

Aging, Disability and Acquired Brain Injury

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Ohio Brain Injury Program

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Objectives

At the conclusion participants will:

1. ...be able to list the most common sources of acquired brain injury.
2. ... be able to describe how the impact to certain parts of the brain affects independence and response to treatment.
3. ...know how to screen for a history of brain injury in persons they serve.

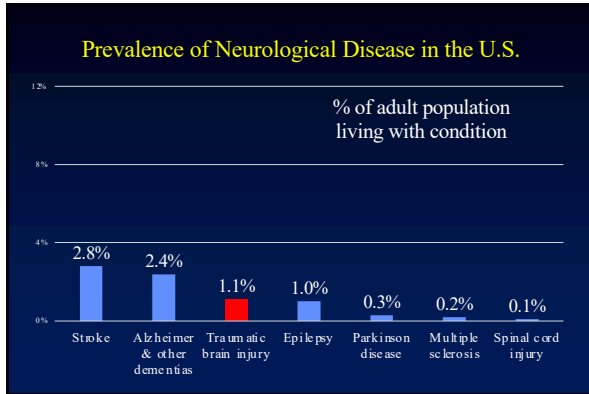
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What is Acquired Brain Injury

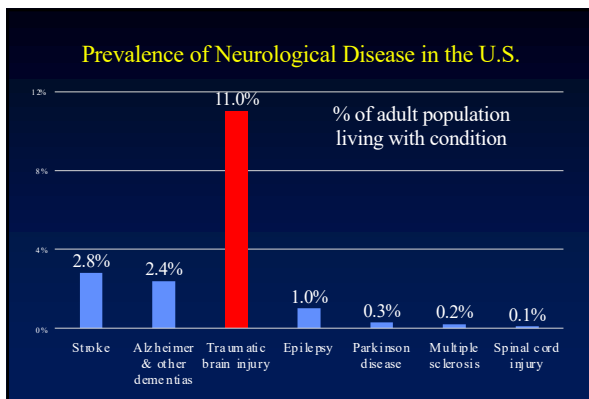
An acquired brain injury (ABI) is an injury to the brain that is not hereditary, congenital, degenerative, or induced by birth trauma:

- Traumatic brain injury (TBI)
- Cerebrovascular Accident (CVA; e.g., stroke, TIA, aneurysm)
- Tumors
- Anoxic/hypoxic brain injury (e.g., respiratory arrest [including opioid overdose], heart attack, drowning)
- Infections & encephalopathies
- Poisoning (e.g., drugs, metals, toxins)

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Why is TBI important for aging and disability populations?

1. Earlier TBI is related to later life falls & dementia.
2. Some younger people with more severe TBI do well initially but decline in function with time, requiring more supports to remain independent.
3. People with primary disabilities other than TBI also have experienced TBIs, some of which can affect their success living in the community.

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Ohio Department of Health/CDC Behavioral Risk Factors Surveillance System (BRFSS)

- 110,000 non-institutionalized adults in Ohio report they:
 - currently have a disability
 - have had at least one moderate or severe TBI in their lifetime
- 3.5 times more likely to have a disability with a history of moderate or severe TBI

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Ohio Benefits LTSS Questionnaire

- a. Thinking about any injuries you have had in your lifetime, were you ever knocked out or did you lose consciousness? ____ Yes ____ No (IF NO, STOP HERE)
- b. What was the longest time you were knocked out or unconscious? (Choose just one; if you are not sure please make your best guess.)
____ knocked out or lost consciousness for *less than 30 min*
____ knocked out or lost consciousness *between 30 min and 24 hrs*
____ knocked out or lost consciousness for *24 hrs or longer*
- c. How old were you the first time you were knocked out or lost consciousness? ____ years old

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**OBLTSS Questionnaire
October 2017-February 2021**

- 53,000 callers given screening questions
- 10.4% of those asked had experienced at least 1 TBI with loss of consciousness sometime in their life
- 2.8% of those asked had experienced at least 1 moderate or severe TBI in their lifetime
 - > 4 callers per day have a history of TBI with loss of consciousness*
 - >1 caller per day had at least 1 moderate or severe TBI in their lifetime*

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How Representative?

	21-59 years old		60+ years old	
	Mild TBI	Mod/Severe	Mild TBI	Mod/Severe
Ohio BRFSS	13.3%	3.1%	9.0%	3.3%
Ohio LTSSQ				

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Re-cap

- Acquired brain injury (ABI) occurs after birth and is not degenerative
- While stroke often thought of as most common, traumatic brain injury (TBI) affects more people
- Recent pandemics (opioids, COVID-19) impart brain damage due to anoxia/hypoxia
- While strokes and tumors have focal effects on the brain, TBI, anoxia/hypoxia, infections and poisoning have diffuse effects that leave a specific fingerprint

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Traumatic Brain Injury (TBI)

“...an insult to the brain caused by an external force that results in an altered state of consciousness and one or more impairments of brain functioning. Effects may be temporary or permanent.”

