

[Course Outline](#)
[Resource Links](#)

This training course is intended for service providers in Iowa public service agencies, including: Local Management Entities (LMEs), vocational rehabilitation or independent living offices, educators, case managers, substance abuse or mental health professionals, social security or social services professionals, advocacy or support agencies, or anyone else who serves people with brain injury. ⁽¹⁾

⁽¹⁾This course, or equivalent, is required for HCBS/BI waiver service provision.

Course objectives are:

1

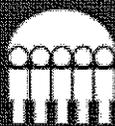
To ensure service providers understand the range of outcomes of Traumatic Brain Injury (TBI) and the implications for assessment and care-planning

2

To improve the ability of service providers to identify and deliver appropriate services for persons with TBI – including coordination across service agencies when appropriate

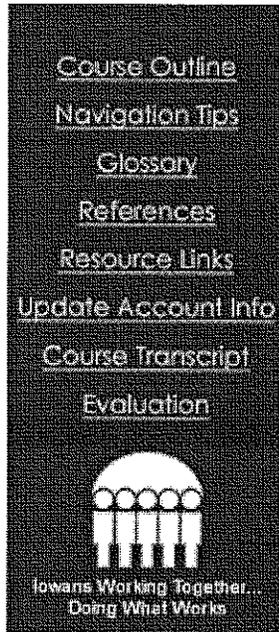
This course is presented in four modules. Each module requires anywhere from 20 to 45 minutes to complete. You may stop this training at any time and pick up where you left off.

If you would like to take this course and are a new user, please register. If you have already registered, please login.



Iowa Working Together
Doing What Works

Main Menu



Click on the name of the module from the menu below to advance to that module.

Module 1: Significance of brain injury and introductory information on how the brain works

Module 2: Common physical, behavioral and cognitive impairments and interaction strategies

Module 3: Screening for brain injury and further assessment needs

Module 4: Public services available for eligible persons with brain injury

Don't forget to check out the [Resource links page](#) for more information on topics presented in the modules.

Course Outline

Module 1: Significance of TBI and introductory information on how the brain worksSection A: Introduction to TBIBrain injury definitionsIowa Code definition of brain injuryIncidence of TBI in the USComparison of new cases annually in the USTBI and children in the USCost of TBI in the USNew cases of TBI in IowaTBI Hospitalization rate in Iowa by CountyTBI in Iowa by cause and age, DeathsTBI in Iowa by cause and age, HospitalizationsTBI in Iowa by cause and age, ED visitsWho is most at risk for TBI?Why haven't we heard about TBI before?Section B: What happens when a TBI occurs?TBI EventsPrimary events -- what happens during traumaSecondary events -- the body's responseSeverity of TBIMild TBIModerate TBISevere TBIComplexity of TBISection C: Impact of TBIGeneral patterns of dysfunction by location of injuryFunctions of the brainFunctions of the frontal lobeFunctions of the temporal lobeFunctions of the parietal lobeFunctions of the occipital lobeFunctions of the cerebellumFunctions of the brain stemNeed for public servicesEffects on family membersEffects of TBI on childrenSubstance abuse and TBIRecoveryCase StudySection D: AssessmentTest your knowledge**Module 2: Common physical, behavioral and cognitive impairments and interaction strategies**

Important Things to remember from Module 1Consequences of TBISection A: Physical consequences & strategiesPhysical changesImpairment of body movementSpeech and swallowing problemsPain as a result of TBISensory difficultiesFatigue and sleep disturbancesMotor coordination -- it's harder than you think!Section B: Cognitive consequences & strategiesCognitive changesMemory impairmentsSlowed processing speedAttention/concentration deficitsLanguage comprehension difficultiesExpressive language difficultiesImpaired executive functioning: abstract reasoningImpaired executive functioning: sequencing, planning and problem solvingInability to initiateThings to considerProcessing speed (exercise)Section C: Behavioral consequences & strategiesBehavioral changesInability to control emotionsSocial inappropriatenessDifficulty with relationshipsBasic behavior strategiesUsing antecedents and consequences to elicit appropriate behaviorOther influencesSubstance abuseSection D: Cultural CompetenceCultural competenceHow can you pursue cultural competence?Section E: ConclusionRecap: Tips for working with people with TBIWhat you can personally do to help people with TBICase studiesSection F: AssessmentTest your knowledge**Module 3: Screening for a history of TBI**Screening for TBIThe HELPS screening toolWhen should the screening tool be administered?To whom should the screening tool be administered?Each letter in the HELPS acronym stands for a questionH - Have you ever Hit your Head or been Hit on the Head?E - Were you ever seen in the Emergency room, hospital, or by a doctor because of an injury to your head?L - Did you ever Lose consciousness or experience a period of being dazed and confused because of an injury to your head?P - Do you experience any of the following Problems in daily life since you hit your

head?

S - Have you ever experienced a Significant Sickness?

How to score HELPS?

If screening leads you to suspect TBI

Case study

Test your knowledge

Module 4: Public services available for eligible persons with TBI

Services available to people experiencing brain injury

Building Blocks for Service Planning

Long Term Care Programs - Overview

Long Term Care Programs - Eligibility

Long Term Care Programs - Available Services

Advocacy and Support Programs - Overview

Advocacy and Support Programs - Eligibility

Advocacy and Support Programs - Available Services

Community Mental Health Services Program - Overview

Community Mental Health Services Program - Eligibility

Community Mental Health Services Program - Available Services

Department of Human Services (DHS) in Iowa - Overview

Department of Human Services (DHS) in Iowa - Eligibility

Department of Human Services (DHS) in Iowa - Available Services

Iowa Vocational Rehabilitation Services - Services & Eligibility

Iowa Vocational Rehabilitation Services - Overview

Iowa Work Incentive Planning and Assistance

Iowa Workforce Development and Disability Navigators

Employment Network

Vocational Rehabilitation and employment VetSuccess Program - Eligibility

Vocational Rehabilitation and employment VetSuccess Program - Overview

Special Education and Early Intervention Services - Overview

Special Education and Early Intervention Services - Eligibility

Special Education and Early Intervention Services - Available Services

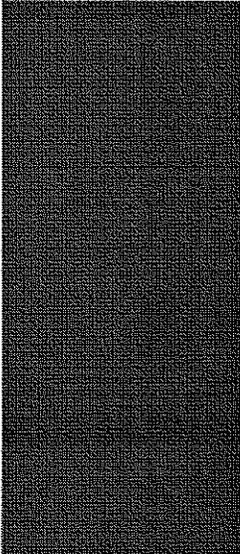
Substance Abuse Services - Overview

Substance Abuse Services - Eligibility

Substance Abuse Services - Available Services

Conclusion

Significance of TBI and introductory information on how the brain works



Objectives of Module 1 are to:

1. Learn what brain injury is and how the brain is affected by different types of injuries
2. Realize the significance of brain injury in Iowa
3. Understand the possible long-term impacts to the individual and family as a result of brain injury

When you complete this module, you should know:

- The definition of brain injury
- Facts about brain injury in the US
- Facts about brain injury in Iowa
- Who is at risk
- How an injury can affect the different areas of the brain
- What the brain injury severity labels, "mild", "moderate", and "severe" mean
- Why people with brain injury often end up in the public service system

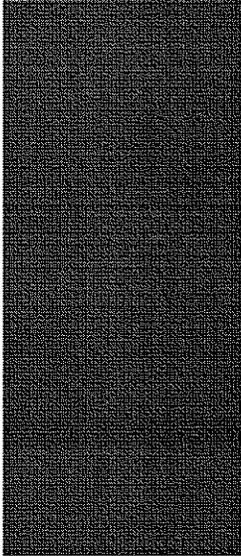


Brain injury definitions

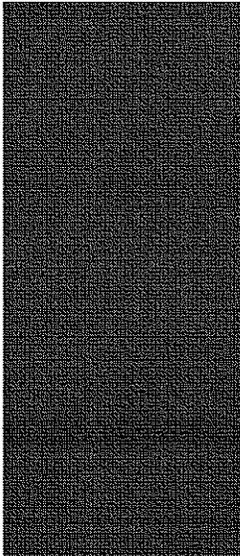
Brain injury is any injury that results in the disruption or change in function of the brain.

