

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

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BRAIN INJURY AWARENESS

# DID YOU KNOW?

Not everyone dies  
from an overdose;  
some people live  
with a brain injury.

**#ChangeYourMind**

Learn more at [www.biausa.org](http://www.biausa.org)



BRAIN INJURY  
ASSOCIATION  
1-800-444-6443



# Learning Objectives

- You will be able to explain the connection between brain injury and substance use disorder
- You will learn how to identify if an individual has a brain injury and common signs/symptoms
- You will learn strategies to work effectively with individuals living with co-occurring brain injury and substance use

# Audience Poll

- How many of you work with individuals with a substance use disorder?
- How many of you work with individuals with a brain injury?
- What do you think is the approximate amount of individuals who have a co-occurring substance use disorder and brain injury?
  - How do you think these individuals sustained their brain injuries?

# What is a Brain Injury?

- An acquired brain injury (**ABI**) is an injury to the brain that is not hereditary, congenital, degenerative, or induced by birth trauma. Essentially, this type of brain injury is one that has occurred after birth. The injury results in a change to the brain's neuronal activity, which affects the physical integrity, metabolic activity, or functional ability of nerve cells in the brain.
- Traumatic Brain Injury (**TBI**)
  - Defined as an alteration in brain function, or other evidence of brain pathology, caused by an external force. Traumatic impact injuries can be defined as closed (or non-penetrating) or open (penetrating).
- Non-traumatic Brain Injury (sometimes generalized as ABI)
  - Damage caused to the brain by internal factors, such as a lack of oxygen, exposure to toxins, pressure from a tumor, etc.

# Brain Injury Causes

## ● Traumatic Brain Injury

- Falls
- Assaults
- Motor vehicle accidents
- Sports/recreation injuries
- Abusive head trauma (shaken baby syndrome)
- Gunshot wounds
- Workplace injuries
- Child abuse
- Domestic violence
- Military actions (blast injury)

## ● Non-Traumatic Brain Injury

- Lack of oxygen (drowning, choking, **drug overdose**, other Hypoxic/Anoxic Injury)
- Stroke (hemorrhagic, ischemic)
- Infectious disease
- Meningitis
- Encephalitis
- Seizure
- Electric shock
- Tumors
- Metabolic disorders
- Neurotoxic poisoning (carbon monoxide, lead exposure)
- Aneurysm

# 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 which may lead to a hypoxic-anoxic injury (HAI)
  - Anoxic brain injuries are caused by a complete lack of oxygen to the brain
  - Hypoxic brain injuries are brain injuries that form due to a restriction on the oxygen being supplied to the brain
- All overdoses have the potential to result in a brain injury

# Overdose 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



# Substance Use Disorder (SUD) & Brain Injury: How are they Related?

- Evidence suggests that having one or more brain injuries, especially those with loss of consciousness, put individuals at greater risk for developing SUD and other mental health disorders such as depression anxiety, and PTSD
- History of BI is associated with substance use that began earlier in life, persisted longer, and is more severe
- Substance use is a risk factor for sustaining a brain injury
  - Between 23 and 51% of adolescents and adults sustaining a TBI were intoxicated when the injury occurred
  - Approximately one-quarter of people hospitalized for TBI have a history of substance use disorder

# Brain Injuries Related to Substance Use

- Opioid overdose (or any other overdose causing respiratory failure)
- Long-term, chronic alcohol or drug use
  - "Wet brain", or Wernicke-Korsakoff syndrome
  - Seizures
- Traumatic brain injuries related to use
  - Falling while intoxicated/under the influence
  - Motor vehicle accidents
  - Other accidents (fights, etc.)

