

# BRAIN INJURY

## WHAT IT IS & WHAT NOW?

An acquired brain injury (ABI) occurs when the brain is injured after birth, often resulting in changes to how a person thinks, acts, and feels.

Different parts of the brain are responsible for different functions a person can perform or experience, such as a person's movements, emotions, processing sounds/sights, starting or holding a conversation, and being able to pay attention or remember information.

Certain tasks may be more challenging than prior to injury. Repetitive training and strategies to compensate or adapt for change in function can form new brain pathways, assisting with learning and rehabilitation.



## DID YOU KNOW? NOT ALL BRAIN INJURIES ARE THE SAME

### NON- TRAUMATIC BRAIN INJURY

caused by changes occurring inside of the body (such as stroke, substance overdose, lack of oxygen, or brain tumors).

### TRAUMATIC BRAIN INJURY (TBI)

result of forces outside the body - a bump, jolt, or blow to the head (such as falls, motor vehicle collisions, assaults, or blasts).

## COMMON CHANGES



### PHYSICAL & SENSORY

(how your muscles or bodily health is affected)

- seizures
- fatigue & sleep disruption
- headaches & pain
- weakness or paralysis
- movement & coordination
- sexual function
- balance
- sensory changes (sight, smell, hearing, etc.)



### THINKING & PROCESSING

(how you process and engage with your environment)

- memory or recall
- mental flexibility & learning
- attention & concentration
- initiation & motivation
- task-switching & sequencing
- mental fatigue
- safety awareness & impulsivity
- problem-solving & decisions
- social skills & communication



### EMOTIONS & BEHAVIOR

(how you feel & act that may be different than before)

- difficulty with regulation (emotions or actions)
- self-awareness
- irritability or restlessness
- unrelated laughter or crying
- personality changes
- lethargy or slowness
- psychological conditions (depression, anxiety, etc.)

# STRATEGIES FOR SUCCESS

Many changes after a brain injury are not seen on the outside but can be all-consuming on the inside. Sometimes stigma or assumptions about people living with brain injury can affect independence or how someone engages in their community. Developing strategies as well as empowering yourself and others are key for living well after injury. Though it may feel like a long process, growth and change after brain injury can be possible with patience, flexibility, and when even the small victories are celebrated.



## Create structure & keep routines with scheduled breaks

- Minimize distractions/clutter and break tasks, goals, or instructions into smaller, realistic ones.
- Consistency & a schedule can help with memory and reducing confusion.

## Connect with resources & people

- Prevent any feeling of isolation by linking with supports in the area or online.
- Identify what you need with self-care to prevent burnout, fatigue, and frustration.

## Try, adapt, and modify - Every person is different

- Use planners, labeling, color-coded systems, notebooks, Smartphone apps, communication books, etc. to help with everyday tasks.
- If something doesn't work or fit, brainstorm ways to modify it for the person.
- Seek out independent living or employment specialists for assistive technology or tools.

## Practice creativity and flexibility in rehabilitation

- Make opportunities out of every activity or chore into practicing a skill.
- Use repetition, rephrasing, and cueing while providing written, accessible handouts.

## Educate, then advocate

- Educate yourself and others on brain injury to advocate for your needs and services.
- Look online for resources, events, education, committees, and more.

## Be proactive in solving problems & plan ahead

- Offer or ask for on-the-spot, specific feedback (what do you want vs. do not).
- Create plans or develop alternative strategies for escalating mood/behavior.
- Investigate behaviors for what they are trying to communicate (a need, safety, or discomfort).

# CRISIS MANAGEMENT & DE-ESCALATION

Tools for law enforcement & first responders to promote positive interactions with individuals with brain injury



## PATIENCE

- Stay calm if level of behavior escalates and emphasize that you are there to help. Do not rush, speak over, or become frustrated.
- Suggest a few deep breaths rather than suggesting the individuals “calm down.”
- Use active listening strategies such as paraphrasing, clarifying, and perception checking.
- Use phrases like, “it sounds like” or “what I’m hearing is” instead of “I understand.”
- Allow time for response. Redirect or refocus as necessary (behavior, conversation, etc.). Concrete and short answers may be given if there is difficulty with speaking or understanding.
- Difficulty with short-term memory may make recalling events or a timeline difficult. Frequent short breaks to reduce both physical and cognitive fatigue and maximize attention.
- Involve family/friends when obtaining information.