Acquired brain injury (ABI): An injury to the brain that occurred after birth. An ABI may be caused by TBI, stroke, near suffocation, infections in the brain, etc. (Brain Injury Alliance of America, 1997). The term does not apply to brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma.

Traumatic brain injury (TBI): An injury to the brain caused by an external trauma to the head or violent movement of the head, such as from a fall, car crash or being shaken. TBI may or may not be combined with loss of consciousness, an open wound or a skull fracture (Thurman et al., 1994).



Iowa Code definition of brain injury



Iowa Administrative Rules defines brain injury as: IAC 441--83.81 (249A): "Brain injury" means clinically evident damage to the brain resulting directly or indirectly from trauma, infection, anoxia, vascular lesions or tumor of the brain, not primarily related to degenerative or aging processes, which temporarily or permanently impairs a person's physical, cognitive, or behavioral functions.

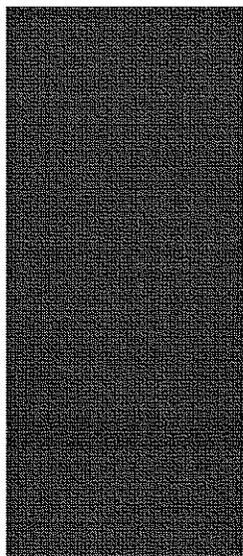


Incidence of TBI in the US

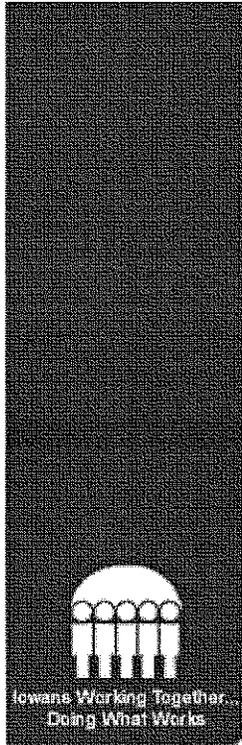
In the 2008 publication, *Traumatic Brain Injury in the United States: Emergency Department Visits, Hospitalizations, and Deaths*, the Centers for Disease Control and Prevention (CDC) reported that:



- 1.7 million Americans sustain a brain injury every year
- Each year 80,000 to 90,000 Americans with brain injury experience permanent disability from their injury
- Each year 52,000 people die as a result of brain injury in the United States

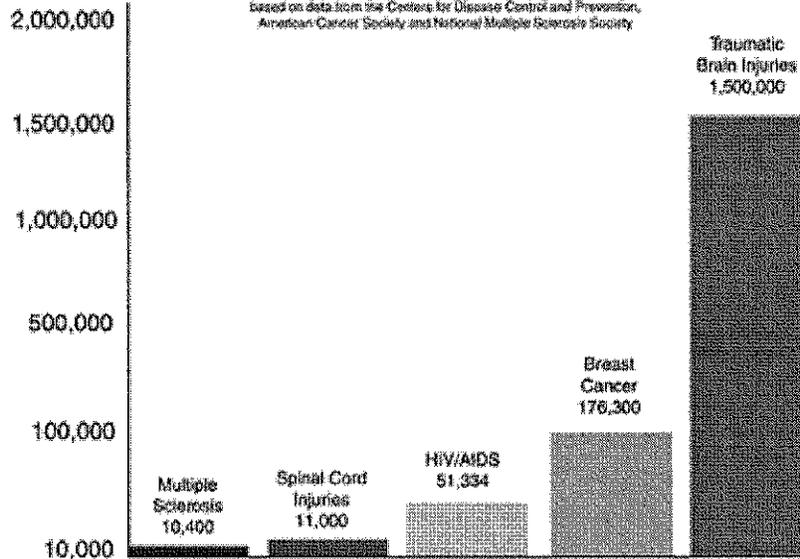


Comparison of new cases annually in the US

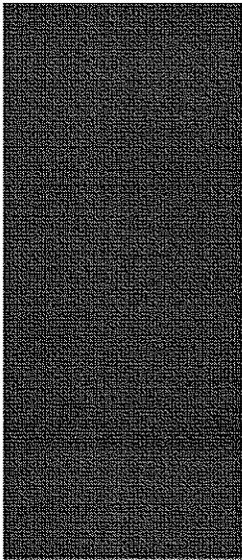


Comparison of Annual Incidence

Data compiled and arranged by the Brain Injury Association of America based on data from the Centers for Disease Control and Prevention, American Cancer Society and National Multiple Sclerosis Society.



TBI and children in the US

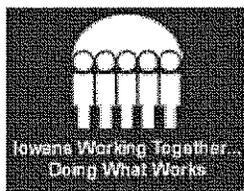


Every year among children ages 0 – 14 years, brain injury results in an estimated:

- 37,000 hospitalizations
- 435,000 emergency department visits (Langlois et al., 2004)

Among children and adolescents who sustain a brain injury resulting in hospitalization:

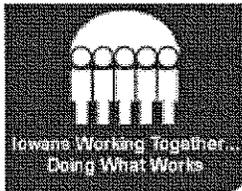
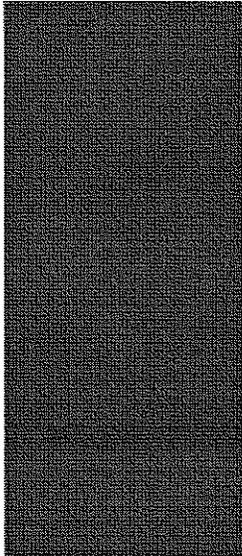
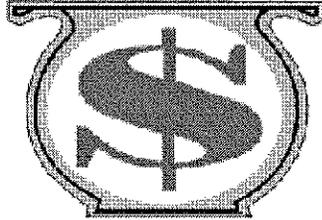
- Falls are the leading cause of injury among 0 – 4 year olds
- The leading cause of injury among 5 - 19 year olds is transport-related (Dunn, 1999).