# Cognitive/Emotional Symptoms of Brain Injuries


- Short-term memory loss and decline in the ability to form new memories
- Decreased focus and attention
- Difficulty with words (aphasia)
- Impaired social functioning/recognizing social cues
- Task initiation and follow-through
- Apraxia: inability to execute a familiar sequence of physical movements
- Behavioral/emotional dysregulation
  - Mood and personality changes
  - Anger
  - Impulsivity

# Physical Symptoms of Brain Injuries

- Ataxia: lack of balance coordination
- Quadriparesis/hemiparesis: weakness of the arms and/or legs
- Speech deficits
- Visual disturbances
- Pain
- Fatigue
- Seizure disorders
- Sensitivity to light and sound

# 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

- 
- If you are concerned that someone you are working with has an undiagnosed brain injury, refer the individual to seek further medical consultation from their primary care physician or neurologist
  - A neuropsychological evaluation can be helpful to understand an individual's specific cognitive challenges

# 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
- Individuals may falsely be accused of having a setback or recurrence of use
- Premature termination of treatment
- Lack of accommodations leading to inability to achieve therapeutic goals or program requirements
- Belief that many treatment failures are due to brain injury and its consequences



# The Truth Is..

- Many individuals enrolled in substance use treatment have brain injuries that are not formally diagnosed/recognized
  - An estimated 50% of individuals with a brain injury will seek treatment for substance use disorder
- Modifications to existing programs or practices can be done seamlessly, and with little to no cost
- These modifications can enhance the overall programs or practices and benefit most individuals, even those without a brain injury

# How to Work More Effectively with Individuals with Brain Injuries

- Recognition of brain injury symptoms or formal screening process
- Incorporation of compensatory strategies
- 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

## (continued)

- 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 passed out for a period of time when using, 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 Identification Method (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.

- 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
- 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
- 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
- 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
- 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?

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

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

(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](http://www.ohiovalley.org/informationeducation)
- BrainLine.org  
[www.brainline.org](http://www.brainline.org)

# Online Brain Injury Screening and Support System (OBISSS)

- Online version of the OSU-TBI as well as the Symptoms Questionnaire for Brain Injury (SQBI)
- Helps to identify history of traumatic and non-traumatic brain injuries and how these have impacted everyday life
- If screened positive, the individual will receive a list of resources as well as “Tips Sheets” from the SQBI
- Provider can also receive information from the SQBI on how to tailor service delivery

# H.E.L.P.S

Have you Ever:

- H – Hit your head or have been Hit on the head?
- E – Visited the Emergency room, hospital, or a doctor for injury to the head?
- L – Lost consciousness or experienced periods of being dazed and confused because of injury to the head?
- P – Experienced Problems in your daily life since you hit your head?
- S – Had any significant Sicknesses?



# Strategies for Working with this Population

- 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

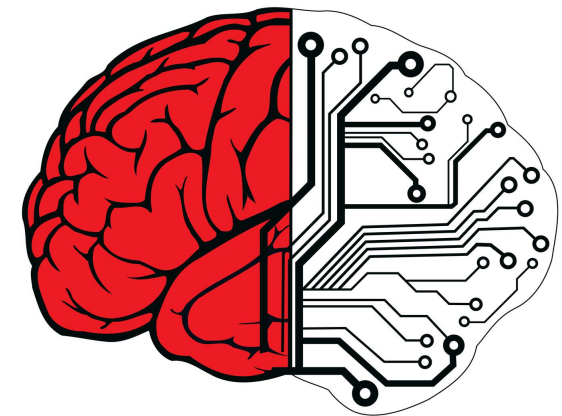
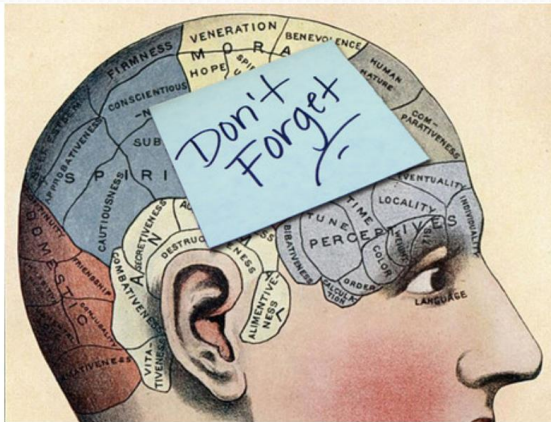
## (continued)

- 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.