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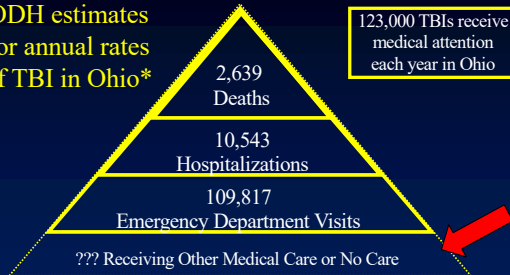
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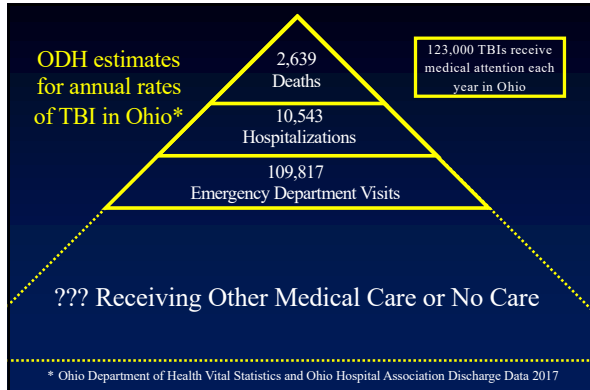
ODH estimates for annual rates of TBI in Ohio*



* Ohio Department of Health Vital Statistics and Ohio Hospital Association Discharge Data 2017

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ODH estimates for annual rates of TBI in Ohio*



* Ohio Department of Health Vital Statistics and Ohio Hospital Association Discharge Data 2017

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Poll Question*

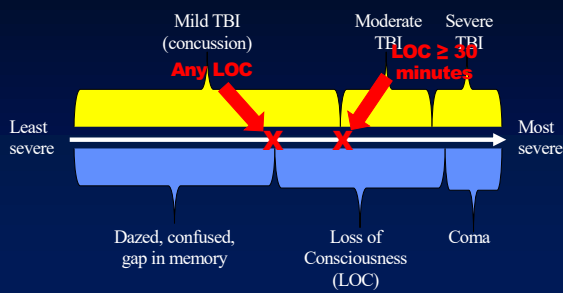
TBI is...

- A. A life altering injury for survivors and their families, profoundly impacting the patient's functional status.
- B. A very common injury that is essentially inconsequential to the individual's functional status following recovery.
- C. Both A and B and everywhere in between.

*Thanks D. Arciniegas & H. Wortzel for this slide

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Continuum of TBI Severity



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Not Just Severity of Injury


- Cumulative effects from multiple TBIs
– number and/or spacing?

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TBI due to Blasts—the “signature injury” of combat in Iraq and Afghanistan



- Can blast forces alone cause mild TBI?
- If so, is it the same pathology as TBI caused by mechanical forces?
- What about multiple blasts?

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Groups Who May Have Multiple Mild TBI's

- Military personnel, particularly those with combat deployment in OEF/OIF
- Athletes, particularly boxers, football players & hockey players
- Victims of intimate partner violence and childhood physical abuse
- People who misuse and abuse substances
- Other vulnerable populations (e.g., psychiatric disorders, homeless, inmates)

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Not Just Severity of Injury

- Cumulative effects from multiple TBIs
 - number and/or spacing?
- Age at injury
 - childhood but also with normal aging
- How recent
- When combined with other neurological conditions

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Re-cap

- TBI occurs when an external force causes an alteration in consciousness
- Effects can be temporary or permanent
- Range from mild to severe
- A concussion is a mild TBI
- Mild TBIs may have cumulative effects or interact with normal development

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What are the effects of TBI?

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Long-Term Consequences of Mild TBI 2009 Institute of Medicine Report

- Depression*
- Aggression*
- Post-concussive symptoms*
- Completed suicide
- PTSD (combat acquired only)
- Progressive dementia (with LOC only)
- Parkinsonism (with LOC only)
- Ocular & visual motor disturbances
- Unprovoked seizures

* Highest evidence of an association

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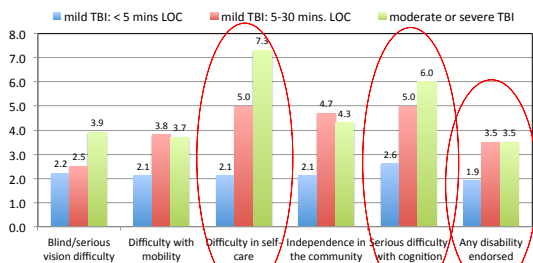
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Adjusted Odds* of **Disability** by Severity of Worst Lifetime TBI



*Compared to Ohioans with no TBI with loss of consciousness, adjusted for age, gender and race/ethnicity