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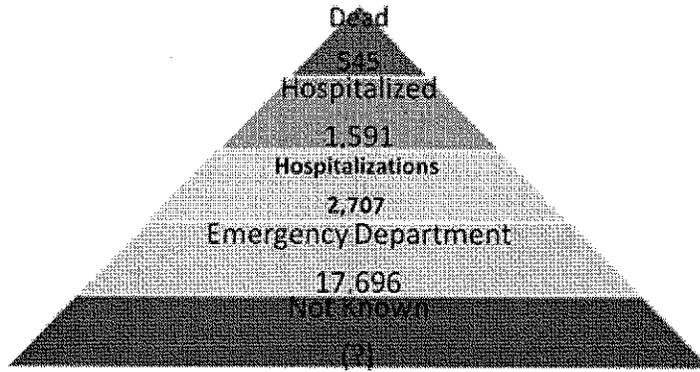
Cost of TBI in the US

The cost of brain injury in the US alone is estimated to be \$60.4 billion annually, including direct medical costs and indirect costs, such as lost productivity (Finkelstein et al., 2006).



New cases of TBI in Iowa

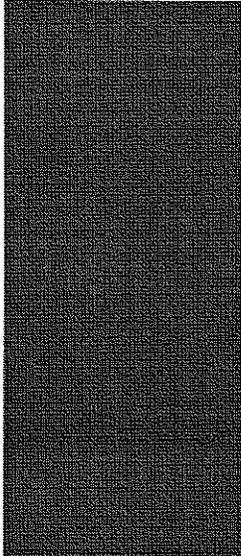
The Iowa Department of Public Health tracks traumatic injury in the state of Iowa.



Iowa Department of Public Health (IDPH) estimates that:

- around 2,500 individuals are hospitalized annually as a result of brain injury
- The Brain Injury Alliance of Iowa (BIAIA) estimates that 95,000 Iowans live with long term disability as a result of brain injury.

Source: Traumatic Brain Injury in Iowa: An Analysis of Core Surveillance Data, 2006-2008



Who is most at risk for TBI?

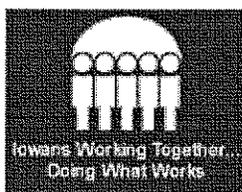
Anyone can get a brain injury. Yet some are more at risk than others.

According to the CDC Website:

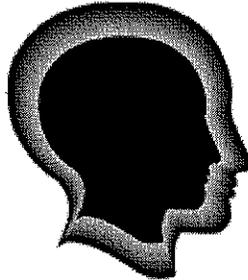
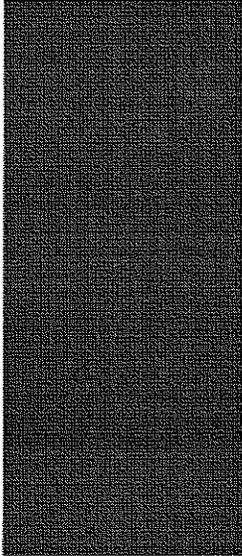
- Approximately 18% of all brain injury-related emergency department visits involved children aged 0 to 4 years.
- Approximately 22% of all brain injury-related hospitalizations involved adults aged 75 years and older.
- Males are more often diagnosed with a brain injury (59%).

Blasts are a leading cause of brain injury for active duty military personnel in war zones. CDC estimates of TBI do not include injuries seen at U.S. Department of Defense or U.S. Veterans Health Administration Hospitals. For more information about brain injury in the military including an interactive website for service members, veterans, and families and caregivers, please visit: [Defense and Veterans Brain Injury Center](#).

Individuals with a history of concussion seem more susceptible to effects of subsequent head injuries ([Collins et al., 2002](#))

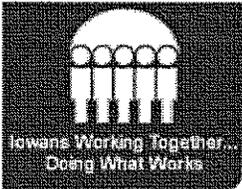


Why haven't we heard about TBI before?

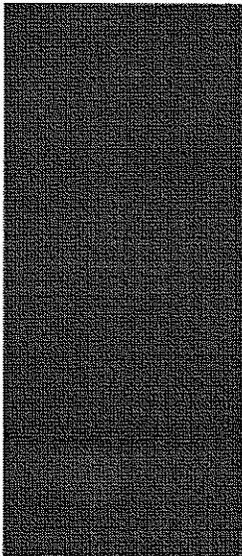


More people are surviving brain injury than ever before because of better emergency response systems (e.g., expanded use of "911"), faster transportation (e.g., air transport to trauma centers), improved safety technology and techniques (e.g., seatbelts, airbags, helmets), and improved medical imaging techniques.

- Most people don't know about brain injury, let alone its consequences or how it affects people
- Concussions are often not perceived as brain injuries when in fact they are



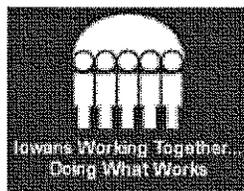
TBI Events



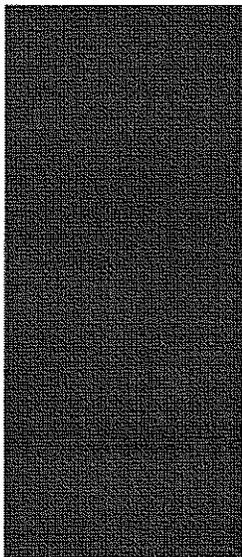
When a brain injury occurs, there is a **primary event** or an initial injury. Then, based on the body's response and medical care, there is the possibility of a **secondary event**, or further injury to the brain due to the reaction of the brain to the primary event.

For example, striking one's head hard against a blunt object could result in immediate damage from impact and tearing of brain tissue (primary event). The brain's reaction to this primary event (e.g., swelling), could put pressure on brain tissue and lead to further damage (secondary event). This process is explained in more detail in the following slides.

- The purpose of acute care management is to limit the occurrence of secondary events
- Damage resulting from a secondary event can be more severe than damage from the primary event

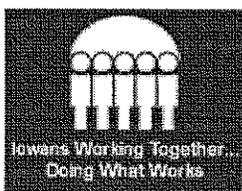


Primary events - what happens during trauma



Axonal Shearing:When the brain is slammed back and forth inside the skull after a head trauma, it is alternatively compressed and stretched because of its soft, gelatin-like structure. The long, fragile axons of the neurons (brain cells) that make up the brain are also compressed and stretched. If the impact is severe enough, axons can be stretched until they are torn. This is called axonal shearing. When this happens, the neuron dies. An injury with substantial axonal shearing is more diffuse – spread throughout the brain. Axonal shearing cannot be directly treated at this time.

Contusion: The brain's violent slamming against the bones of the skull can also result in contusion, which is bruising and bleeding. This results from tearing of small blood vessels. It can also result in the death of neurons and is the second leading cause of neuron death after a traumatic brain injury. Small contusions are usually not treated (e.g., from concussion) unless blood flow is interrupted to a part of the brain.



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Primary events (continued)



Coup



Contracoup

Coup-contracoup: (Coo-contracoo) After a traumatic brain injury, contusion (i.e., bruising and bleeding) can occur anywhere in the brain. Most contusions are on the underside of the frontal and temporal lobes because of the irregular and rough texture of the bones underlying these parts of the brain. In addition, specific sites of bruising and bleeding can occur at the site of the blow to the head ("coup") and the site directly opposite the blow when the head rebounds ("contracoup").

