

Brain Injury: The Silent Partner in Substance Use Disorder & Strategies To Help Those Impacted

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Overdose Crisis and Brain Injury Overview

- Why is it important?
- What is the connection with brain injury?

Overdose Crisis and Brain Injury

Overview

Why is it important?

What does it have to do with brain injury?

- Substance use has created a **silent epidemic of hypoxic and anoxic brain injuries**
- Increasing number of survivors needing extended medical treatment, rehabilitation, and lifelong supports
- **90% of all overdose patients suffer some level of brain trauma**
- Critically, there is a lack of public awareness about the connection between substance use and brain injury

Overdose

- An overdose is a biological response to too much of a substance or mix of substances
- There are different ways a body can become overwhelmed by substances, however, the most common cause of overdose and death during any chemical overdose is **respiratory failure**
- All overdoses have the potential to result in a brain injury

What is a Brain Injury?

- An injury to the brain that occurs after birth and is not congenital or caused by birth trauma
- The injury results in a change of the brain's neuronal activity and potentially a disruption in cognitive functioning
 - **Traumatic Brain Injury (TBI)**
 - **Acquired Brain Injury (ABI)**
- All brain injuries are unique

Anoxia vs. Hypoxia

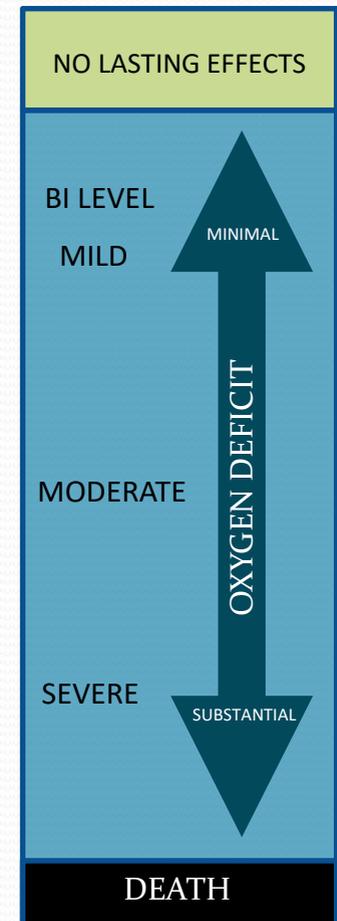
Anoxia

- **Anoxic brain injuries** are caused by a complete lack of oxygen

Hypoxia

- **Hypoxic brain injuries** are brain injuries that form due to a restriction on the oxygen being supplied to the brain

- Brain injury from overdose can range from mild cognitive impairment and memory loss to complete loss of brain function and long-term coma.
- Perception of Narcan use is that you either survive and are fine or die -- creates a false sense of security.
- The risk of brain damage grows exponentially with multiple overdoses and revivals.





Hypoxic-Anoxic Injury (HAI) Characteristics

- Symptoms dependent upon the severity of the HAI and areas of the brain affected
- Symptoms may not always be obvious at first
- HAI is generally marked by an initial loss of consciousness or coma
- When a person has fully recovered consciousness, he or she might suffer from a long list of symptoms.

Cognitive Symptoms of Hypoxic-Anoxic Injury (HAI)

- Short-term memory loss and decline in the ability to form new memories
- Decline in executive functions
- Mood and personality changes
- Attention and Fatigue
- Difficulty with words
- Visual disturbances

Physical Symptoms of Hypoxic-Anoxic Injury (HAI)

- Common physical deficits are:
 - *Ataxia*: lack of coordination
 - *Apraxia*: inability to execute a familiar sequence of physical movements
 - *Spasticity, rigidity and myoclonus*
 - *Quadriparesis*: weakness of the arms and legs

Rehabilitation of Anoxic Brain Injury

- The principles of rehabilitation after HAI are the same as for other types of acquired brain injury
- The outlook for anoxic brain injury can be uncertain
- The most rapid recovery is usually in the first six months, and by about one year the likely long-term outcome will have become clearer
- Adequate rehabilitation from the earliest possible stage is vital in order to achieve the best outcome.

How does this Affect SUD Treatment?

