

Webcast Series: Traumatic Brain Injury (TBI) and Challenging Behavior

The Effects of TBI on Student Behavior

TBI Webcast Series

- *1. The Effects of TBI on Student Behavior
- 2. Ten Strategies for Preventing Challenging Behavior after TBI
- 3. Using FBA to Understand Challenging Behavior after TBI
- 4. Planning Interventions for Challenging Behavior after TBI



Traumatic Brain Injury Webcast Series

Sponsored by: Wisconsin Department of
Public Instruction

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University of Wisconsin Madison



Before Viewing this Webcast

- Please download the following documents which can be found at <http://dpi.wi.gov/sped/tbi.html>
 - Wisconsin TBI Criteria (PI 11.36)
 - TBI Checklist
- All names of students have been changed and identifiable situations altered to protect student confidentiality

Additional Resources to View

Level I Traumatic Brain Injury Training Modules

- Module 1: Introduction
- **Module 2: Understanding TBI**
- Module 3: Returning to School
- Module 4: Planning to Meet the Needs of Students with TBI
- Module 5: Providing Positive Behavioral Interventions
- Module 6: Supporting Students with Mild Brain Injury

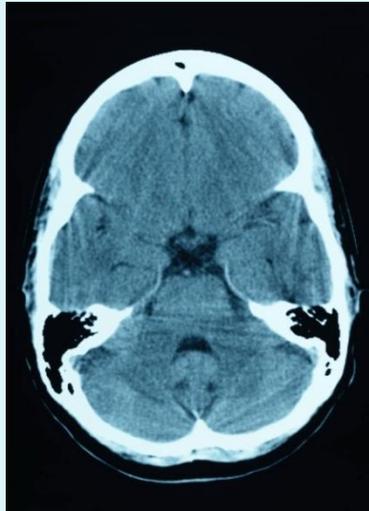
<http://www.dpi.state.wi.us/sped/tbi-trg-pres.html>

TBI and Memory Module Webcast

<http://dpi.wi.gov/sped/tbi-memory.html>

Overview of Webcast 1

- WI PI 11.36 criteria for Traumatic Brain Injury
- Types of challenging behavior after TBI
- Mechanisms and types of injury in TBI
- Common limitations after TBI that interfere with behavior



Effects of TBI on Behavior

Behavior and Social Challenges after TBI

- Are very common: Estimates of children with NEW persisting behavioral challenges after severe TBI range from 30%-70%
- Negatively influence quality of life more than cognitive or physical problems

Ylvisaker, Turkstra, Coehlo, Yorkston, Kennedy, Sohlberg, & Avery, 2007

Externalizing Behavior after TBI

- Aggression
 - Verbal and physical
- Impulsivity, disinhibition, and disruptiveness
- General non-compliance, refusal to participate
- Sexually inappropriate talk or behavior
- Uncontrolled verbal output
- Anger management problems

Ylvisaker et al., 2007

Examples of Externalizing Behavior

Joe is in the 6th grade

- Shoves other children in the lunchroom
- Fights in response to other students “kidding around”

Daniel is in the 9th grade

- Yells at his math teacher and throws his book

Internalizing Behaviors after TBI

- Most commonly include
 - Withdrawal
 - Initiation impairment
- Can be a response to anxiety and depression
- Often overlooked and underreported
 - Not judged to require immediate intervention
 - Less likely to be referred for services