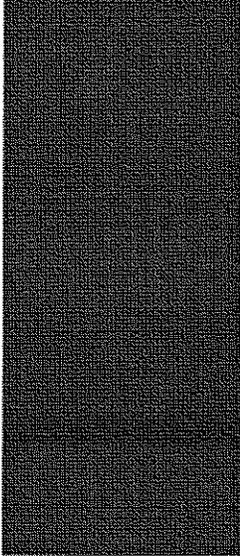
Depressed skull fracture: When bones of the skull are broken or cracked, loose bone fragments may actually place pressure on or penetrate the brain, thereby causing damage.



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Secondary events - the body's response



Brain swelling (cerebral edema): After a severe trauma, the brain swells just like any other part of the body. Brain swelling can lead to neuron damage by squeezing the cells or by disrupting the flow of blood and oxygen to the brain, causing anoxia (see below). Very severe swelling can cause death by compressing the brain stem which controls vital functions such as breathing.



Hematomas: If the damaged blood vessels are large enough, they may create a pool of blood or hematoma. A hematoma can cause brain injury by directly damaging the neurons it comes in contact with, or by squeezing neurons through increased pressure in the brain due to the volume of blood. When possible, the treatment for a hematoma is to surgically drain it.

Increased intracranial pressure: Pressure can build up within the brain because fluid formed as a result of swelling or bleeding has nowhere to go (being encased in the skull). This pressure can result in further brain damage.

Hypovolemic shock: After injury, loss of blood volume further compromises healthy brain tissue.

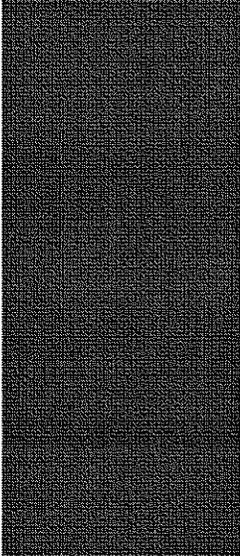
Anoxia: A lack of oxygen to the brain can cause further damage to brain cells.



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Severity of TBI

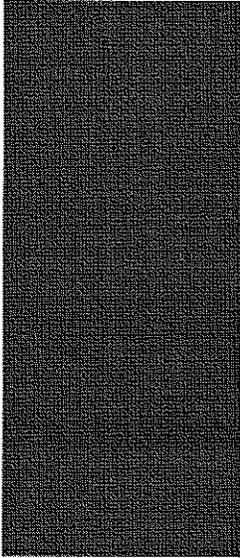


Brain injury is classified as "mild", "moderate", or "severe". It is important to know that the severity of brain injury is diagnosed based on immediate post injury conditions such as length of loss of consciousness or amnesia. The severity of injury is related to long-term consequences, but does not determine long-term recovery or outcomes. Moreover, each of these terms actually represents a spectrum of severity.

The Glasgow Coma Scale (GCS): A commonly used scale for initial assessment of brain injury severity. The GCS uses a 15 point scale to rate eye opening, motor, and verbal response functions, with a higher score indicating higher functioning. Unfortunately, in practice the time of the assessment can vary (e.g., at the scene of injury, upon examination in the emergency department, etc.) – making results from one patient to the next difficult to compare. Moreover, GCS results may not be valid for children, people under the influence of alcohol, or people with language differences.



Mild TBI



Mild brain injury is medically defined as a brief period of loss of consciousness (typically less than 15 minutes), any loss of memory for events immediately before or after the accident, or any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented or confused). Mild brain injury generally does not include posttraumatic amnesia greater than 24 hours (NIH, 1998). Mild brain injury is associated with a GCS of 13-15.

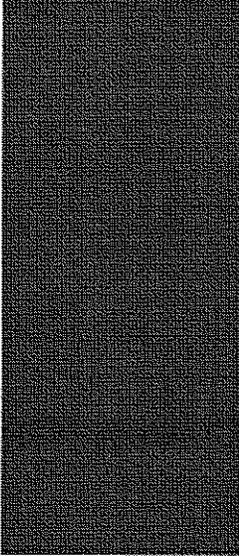
- **Symptoms may not appear until later** and can include temporary headaches, dizziness, mild mental slowing and fatigue
- Symptoms of mild brain injury most often improve spontaneously over 1-3 months
- Mild brain injury is **also known as concussion** or brain contusion
- An estimated 75% of all brain injuries are mild
- Often, people with mild brain injury **do not seek medical assistance** because, at the time, they do not believe the injury is severe enough
- Mild brain injury does not always show up on a neurological exam
- Because signs and symptoms of mild brain injury are similar to other problems (e.g., learning disability, emotional disturbance), it is **often misdiagnosed**



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Moderate TBI

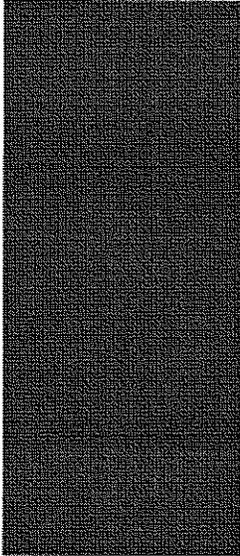


A **moderate brain injury** is medically defined by a loss of consciousness lasting between 15 minutes and a few hours and is often followed by a few days or weeks of confusion. Persons with moderate brain injury may have a longer period of impaired consciousness, more impaired memory shortly after the injury and a lower likelihood of achieving a good recovery within 6 months than persons suffering mild brain injury (NIH, 1998).

- Moderate brain injury often is associated with a GCS of 9 – 12
- 10% – 30% of brain injuries are classified as moderate
- 80% of people who sustain a moderate brain injury can be expected to return to work within one year of injury



Severe TBI

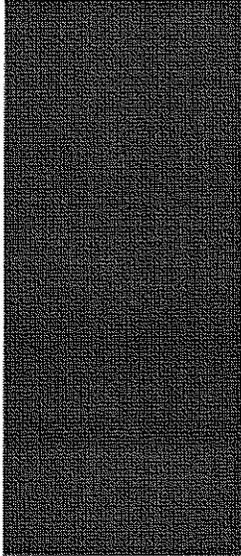


Severe brain injury is medically defined by a loss of consciousness, or coma, for 6 hours or longer, either immediately after the injury or after an intervening period of clarity. Individuals who suffer a severe brain injury are at higher risk for long-term disability. Their behavior can be disinhibited, and at times they may disregard social conventions. Some have difficulty remaining employed, maintaining pre-injury relationships and establishing new social contacts (NIH, 1998).

- Severe brain injury is often associated with a GCS of 8 or lower
- One-third to one-half of all cases of severe brain injury result in death
- The incidence of severe brain injury is lower than the incidence of mild or moderate brain injury



Complexity of TBI



No two brain injuries are exactly alike, and brain injuries are very complex for several reasons:

- The severity of injury can range from mild to severe
- Different areas of the brain can be injured, resulting in a unique combination of disabilities
- The injury differs depending on how the brain was injured (e.g., axonal shearing vs. contusion)
- Recovery from brain injury is different for each individual; recovery can take weeks to years, or can be a lifelong process
- Age and ability of the individual, pre-injury

The next slides are intended to show the major cognitive and physical functions controlled by each area of the brain.

