Acquired Brain Injury: The Silent Epidemic

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Brain Injury:
The Silent Epidemic

- The term "**Silent Epidemic**" is used to characterize the incidence of brain injury worldwide, in part because many cases are not recognized and are, therefore, excluded from official statistics
- You typically can't "see" the disability after brain injury (that is why hundreds of different tests have been developed.
- Because of impaired awareness, most people with brain injury won't report their injury or its effects
- Brain Injury does not discriminate, it can happen to anyone.

Acquired Brain Injury

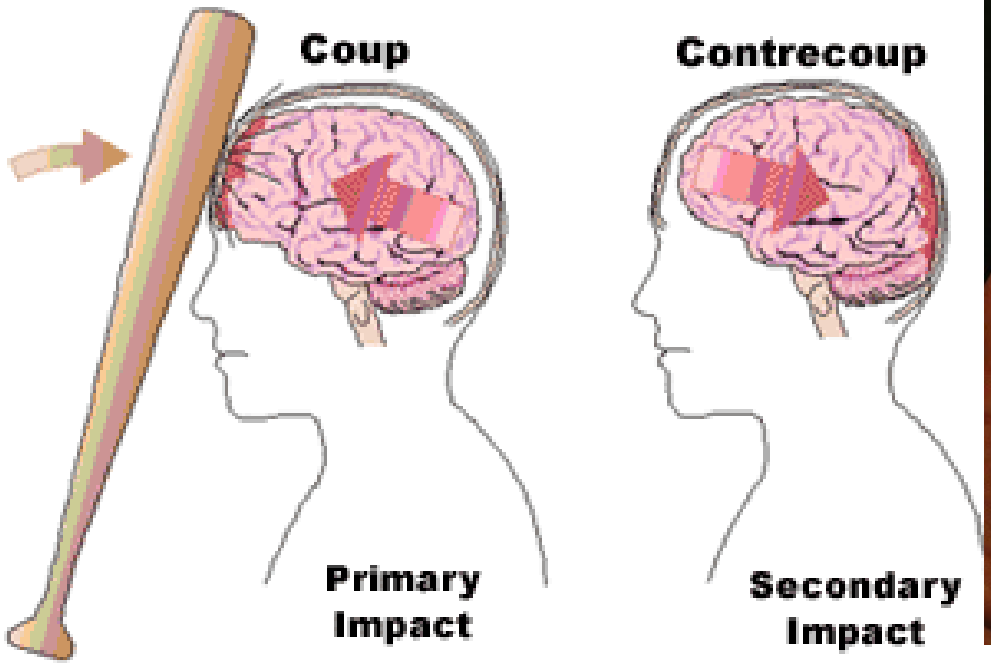
- An **Acquired Brain Injury** is an injury to the brain, which is not hereditary, congenital and degenerative.
- All Brain Injuries are considered Acquired Brain Injuries.
- Some examples of Acquired Brain Injury include stroke, intracranial hemorrhage, tumor, encephalopathy (e.g. hypoxia, infectious), neurotoxins or electric shock, TBI.