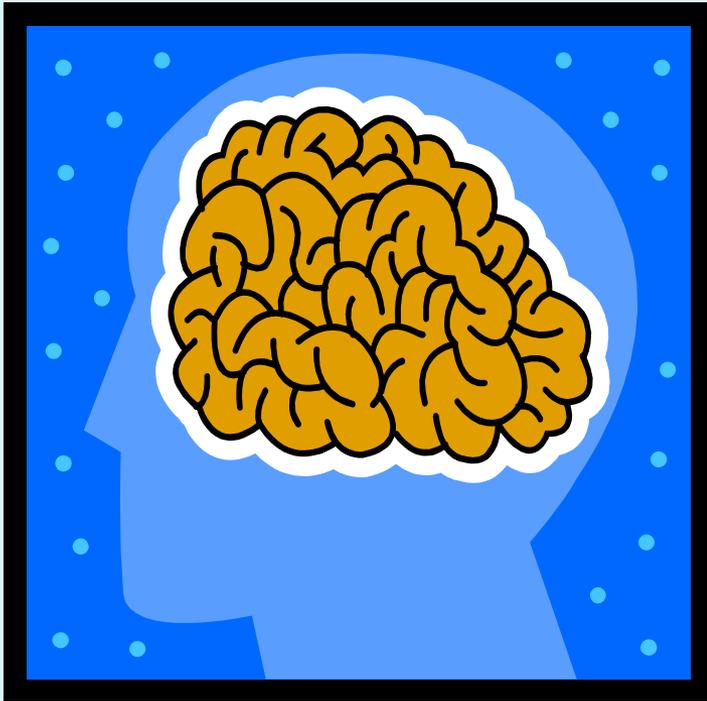
Ylvisaker et al., 2007

Examples of Internalizing Behavior

Latoya is in kindergarten

- Does not initiate or perform tasks her teachers know she can do
- Does not ask for help
- Withdraws from social situations

Effects of TBI on Student Behavior: What happens to the brain?



- The brain is a very complex organ
- It is protected by the skull, three layers of meninges, and cerebral spinal fluid
- It contains billions of neurons that communicate with each other