## AWARENESS

- Observe for outward signs of brain injury (for example: scars, medication, devices).
- Use mental grounding techniques to help with orientation to time and place to assist memory & confusion.
- Be mindful of conditions that might mask brain injury symptoms (mental health, domestic violence, substance misuse, etc.).
- Be cautious of personal movements and location in relation to the individual – don’t get any closer than necessary and announce movements or gestures, as it is safe.

## SIMPLICITY

- Have one person speaking at a time, obtain eye contact, say the person’s name often, speak slowly, and enunciate words.
- Avoid speaking down to an individual or not at their appropriate age level.
- Use one-step questions or instructions. With confusion, have them repeat in their words.
- Provide choices when appropriate instead of open-ended questions to decrease cognitive overload.
- Reduce or note potential distractors or triggers that might limit attention (television, flashing lights, sirens, etc.).







Despite any changes in the make-up of someone's brain, remember that people with brain injury are people first, deserving respect and dignity particularly in times of crisis.

**ACQUIRED BRAIN INJURY** when the brain is injured anytime after birth. It can be caused by strokes, aneurysms, tumors, overdoses, and other forces from inside the body. When it results from forces outside the body, such as from a fall, blast, motor vehicle collisions, or assault, it is considered a traumatic brain injury (TBI). An injury to the brain can cause a disruption in how the brain communicates with the rest of the body, affecting different functions and making escalating situations more likely. Common changes might be a person's movements, emotions, processing of the sounds/sights around, starting or holding a conversation, or being able to pay attention or remember information.

## PHYSICAL & SENSORY

- Seizures/ History of
- Fatigue
- Pain & headaches
- Sleep disturbance
- Weakness/ paralysis
- Movement & coordination
- Sexual function
- Balance
- Sensory changes (sight, smell, touch, hearing, taste)

## THINKING & PROCESSING

- Attention, memory & recall
- Concentration, & learning
- Planning & organization
- Initiation & motivation
- Task-switching, flexibility, & sequencing
- Safety awareness & impulsivity
- Problem-solving, judgment, & reasoning
- Social skills & speech

## ACTIONS & FEELINGS

- Difficulty with regulation (emotions, actions, etc.)
- Behavioral communication
- Self-awareness
- Personality & impulsivity
- Irritability & mood changes
- Unrelated laughter or crying
- Lethargy or flat affect
- Psychological conditions (depression, anxiety, etc.)

## RESOURCES

- Brainline: [www.brainline.org](http://www.brainline.org)
- Model Systems: [www.msctc.org/tbi/model-system-centers](http://www.msctc.org/tbi/model-system-centers)
- Online Training: [www.biancteach.net](http://www.biancteach.net)
- Brain Injury Association of America: [www.biausa.org](http://www.biausa.org)
- Neuro Institute: [www.neurorestorative.com/knowledge-center/neuro-institute/](http://www.neurorestorative.com/knowledge-center/neuro-institute/)
- Centers for Disease Control: [www.cdc.gov/traumaticbraininjury/](http://www.cdc.gov/traumaticbraininjury/)

# FALLS ARE THE LEADING CAUSE OF TRAUMATIC BRAIN INJURY (TBI) IN THE US.

Have you fallen or almost fallen in the past year? Do you feel dizzy or unsteady when you stand up, bend down, climb stairs, or use the bathroom? Do you have poor sensation, swelling, or numbness in your legs, ankles, or feet? If you answered "yes" to any of these questions, you may be at greater risk for falling. Whether you have a brain injury or at risk for one, everyone can benefit from falls prevention tips.



## Find exercise programs

- Build up balance, strength, and flexibility to prevent and get up safely after a non-injurious fall.
- Do exercises or join a program to strengthen legs and improve balance (tai-chi, yoga, resistance bands, or using free-weights).