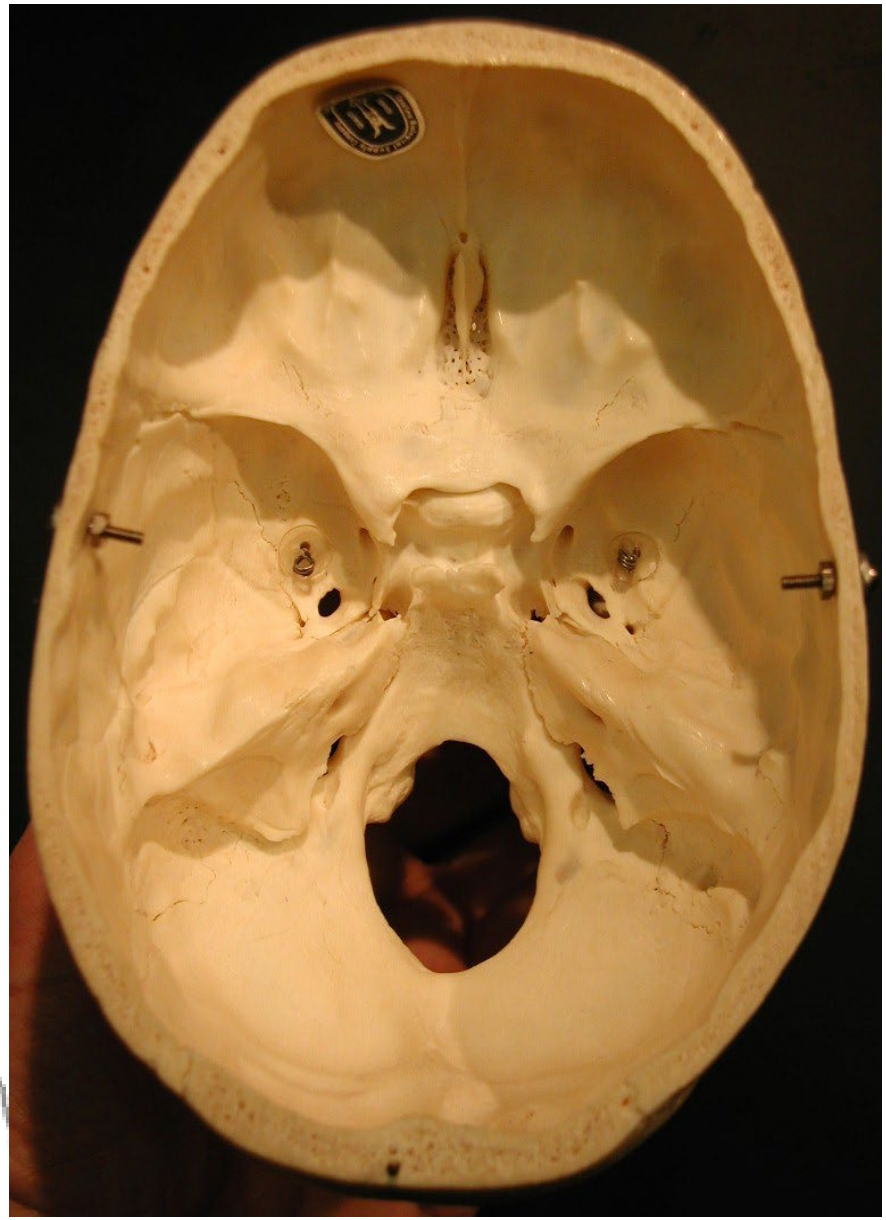
Traumatic Brain Injury (TBI):

Traumatic Brain Injury or **TBI** is defined as an alteration in brain function, or other evidence of brain pathology, caused by an external force.

- Any **Traumatic Brain Injury** is considered an acquired brain injury
- **Traumatic Brain Injuries** are considered preventable.
- Some examples of **TBI** are motor vehicle accidents, motorcycle accidents, bicycle accidents, assaults, falls, gunshot wounds, concussions, sports accidents, etc.


Hand Crafted
PROFESSIONAL
EXCALIBUR


Coup
Contrecoup
Primary Impact
Secondary Impact



ABI – Non-Traumatic Brain Injuries

- Stroke
- Aneurysm
- Tumor
- Hypoxia or Anoxia
- Disease process (non-progressive)
- Neurotoxins
- Electric shock or lightening strike (ECT)

Every Brain Injury is Unique

- What type of brain injury?
- What part of the brain is injured?
- Who's brain is it in?
- How did their brain work before?
- Support system before?
- Prior complications?

Common effects after Brain Injury

Cognitive	Physical	Emotional/ Behavioral
Memory	Headaches	Depression
Attention	Seizures	Anxiety
Speed of Processing	Paralysis	PTSD
Mental Flexibility	Spasticity	Irritability
Initiation	Balance	Mood Swings
Awareness	Vision	Inability to Control Emotions
Impulsivity	Fatigue	Alexithymia
Judgement	Communication	Affect
Decision-Making	Loss of Smell/Taste	
Problem-Solving	Speech Impediments	
Organization		

Mild TBI/Concussion (mTBI)

- mTBI and concussion are often thought of as interchangeable terms
- Diagnostic Criteria for MTBI by the American Congress of Rehabilitation Medicine

A traumatically induced physiological disruption of brain function, as manifested by *at least one* of the following:

- Any loss of consciousness
- Any loss of memory before or after injury
- Any alteration of mental state
- Focal neurological deficit that may or may not be transient
- Severity of Injury does not exceed the following:
  - LOC ≤ 30 minutes
  - After 30 minutes, an initial GCS score of 13-15
  - PTA ≤ 24 hours

Populations at Risk of BI

- People with addiction issues
- People in domestic violence situations
- People in the criminal justice system
- People experiencing homelessness
- Athletes
- Males
- Veterans
- Mental health population—may develop depression, anxiety, PTSD after the brain injury (up to 60% of TBI population has depression)

OSU-TBI-ID revised with ABI

- Originally published in 2007 by John Corrigan, PhD
- A standardized procedure for eliciting lifetime history of TBI via a structured interview
- Strong psychometric properties
- We utilize an adapted version of the OSU TBI-ID Short Version because:
  - Of clinical, research or programmatic purposes
  - It can typically be administered in 5 minutes
  - It can be used free of charge, and
  - It can be used without further permission from the authors as long as no changes are made to the provided version.