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State of Ohio (Corrigan et al., 2017; Yi et al., 2018; Manchester et al., 2020; Bogner et al., 2020)

Lifetime history of TBI with loss of consciousness

- More likely to **have a disability** (AOR=2.5)
- More likely to **have fair or poor general health** (AOR=2.0)
- More likely to **sleep < 7 hours per night** (AOR=1.5)
- More likely **diagnosed with a chronic disease** (AOR=2.0)
- More likely **depression in one's lifetime** (AOR=2.1)
- More **days of poor mental health** (AOR=2.0)
- More likely to **binge drink** (AOR=1.5)
- More likely to engage in **heavy drinking** (AOR=1.7)
- More likely to **smoke cigarettes** (AOR=1.7)

*Adjusted for sex, age and race/ethnicity

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Lifetime History of TBI:	Any TBI	TBI with LOC	Mod/Severe TBI
General population of adults (Whiteneck et al.; **3-state average)	43%*	23%**	4%**

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Prisoners (*Shrioma et al.; **Bogner & Corrigan)	60%*	50%*	14%**

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Homeless (Hwang et al.; **Bremner et al., Soliday-McRoy et al.)	53%*	47%**	12%*

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Contents lists available at ScienceDirect

Addictive Behaviors

ELSEVIER journal homepage: www.elsevier.com/locate/addictbeh

Commentary

The intersection of lifetime history of traumatic brain injury and the opioid epidemic

John D. Corrigan^a, Rachel Sayko Adams^{b,*}

Persons with TBI more likely prescribed opioids

- Headache and orthopedic pain common with TBI
- Persons with persistent post-concussive syndrome more likely prescribed opioids
- 70% of patients receiving rehabilitation for TBI prescribed opioids

Persons with TBI more susceptible to addictive influence of opioids

Persons with TBI have more challenges for successful treatment

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Suicide and Prior History of TBI

- Swedish mortality N=2.6 M (Fazel et al., 2014)
 - prior TBI vs same sex & age (AOR=3.3)
 - prior TBI vs uninjured siblings (AOR=2.3)
- Danish suicides N=7.4 M (Madsen et al., 2018)
 - prior TBI vs same sex, age & era (IRR=2.6)
 - prior severe TBI vs same sex, age & era (IRR=3.4)
- U.S. suicides N=270,074 (Ahmedani et al., 2018)
 - prior TBI vs same sex, age, psychiatric dx & SUD (AOR=8.8) [the highest of all co-morbid conditions]

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COVID-19 and Brain Injury

- Exposure
 - Lower SES communities
 - Congregate living: jails & prisons, nursing homes
- Vulnerability to greater illness
 - Pre-existing poorer health & chronic conditions
 - Selection factors when resources limited
- Shutdown related issues
 - Loneliness: “Welcome to my world”
 - Telehealth: remoteness, cost, complexity
- Secondary (if not primary?) damage to brain

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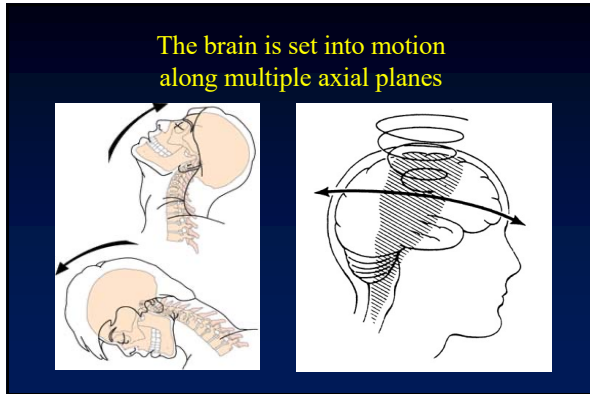
Why is TBI be associated with behavioral problems?

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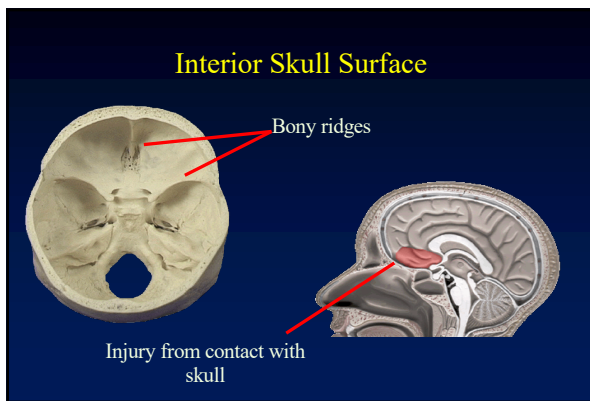
The “Fingerprint” of TBI

Frontal areas of the brain, including the frontal lobes, are the most likely to be injured as a result of TBI, regardless the point of impact to the head