## Talk to your doctor

- Ask for a falls risk screening. Risk factors include advanced age, previous falls, muscle weakness, gait & balance problems, poor vision, & chronic conditions.
- Take note of changes in symptoms, new medications, or if a fall occurs.
- Visits may be fast-paced, so write down any questions beforehand or bring a trusted person if memory is a difficulty.
- Ask about specialists that can help with assistive devices, movement, and modifications.

## Get vision & hearing checks

- Update eyeglasses as needed with any change in vision to help avoid obstacles or potentially harmful objects.
- Get annual checks with your appropriate doctor and wear any hearing aids as prescribed.

## Keep your home safe

- Remove objects in each room that you could fall over (including clutter or loose rugs).
- Re-arrange items used more often so that they can be reached without climbing, bending or losing your balance.
- Wear proper footwear inside and outside the house (fits properly, with ground contact and non-slip grip).
- Increase lighting inside & outside with easy access (motion, voice, or touch activated).
- Add grab bars in your bathroom (in and outside the shower/bath and by the toilet).
- Add hand rails to both sides of the steps (inside and outside).

## Review medications & devices

- Side effects or interactions from medicines (changes in vision, weakness, dizziness, drowsiness, etc.) may increase your falling risk.
- Take medications as prescribed (for example, with food or at a certain time).
- Ask your doctor about any vitamins or supplements that may be beneficial.
- Ask about and use mobility devices (walkers, wheelchairs, etc.) as prescribed. Make sure they are working properly and avoid leaving them in places that may cause tripping.



## more than just a fall: **CONCUSSION**

- A type of TBI that results from a bump, blow, or jolt to the head that causes the brain to move rapidly back and forth within the skull. Some people lose consciousness or black out while others do not.
- Damage can create functional changes in the brain, interrupting processing & communication.
- Majority of people recover from a concussion, but proper diagnosis, rest, & treatment is beneficial to prevent additional concussions.
- If you are not sure about a symptom, or if symptoms worsen, you should contact a healthcare professional.

## SIGNS & SYMPTOMS

### physical



- head pain or pressure
- nausea or vomiting
- balance problems
- dizziness
- fatigue or tiredness
- blurry or double vision
- sensitivity
- numbness or tingling

### thoughts



- difficulty thinking & problem-solving
- difficulty concentrating or remembering
- feeling slowed down
- feeling sluggish, foggy, or groggy

### feelings



- irritable
- impulsive
- more emotional or fluctuating moods
- feeling unmotivated or lack of emotion
- nervousness or anxiety

### sleep



- drowsiness
- sleeps less or more than usual
- trouble falling or staying asleep
- restless or not feeling refreshed after sleep



### warning signs after concussion

- appears dazed, stunned, or confused about events
- can't recall events before or after the bump or fall
- slow answers to questions or talking
- loses consciousness (even briefly)
- repeats questions
- shows behavior/ personality changes
- one pupil (center of the eye) is larger than the other
- seizures or blank stares

If you are not sure about a symptom, or if symptoms worsen, you should contact a healthcare professional.

## REFERENCES & RESOURCES

- **Fall Prevention of Excellence:**  
<http://stopfalls.org/>
- **National Council on Aging:**  
<https://www.ncoa.org/>
- **Center for Disease Control (CDC):**  
<https://www.cdc.gov/>
- **NC Falls Prevention Coalition:**  
<http://ncfallsprevention.org/>
- **NC Aging & Adult Services:**  
<https://www.ncdhhs.gov/divisions/daas>
- **Winnipeg Regional Health Authority:**  
<https://preventfalls.ca/>



**BRAIN INJURY  
ASSOCIATION  
OF NORTH CAROLINA**

in partnership with



**NCDHHS**

### WEBSITE

[www.bianc.net](http://www.bianc.net)

### EMAIL

[bianc@bianc.net](mailto:bianc@bianc.net)

### PHONE

(919) 833-9634  
1-800-377-1464

# BRAIN INJURY

## FACTS & STATISTICS



### EVERY 9 SECONDS

someone in the United States  
sustains a brain injury.

