Brain Injury 101

For the Acquired Brain Injury Waiver Programs

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What is a brain injury?

Brain injury is often labeled as

- An Acquired Brain Injury (ABI)
- A Traumatic Brain Injury (TBI)

ABI and/or TBI are both defined as:

- any injury to the brain,
- occurring after birth,
- causing cognitive, behavioral or physical changes,
- not due to an inherited, congenital, or degenerative condition.

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Causes of ABI and TBI

- Causes of ABI include trauma, anoxia, aneurysm, brain infection, drugs, and brain tumors.

- Causes of TBI include motor vehicle crashes, falls, sports injuries, assaults, and blast injuries.

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TBI in the United States

- It is estimated that 5.3 million Americans already live with a disability as a result of a TBI
- Approximately 1.7 million cases of TBI occur in the US every year
- Each year, approximately 100,000 people die from TBI and 500,000 more are permanently disabled
- 30 Years Ago – 50% of persons with a severe brain injury died as a result.
- Today – 22% die as a result of a brain injury.

More People are Surviving Brain Injury Due to:

- Better Response Systems and faster transportation (i.e. helicopters)
- Expanded 911
- Improved Medical Technology
- Safety features such as: seatbelts, child safety seats and airbags

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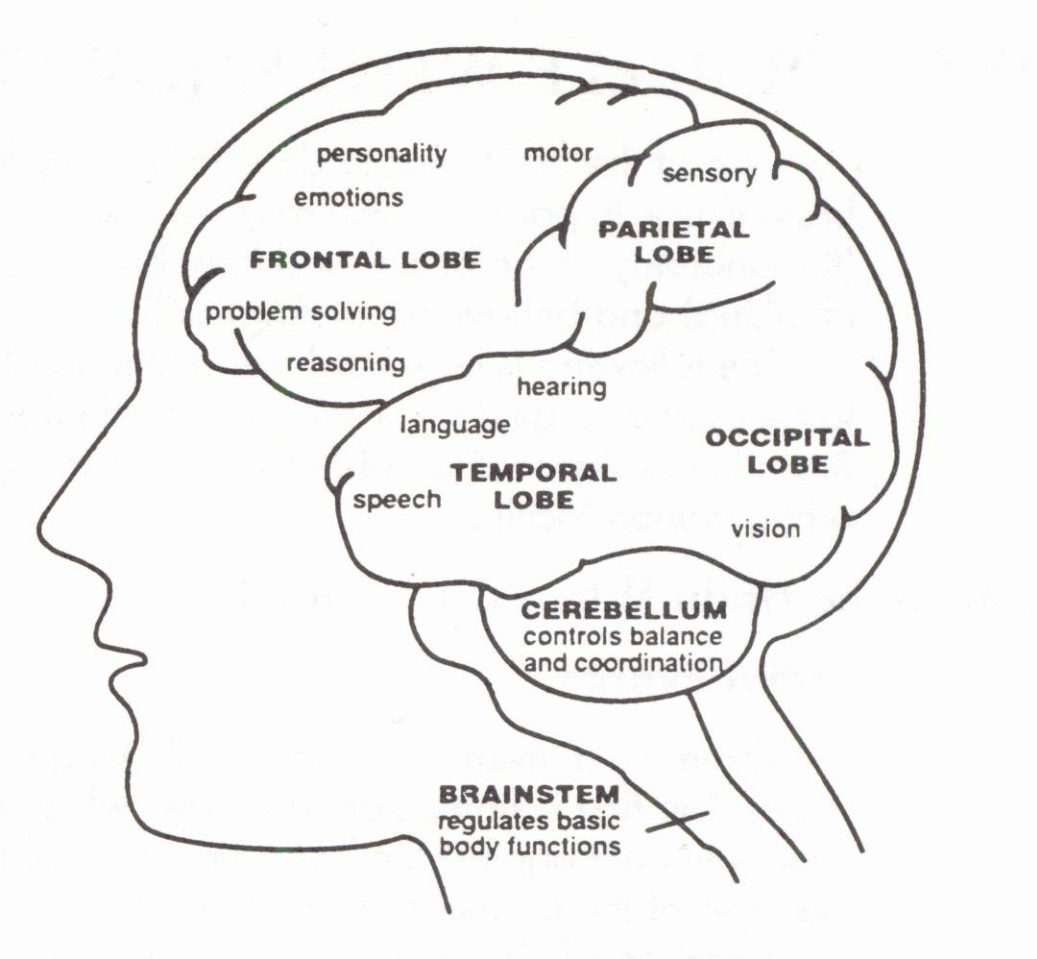
Functions of the Brain

The best way to understand the effects of a brain injury is to understand the function of each area of the brain and related systems and structures.