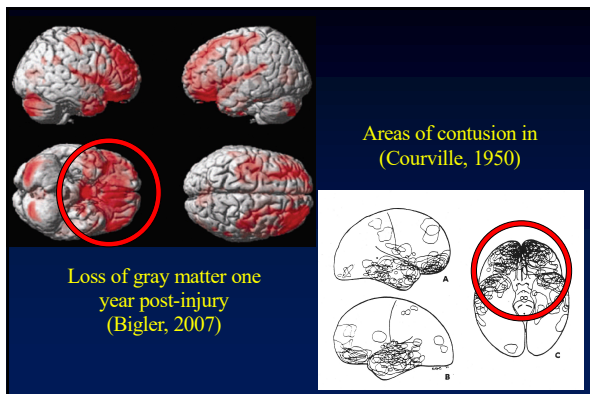
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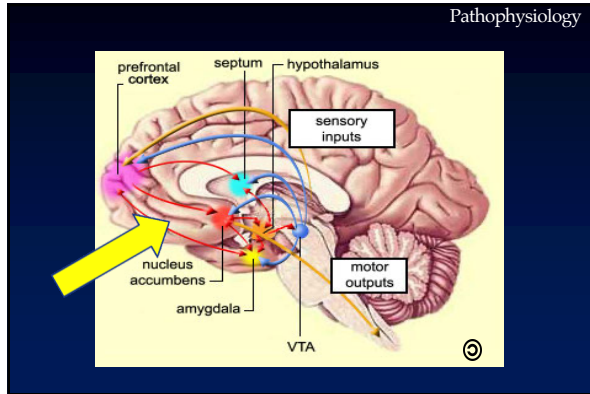
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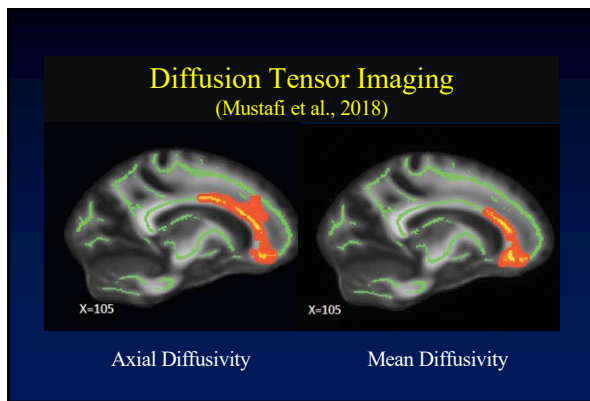
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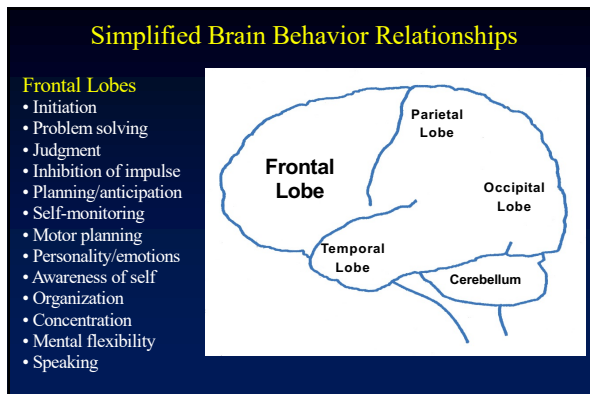
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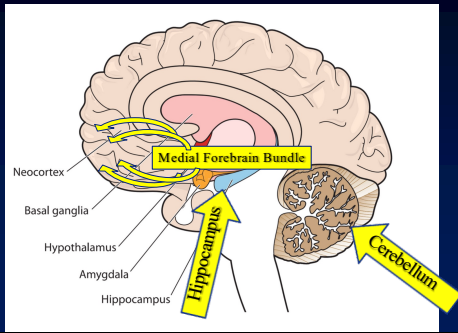


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Anoxic/Hypoxic Damage & Other Diffuse Effects



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Brief Re-cap

- Regardless where the impact is on the head, the frontal lobes are most likely injured in TBI
- Anoxic/hypoxic and other diffuse brain injuries also affect functions of the frontal lobes
- Frontal lobes are critical to behavioral control and, in turn, success in society
- Greater impulsivity and disinhibition may result from changes in how rewards and consequences are processed

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Whether working in mental health, substance abuse, aging & disability, criminal justice or other service systems, it is worthwhile to know whether the person you are working with has had a TBI.

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How can you determine if a person has had a TBI?