# Things to Consider

- 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**



# Focus on Overall Wellness

- Physical health
- Individual mental health treatment
- Yoga or other exercise
- Meditation and mindfulness
- Nutrition
- Healthy sleep hygiene
- Family support
- Anger management

# St. Joseph Hospital Pilot Project

- Funded by a grant from the Foundation for Healthy Communities
- Partnership between St. Joseph Hospital and the Brain Injury Association of New Hampshire
- Embedded "neuro-resource facilitator" (NRF) within the St. Joseph Hospital Emergency Department
- Protocol for "screening in" patients who meet criteria
- Ongoing follow up provided by NRF
- Expansion to other areas of the hospital and outpatient practices

# BDAS Grant

- Grant for brain injury and substance use disorder support
- Trainings and presentations for various audiences
  - Justice system, recovery centers, public health networks, treatment providers, hospitals, etc.
- Resource center on BIANH website and monthly blog series
- Written materials to be distributed to professionals, survivors, and teens/educators

# Overdose and Brain Injury

Did you know: In an overdose situation, if your brain has been deprived of oxygen for 3 minutes or more, there is a chance you have sustained a brain injury – which could affect your recovery plan going forward. The more overdoses you experience, the more likely you are to sustain a brain injury. This type of brain injury is often referred to as an anoxic brain injury.



## When an opioid enters the brain, it affects many different parts.

Too much of an opioid can affect the brain stem, which controls automatic body processes such as breathing and swallowing. An opioid overdose can slow or stop breathing altogether. Longer periods spent unconscious and repeated overdoses can further increase the risk for brain injury.

A brain injury can range from mild to severe

Here are some signs of a brain injury:

- Difficulty remembering things
- Difficulty concentrating, learning, and understanding new information
- Increased depression, anxiety, and mood swings
- Feeling overly tired
- Having frequent headaches, changes in vision or coordination

Did you know people who sustain a brain injury during an overdose will likely need a different treatment plan in recovery? Their cognitive functions have changed; they may no longer be able to respond the same way they did before the brain injury.

*We are seeing a significant increase in brain injuries among people who overdose – a “silent epidemic.” The Brain Injury Association of New Hampshire is a resource for help.*

Please visit our website for more information  
[www.bianh.org/substanceusedisorder](http://www.bianh.org/substanceusedisorder)  
or scan:



If you need to speak with someone, call  
(603) 225-8400  
or  
(800) 773-8400

## Call 9-1-1 -- Every Second N

Do you think that you or someone you know may be living with a brain injury from surviving an overdose?

If you have had an overdose and are noticing brain injury symptoms, talk to your doctor as soon as possible for an evaluation. You can also speak with your counselor or recovery coach.

## You are not alone and you can find help

If you or someone close to you uses opioids:

- ▶ Carry naloxone and never use it alone.
- ▶ Stagger use with a friend, and make sure they work.
- ▶ Know the signs of an overdose and how to use your naloxone.
- ▶ Learn rescue breathing and how to use a breathing mask so you can help someone who is overdosing.

Make sure someone who has survived an overdose is seen by a doctor as soon as possible.

You can get free naloxone at your local doctor's office ([www.thedoorway.nh.gov](http://www.thedoorway.nh.gov)) or at many pharmacies throughout the state without a prescription.



**BRAIN INJURY ASSOCIATION OF NEW HAMPSHIRE**  
52 Pleasant Street - Concord, NH 03301  
(603) 225-8400 or Helpline (800) 773-8400  
[www.BIANH.org](http://www.BIANH.org)

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# Overdose and Brain Injury

## Did You Know:

Individuals who use excessive amounts of opioids are at **HIGH RISK** for sustaining a brain injury? This is because in an overdose situation oxygen flow to the brain is restricted causing what is referred to as an anoxic/hypoxic brain injury.



When an opioid enters the brain, it affects many different parts.