*After someone is screened for a possible ABI, RHI staff can assist and help you to triage the client accordingly.

Name:	Current Age:	Interviewer Initials:	Date:

Ohio State University TBI Identification Method + ABI — Interview Form

Step 1

Ask questions 1-5 below.
Record the cause of each reported injury and any details provided spontaneously in the chart at the bottom of this page. You do not need to ask further about loss of consciousness or other injury details during this step.

I am going to ask you about injuries to your head or neck that you may have had anytime in your life.

1. In your lifetime, have you ever been hospitalized or treated in an emergency room following an injury to your head or neck? Think about any childhood injuries you remember or were told about.

   NO YES—Record cause in chart

2. In your lifetime, have you ever injured your head or neck in a car accident or from crashing some other moving vehicle like a bicycle, motorcycle or ATV?

   NO YES—Record cause in chart

3. In your lifetime, have you ever injured your head or neck in a fall or from being hit by something (for example, falling from a bike or horse, rollerblading, falling on ice, being hit by a rock)? Have you ever injured your head or neck playing sports or on the playground?

   NO YES—Record cause in chart

4. In your lifetime, have you ever injured your head or neck in a fight, from being hit by someone, or from being shaken violently?
   Have you ever been shot in the head?

   NO YES—Record cause in chart

5. In your lifetime, have you ever been nearby when an explosion or a blast occurred? If you served in the military, think about any combat- or training-related incidents.

   NO YES—Record cause in chart

Interviewer instruction:
If the answers to any of the above questions are "yes," go to Step 2. If the answers to all of the above questions are "no," then proceed to Step 3.

Step 2

Interviewer instruction:
If the answer is "yes" to any of the questions in Step 1 ask the following additional questions about each reported injury and add details to the chart below.

6. Were you knocked out or did you lose consciousness (LOC)?

   If yes, how long?

   If no, were you dazed or did you have a gap in your memory from the injury?

   How old were you?

Step 3

Interviewer instruction:
Ask the following questions to help identify a history that may include multiple mild TBIs and complete the chart below.

Have you ever had a period of time in which you experienced multiple, repeated impacts to your head (e.g. history of abuse, contact sports, military duty)?

If yes, what was the typical or usual effect—were you knocked out (Loss of Consciousness - LOC)?

If no, were you dazed or did you have a gap in your memory from the injury?

What was the most severe effect from one of the times you had an impact to the head?

How old were you when these repeated injuries began?

Ended?

Step 4

Interviewer instruction:
Ask the following questions to help identify other Aquired Brain Injury (ABI) and complete the chart below.

I am going to ask you about any other illness or medical problem you may have had.

1. Have you ever been told that you have had a stroke or bleeding in your brain? *Other words you may have heard include "ruptured aneurysm" or "infarct"*

   NO YES—Record cause in chart

2. Have you ever been told that you have had a loss of oxygen to the brain? *This could result from losing consciousness or passing out after a drug overdose, strangulation, near-drowning, heart attack/heart stopping, breathing stopped or inability to wake up after a medical procedure, excessive blood loss, complications of anesthesia.*

   NO YES—Record cause in chart

3. Have you ever been electrocuted or struck by lightning?

   NO YES—Record cause in chart

4. Have you ever had an infection in your brain? *You may have heard the words "meningitis" or "encephalitis"*

   NO YES—Record cause in chart

5. Have you ever had a tumor in your brain?

   NO YES—Record cause in chart

6. Have you ever had brain surgery? *This could have been surgery for epilepsy, shunt placement, or tumor removal.*

   NO YES—Record cause in chart

7. Have you ever been exposed to toxic hazards? *This could result from exposure to lead, mercury, uranium/radiation, environmental hazards, or carbon monoxide.*

   NO YES—Record cause in chart

Step 1	Step 2						
Cause	Loss of consciousness (LOC)/knocked out				Dazed/Mem Gap		Age
	No LOC	< 30 Min	30 Min-24 hrs	> 24 hrs	Yes	No	

If more injuries with LOC: How Many? ____ Longest knocked out? ____ How many ≥ 30 mins.? ____ Youngest age? ____

Step 3	Typical Effect			Most Severe Effect			Age	
Cause of repeated injury	Dazed/ memory gap, no LOC	LOC	Dazed/ memory gap, no LOC	LOC < 30 min	Dazed/Mem Gap	LOC > 24 hrs.	Begin	Ended

Step 4			
Cause	Medication Treatment (Y/N)	Hospitalization (Y/N)	Age

*Addition of Step 4 is provided by the RHI Resource Facilitation Department.