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Issues Detecting a Lifetime History of TBI

- Capture from medical encounters
 - medical treatment often may not be sought
 - lifetime records not available
 - mild TBI often missed in Emergency Departments
- Biomarkers
 - imaging, neuropsych assessment specific but not sensitive
 - proteomics very acute only and sensitive but not specific
- Retrospective self-report 
 - cannot self-diagnose
 - not aware of injury (“telescoping,” poor memory, too young)

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Selected Methods of Eliciting Self-report

- TBI-TAC identified 20 different tools being used
- DVVIC Brief TBI Screen (BTBIS; Schwab et al.)
- TBI Questionnaire (TBIQ; Diamond et al.)
- Brain Injury Screening Questionnaire (BISQ; Gordon et al.)
- OSU TBI Identification Method (OSU TBI-ID; Corrigan & Bogner)
- Boston Assessment of Traumatic Brain Injury Lifetime (BAT-L; Fortier et al.)

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Initial Reliability and Validity of the Ohio State University TBI Identification Method
John D. Corrigan, PhD; Jennifer Bogner, PhD

Reliability and Predictive Validity of the Ohio State University TBI Identification Method With Prisoners
John D. Corrigan, PhD; Jennifer Bogner, PhD

The Reliability of a Computer-Assisted Telephone Interview Version of the Ohio State University Traumatic Brain Injury Identification Method
Jeffrey P. Calkins, PhD, MPH, MSOT; Gale G. Whitnack, PhD; John D. Corrigan, PhD

Test-Retest Reliability of Traumatic Brain Injury Outcome Measures: A Traumatic Brain Injury Model System Study

Feasibility and Preliminary Validation of an Online Version of the Ohio State University Traumatic Brain Injury Identification Method

Archives of Physical Medicine and Rehabilitation

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Altered amygdala connectivity in individuals with chronic traumatic brain injury and comorbid depressive symptoms
Disrupted Intrinsic Connectivity among Default, Dorsal Attention, and Frontoparietal Control Networks in Individuals with Chronic Traumatic Brain Injury

Neurological correlates of lifetime history of TBI from the OSU TBI-ID

Plasma Anti-Glial Fibrillary Acidic Protein Autoantibody Levels during the Acute and Chronic Phases of Traumatic Brain Injury: A Transforming Research and Clinical Knowledge in Traumatic Brain Injury Pilot Study
Mean cortical curvature reflects cytoarchitecture restructuring in mild traumatic brain injury

Orbitofrontal cortical thinning and aggression in mild traumatic brain injury patients
MRI-based measures of intracortical myelin are sensitive to a history of TBI and are associated with functional connectivity

Kevin K. Avra M. Puc
Alex B. Valadk
Jace B. King^{abc,*}, Melissa P. Lopez-Larson^{cd}, Deborah A. Yurgelun-Todd^{bc,de},
in K. Sinha^f, and Mary J. Vassar

Daniel J. Epstein^{1,2,3} | Margaret Legarreta^{2,3} | Elliot And⁴ and are associated with functional connectivity
Erin McGlade^{2,3,4} | Deborah Yurgelun-Todd^{1,2,3,4}
Ruq M. Gordon^{abc,*}, Geoffrey J. May^{abcd}, Steven M. Nelson^{abcd}

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OSU TBI Identification Method

- Structured interview designed to elicit lifetime history of TBI.
- Avoids misunderstanding about what a TBI is by eliciting injuries, then determining if altered consciousness occurred.
- Provides more information than simple “yes/no”

Training at: wexnermedical.osu.edu/TBIScreen

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Traumatic Brain Injury Identification Method

A Tool for Health Care and Social Service Professionals

Wexner Medical Center

Ohio Valley Center for Brain Injury Prevention and Rehabilitation
Department of Physical Medicine and Rehabilitation
The Ohio State University

Presentation produced in partnership with BrainLine, a project of WETA

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Name: _____ Current Age: _____ Interviewer Initials: _____ Date: _____

Ohio State University TBI Identification Method — Interview Form

Step 1
Ask questions 1-5 below. Record the dates of most reported injury events and identify the most significant event to the interviewee of this injury. This event should be used for charting date of consciousness or other related events during this step.

I am going to ask you about injuries to your head or neck that you may have had anytime in your life.

1. In your lifetime, have you ever been hospitalized or treated in an emergency room following an injury to your head or neck? Think about any childhood injuries you remember or were told about.
 Yes—Record cause in chart
 No

2. In your lifetime, have you ever injured your head or neck in an accident or from something some other moving vehicle like a bicycle, motorcycle or ATV?
 Yes—Record cause in chart
 No

3. In your lifetime, have you ever injured your head or neck in a fall or from being hit by something, like a baseball, falling from a ladder or horse, rebar/bulldozing, falling on ice, being hit by a rock? Have you ever injured your head or neck playing sports or on the playground?
 Yes—Record cause in chart
 No

4. In your lifetime, have you ever injured your head or neck in a fight, from being hit by someone, or from being shaken violently? Have you ever been shot in the head?
 Yes—Record cause in chart
 No

5. In your lifetime, have you ever been nearby when an explosion or blast occurred? If you served in the military, think about any combat or training-related incidents.
 Yes—Record cause in chart
 No

Interviewer Instructions:
If the answer to any of the above questions are “yes,” go to Step 2. If the answer to all of the above questions are “no,” then proceed to Step 3.