### MORE THAN 3.6 MILLION

people sustain an  
ABI each year.

### AT LEAST 2.8 MILLION

people sustain a TBI  
each year.

#### TYPICAL CAUSES OF ABI INCLUDE:

- Electric Shock
- Infectious Disease
- Lightning Strike
- Oxygen Deprivation  
(Hypoxia/Anoxia)
- Toxic Exposure
- Vehicle Accidents
- Seizure Disorder
- Trauma
- Substance Abuse/  
Overdose
- Stroke

### AN ACQUIRED BRAIN INJURY (ABI)

is any injury to the brain that is not hereditary,  
congenital, degenerative, or induced by birth trauma.

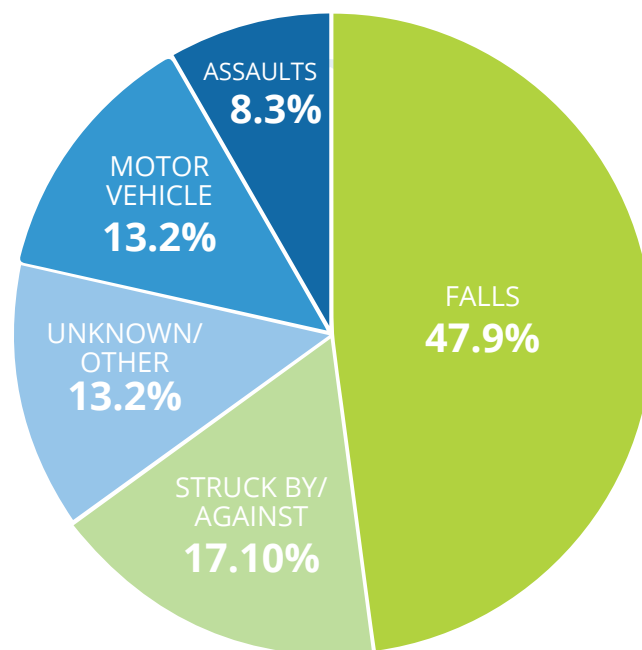
### TRAUMATIC BRAIN

#### **INJURY (TBI)**

is a type of ABI.  
A TBI is caused by trauma to the  
brain from an external force.

The number of people who  
sustain TBIs and do not seek  
treatment is **UNKNOWN**.

#### LEADING CAUSES OF TBI



**At least 5.3 million Americans live with a TBI-related disability.  
That's one in every 60 people.**



# SUICIDE

## AND BRAIN INJURY

Acquired brain injury (ABI), including traumatic brain injury (TBI), can cause a lasting change in a person's thinking, how they react to certain situations, and how they relate to others. The intersection between suicide and brain injury is complex and overlapping. Suicide attempts may result in a brain injury (from falls, lack of oxygen, substance use, etc.). On the other hand, sustaining a brain injury might lead to an increased risk of suicidality due to additional stressors, medication, and impulsivity. Common influences might be:

- increased stress, helplessness, and isolation
- greater difficulty with relationships
- depression, and other mental health conditions
- difficulty controlling emotions, decision-making, planning, and problem solving
- loss of support system, job, and/or income

### COMMON DEFINITIONS

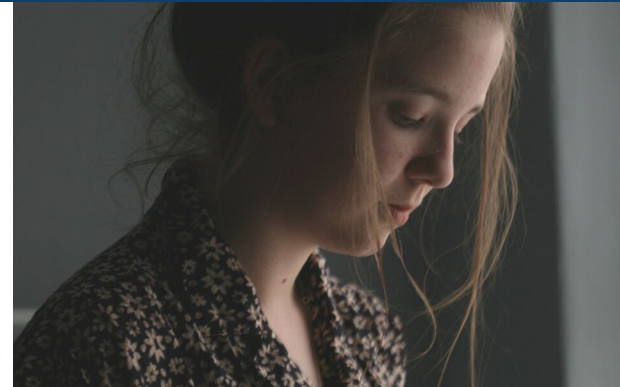
**Suicidal ideation** – self-reported thoughts of engaging in suicide-related behavior.