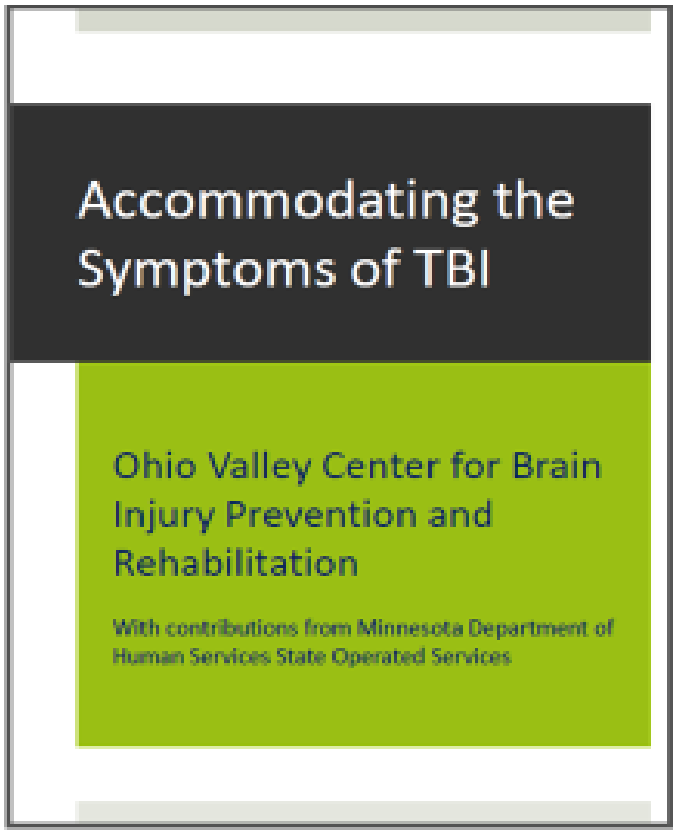
Accommodating Brain Injury

Accommodating the Symptoms of TBI

John D. Corrigan, PhD, Jennifer A. Bogner, PhD

- Education on recognizing the common symptoms of ABI and how to accommodate.
- Provides simple, yet effective accommodations to make to help increase the odds of treatment success.