Step 2
Interviewer Instructions: If the answer is “yes” to any of the questions in Step 1, ask the following questions and record each reported injury and date details in the chart below.

When you knocked out or did you lose consciousness (LOC)?
If yes, how long?
If no, were you dazed or did you have a gap in your memory from the injury?
How old were you?

Step 3
Interviewer Instructions: Ask the following questions to help identify a history that may include repeated TBI, and complete the chart below.

Have you ever had a period of time in which you experienced multiple, repeated impacts to your head (e.g. history of abuse, contact sports, military duty)?
If yes, when was the typical or most recent event—were you knocked out (Loss of Consciousness—LOC)?
If no, were you dazed or did you have a gap in your memory from the injury?
What was the most serious affect from one of the times you had an impact to the head?
How old were you when these repeated injuries began? Ended?

Cause	Step 1			Step 2			Dazed/Memory Gap	Age
	No LOC	< 30 min	> 30 min	LOC	LOC	LOC		

Cause of repeated injury	Typical Effect		Most Severe Effect		Age
	Number of Inj.	LOC	LOC	LOC	

Adapted with permission from the Ohio State University TBI Identification Method (Corrigan, J.D., Binger, J.A., 2005). Initial reliability and validity of the OSU TBI Identification Method. J Head Trauma Rehabil. 20(6):378-395. © Copyright 2005. The Ohio State University Center for Brain Injury Prevention and Rehabilitation.

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Why is Screening Important?

Individuals with a history of TBI are more likely to:

- Struggle with current life stressors
- Have difficulty adapting to new situations
- Have problems following through on recommendations from health care providers




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Conducting the Interview: Step 2: Elicit Injury Details

The goal of Step 2 is to elicit further details about injuries to the head or neck and to determine if there was a loss of consciousness.

In Step 2, probe and record details including age, loss of consciousness, and memory gaps for each injury. It is important to ask the question and record information separately for each injury in Step 1.

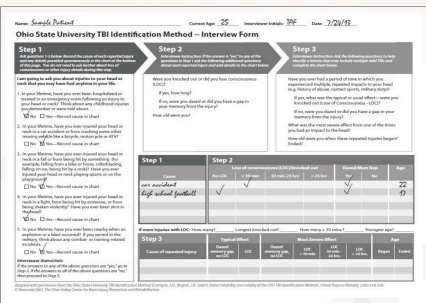


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Conducting the Interview: Step 2: Elicit Injury Details

At this point in the interview, your form should look like this:



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OSU TBI-ID: Step 1

5 Questions:

The goal of these questions is to help recall injuries to the head or neck by reminding the respondent about hospital visits and probing for common causes of TBI.

Do not be concerned about whether a TBI occurred, only if it was possible.

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Name: _____ Current Age: _____ Interviewer Initials: _____ Date: _____

Ohio State University TBI Identification Method — Interview Form

Step 1
All persons 17 and older, around the country, are invited to complete this survey. The survey is designed to help researchers learn more about the characteristics of people who have had injuries to the head or neck. Your information will be kept confidential and used only for research purposes.

I am going to ask you about injuries to your head or neck that you may have had anytime in your life.

1. In your lifetime, have you ever been hospitalized or treated in an emergency room following an injury to your head or neck? Think about any childhood injuries you remember or were told about.
 No Yes—Record cause in chart

2. In your lifetime, have you ever injured your head or neck in a car accident or from crashing into a other moving vehicle like a bicycle, motorcycle or ATV?
 No Yes—Record cause in chart

3. In your lifetime, have you ever injured your head or neck in a fall or from being hit by something, for example, falling from a table or horse, roller coaster, falling on ice, being hit by a rock? Have you ever injured your head or neck playing sports or on the playground?
 No Yes—Record cause in chart

4. In your lifetime, have you ever injured your head or neck in a fight, from being hit by someone, or from being beaten violently? Have you ever been shot in the head?
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5. In your lifetime, have you ever been nearly when an explosion or blast occurred? If you served in the military, think about any combat or training-related incidents.
 No Yes—Record cause in chart

Interviewer instruction:
If the answer to any of the above questions are "yes," go to Step 2. If the answer to all of the above questions are "no," then proceed to Step 3.

Step 2
Interviewer instruction: If the answer is "Yes" to any of the questions in Step 1, ask the following questions. Record answers on the interview report form and enter dates on the chart below.

When you knocked out or did you lose consciousness (LOC)?
If yes, how long?
If no, were you dazed or did you have a gap in your memory from the injury?
How old were you?

Step 3
Interviewer instruction: Ask the following questions. Only record answers if they apply. Do not check "no" if you skip the other boxes.