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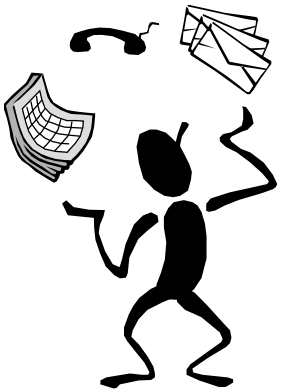
Frontal Lobes

The frontal lobes are located behind your forehead in the front of your brain.

-Your frontal lobes manage and control your planning, organization, problem solving, reasoning, emotions and motor skills

-Damage to this area can cause loss of fine movements, changes in emotion, difficulty understanding tasks and social behavior may be altered



Parietal Lobes

The parietal lobes are located near the crown of your head, above your occipital lobes.

-Parietal lobes manage the way your brain responds to incoming information such as being touched, loud noises, bright lights.

-Injury to this area can lead to visual impairments such as bright lights may be disturbing

-The individual may have difficulty accurately reaching for an object they are trying to grab

-Other deficits may include difficulty writing, understanding language, and self care tasks such as bathing or dressing

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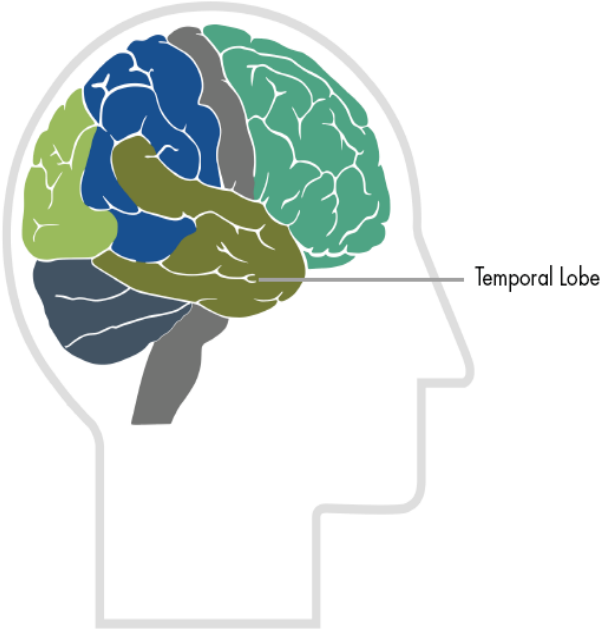
Temporal Lobes

-The temporal lobes are located at the sides of your brain, above your ears.



-Temporal lobes manage your auditory processing, attaching meaning to the sounds you hear

-Damage to this area can lead to impaired memory, difficulty matching words to images, and inability to recall learned information or music

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Occipital Lobes

The occipital lobes are located at each side of the back of your brain.

-Occipital lobes supply meaning to what you see

-Damage to this area may result in neurologic visual impairment

-The individual may experience loss of vision, visual hallucinations, and distorted vision

Brain Stem

-The brain stem is located at the base of your skull.

-The brain stem is the pathway that sends information from the brain to the rest of the body

-The brain stem regulates life-sustaining functions such as your blood pressure, heart rate, breathing and body temperature

-Injury to your brain stem could result in an altered state of consciousness, such as coma

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Cerebellum

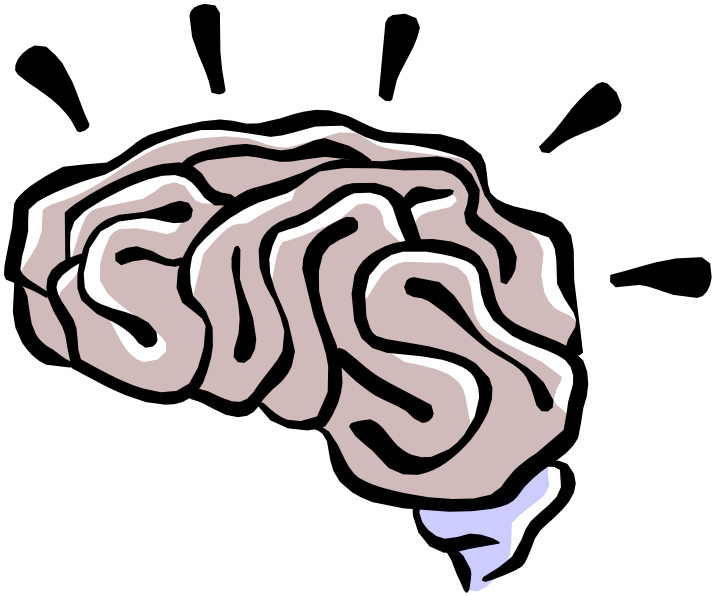
The cerebellum is located at the back of your head between your skull and your brain stem.

