Introduction to Brain Injury

Brain Injury Alliance of NJ
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Objectives

- Discuss functions of the brain
- Define brain injury and the different levels of severity
- Discuss prevalence and causes of brain injury
- Identify changes that can occur after brain injury
- Identify strategies to help individuals with brain injury
- Provide brief overview of programs and services
What is your connection to brain injury?
The Brain

Controls everything we do

- breathing
- walking
- talking
- thinking
- behaving
- feeling
Functions of the Brain

Frontal Lobe
- Initiation
- Problem solving
- Judgment
- Inhibition of behavior
- Planning/anticipation
- Self-monitoring
- Motor planning
- Personality/emotions
- Awareness of abilities/limits
- Organization
- Attention/concentration
- Mental flexibility
- Speaking

Temporal Lobe
- Memory
- Hearing
- Expressive and receptive language
- Comprehension of language
- Musical awareness
- Organization & sequencing skills

Parietal Lobe
- Sense of touch
- Differentiation of size, color, shape
- Spatial perception
- Visual perception

Occipital Lobe
- Visual perception and input
- Reading (perception and recognition of printed words)

Cerebellum
- Coordination
- Balance
- Skilled motor activity

Brain Stem
- Breathing
- Heart rate
- Arousal/Consciousness
- Sleep/wake functions
- Attention/concentration

(BIAA, n.d.)
A brain injury is not congenital, degenerative, hereditary, or induced by birth trauma

(Brain Injury Association of America, n.d.).
Definitions of Brain Injury

Acquired (non-traumatic) brain injury (ABI): is an injury to the brain that has occurred after birth (stroke, brain tumor, aneurysm, etc.)

Traumatic brain injury (TBI): is an insult to the brain caused by an external physical force (falling downstairs, car crash)
Examples of **Acquired Brain Injury**

- Lack of oxygen
- Stroke/aneurysms
- Infections to the brain
- Toxic exposure (substances, poison)
- Seizure
- Electric Shock
- Tumors
Examples of Traumatic Brain Injuries

- Motor Vehicle Crashes
- Falls
- Assaults/Violence
- Domestic Violence
- Sports/Recreation Injuries
- Military/Blast Injuries
- Workplace Injuries
- Acceleration/Deceleration Forces
Severity of Brain Injury

Mild  Moderate  Severe
An individual who sustains a **mild brain injury** may experience:

- Loss of consciousness up to 30 min
- Vomiting
- Dizziness
- Memory loss
- Fatigue
- Not present on imaging

A concussion is considered a mild traumatic brain injury or mTBI.
An individual who sustains a moderate brain injury will experience:

► Contusions or bleeding on/within the brain
► Be unconscious for up to 24 hours
► Signs of brain trauma
An individual who sustains a severe brain injury will experience:

- Unconscious for more than 24 hours
- Show signs of injury on neuroimaging tests
- May experience post-traumatic confusion or amnesia
Estimated 5.3 million Americans live with a disability as a result of traumatic brain injury.

(CDC, 2016)
TBI Statistics

- 586 hospitalized per day
- 190 deaths per day
- 75+ hospitalized and deaths
- 15% high-school students sustain a concussion each year

(CDC, 2022)
Leading Causes of Brain Injury

1. Falls
2. Motor vehicle crashes
3. Assaults
4. Unintentionally struck by or against an object
Brain injury is unpredictable in its consequences

Every individual is different prior to an injury

Every brain injury is different

Every person with brain injury adjusts differently to the changes that result from their injury
Effects of Brain Injury

- Physical
- Cognitive
- Emotional and behavioral
Physical Changes

► Fatigue
► Loss of smell & taste
► Hearing Loss
► Visual Problems
► Sleep disturbances
► Balance & coordination

► Slurred speech
► Motor control
► Seizures
► Decreased tolerance for drugs and alcohol
► Headaches
Cognitive Changes

- Memory loss
- Lack of initiative
- Impaired reasoning
- Visual/Perceptual Skills
- Processing and understanding
- Communication
- Attention span

- Planning/Organizing
- Completing tasks
- Diminished insight and empathy
Emotional & Behavioral Changes

► Impulsivity
► Emotional lability
► Irritability
► Decrease frustration tolerance
► Impaired judgment
► Anxiety

► Depression
► Aggressive behaviors
► Changed sexual drive
► Changed personality
four years later
What symptoms of brain injury did you notice in this clip?
Treatment

Injury severity doesn’t necessarily determine symptoms or outcome

Things might not return to the way they were before the injury

Rehabilitation can be a slow process
Long Term Impact

(BIAA, n.d.)
Psychosocial Consequences

Interpersonal Difficulties
- Establishing and Maintaining Relationships
- Intimacy/Sexuality
- Substance Use

Intra-Personal Difficulties
- Loss of Self Esteem
- Shaken Sense of Self
- Depression/Frustration
- Profound Sense of Loss
Other Interconnected Issues

Brain Injury

- Domestic Violence
- Substance Use
- Mental Health
- Justice Involvement
- Insecure Housing
# How Can You Help?

1. **Become more knowledgeable about brain injury and appropriate resources**
2. **Offer understanding and support**
3. **Provide appropriate assistance and accommodations**
Strategies

- Speak slowly
- Be concrete and break information into smaller pieces
- Encourage visual reminders & checklists
- Repeat information
Prevention Strategies

- Walk and drive safely in the community
- Use safety equipment
  - Helmet
  - Car seat/seatbelts
  - Reflectors
- Play sports according to the rules
- Exercise caution and be aware of your surroundings
Awareness & Education
Awareness & Education

Educate children
Raise awareness among those who are at risk:

- Senior citizens
- Those who use substances such as drugs/alcohol
- Victims of violence
- Those engaged in sports or risky physical labor
- Servicemembers

Use safety precautions
BIANJ Programs and Services

- Direct Services
- Education
- Prevention
- Advocacy
Direct/Support Services

- Case Management
- Helpline 1-800-669-4323
- Support Groups
- Camp TREK (Together in Recreation, Education, and Knowledge)
TBI Fund

Provides NJ residents who have survived a traumatic brain injury the opportunity to access the brain injury-related services and supports they need to live independently in the community.

To be determined eligible for services, an individual must:

- Provide medical documentation of TBI
- Be a resident of NJ
- Have liquid assets of less than $100,000
Education

- Webinars
- Workshops
- Regional Trainings
- Family FEST
Prevention & Advocacy

Prevention
- U Got Brains Champion Schools Program
- JerseyDrives webpage
- Share the Road Campaign

Advocacy
- Legislative Network
CONNECT WITH US

- facebook.com/biaofnj
- twitter.com/braininjurynj
- youtube.com/brainhealthnetwork
- instagram.com/braininjuryallianceofnj
- bianj.org
Thank You!

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