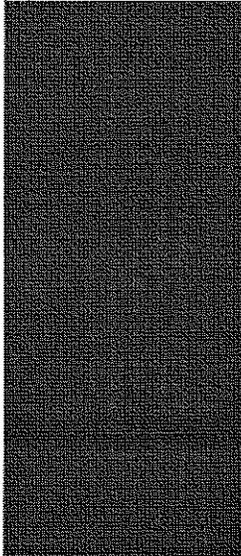
People with brain injury often injure multiple areas of the brain; disability may result from changes in interaction between the injured areas.



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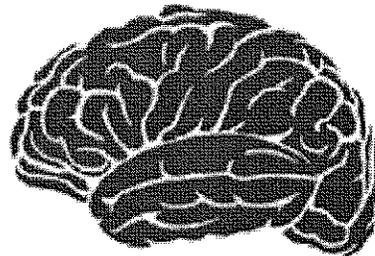
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General patterns of dysfunction by location of injury

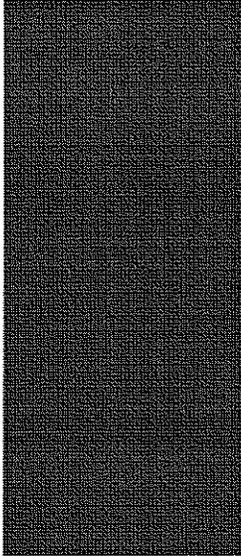


Left side of brain:

- Difficulties in understanding language (receptive language)
- Difficulties in producing language (expressive language)
- Verbal memory deficits
- Impaired logic
- Sequencing difficulties
- Decreased control over the right side of the body

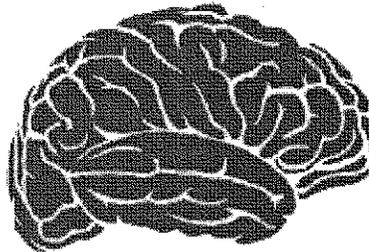


General patterns of dysfunction by location of injury

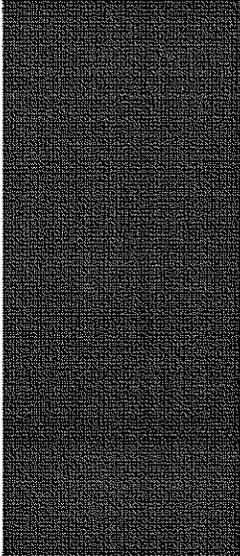


Right side of brain:

- Impairments in visual-spatial perception
- Left-neglect, or inattention to the left side of space or the body
- Decreased awareness of deficits
- Altered creativity and music perception
- Loss of "big picture"
- Visual memory deficits
- Decreased control over left-side of the body

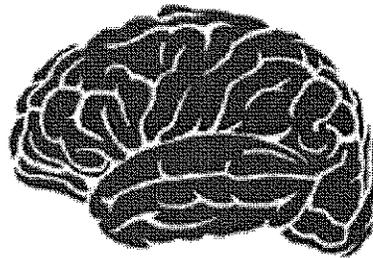


General patterns of dysfunction by location of injury



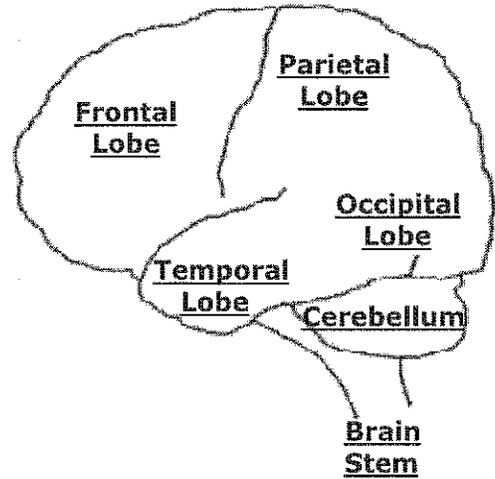
Diffuse injury:

- Reduced thinking speed
- Increased confusion
- Reduced attention and concentration
- Increased fatigue
- Impaired cognitive functions across all areas



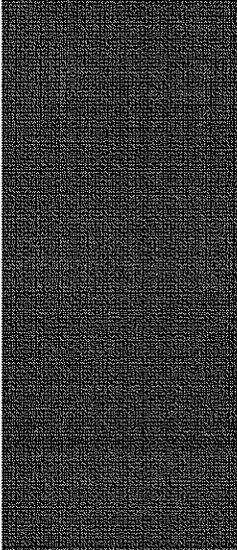
Functions of the brain

Click the links to discover which functions are controlled by each area of the brain.

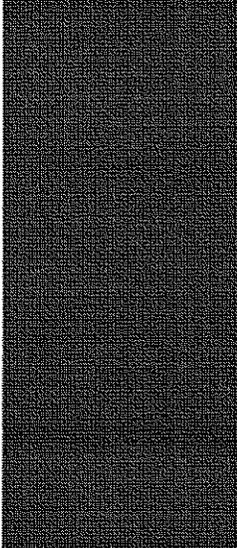


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Functions of the brain

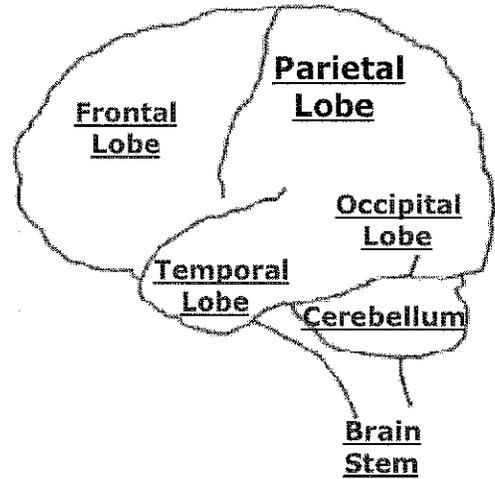


Click the links to discover which functions are controlled by each area of the brain.

Functions of the parietal lobe

Sensory functions

- Touch perception
- Differentiation of size, shape, and color
- Depth perception
- Visual perception



Functions of the brain

Click the links to discover which functions are controlled by each area of the brain.

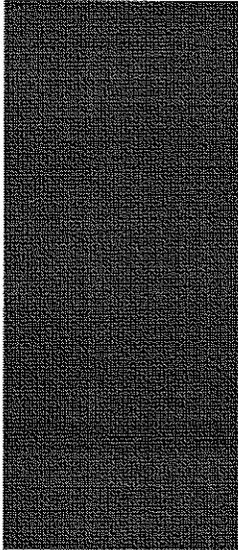
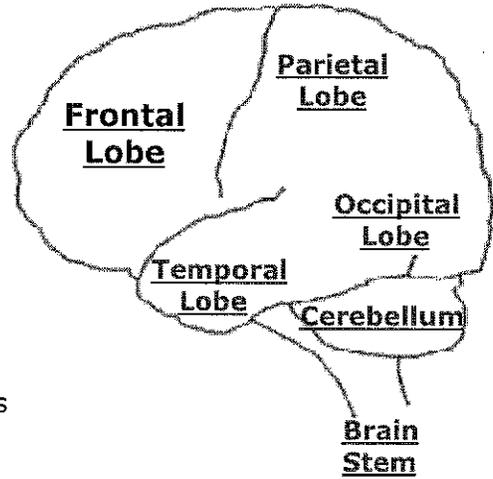
Functions of the frontal lobe

Executive functions

- Initiation
- Organization
- Self-monitoring

Cognitive functions

- Thinking
- Judgment
- Inhibition of behavior
- Planning/anticipation
- Personality and emotions
- Awareness of abilities and limitations
- Attention/concentration
- Mental flexibility
- Speaking (expressive language)



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Functions of the brain

Click the links to discover which functions are controlled by each area of the brain.