Types of Brain Injury

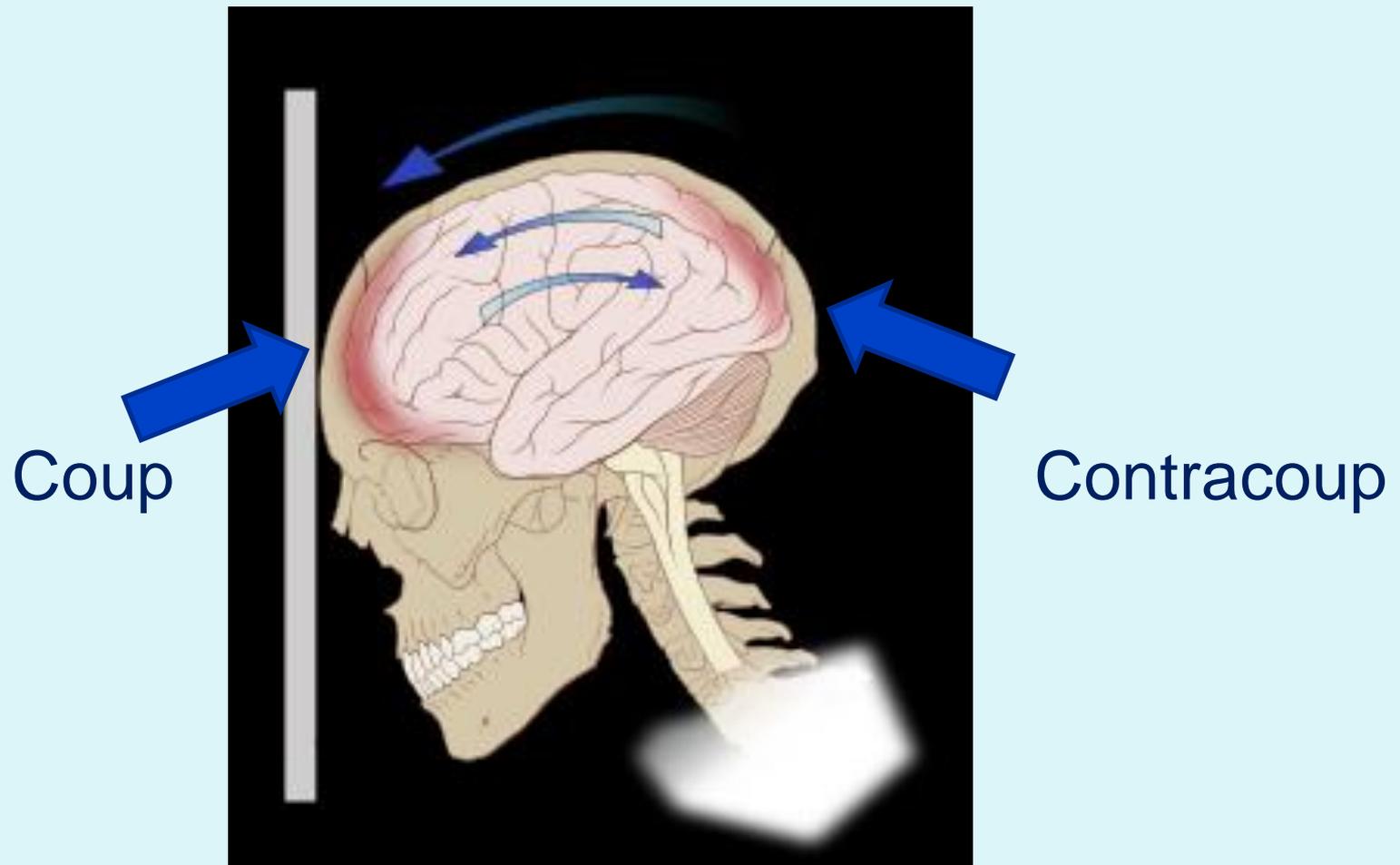
Open Head/Brain Injury

- The brain is penetrated by an external object
- Example: Maria injured while sledding

Closed Head/Brain Injury

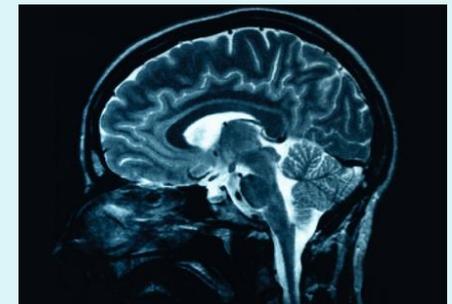
- The skull and meninges are not penetrated
- More diffuse (widespread) injuries throughout the brain
- More common than open head injuries
- Examples: Joe fell off his bike; Dan hit his head on the dashboard of his friend's car

Mechanism of Injury in Closed Head Injuries Coup/Contracoup



Why do students with closed head injuries have such diffuse damage?

- Primary effects of TBI
 - Injury to brain tissue at the site of coup and contracoup
 - Shearing and tearing of neurons throughout the brain
- Secondary effects of TBI
 - Bleeding, swelling, lack of oxygen to the brain



Factors Related to Outcome after TBI

Location of Injury

- Primary site of injury is related to deficits
- Secondary injuries may be just as harmful

Severity of Injury

- Mild, moderate, severe
- Even “mild” injuries can have lifelong effects on functioning

Support Systems

- Support systems at home and in school influence outcomes

Factors Related to Challenging Behaviors after TBI

Physical

- Fatigue
- Slow processing
 - May miss important information
- Sensory difficulties
 - Vision
 - Hearing
- Motor difficulties

Cognitive

- Memory problems*
- Executive functions*
- Short attention span
- Difficulty concentrating
- Impulsivity
- Rigidity
- Denial of deficit