*Too much of an opioid can affect the brain stem, which controls autonomic body processes such as breathing and swallowing. An opioid overdose can slow or stop breathing altogether. Greater periods of loss of consciousness and repeated overdoses can further increase the risk for brain injury.*

A brain injury can range from mild to severe

Signs of a brain injury can include:

- Difficulty remembering things
- Difficulty concentrating, learning, and understanding new information
- Increased depression, anxiety, and mood swings
- Frequent headaches, fatigue, and other physical changes

*Individuals who sustain a brain injury during an overdose will likely need a different treatment plan in recovery. Damage to the frontal lobe can occur as the result of oxygen deprivation and can lead to loss of executive function. The skills typically required for success in treatment - including attention, memory, and processing - can be negatively impacted.*

**Nearly 50% of people receiving treatment for substance misuse have a history of at least one brain injury**

## Screening and Treatment for Brain Injury Can Provide Favorable Outcomes

Physical and mental recovery from brain injury takes time, as does recovery from addiction. In situations where both are present, parallel treatment is the gold standard of care.

Source: BIA/IAJ, 2024

**Best practices for working with individuals with substance use disorder (SUD) and brain injury:**

*"Toxic Brain Injury may not strike someone you love, but will affect someone you know"*

- Susan Conson, President and CEO, Brain Injury Association of America

- ▶ Screen for a history of brain injury
- ▶ Accommodate for neurobehavioral deficits
- ▶ Incorporate a holistic approach to co-morbid conditions
- ▶ Create formal and informal supports during and after treatment

Source: Dr. John Corrigan, Ohio State University, 2021

Please visit our website for more information as well as additional resources for treating SUD and brain injury or to schedule a training [www.bianh.org/substanceusedisorder](http://www.bianh.org/substanceusedisorder) or scan:



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# Overdose and Brain Injury

Did you know: There are many repercussions that can result from using opioids and other substances, including some consequences you may not have thought of before. Not only can opioid use cause difficulty with school or sports, you could also experience a brain injury from excessive use and overdose.



## When an opioid enters the brain, it affects many different parts.

*Using too much of an opioid or combining opioids and other drugs can cause an overdose. This might look like someone is asleep but they may no longer be breathing since opioids can make it hard for oxygen to flow to the brain. Lack of oxygen to the brain can cause a brain injury.*

### Facts about opioids and overdose

- Opioids include prescription medications like Percocet, Oxycodone, and Fentanyl, as well as street drugs like Heroin
- Opioids are highly addictive and opioid addiction is treatable
- Opioids can be very dangerous, even when prescribed by a doctor
- Opioid overdose is one of the leading causes of accidental death in the U.S.
- Even if you survive an overdose, it can have a lasting impact on your brain

## Take Charge of Your Health

For more information, go to the Brain Injury Association of New Hampshire website at [www.bianh.org](http://www.bianh.org) and click on the SUBSTANCE USE tab.



To speak with someone, call (603) 225-8400 or Family Helpline (800) 773-8400

People who sustain a brain injury often find their thinking and processing skills have changed. If you have had a concussion, this may sound familiar. A brain injury from an overdose is very similar. You may have trouble paying attention in school or at sports practice. A brain injury can affect every aspect of your life.

Do you think that you or someone you know may be living with a brain injury from surviving an overdose?

### Here are some signs of a brain injury:

A brain injury can range from mild to severe

- Difficulty remembering things
- Difficulty concentrating, learning, and understanding new information
- Increased depression, anxiety, and mood swings
- Feeling overly tired
- Having frequent headaches, changes in vision, or coordination

If you have had an overdose and are noticing any of the symptoms, it is important to be seen by a doctor as soon as possible. Your doctor can perform an evaluation and refer for additional treatment or helpful resources. Support for your recovery, from both a brain injury and substance use, is available and can make a big difference.

For more information on opioids and overdose, including how to obtain Narcan and access treatment, please visit:

[www.thedoorway.nh.gov/avoid-overdose](http://www.thedoorway.nh.gov/avoid-overdose)



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(603) 225-8400 or Helpline (800) 773-8400  
[www.BIANH.org](http://www.BIANH.org)

# 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](#)
- [Governor's Commission Action Plan Dashboard](#)
- [Brain Injury Association of America](#)
- [Traumatic Brain Injury and Substance Use Disorders: Making the Connections](#)

# Brain Injury Association of New Hampshire



For more information on this presentation, to schedule a training, or for any other brain injury related questions please contact BIANH:

**603-225-8400**

**Toll Free: 1-800-444-6443**

**Toll Free Family Helpline: 1-800-773-8400**

# Questions and Discussion