Website:
https://tbi.osu.edu/modules/6

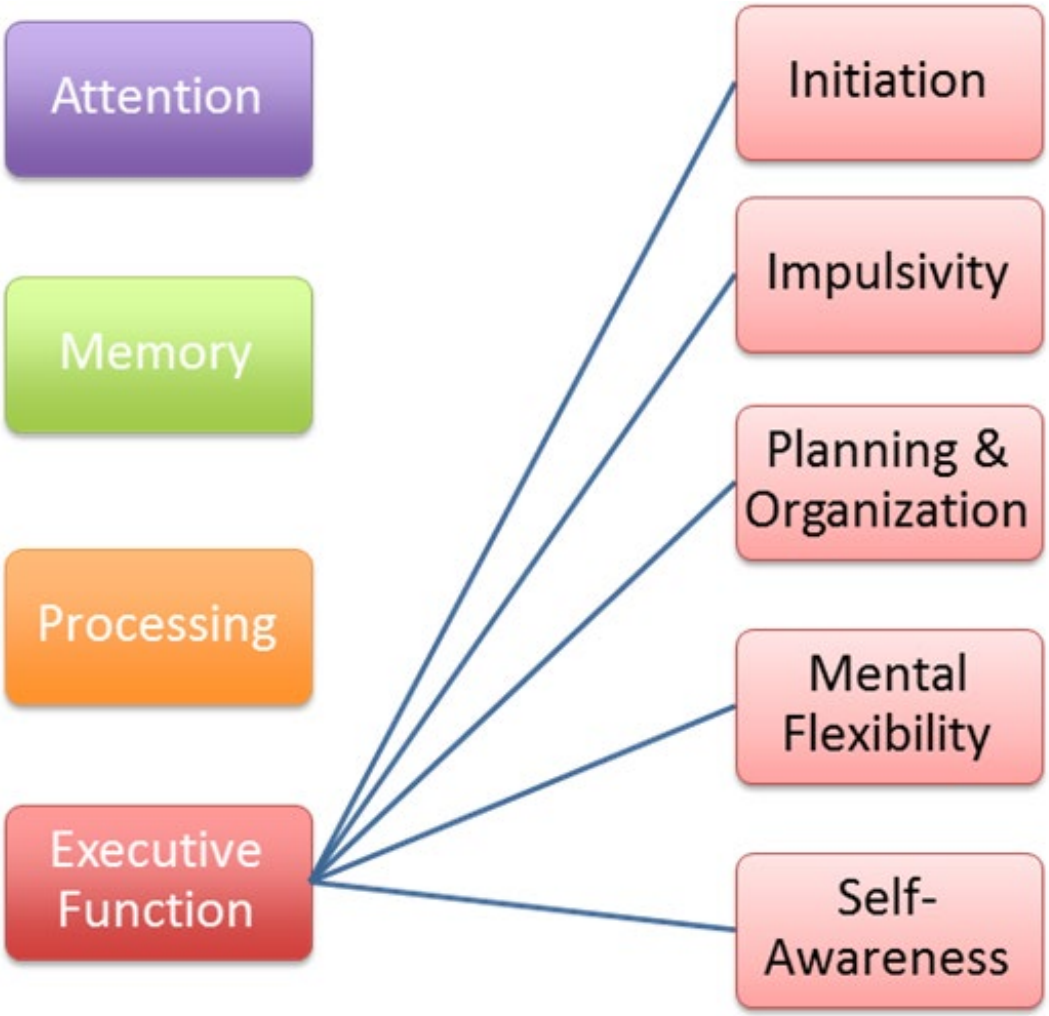


Cognition after ABI

After an ABI, a person may face some cognitive deficits which may include problems with:

- attention
- concentration
- speech and language
- learning and memory
- reasoning
- planning
- problem-solving, etc.

Neurocognitive Functions



2013, Accommodating the Symptoms of TBI, Ohio Valley Center for Brain Injury Prevention & Rehabilitation at The Ohio State University Wexner Medical Center with contributions from Minnesota Department of Human Services State Operated Services

Attention Deficits

Individual may appear to:

- Restless
- Distracted easily
- Having difficulty doing more than one task at a time
- Unable to complete a task
- Not able to sit still
- Not able to finish a conversation
- Being tangential

Possible Accommodations for Attention

- Focus on one task at a time.
- Be sure you have the person's attention before beginning a discussion or task.
- Decrease distractions when working or talking with the person. (Eliminate or reduce noises.)
- Work with the individual to ask for repetition and use active listening skills (repeating back from they heard, etc.).

Processing Deficits

Individual may appear to:

- Tire easily
- Not keep up with a conversation
- “Zone” out
- Be passive
- Seem disinterested
- Not pick up on instructions

Possible Accommodations for Processing

- Provide one idea at a time
- Keep it simple
- Slow down
- Check in with the person
- Ask for repetition of information

Memory Deficits

Individual may appear:

- Forgetful
- Inattentive
- Have no follow-through
- Unable to learn new information
- Inconsistent in performance
- Noncompliant

Possible Accommodations for Memory

- Repetition with consistent rehearsal strategies (procedural memory)
- Assistive Technology (Memory notebooks, phone apps, etc.)
- Task guidance systems (written, digital)
- Structured cueing
- Pharmacological Treatment