Functions of the temporal lobe

Cognitive functions

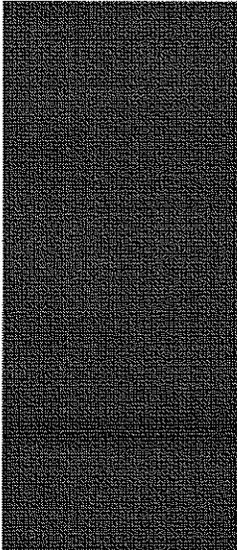
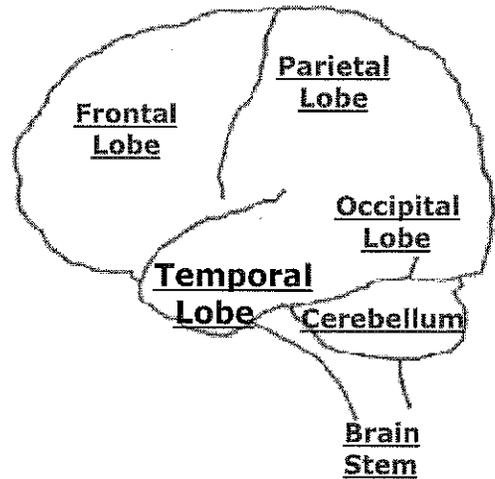
- Memory
- Understanding language (receptive language)

Executive functions

- Organization and sequencing

Sensory functions

- Hearing



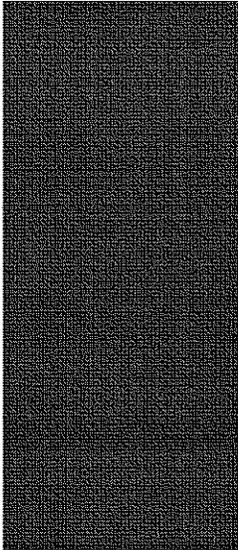
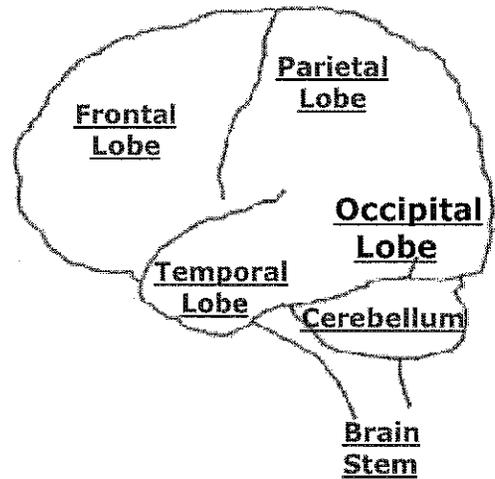
Functions of the brain

Click the links to discover which functions are controlled by each area of the brain.

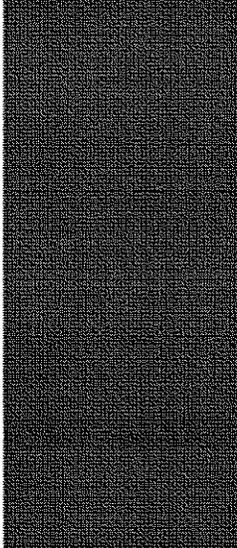
Functions of the occipital lobe

Sensory functions

- Visual perception including:
 - changes in vision (field cuts)
 - visual hallucinations
 - changes in dream patterns



Functions of the brain

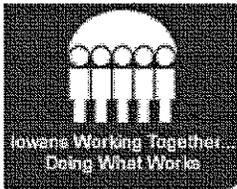
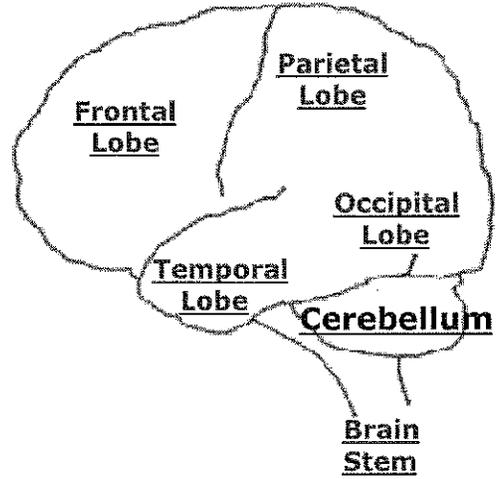


Click the links to discover which functions are controlled by each area of the brain.

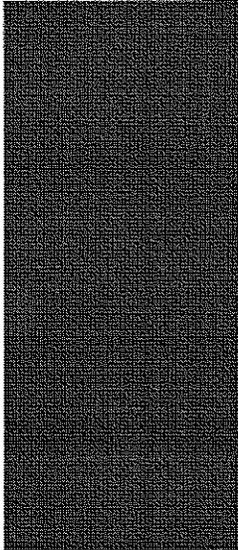
Functions of the cerebellum

Motor functions

- Balance
- Coordination
- Skilled motor activity such as:
 - handwriting
 - exercising
 - playing a musical instrument



Functions of the brain

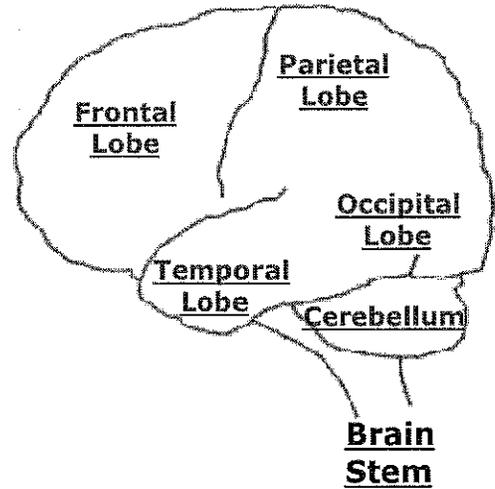


Click the links to discover which functions are controlled by each area of the brain.

Functions of the brain stem

Regulatory functions

- Breathing
- Heart rate
- Arousal/consciousness
- Sleep/wake functions
- Attention/concentration

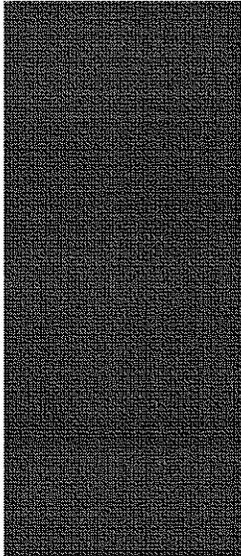


Need for public services

There are many reasons that persons with brain injury might come to rely on the public service system for their health care.

