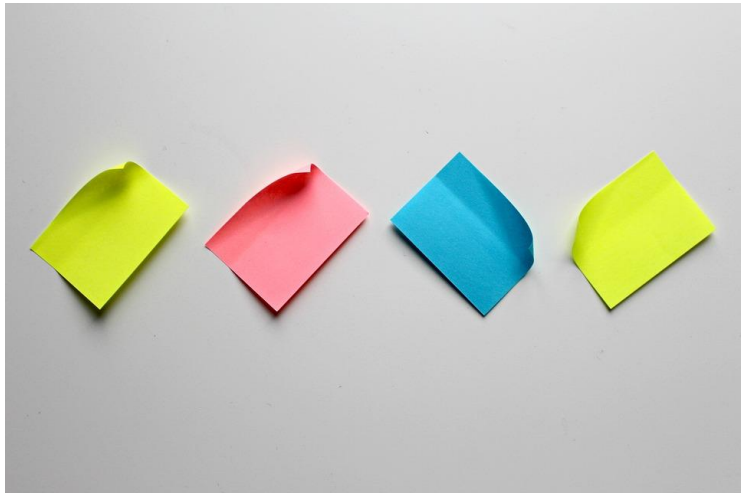
Change the Modality

Offer creative options

- Drawing, writing, or using art mediums may be useful for expression.
- Individuals with aphasia may be able to write words or draw concepts they cannot speak.
- Use of images may also encourage communication.

Behavioral Concerns after BI

Interrupting



may be a memory concern

In groups or individually encourage use of a place to "park" thoughts until a more appropriate time to share

Resistance?

Not doing assignments or using tools may be a memory or visual processing issue rather than resistance

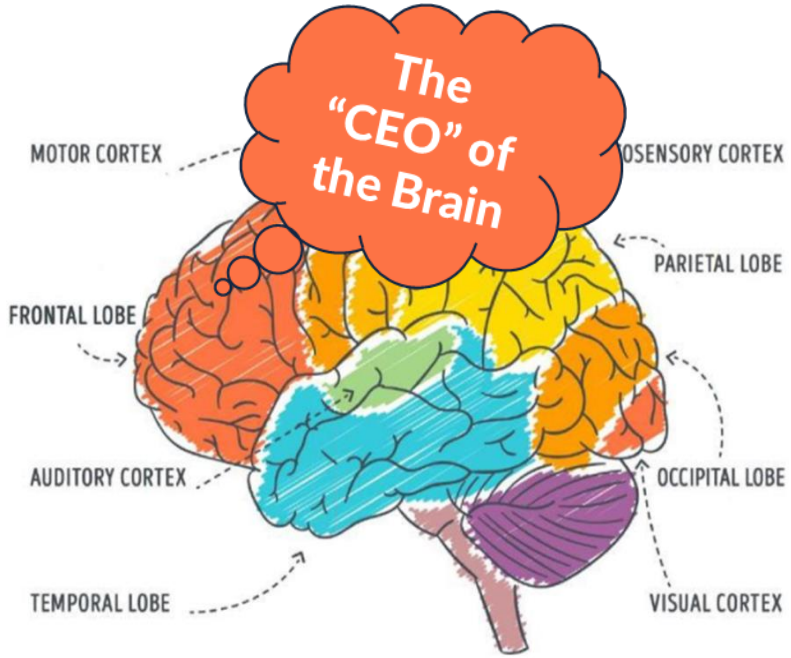
Teach and rehearse a strategy or tool during sessions rather than expecting them to do so while they are not with you

Ask what is difficult about the assignment; sometimes visual processing or auditory processing may be the issue

Poor follow through

may be a result of damage to the frontal lobe

- It might not improve with training and may need to be accommodated
- Use reminders
- Offer shorter, more frequent sessions at the same time/on same day
- Break up tasks into smaller steps



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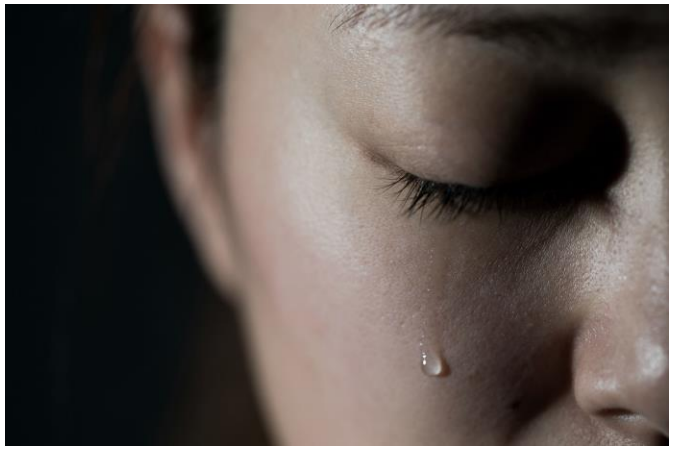
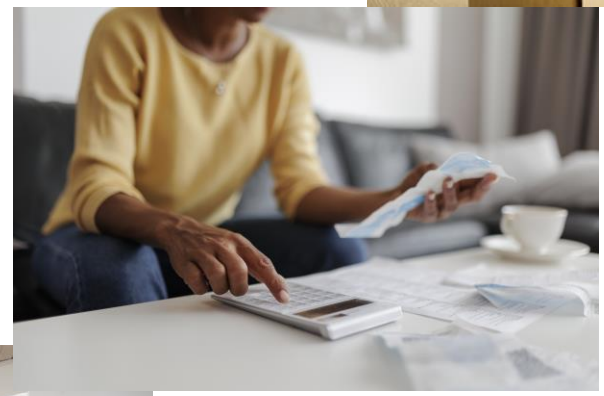