Executive Function Impairments after Frontal Lobe Injury

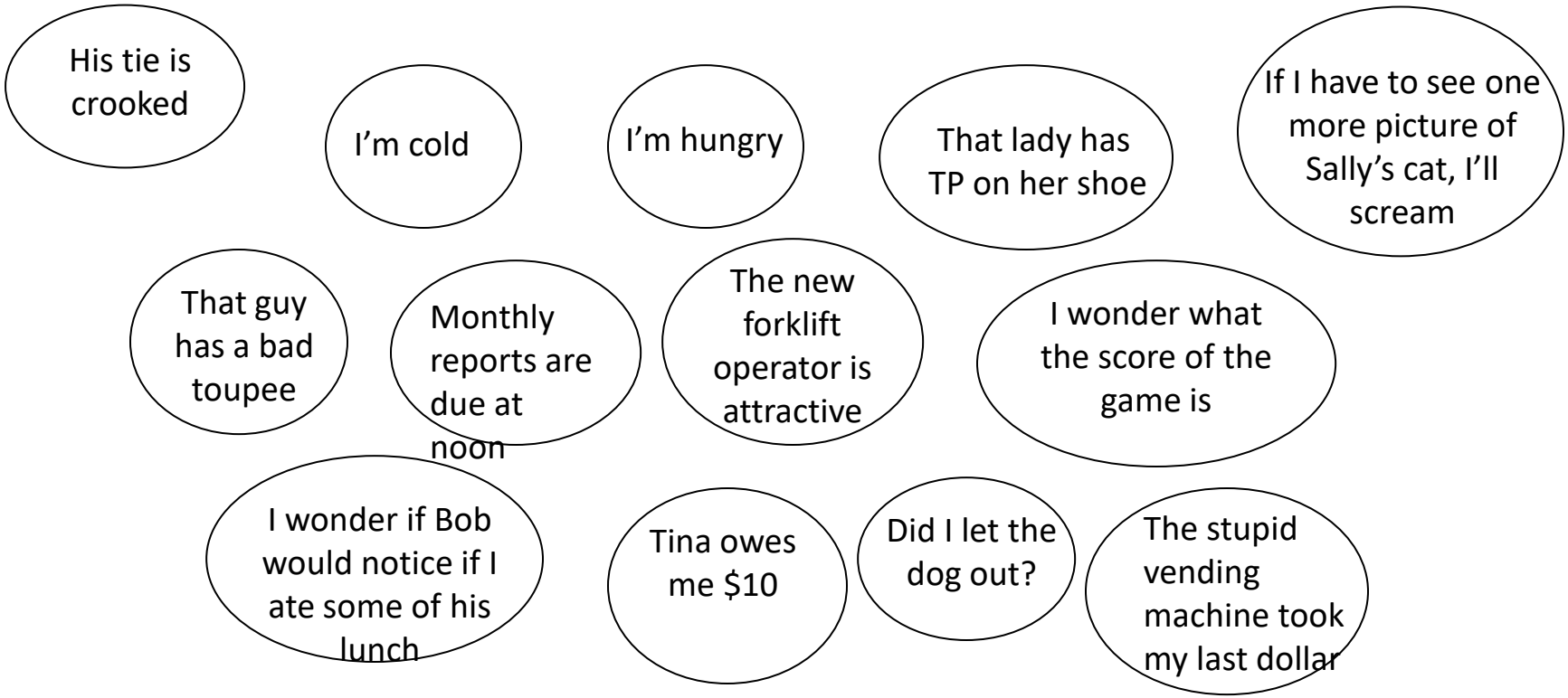
- Initiation
- Impulsivity
- Organization and Planning
- Judgment/ Decision Making
- Problem Solving
- Awareness
- Attention and Working Memory
- Abstract Thinking

Misattributions about Behavior after Frontal Lobe Injury

- “Not cooperative”
- “Not motivated”
- “Over-react”
- “Difficult”
- “Rigid” – “not flexible”
- “Unrealistic”
- “Doesn’t follow through”

Workplace Example

(Individual without ABI)



The person without neurological impairment makes the correct move because…

- They accurately “read” the situation
- They can access previously-learned rules for how to act in similar situations
- They pay attention to how others nearby are acting
- They can think about what happened when other people acted certain ways in the past
- He/she considers what others would think or do if he/she were to act in certain ways
- They can imagine the consequences of acting certain ways

Workplace Example

(Person with ABI)

In the workplace these individuals are potentially likely to…

- Be easily drawn off-task (internal and external)
- Be viewed by coworkers as unpredictable, exhausting to be around
- Move too quickly, not check their work, make mistakes
- Say or do inappropriate things
- Talk or act without thinking
- Interrupt often
- Not follow directions
- Act without regard for safety
- Become irritable or even aggressive

Accommodating Frontal Lobe Dysfunction: Initiation

May appear as	Possible Accommodations
• Appear “lazy” • Appear passive • Seem unmotivated • Be unable to complete a task or goal • Need constant reminders and cuing to act on things	• Using external cueing strategies • Using to-do lists • Breaking tasks into steps so the goals are more achievable • Use a timer

Accommodating Frontal Lobe Dysfunction: Impulsivity

May appear as	Possible Accommodations
• Talk without thinking • Act without thinking • Trouble knowing when to stop something • Interrupting often • Not following directions • Act without regard for safety	• "Stop and think" strategies, • Teach to anticipate with external cues and strategies • Provide incentives for short-term goals and small, slower steps • Take breaks • Relaxation training • Give direct feedback