**Suicidal behavior** – a spectrum of activities related to thoughts and behaviors such as suicidal thinking, attempts, and completed suicide.

**Self-harm/Injury** – the methods by which individuals injure themselves of suicidal or non-suicidal intent, such as self-laceration, battering, or recklessness.

**DID YOU KNOW?** a person with brain injury is at an increased risk of suicide.

Mackelprang et al. (2014) found that 25% of participants experiencing hospitalization reported suicidal ideation at some time during the first year after TBI, a rate that exceeds the general population by almost 7 times. Screening and assessment is crucial at all stages following injury because there is not a specific window of risk for suicidality after TBI.



## SUICIDE WARNING SIGNS



Talk or comments may be passive or directly related to suicide.

If a person talks about:

- Killing themselves
- Feeling hopeless
- Having no reason to live
- Being a burden to others
- Feeling trapped
- Unbearable pain



Behaviors that may signal risk, especially if related to a event, loss or change:

- Increased use of alcohol/ drugs
- Looking for a way to end their lives, such as searching for methods
- Withdrawing from activities
- Isolating from others
- Sleeping too much/ little
- Visiting or calling people to say goodbye
- Giving away prized possessions



Moods may be persistent or fluctuating, but often are all-consuming:

- Extreme sadness or stress
- Loss of interest
- Irritability or aggression
- Humiliation/Shame
- Agitation/Anger
- Relief/Sudden Improvement



# Offer Support

Every person, brain injury, and struggle is different. Together we can all help to prevent suicide. As a supporter, be sure to keep in mind follow-up strategies within 48 hours after a suicidal crisis or hospital discharge: make a phone call, send a short text message, write a letter/email, or visit their residence. Here are strategies & resources to help change the internal narrative that there is no way out to one of hope and community.



## Promote Prevention

### FOR INDIVIDUALS & FAMILIES

- Talk to someone with psychotherapy, counseling, & support groups.
- Medication and management can be helpful for regulating emotions.
- Encourage connecting to providers, transportation, and group activities.
- Provide or seek a positive environment and support.
- Take time to evaluate a sense of purpose & of self, spirituality, or meaning.
- Responsibility such as a pet, chores, or job can help with purpose and feeling valued.
- Distractions & self-care can help to reduce stress.
- Helping others (volunteer work, acts of kindness, donating, etc.) can feel rewarding.

### FOR PROVIDERS

- Take more time, be patient, and promote independence at all opportunities.
- Repeat or cue the person many times and provide written handouts for memory.
- Involve support, family, or friends whenever possible to avoid misinformation or confusion.
- Coordination of care should be communicated between all providers.
- Recommend family and couples counseling or positive group interactions with other people.
- Provide consistent monitoring and follow-up because memory and organization may be a barrier.
- Communicate that there is a possibility of suicide and the resources available.
- Medication may help, but pay attention to potential misuse or negative side-effects or ones that may be awkward to talk about.
- Written communication (i.e. emails) are often not enough to fully assess needs.
- Educate and support caregivers on expectations, coping skills, burnout, and connection to respite services.

## Encourage Connection

### RESOURCES & REFERENCES

- National Suicide Prevention Lifeline:
- 1-800-273-TALK (8255)
  - TTY: 1-800-779-4889
  - [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)
- Veterans Crisis Line:
- 1-800-273-8255 and Press 1
  - [www.veteranscrisisline.net](http://www.veteranscrisisline.net)
- Suicide Resource Prevention Center:
- 877-(438-7772)
  - [www.sprc.org](http://www.sprc.org)
- Substance Abuse and Mental Health Services Administration (SAMSHA):
- [www.samhsa.gov](http://www.samhsa.gov)
- Defense and Veterans Brain Injury Center (DVBIC):
- 1-800-870-9244
  - [dvbic.dcoe.mil](mailto:dvbic.dcoe.mil)
- North Carolina Resources:
- [crisissolutionsnc.org](http://crisissolutionsnc.org)
  - [hopeline-nc.org](http://hopeline-nc.org)
  - LME/MCO Crisis Centers

**HOPE** is available.