Grief and loss associated with brain injury

Roles/Responsibilities/Relationships/Identity

Losses after brain injury:

- job
- career
- primary role in family
- confidence
- relationships
- skills and abilities



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Response to Grief and Loss

Denial, Anger, Bargaining, Depression, Acceptance, Finding Meaning

Denial

Denies changes
Ignores recommendations
Maintains that nothing has changed

Denial versus *anosognosia (lack of awareness)*

Anger causes

- person who caused injury
- disability
- medical personnel who don't understand
- challenges with insurance
- feeling alone

Bargaining

False hope

Belief that grief can be avoided through negotiation

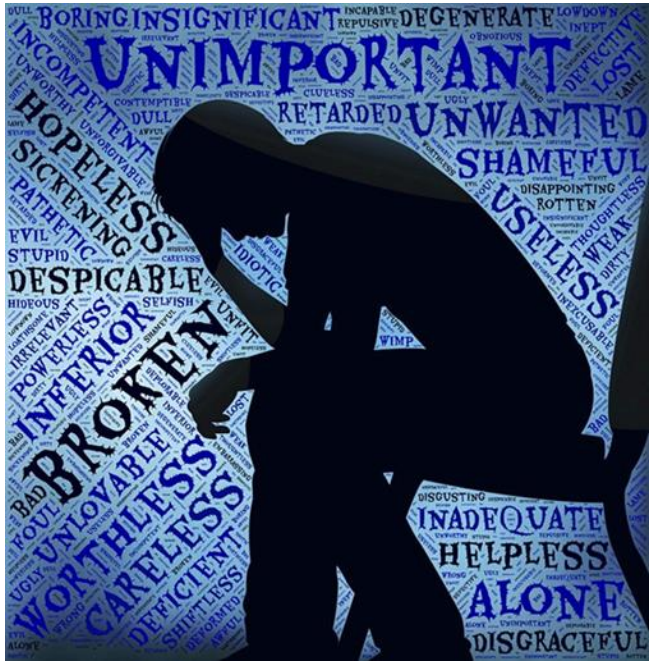
Struggling to find meaning

Why did this happen?

How can I make sense of this?

Depression

- Emptiness when we face reality
- overwhelmed by changes
- helplessness
- trauma and numbness
- social isolation

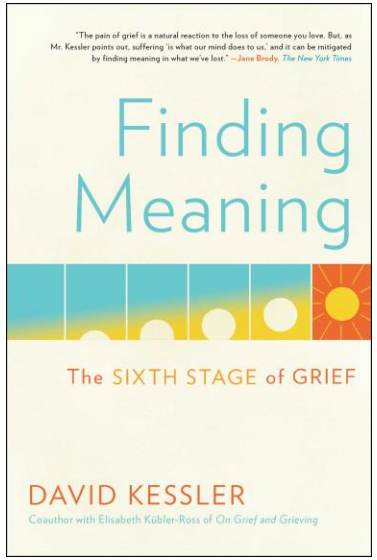


Acceptance

- emotions stabilize
- accept new reality
- explore solutions/options
- make new plans
- move forward

Finding Meaning

- Giving back
- Advocacy
- Supporting others
- Speaking out
- Focusing on gains



Caring for the caregiver impacted by brain injury

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Caring for the caregiver impacted by brain injury

"The thing that's true about every brain injury is that it happens without warning. There is no preparation, no "easing in" to the idea. Families are not given time to gather their resources or ready their minds for the challenges ahead. Rather, TBI is an explosion – transforming the lives we expected to lead indefinitely into something hardly recognizable. It is shock, on a scale few can imagine".

Abby Maslin, blogger, author of ***Love You Hard***

Brainline 2017 https://www.brainline.org/blog/reinventing-our-family/youre-survivor-too

Caring for the caregiver impacted by brain injury

Caregivers experience:

- Grief/Loss and its stages
- Fear
- Social isolation
- Guilt
- Exhaustion
- Physical, cognitive & emotional symptoms
- Burn out

Assisting the Caregiver

- Support (groups via state BI associations)
- Self-compassion (self-compassion.org)
- Back-up plans (address fear)
- Education (BIAA, CDC, Brainline)
- Resources (financial, medical, mental health)

QUESTIONS?

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on the web at braininjurysvcs.org

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Sources

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