Accommodating Frontal Lobe Dysfunction: Planning & Organization

May appear as	Possible Accommodations
• Stuck in one place • Having difficulty to do tasks that used to be easy (ex. getting dressed, finishing assignments, etc.) • Doing same thing over and over. • Having difficulty trying new ways of doing things, even if the old ones fail. • Having difficulty doing more than one thing at a time.	• Structure • Consistency • Consistent feedback • Using checklists for task completion • Using a task guidance systems

Accommodating Frontal Lobe Dysfunction: Problem-Solving/Judgment

May appear as	Possible Accommodations
• Having problems making good choices • Having problems analyzing thing • Having problems readjusting when things don't go right • Make quick decisions • Thinking rigidly • Unable to change their way of thinking.	• Use problem-solving steps and strategies • Teach to brainstorm • List pros and cons • Ask for help to make decision • Encourage to generate options and use • Break things down into smaller steps

Accommodating Frontal Lobe Dysfunction: Awareness

May appear as	Possible Accommodations
• Denying symptoms • Underestimating goals • Having unrealistic expectations • Dominating interactions • Being frustrated with self	• Education on brain injury • Talk about potential situations and obstacles • Teach compensation strategies for deficits • Encourage to have open mind • Encourage person asking for feedback • Encourage person to use journal to increase self-awareness

Accommodating Frontal Lobe Dysfunction: Working Memory

May appear as	Possible Accommodations
• Unable to hold on to information long enough to use it • Struggle to concentrate in order to follow instructions • Having difficulties in many different subject areas, mainly reading and math • Unable to work to do simple math in head (count change, basic addition, etc.)	• External management distractions • Internal exercises- relaxation practice • Verbal or visual mediation • Verbal or visual mnemonics and rehearsal) • Task guidance systems (e.g., step-by-step list of tasks and sub-tasks) • External and internal pacing (e.g., one task at a time)

Neuropsychiatric Problems after Brain Injury

"TBI is a risk factor for continued psychiatric problems of increased depression and anxiety and suicidal ideation and these problems go on for several decades subsequent to the TBI".

Anstey KJ, 2004, Brain Injury.com

Emotional/Behavioral Problems

- Very common after ABI and can be the result of several causes:
  - Directly from damage to brain tissue.
    - Ex. Damage to frontal lobes which are connected with emotion and behavior.
  - Cognitive problems may lead to emotional changes or make them worse.
    - Ex. Person may not be able to find the right word they want to say which will make them frustrated.
  - Emotional reactions to the major life changes that are caused by the brain injury.
    - Ex. Loss of job, relationship, inability to drive, etc.

Substance Misuse Disorder after ABI

- Persons who have sustained a brain injury test positive for alcohol in two-thirds of moving vehicle crashes and 60% of assaults
- Persons with TBI and substance abuse problems are less likely to be working and have lower satisfaction with life
- Approximately 10% -20 of persons who did not have substance abuse problems before their injury develop them after a brain injury
- 50% of persons in substance abuse programs have at some time been treated for TBI

Opioids and ABI

- Traumatic Brain Injury is a Significant and Unrecognized Risk Factor for Opioid Misuse
- People with TBI have a high rate of premorbid substance abuse
- TBI often results in headache or orthopedic injuries for which they are prescribed opioids.
- TBI frequently results in impairment of:
  - Memory – people forget that they have taken their pain medication, and therefore take it again.
  - impaired judgement, self-regulation, and impulsivity which may lead to overuse of pain medication.

Setting the Stage in the Workplace

- Educating supervisor about injury and needs
- Working in quiet area
- High degree of structure and predictability
- Begin with fewer hours/duties
- Monitor effects of fatigue
- Carrying over strategies from therapies to job site
- E.g., if he feels irritable, going to a predetermined quieter area and engaging in relaxation
- Use of feedback and other strategies from therapy

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Setting the Stage in the Workplace cont.

Team Approach

- Everyone working with the person must work together
- Select one strategy that everyone can try
- Helps streamline effort, prevent team from working at cross-purposes
- Sends consistent message to family and patient
- Requires good communication with rehab and vocational support staff

Education and Resources for ABI

The Indiana NeuroResource Facilitation Program (NRF)

IN NeuroResource Facilitation (NRF)

The goal of the Indiana NeuroResource Facilitation Program is to provide information and support to Hoosiers who have experienced brain injury.