Factors Related to Challenging Behaviors after TBI

Communication

- Expressive and receptive limitations
- Communication via behavior

Emotional

- Anxiety
- Depression
- Irritability
- Frustration

Social

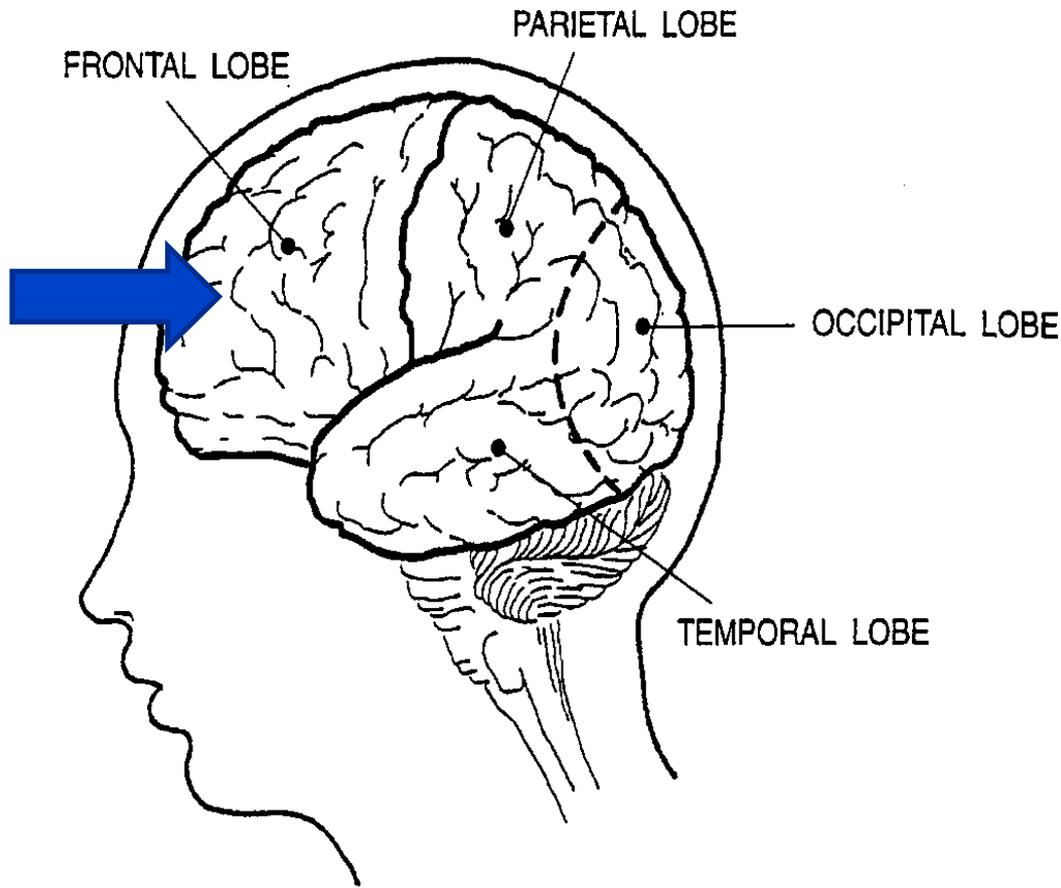
- Egocentrism
 - Can't take others' perspectives
- Impaired social perception
 - Misinterpret events
- Immature behavior

Executive Functions

The self-regulatory or control functions that direct and organize all non-reflexive or non-automatic behavior, including social, cognitive, and linguistic behavior

Ylvisaker et al, 1999

The Frontal Lobes



- Control executive functions
- Susceptible to injury
- Deficits may become apparent over time

Executive Functions Include

- Understanding of strengths and weaknesses
- Knowing what is easy/hard; ability to set realistic goals
- Planning and organizing behavior to achieve goals
- Initiating goal directed behavior
- Inhibiting inappropriate behavior
- Monitoring own behavior
- Evaluating behavior in relation to goals
- Thinking flexibly and strategically to solve problems

Ylvisaker et al, 1999

Pre-frontal Cortex Damage

- In school may interfere with
 - Complex organizational and planning tasks
 - Many tasks seem simple but require multiple skills
 - Difficulty processing abstract and indirect language
 - “Latoya, get a move on!”
 - Impaired strategic behavior under novel or stressful circumstances
 - May not be obvious in structured assessment setting
 - More obvious in complex environments like school
 - Failure to benefit from feedback

Aggression after TBI

Aggression
after TBI is
very
common

- Behavior regulation requires regulation of impulses
- Frontal lobe damage leads to aggression in response to minor provocation
- Early onset irritability/aggression are likely related to brain lesion: Mike
- Delayed onset irritability/aggression are more likely related to poor adjustment, mood disorder, frustration, increasing demands : Cindy