-The cerebellum is responsible for your muscle coordination and balance

-Damage to the cerebellum can result in difficulty walking and stability

Severity of Injury

- Often a brain injury is described according to the amount of medical care that is needed initially, such as:
  - **Mild**
  - **Moderate**
  - **Severe**



Mild Brain Injury

Not Just A Bump On The Head!

- A mild brain injury is also known as a “concussion”.
- About 75% of TBIs that occur each year are concussions or other forms of mild traumatic brain injury.
- Most concussions do not involve loss of consciousness.
- A normal neurological exam.
- Effects of repeated concussions are cumulative.
- Symptoms may not appear until later. “Post concussive syndrome” can include headaches, dizziness, mild mental slowing & fatigue.
- Symptoms usually improve over 1-3 months.

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Moderate Brain Injury

A moderate brain injury is one that results in a loss of consciousness that can last 15 or more minutes or a few hours and is followed by a few days or weeks of confusion

Severe Brain Injury

A severe brain injury almost always results in prolonged unconsciousness or coma lasting days, weeks or longer

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Cognitive Changes

Difficulty with...

- Memory
- Attention
- Concentration
- Distractibility
- Verbal fluency
- Comprehension
- Information processing
- Arousal
- Problem solving
- Intellectual functioning
- Perception
- Judgment
- Inflexibility
- Abstraction
- Conceptualization
- Reaction time

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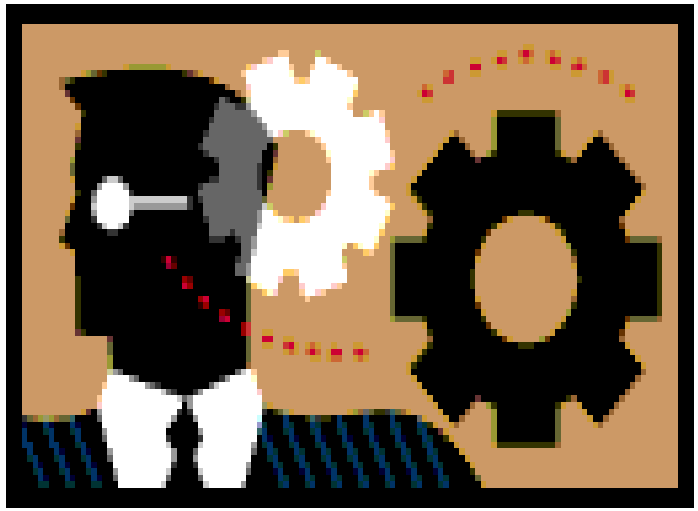
Cognitive Changes

Changes in “Executive Functioning”

- Goal Setting
- Self-Monitoring
- Planning
- Initiating
- Modifying
- Completing Tasks



Physical Changes

- Seizures
- Muscle spasticity
- Fatigue
- Headaches
- Balance problems
- Speech difficulties
- Hearing Loss
- Dysarthria
- Motor control & coordination
- Loss of smell & taste
- Visual difficulties
- Hemiparesis (paralysis)
- Sleep disturbances
- Decreased tolerance for drugs & alcohol

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Emotional/Behavioral Changes

- Depression
- Anxiety
- Mood swings
- Impulsivity
- Irritability
- Emotional liability
- Frustration intolerance
- Altered personality
- Social withdrawal
- Aggression
- Lack of motivation
- Egocentric behaviors
- Lack of self-awareness
- Inappropriate behavior and/or language
- Changed sex drive
- Feelings of loneliness
- Impaired judgment
- Disinhibition

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Results of Brain Injury

- Not all individuals will experience these changes
- Each person may have a different combination of changes
- Each person may also have abilities that remained intact

It is important to understand the individuals you work with so that you know what they are capable of doing for themselves and what they need help with (e.g. type & level of support).