- **NeuroResource Facilitation**
  - Our team of NeuroResource Facilitators provide person-centered resources and assistance for individuals with brain injuries, and their loved ones.
  - Client has one-to-one, personal phone contact with a NeuroResource Facilitator.
- **Capacity Building, Education and Outreach**
  - Build awareness, increase brain injury knowledge & promote BI screening with providers and organizations in Indiana.

IN NeuroResource Facilitation (NRF)

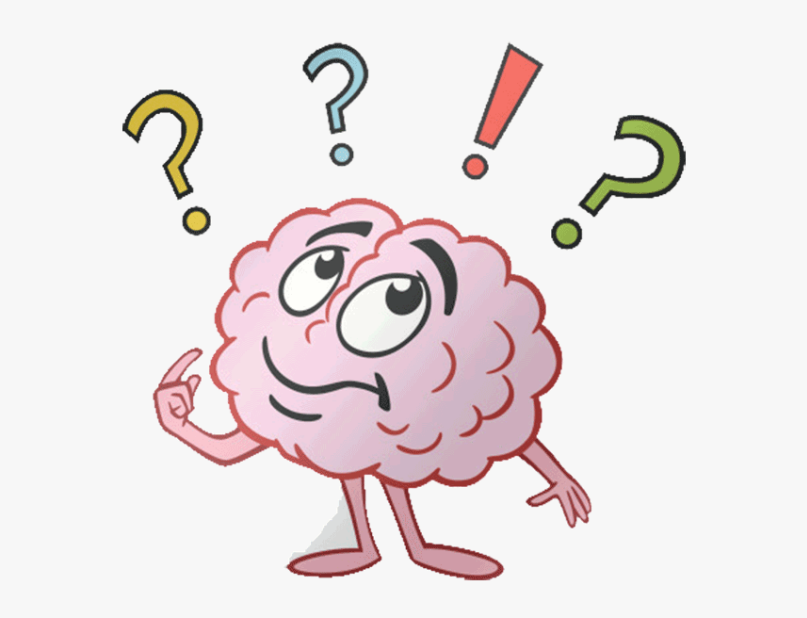
- Individuals will receive education and information on brain injury and community resources/supports.
- A follow-up contact will be made to ensure that participant was able to access resource and no other needs have arisen
- NeuroResource Facilitation can be provided to person with brain injury and/or family members/caregivers, professionals, and organizations.
- Depending on level of need, some participants may receive more contacts, and some will require fewer contacts

Some Examples of What a NeuroResource Facilitator Can Do

- Provide information on brain injuries.
- Help find appropriate support groups.
- Be a non-judgmental sounding board by offering supportive listening and confidentiality.
- Act as a liaison with a medical provider.
- Provide assistance to navigate insurance, disability, financial and legal needs.
- Help to identify barriers and solutions to utilizing resources.
- Help find resources for workplace accommodations.

And more…

Capacity Building, Education & Outreach



Goals of Capacity Building, Education & Outreach

- Connect to families as early as possible.
- Educate and guide on brain injury specific and individualized informed decision-making
- Begin continuum of care planning.
- Help professionals and organizations better identify potential brain injury with the individuals served.
- Increase and enhance collaboration amongst providers.
- Improve knowledge of best practices and evidence-based care

Capacity Building, Education & Outreach

- NRF Team will connect with medical, mental health, substance abuse and social service providers to provide education on brain injury and resources.
- NRF Team will also promote and teach the brain injury screening tool to help better identify individuals that may have sustained a brain injury.
- NRF Team is available always for consultation, assistance, guidance, education, etc.

How to Refer to the IN NeuroResource Facilitation Program

- Via Phone 317-329-2235
- Via Email NeuroRF@iupui.edu
- Via Fax 317-329-2080
- Complete Online Request https://redcap.uits.iu.edu/surveys/?s=9MYPT9FT3KKJYKT4
- Scan QR Code:

Brain Injury Association of Indiana (BIAI)

www.biaindiana.org

- 1st Charter Chapter of Brain Injury Association of America (BIAA).
- Dedicated to reducing the incidence and impact of brain injury through education, advocacy, support, prevention and by facilitating inter-agency commitment and collaboration.
- Services Provided:
  - Statewide information, referral and connection to services, resources and support for individualized needs.
    - By phone, email and in person.
  - Advocacy by responding to their challenges and representing their concerns through legislative efforts and active support of programs created for their needs.
  - Support Groups
  - Etc.

For more information or questions, please contact Wendy at wenwaldm@iu.edu or 317.329.2235

Thank you!!