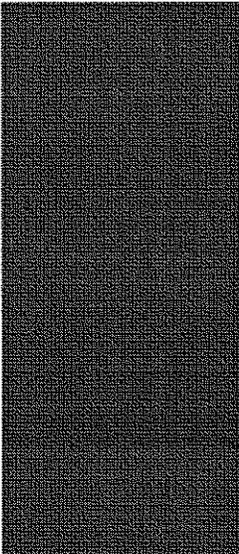
For many individuals, Medicaid often becomes the payment source for long term care services, because:

- As a result of injury, they may lose their job and their health insurance
- They reach the maximum payout available from private insurance coverage but still need services
- They had no health insurance to begin with



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Effects on family members



Clinical experience has shown that family involvement and support is very valuable to a person with brain injury throughout rehabilitation. The needs of the family member with a brain injury affect the entire family. Relationships, communication and the sharing of responsibilities can change dramatically.

- The physical and emotional strain of caregiving may lead to anxiety, stress, guilt, loneliness and depression among family members (Kreutzer, 1998).
- If the injured person was the main financial provider, the family could also experience income losses. Loss of income is even more severe if other family members can no longer work because they have to care for the injured individual.

Family members need support to fulfill their new roles, including emotional and social support from others in similar situations, and the opportunity to take a break from care-giving tasks. In addition, they may need help and advice to access crucial benefits, services and supports.

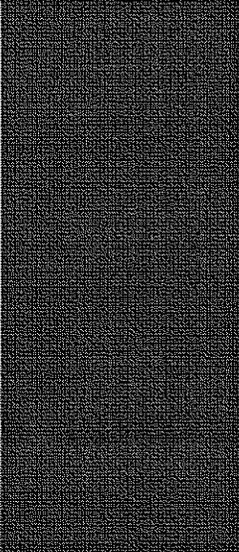
This service is available to all Iowans through the Brain injury Alliance of Iowa (1-855-444-6443)



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Effects of TBI on children

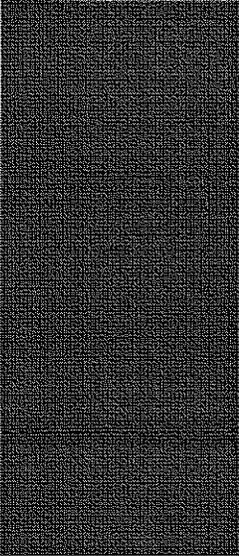


Because a child's brain is still developing, injury may alter the course of development of the brain and its functions (TBINET, 2004).

- After a brain injury, previously learned information, which provides important building blocks for subsequent learning, is often retained and used. However, in very young children, these building blocks have not yet been learned, presenting more challenges to them as learners in comparison to similarly brain-injured older children or adults who have larger foundations of intact information.
- The effects of the brain injury on the child may not be seen directly after injury, but only become apparent when, during the course of the child's development, affected skills are called upon. For example, problems in abstract thinking may not be evident until the child with a brain injury reaches an age when this skill normally develops.



Effects of TBI on children (continued)



Because a child's brain is still developing, injury may alter the course of development of the brain and its functions (TBINET, 2004) (cont'd).

- When there is a lag in the emergence of problems, the brain injury might not be identified as the cause of the problems. Frequently, such problems are dealt with as if they are due to learning disabilities or emotional issues. A child can suffer from misdiagnosis in two ways: feeling diminished or confused because no one knows what is really wrong, and being damaged as a learner because the learning environment does not meet his or her needs.



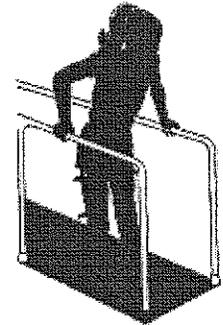
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Recovery

Just as each individual is unique, each brain injury is unique. Recovery from a brain injury is often slow, and the person may experience changes, for better or worse, which may affect them for the rest of their lives. Each person's recovery is unique due to his or her pre-injury personality, learning style, location and severity of injury, time elapsed since the injury and the individual's psychological reaction to the injury.

Additional complications:

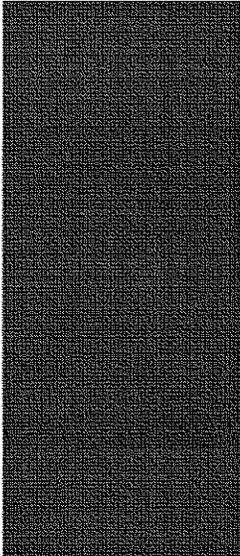
- Brain injury is often misdiagnosed
- Symptoms of brain injury may not show up for weeks or months after the injury
- Recovery is slow and often incomplete



Module 1

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Case Study



You now have the option to view a short video that illustrates how brain injury has affected the lives of a few individuals. This video is comprised of segments from the video [Faces of Brain Injury](#) developed by the Brain injury Alliance of Florida.

Click the button below to view the video. If you would like to skip the video, use the next button at the bottom of the page to continue with Module 1.

[Click here to view the video](#)

[Click here to view the transcript](#)



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Segments from video Faces of Brain Injury - transcript

(Michael) I went to work one Sunday morning, and from there, I don't know.

Brain injury, it's the last thing on your mind.

(Maria) Before the accident I was all over the place. I was a professor. I just had a million things that I was doing. And now, I just can't find the energy.

(Michael) I modeled, I worked as a mechanic. I want to get back to work. I don't care doing what, but I want to get back to work.

(Jonathan) I was in ninth grade. I was a really good soccer player. I was one of the best. To have something for fifteen years and then have your skill, and not be as fast, everything taken away from you in a split second, it's one of the hardest things that could ever happen to anybody.

Brain injury, it's the last thing on your mind.

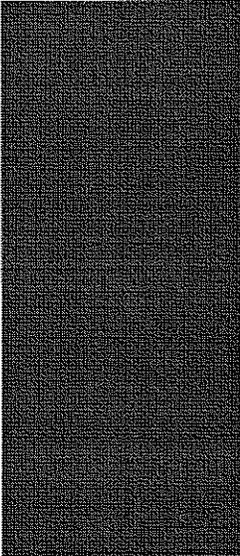
(Michael's wife) All of Michael's skills have diminished due to seizures. It's almost like a long term project that we've decided to be completely committed to, no matter what it takes, no matter what path it's going to bring us to. We are just going to...

(Michael) ...make it. And together we will make it.

(Maria) Since my accident, everything about being a professor would be difficult for me. My concentration is very short limited. Now I can barely read. I start at the beginning of the paragraph. By the time that I get to the end of the paragraph, I have forgotten what I've read. There was a time where I thought I'd be teaching for the rest of my life. Now there's a big question mark.

Brain injury, it's the last thing on your mind...until it's the only thing.

Test your knowledge



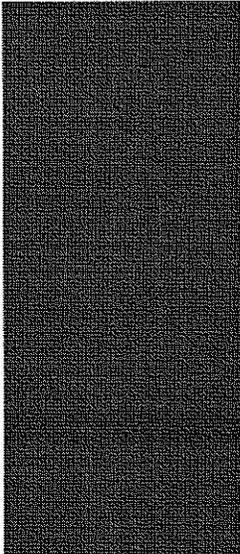
This final section of Module 1 consists of nine questions. You must complete the questions to receive a score for this module on your training transcript.