Ylvisaker et al., 2007

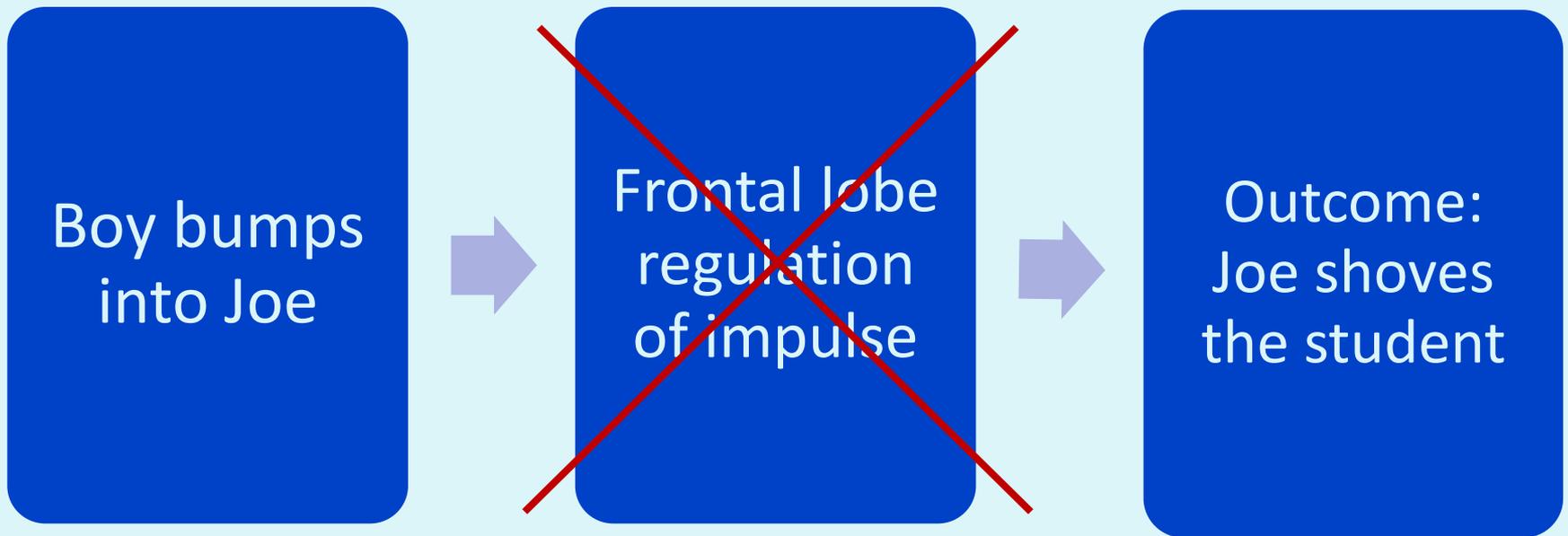
Behavioral Regulation

How the system is supposed to work



Behavioral Regulation

When the system isn't working



Memory Impairment after TBI

- Difficulties with memory are some of the most common and challenging effects of TBI
- Memory difficulties include
 - Inability to develop NEW memories
 - Limited working memory
 - Difficulty storing and retrieving information
- Memory limitations influence our interventions for challenging behavior
- TBI and Memory Module Webcast



Webcast #1: “TBI Checklist”

- Orientation and Attention to Activity
- Starting, Changing, and Maintaining Activities
- Taking in and Retaining Information
- Language Comprehension and Expression
- Visual-Perceptual Processing
- Visual-Motor Skills
- Sequential Processing
- Problem-Solving, Reasoning, and Generalization
- Organization and Planning Skills
- Impulse or Self-Control
- Social Adjustment and Awareness
- Emotional Adjustment
- Sensorimotor Skills

Implications for Intervention

Learn about the student's injury: Executive functions, memory, physical, social, emotional

Teamwork is important; include family members

Consider the student's stage of recovery:
Student may not be able to control behavior

Early intervention is critical: Prevent behaviors from being functional

Respond to changing needs as student recovers

Effects of TBI on Student Behavior

Early and effective
intervention following
brain injury helps
prevent the increase
of challenging
behavior

- Feeney & Ylvisaker, 2008

Next Webcasts in This Series

1. The Effects of TBI on Student Behavior
- *2. Ten Strategies for Preventing Challenging Behavior after TBI
 - Matching strategies to student's stage of recovery
 - Using proactive strategies to prevent challenging behavior
- *3. Using FBA to Understand Challenging Behavior after TBI
 - Understanding Functional Behavioral Assessment (FBA)
 - Identifying factors that trigger and maintain challenging behavior
- *4. Planning Interventions for Challenging Behavior after TBI
 - Designing effective interventions to reduce challenging behavior after TBI

Questions or Comments?

- Address questions or comments to:

sandra.corbett@dpi.wi.gov

- For references cited in this webcast series, see Webcast #4