- Can disrupt an individual's ability to benefit from treatment
- Difficulty processing the information, keeping up with the presentation of the information and the ability to retain the information
- Difficulty following through with assignments, recalling appointments, etc.
- Challenges inhibiting behavior – impulsivity
- Perseveration

Treatment Consequences

- Individual challenges/behaviors are often attributed to motivation, willingness to participate in treatment, and/or psychiatric disorder
- Often ends in premature termination of treatment
- Belief that many treatment failures are due to brain injury and its consequences

How to Work More Effectively with Individuals with Brain Injuries

1. Recognition of brain injury symptoms or formal screening process
2. Incorporation of compensatory strategies
3. Focus on overall wellness

How to Know if the Individual you are Working With has a Brain Injury

- A large number of individuals who have overdosed or had multiple overdoses may experience some degree of brain injury symptoms, especially if these events are recent.
- Asking someone “do you have a brain injury?” or asking for a list of medical diagnoses are not always the best ways to determine this information. Many individuals may not even be aware they have a brain injury or may feel ashamed to report it.
- Brain injury symptoms often mimic signs of active use or post-acute withdrawal so it is important to try to tease out the root cause of the symptoms reported

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- You can ask if the individual has noticed changes since the overdose(s) happened – such as if they have noticed difficulty focusing, memory impairment, mood swings, word-finding issues, or impulsive behavior.
- “Have you ever been knocked out?” “Have you ever hit your head so hard you saw stars?” “Have you ever experienced a prolonged loss of consciousness, including overdoses?” “Have you ever fallen and hit your head when intoxicated?”
- Ask open-ended questions or try to obtain this info organically within conversation
- Incorporate screening tools or protocols within an initial assessment or review previous medical documentation (for example – a neuropsychological evaluation)

Ohio State University Traumatic Brain Injury (TBI) Identification Method

You may not be able to use this entire screening tool as intended, but the questions in step one are a good place to start

OSU
TBI-ID

Name: _____ Current Age: _____ Interviewer Initials: _____ Date: _____

Ohio State University TBI Identification Method — 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.

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 1 Cause	Step 2 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 Cause of repeated Injury	Typical Effect		Most Severe Effect			Age	
	Dazed/ memory gap, no LOC	LOC	Dazed/ memory gap, no LOC	LOC < 30 min	LOC 30 min - 24 hrs.	LOC > 24 hrs.	Began Ended

Adapted with permission from the Ohio State University TBI Identification Method (Corrigan, J.D., Bogner, J.A. (2007). Initial reliability and validity of the OSU TBI Identification Method. J Head Trauma Rehabil, 22(6):318-329. © Reserved 2007, The Ohio Valley Center for Brain Injury Prevention and Rehabilitation

(Continuation from reverse side, if needed)

Name: _____ Current Age: _____ Interviewer Initials: _____ Date: _____

Step 1 Cause	Step 2 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 Cause of repeated injury	Typical Effect		Most Severe Effect			Age		
	Dazed/ memory gap, no LOC	LOC	Dazed/ memory gap, no LOC	LOC < 30 min	LOC 30 min - 24 hrs.	LOC > 24 hrs.	Began	Ended

Interpreting Findings

A person may be more likely to have ongoing problems if they have any of the following:

- **WORST**
One moderate or severe TBI
- **FIRST**
TBI with loss of consciousness before age 15
- **MULTIPLE**
2 or more TBIs close together, including a period of time when they experienced multiple blows to the head
- **RECENT**
A mild TBI in the last weeks or a more severe TBI in the last months
- **OTHER SOURCES**
Any TBI combined with another way that their brain function has been impaired

For more information about TBI or the OSU TBI Identification Method visit:

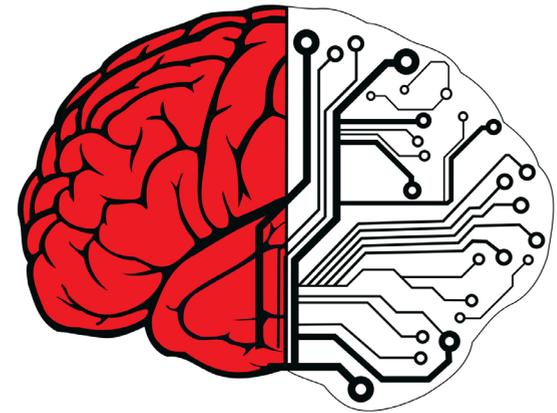
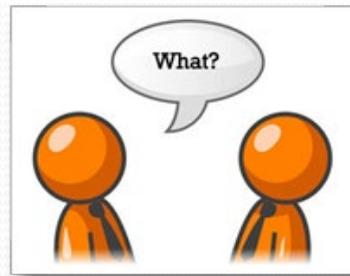
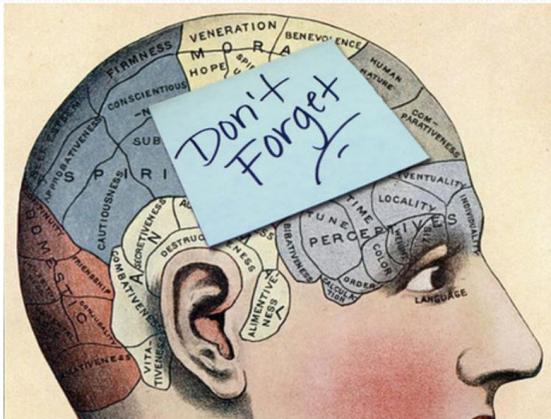
- Ohio Valley Center at OSU
www.ohiovalley.org/informationeducation
- BrainLine.org
www.brainline.org

(Updated July 2013)

Things to Consider in SUD Treatment

- Will you be providing written information or require written documentation from the individual (homework, journal keeping, etc.)?
 - Ensure the individual entering treatment is able to read and write or provide an accommodation.
 - Some individuals may not be able to comprehend written or oral information, or may prefer a certain method.
- How long are your sessions? Provide adequate break times or allow for the individual to step out if needed.
- If a group setting, what is the average group size? Individuals with brain injuries may have difficulty with overstimulation if a group is too large.
- Does the individual have any physical challenges needing accommodation – such as poor vision or hearing loss?

Major neurocognitive functions such as attention, memory, processing, and executive functioning are required for successful substance use treatment but are also the most impacted/impaired functions as a result of brain injury



Common Neurocognitive Challenges

- Zoning out/not paying attention
- Appearing bored or disinterested
- Difficulty keeping a conversation
- Appearing unmotivated or “lazy”
- Difficulty learning new information/recalling past information
- Lack of follow through on assignments or inconsistent performance
- Difficulty initiating a task or needing prompting to complete a task
- Difficulty following directions
- Impulsive behavior – dominating conversation/interrupting, doing or saying things without thinking (including inappropriate language, statements, interactions with others)
- Arriving late, not showing at all, or missing important deadlines
- Giving up easily on tasks or trouble knowing when to stop
- Rigid thought process, difficulty seeing other perspectives
- Underestimating problems or overstating abilities

Strategies for Successful Treatment

- Use concrete examples and visual aids (handouts, agendas)
- Introduce new concepts or information slowly and one idea at a time, focusing on critical points
- Break concepts or tasks down into simple, manageable steps
- Repeat key concepts or directions and ask individuals to repeat what they have learned in their own words
- Encourage individuals to take notes or use other aids (calendars, phone reminders or alarms, other organizational systems)
- Keep sessions structured
- Set clear limits, expectations, and consequences

(continued)

- Immediately respond to inappropriate behavior by addressing it directly and clearly, allow for input from other group members if an individual is monopolizing group time, redirect if the individual is interrupting others or being disruptive.
- Provide adequate time for individuals to complete tasks or respond to questions.
- Identify someone who may be able to provide additional assistance to the individual if needed.
- Pay attention to non-verbal cues that might indicate the individual is becoming uncomfortable or agitated. Provide support or allow for a break.
- Keep individuals focused and on topic by using redirection to remind the individual of the topic or discussion at hand. Ask clarifying questions if unable to follow the individual's thought process.

Focus on Overall Wellness

- Physical health
 - Many people with brain injuries deal with chronic headaches and fatigue, as well as a myriad of other physical symptoms depending on the injury
- Individual mental health treatment
- Yoga or other exercise
- Meditation and mindfulness
- Nutrition
- Healthy sleep hygiene
- Family support
- Anger management



Sources

- [Treating Substance Use Disorders in Brain Injury Survivors](#)
- [Ohio State University Traumatic Brain Injury \(TBI\) Identification Method](#)
- [Accommodating the Symptoms of TBI - Ohio Valley Center for Brain Injury Prevention and Rehabilitation](#)

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Questions and Discussion