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Stages of Recovery

1. Coma: totally reliant on medical staff.
2. Post-Traumatic Amnesia: severe agitation, restlessness, confusion.
3. Conscious with Severe Deficits: attention, problem-solving, social, and memory deficits; focused on physical injuries.
4. Awareness: frustration, irritability, anger, beginning anxiety & depression due to cognitive deficits; feeling pressure to return to responsibilities; over-estimating abilities and under-estimating problems; emotional lability; lowered tolerance for frustration.
5. Success When Structured: experiencing some success due to cognitive improvement; complexity exhausts coping skills; increased insightfulness leads to depression and anxiety.
6. Return to Responsibility: coming to terms emotionally with injury and outcomes; taking on some old responsibilities; experiences failures and fatigue; rebuilding confidence and self-esteem; building new life for self.

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Recovery

- Measured in weeks, months and years.
- Usually most rapid in the first six months
- Recovery from brain injury is slow and often incomplete

Rehabilitation begins almost immediately after injury through:

- Directed sensory stimulation
- Exercising of muscles & joints

Formal rehabilitation usually has:

- Time Limits
- Outcome Requirements

Informal Rehabilitation (family,etc.) can go on for a very long time.

- Greatest visible progress occurs in first 6 months
- After 6 months, improvement is more subtle & less obvious
- Can continue for the lifetime of the individual

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Grief & Loss

The Emotional Impact of Brain Injury

Brain Injury can change everything a person relies on to define themselves, when abilities and attributes are lost. Plans & dreams the individual may have had could be forever altered.

Adjusting to the loss of sense of self, and the process of adapting to the new self can take months or years.

For some, the injury can result in depression, anger, substance abuse & even suicide.

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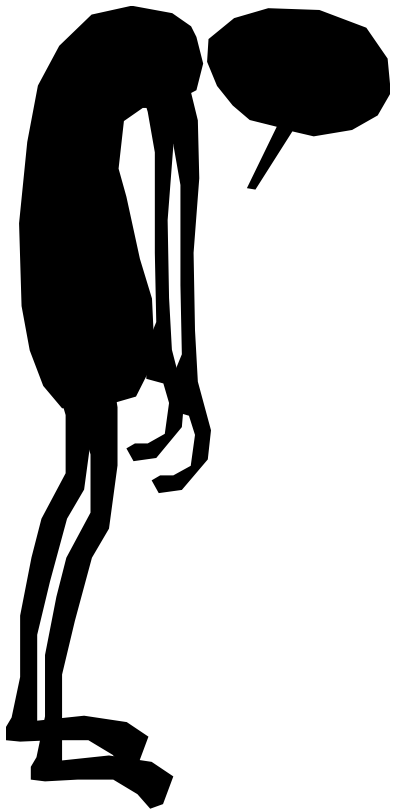
Watch for Depression



Signs of depression include:

- Changes in eating habits
- Changes in sleeping habits
- Remarks about the futility of life
- Dwelling on the past
- Excessive time spent in non-active ways like watching too much television

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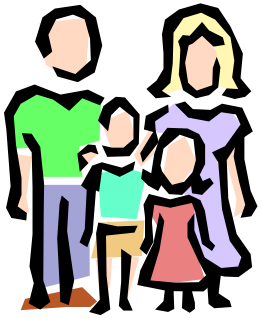
Brain Injury & Families

The emotional impact of brain injury on families is lifelong & different for every injury & every family member.



Brain injury often changes the roles and responsibilities of family members. Changes in a loved one can be so drastic that it seems a stranger came home from the hospital.

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Stages of Family Adjustment

- **Stage 1(1-3 months):** shock; focused on praying for recovery; hopeful for full recovery; no TBI experience; repress feelings; avoid discussing severity; transfer negative feelings to others.
- **Stage 2 (3-9 months):** begin to recognize severity; feeling helpless, frustrated, overwhelmed; denial turns into anxiety, anger, fear, depression and loss.
- **Stage 3 (6-24 months):** starting to get annoyed with survivor; experiencing depression, guilt, and discouragement; starting to recognize levels of impairment; starts to seek information about TBI recovery.
- **Stage 4 (10-24 months):** beginning of realism; disability/negative behaviors bother family; need additional breaks away to improve tolerance; fear situation is permanent; reduce face-to-face interactions with survivor.
- **Stage 5 (12-24 months):** profound sadness; grieving cycle may begin again; mourn loss of way survivor used to be; beginning to share new future with and for survivor.
- **Stage 6 (2-3 years post-injury):** accept that the person may never be the same as before the TBI; accommodate to change family roles; guilt diminishes; creativity in assistance; well versed about TBI; invest time and money on accommodations.