Have you ever had a period of time in which you experienced multiple, repeated impacts to your head (e.g. history of abuse, contact sports, military duty)?
If yes, what was the typical or usual effect—were you knocked out (Loss of Consciousness - LOC)?
If no, were you dazed or did you have a gap in your memory from the injury?
What was the most severe affect from one of the times you had an impact to the head?
How old were you when these repeated injuries began? Ended?

Cause	Step 2			Dazed/Mem Gap		Age
	No LOC	Less of consciousness (LOC)/knocked out	LOC	Yes	No	
		< 30 min	30 min-24 hrs	> 24 hrs		

If more injuries with LOC: How many? _____ Longest knocked out? _____ How many ≥ 30 mins? _____ Youngest age? _____

Cause of repeated injury	Typical Effect		Most Severe Effect			Age		
	Dazed/memory gap, no LOC	LOC	Dazed/memory gap, no LOC	LOC < 30 min	LOC 30 min-24 hrs	LOC > 24 hrs	Began	Ended

Adapted with permission from the Ohio State University TBI Identification Method (Corrigan, J.D., Beggs, J.A. 2005). Initial reliability and validity of the OSU TBI Identification Method. J Head Trauma Rehabil. 23(6):319-325. © Copyright 2012. The Ohio State University Center for Research and Prevention of Traumatic Brain Injury.

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Step 1	Step 2						
Cause	Less of consciousness (LOC)/knocked out			Dazed/Mem Gap		Age	
	No LOC	< 30 min	30 min-24 hrs	> 24 hrs	Yes	No	
fall off of bike--ER car crash 1st husband hit me							

If more injuries with LOC: How many? _____ Longest knocked out? _____ How many ≥ 30 mins? _____ Youngest age? _____

Cause of repeated injury	Typical Effect		Most Severe Effect			Age		
	Dazed/memory gap, no LOC	LOC	Dazed/memory gap, no LOC	LOC < 30 min	LOC 30 min-24 hrs	LOC > 24 hrs	Began	Ended

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OSU TBI-ID: Step 2

Determine if a TBI occurred

Were you knocked out or did you lose consciousness (LOC)?

- If yes, how long?
- If no, were you dazed or did you have a gap in your memory from the injury?

How old were you?

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Step 1		Step 2				Age		
Cause	Loss of consciousness (LOC)/knocked out				Dazed/Mem Gap		Age	
	No LOC	< 30 min	30 min-24 hrs	> 24 hrs	Yes	No		
fell off of bike--ER car crash	X				X		9	
1 st husband hit me		X	X				14 early 20's	
If more injuries with LOC: How many? _____		Longest knocked out? _____		How many ≥ 30 mins? _____		Youngest age? _____		
Step 3		Typical Effect		Most Severe Effect			Age	
Cause of repeated injury	Dazed/ memory gap, no LOC	LOC	Dazed/ memory gap, no LOC	LOC < 30 min	LOC 30 min- 24 hrs.	LOC > 24 hrs.	Began	Ended

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OSU TBI-ID: Step 3

Determine if there were any periods with repeated blows to the head

Have you ever had a period of time in which you experienced multiple, repeated impacts to your head (e.g., history of abuse, contact sports, military duty)?

- If yes, what was the typical or usual effect—were you knocked out (Loss of Consciousness–LOC)?
- If no, were you dazed or did you have a gap in your memory from the injury?

What was the most severe effect?

How old were you?

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Step 1		Step 2						Age	
Cause		Loss of consciousness (LOC)/knocked out				Dazed/Mem Gap			
		No LOC	< 30 min	30 min-24 hrs	> 24 hrs	Yes	No		
fall off of bike--ER car crash		X				X		9	
1 st husband hit me			X					14	early 20's

If more injuries with LOC: How many? _____ Longest knocked out? _____ How many > 30 mins.? _____ Youngest age? _____

Step 3		Typical Effect		Most Severe Effect				Age	
Cause of repeated injury		Dazed/ memory gap, no LOC	LOC	Dazed/ memory gap, no LOC	LOC < 30 min	LOC 30 min- 24 hrs.	LOC > 24 hrs.	Began	Ended
		1 st husband hit me		X			X		

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Interpreting Findings

Key Considerations: Problematic Lifetime Exposure

A person may be more likely to have ongoing problems if they have any of the following:

- WORST**
One moderate or severe TBI
- FIRST**
TBI with loss of consciousness before age 15
- MULTIPLE**
Had 2 or more TBIs close together, including a period of time when they experienced multiple blows to the head
- RECENT**
A mild TBI in recent weeks or a more severe TBI in recent months
- OTHER SOURCES**
Any TBI combined with another way that their brain function has been impaired

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✓ Worst was a moderate TBI
 ✓ First with loss of consciousness before 15 years old
 ✓ Had a period of multiple blows to the head