- When you submit an answer for each question, a box will appear stating whether or not your answer was correct, along with an explanation of the correct answer.
- Once you submit an answer for each question, it cannot be changed. However, you may return to the assessment section of this module on another day and retake the test. Your most recent score will appear on your transcript.

Begin Test



Module 1 - Question 1



**1. All of the following injuries are examples of traumatic brain injury ,
except:**

- (a) Concussion sustained after being hit by a baseball
- (b) Intracranial hemorrhage sustained as a result of an assault
- (c) Gun shot wound to the head
- (d) Cognitive disability relating to a near-drowning incident

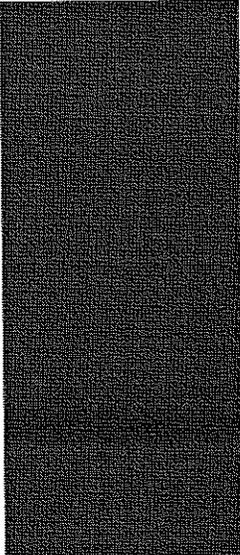


Submit

Module 1 - Question 2

2. Each year there are more new cases of serious TBI in the United States than:

- (a) HIV/AIDS
- (b) Breast Cancer
- (c) Spinal Cord Injury
- (d) All of the above

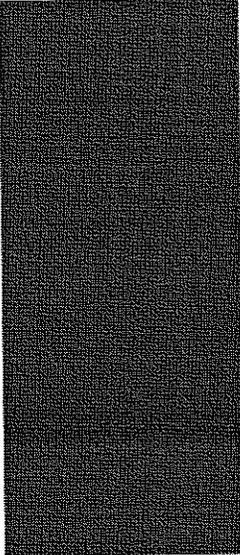


Submit

Module 1 - Question 3

3. TBI is classified as mild, moderate, or severe based on:

- (a) Assessment of the injured individual's state of consciousness immediately post injury.
- (b) The injured individual's long-term outcomes, including physical disabilities, cognitive impairment, and social functioning.
- (c) Both 'a' and 'b'
- (d) Neither 'a' nor 'b'

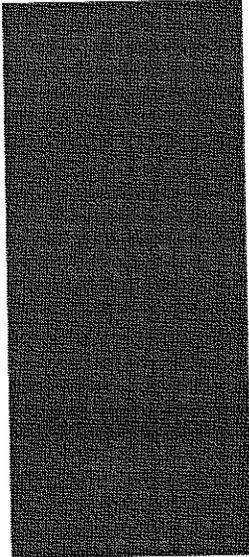


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Module 1 - Question 4

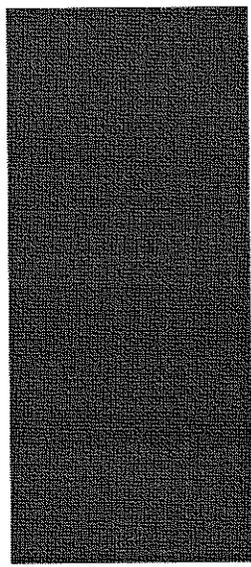
4. Mild TBI does not lead to long term impairment.

- (a) True
- (b) False



Submit

Module 1 - Question 5



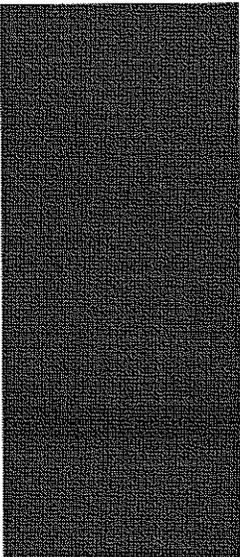
5. An injury to the temporal lobe is immediately life threatening because this is where the brain regulates basic bodily functions such as breathing and heart rate.

- (a) True
- (b) False



Submit

Module 1 - Question 6



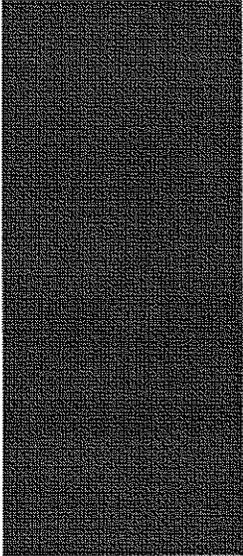
6. Which of the following may be the result of an injury to the frontal lobe?

- (a) The need for an immediate tracheotomy because the brain is unable to regulate breathing.
- (b) A series of difficulties that make it difficult to function in society, including: saying whatever is on one's mind even if it is inappropriate, disorganization, and an inability to focus on the task at hand.
- (c) Memory loss and blindness
- (d) Inability to walk or sit up straight



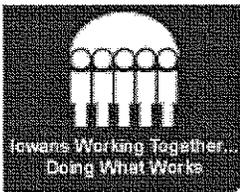
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Module 1 - Question 7



7. Sara and Jon both sustained traumatic brain injuries when they were thrown from Sara's motorcycle. Sara's injury was classified as moderate, and she has experienced difficulty with organization, problem solving, and judgment since the injury. Jon's injury was classified as severe, and he has experienced difficulties with motor skills, balance, and executive functions. What might explain these differences?

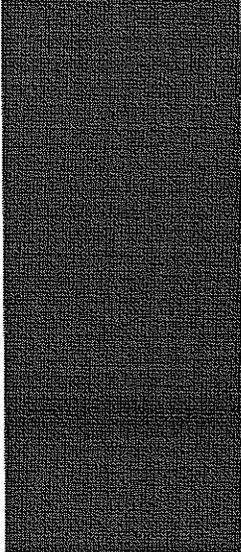
- (a) Different areas of the brain may have been injured.
- (b) Sara and Jon may have suffered different primary and secondary events.
- (c) These differences are impossible because both injuries were sustained in the same accident.
- (d) Both 'a' and 'b' are correct.

**Submit**

Module 1 - Question 8

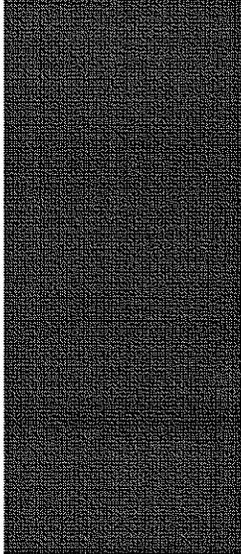
8.Children are better able to overcome TBI-related impairments than adults, because the brain can compensate for the injury as it develops.

- (a) True
- (b) False



Submit

Module 1 - Question 9



9. A four year old child who regains consciousness and seems fine after a concussion will:

- (a) Reach normal developmental milestones
- (b) Show no symptoms of brain injury for many years, but begin to have difficulty with school in junior high
- (c) Both A and B are unlikely
- (d) Both A and B are possible



Submit

Traumatic Brain Injury - Module 1 Completed

You have completed Module 1 of this course.

To see your test results, click the transcript button below.

[Transcript](#)

To continue with the course, click the link below, or you may access any module from the main menu at any time.

[Begin Module 2](#)