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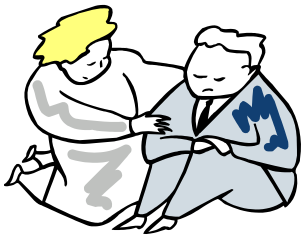
Emotional Support for All

Make sure that family members who are caregivers have someone to express their emotions to, such as a support group or counselor who understands brain injury who can answer their questions and address their concerns.



Family members need to understand that they do not always have to be strong. They can accept help. Each person in the family needs a friend, relative or advocate who listens.

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Behavioral Consequences

Caregivers and family members must be alert for behavioral problems following a brain injury, including:

- depression
- mood changes
- irritability
- fatigue
- personality changes
- difficulty controlling emotions
- lack of inhibition
- substance abuse
- violent outbursts

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Behavioral Assistance

Professionals who can assist with behavioral challenges include:

- Neuropsychologists can assess the relationships between the brain injury, the behavior and cognition;
- Neuropsychiatrists can prescribe medications to address mood, thinking or behavior.
- Behavior Specialists can observe behaviors and determine cause and effect, and formulate a behavior modification plan.

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Establish Structure & Routines

- Provide the individual with a schedule.
- The environment must be kept organized.
- Labels, calendars, notebooks, wall charts, and visual aids can serve as reminders, and assist the client with organization.
- Use frequent repetition to promote new learning.
- Break tasks into steps, whether it be completing paperwork or preparing a meal.

Expecting large projects to be completed all at once is a prescription for failure

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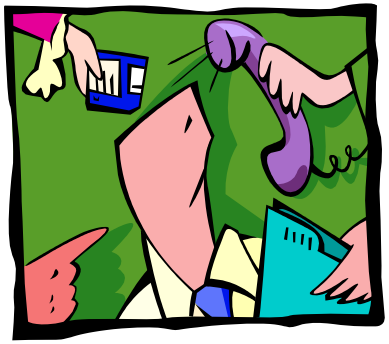
Strategies for Living with Brain Injury

- Remove distractions to minimize overstimulation and cognitive overload. Brain injury survivors struggle with focusing.

- Anticipate stressful situations, and avoid them or take steps to minimize their impact.

  Example: if large gatherings or crowded stores are cognitively overwhelming, anticipate the stress the individual may experience.



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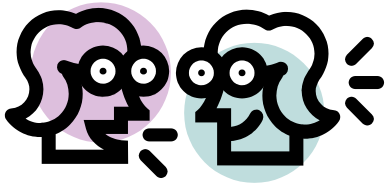
Strategies for Interacting



- Speak clearly in short phrases
- Take turns talking!
- Avoid repeated disagreements or arguments
- Explain what you intend to do
- It is important to keep goals realistic:
  - Understand each individuals current abilities/limitations
  - Treat each other in an age appropriate and respectful manner

Develop Your Action Plan

- Work together with professionals, family, friends, and community resources to create an action plan for each potentially overwhelming situation - an action plan will help everyone to remain calm. Within the waiver program this is called a “Crisis Prevention Plan”
- The ABI case manager works with the individual and their team to develop an effective “action plan/Crisis Prevention Plan”

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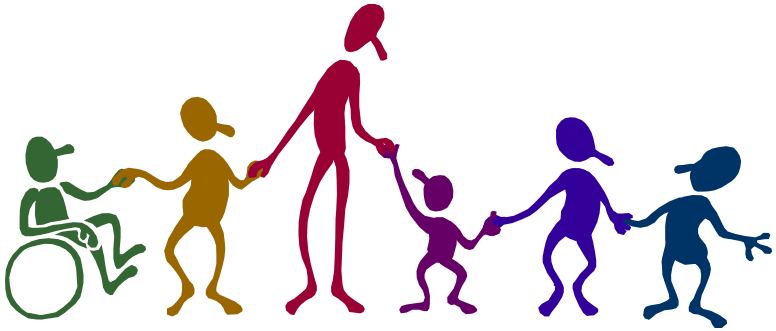
IMPORTANT

Every individual is different, every injury is unique. Improvement happens over time!



Without this control; dissatisfaction, frustration, resentment and depression are likely to occur.

Emphasize Independence

"Family members or caregivers should let the recovering TBI survivor burn dinner every night if necessary but step in if the house is burning down."

-*Survivor's mom*

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Thank You!

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