Step 1		Step 2						Age	
Cause		Loss of consciousness (LOC)/knocked out				Dazed/Mem Gap			
		No LOC	< 30 min	30 min-24 hrs	> 24 hrs	Yes	No		
fall off of bike--ER car crash		X				X		9	
1 st husband hit me			X					14	early 20's

If more injuries with LOC: How many? _____ Longest knocked out? _____ How many > 30 mins.? _____ Youngest age? _____

Step 3		Typical Effect		Most Severe Effect				Age	
Cause of repeated injury		Dazed/ memory gap, no LOC	LOC	Dazed/ memory gap, no LOC	LOC < 30 min	LOC 30 min- 24 hrs.	LOC > 24 hrs.	Began	Ended
		1 st husband hit me		X			X		

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Red Flags

- WORST: One moderate or severe TBI
- FIRST: TBI with loss of consciousness in childhood
- MULTIPLE: 2 or more TBIs close together, including a period of time when they experienced multiple blows to the head
- RECENT: A mild TBI in the last weeks or a more severe TBI in the last months
- OTHER SOURCES: Any TBI combined with another way that their brain function has been impaired

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Ohio Benefits LTSS Questionnaire

- a. Thinking about any injuries you have had in your lifetime, were you ever knocked out or did you lose consciousness? ____ Yes ____ No
(IF NO, STOP HERE)
- b. What was the longest time you were knocked out or unconscious?
(Choose just one; if you are not sure please make your best guess.)
____ knocked out or lost consciousness for *less than 30 min*
____ knocked out or lost consciousness *between 30 min and 24 hrs*
____ knocked out or lost consciousness for *24 hrs or longer*
- c. How old were you the first time you were knocked out or lost consciousness? ____ years old

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Red Flags

- WORST: One moderate or severe TBI
- FIRST: TBI with loss of consciousness in childhood
- Also, could add questions to get at anoxic/hypoxic ABI as well other diagnosed sources of brain impairment.

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Problematic History of Brain Injury

Person may have difficulty:

- accessing services
- remaining engaged in services
- knowing what supports are needed
- consistently using supports

due to barriers created by cognitive and/or behavioral weaknesses that result from damage to the frontal lobes of the brain.

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Accommodating the Symptoms of TBI

Presented by:

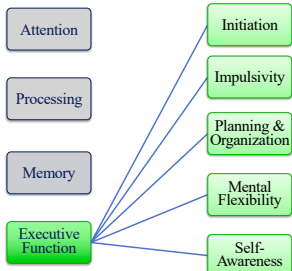
Ohio Valley Center for Brain Injury
Prevention and Rehabilitation

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Neurocognitive Functions



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Problem = Processing

The time it takes to think through and understand new information or concepts can be affected when a person has had a TBI. This does not mean they cannot understand – they may just need more time to understand.

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What to Look For

Is PROCESSING a problem?

- Only picks up a portion of instructions or conversations
- Has difficulty keeping up with a conversation
- May tire easily
- May appear to "zone out"
- May appear passive or unmotivated
- Is sometimes referred to as "lazy"

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Accommodating Problems with Processing

- Keep it Simple**
 - It's easy for someone with processing problems to get lost in a conversation. Simplify information and provide one idea or task at a time
- Check In**
 - Frequently check for understanding by asking the person to repeat back instructions or ideas
- Slow it Down**
 - Make sure to provide sufficient time for the person to process and respond. Count silently to yourself after asking a question to allow extra time for the person to process the question

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RESOURCES

Ohio Brain Injury Program

OSU TBI-ID Training: } <<http://wexnermedical.osu.edu/ovcprofessionals>>
Accommodating TBI: }
Ask the Expert & Frequently Asked Questions: <http://about-tbi.org>
Case consultation: OhioBrainInjury@osumc.edu or 614-366-3877

Brain Injury Association of Ohio

Helpline: (800) 444-6443 (toll-free)
Website: www.biaoh.org

Other Informative Websites

Ohio Brain Injury Program: ohiobraininjury.org
WETA Brainline: www.brainline.org

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New Program Coming Soon!!!

Ohio Brain Injury Connection
“Person-centered resource facilitation”
Virtual
Statewide
Free

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Phases of Engagement

1. Why calling (presenting goal/request, r/o crisis)
2. Identify lifetime history of brain injury
3. Engage in “Lifeline” exploration of the role of brain injuries in their life
4. Elicit remainder social and medical history
5. Identify accommodations
6. Assist in articulating short- and long-term plan (including the role of the program in that plan)
7. Identify brain health opportunities

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Implications for AAAs

- Train staff—what is a acquired brain injury, how to screen, how to accommodate
- Screen—use the LTSSQ screening data or establish own procedure for routine screening
- Collaborate—work with the Ohio Brain Injury Program and the Brain Injury Association of Ohio for programmatic improvement and individual case consultation

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THANK YOU

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