One area of need among OEF/OIF Veterans is related to TBI and co-occurring mental health concerns. Military personnel serving in Iraq and Afghanistan are sustaining injuries while deployed (Terrio et al. 2009).

In fact, TBI has been identified as a “signature injury” of the recent conflicts (Tanielian and Jaycox, 2008).

Additionally, this cohort is reporting a variety of psychiatric symptoms as well, including those associated with posttraumatic stress disorder (PTSD), depression (Tanielian and Jaycox, 2008), and substance use disorder (Seal et al., 2011).
Sports as a Laboratory Assessment Model (SLAM) 2001

**CONCUSSIONS HAPPEN IN SPORTS**

DANGEROUS GAMES

Although football may be the one in high school programs, other sports have their risks. Some are even more significant and preventable.

- **Mitigating factors?**
- **Treatment implications**
- **TBI courts**
- **Mental Health Courts**
- **Problem-Solving courts**

**WHAT IS THE TREND TELLING US?**

- Can't vs. Won't

**HOW DOES NEUROLOGICAL INJURY OR INSULT DERAILED LEARNING, EF AND BEHAVIOR?**

**1. PRE-SUPPOSING HEALTHY PRE-NATAL DEVELOPMENT ... WE STILL HAVE MATURATION TO CONSIDER**

CHART 2:

![Chart showing developmental milestones](image-url)
2A. POST-BIRTH TRAUMATIC BRAIN INJURY

Leading Causes of TBI

- Motor vehicle 14.3%
- Motor vehicle 14.3%
- Struck by/against 19.5%
- Fall 48.5%
- Other 19.0%
- Other 19.0%

2B. POST-BIRTH NON-TRAUMATIC INJURY

- Illness (e.g., high fever)
- Infections (e.g., meningitis, encephalitis)
- Anoxic injuries (lack of oxygen; e.g., airway obstruction, near drowning)
- Stroke or vascular accident (lack of blood flow)
- Brain tumors
- Poisoning (e.g., ingestion, inhalation) – Substances?
- Metabolic disorders (e.g., insulin shock)

4. BIO-CHEMICAL

5. EVOLUTION OF THE BRAIN
By age 25:
- Those hospitalized with 1st TBI before age 6, 3 times more likely to have a diagnosis of either alcohol or drug dependence
- Those hospitalized with 1st TBI 16-21, 3 times more likely to be diagnosed with drug dependence
- TBI highly associated with likelihood of arrest

In a meta-analysis, Shiroma (2010) found 60% of inmates report having experienced a head injury or TBI as compared to 8.5% in a general population reporting a history of TBI.

Prisoners who have had head injuries may also experience mental health problems such as severe depression and anxiety, substance use disorders, difficulty controlling anger, or suicidal thoughts and/or attempts.

Studies of prisoners' self-reported health indicate that those with one or more head injuries have significantly higher levels of alcohol and/or drug use during the year preceding their current incarceration.

Violence is one of the leading causes of brain injury in the United States
- The CDC estimates that at least 150,000 brain injury deaths, hospitalizations, and ED visits are related to assault annually.
- Of women reporting to emergency rooms for injuries associated with domestic violence:
  - 58% reported a loss of consciousness at least once
  - 67% reported residual problems that were likely brain injury related (Corrigan, 2003)
- Another study polled 99 battered women:
  - 75% reported sustaining at least 1 partner-related brain injury
  - 50% sustained multiple injuries (Valera, 2003)
AND IF YOU WORK WITH KIDS...

- Early experiences effect the “architecture” of the developing brain.
- Building a solid foundation in the earliest years provides a base for a lifetime of good mental function and overall health.
- Eustress – good stress (e.g., communication, touch, signing, safety, support, meeting new people, studying for a test)
- Distress – toxic stress (e.g., neglect, abuse, parental addiction)

Great video: [https://www.youtube.com/watch?v=LmVWOe1ky8s](https://www.youtube.com/watch?v=LmVWOe1ky8s)

- ADHD
- PTSD
- Depression
- Learning Issues
- Behavior Issues
- Adoption
- Foster Care

<table>
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<th>Memory</th>
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Building Blocks of Brain Development

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CO Brain Injury Steering Committee: Adapted from Miller, 2007; Reitan and Wolfson, 2004; Hale and Fiorello, 2004
**Impaired Attention**

The ability to sustain focus on the information necessary for learning or completing a task.

- Fidgets, squirms in seat, can’t sit still
- Interrupts conversation
- Low frustration tolerance
- Talks Excessively
- Off-topic
- Impulsivity (inability to inhibit)

**WHAT DOES BRAIN INJURY “LOOK” LIKE?**

**ACCOMMODATIONS FOR IMPAIRED ATTENTION**

- Work on only one task at a time
- Have client participate in discussion & development of plan
- Reduce distractions
- Meet in quiet environment
- Use cue words to alert the client to pay attention (“look”, “listen”)
- Establish nonverbal cueing system (eye contact, touch)

**Delayed Processing Speed**

How quickly information is received, processed, and/or outputted.

- Slow to respond to questions
- Appears to not be paying attention
- Looks confused
- Doesn’t follow instructions

**WHAT DOES BRAIN INJURY “LOOK” LIKE?**

**ACCOMMODATIONS FOR DELAYED PROCESSING SPEED**

- Provide additional time to review information
- Speak slowly, making sure client understands – ask them to rephrase back to you what they heard
- Offer assistance with completing forms
- Utilize checklists and a written schedule of routines
- Provide written cues for organizing (“first do this, then do this”)
**Short Term Memory Loss**
The mental ability to store and retrieve words, facts, procedures, skills, concepts, and experiences.
- Can’t remember more than one thing at a time
- Can’t remember details
- Appears disorganized
- Appears to have an “attitude” problem
- Appears manipulative

**Impaired Sensory Motor Skills**
Perceiving and responding to what is seen, heard, smelled, tasted, felt, and touched.
- Appear overwhelmed
- Emotionally melt down
- Irritable, short fused
- May appear oppositional
- Shut down

**WHAT DOES BRAIN INJURY “LOOK” LIKE?**

**ACCOMMODATIONS FOR SHORT TERM MEMORY LOSS**
- Repeat information and summarize
- Teach client to use reminder system like planner
- Teach “chunking” as a way to aid in retention
- Stick to routine as much as possible
- Keep information tangible and relevant

**ACCOMMODATIONS FOR IMPAIRED SENSORY MOTOR**
- Keep environment quiet
- Keep noise and lights to a minimum
- Keep sessions short to minimize onset of headaches and fatigue
- Schedule rest periods and breaks from planned activities

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WHAT DOES BRAIN INJURY “LOOK” LIKE?

**Language (social pragmatics)**

- Do not interpret body language
- Use inappropriate eye contact
- May get in your space
- May either say too little or too much
- Have little insight or awareness of how their behavior may be inappropriate

**Memory**

- Sensory-Motor
- Inhibition
- Attention
- Processing Speed

**Language Processes**

- Comprehension
- Production

**Processing**

- Encoding
- Decoding

**Executive Functions**

- Cognitive Control
- Metacognition

**Achievement/Cognitive Ability/Reasoning**

**Receptive Language**

- Be direct
- Avoid abstract humor, sarcasm, metaphors, colloquialisms, etc.
- Allow wait time for person to process what has been said
- Provide instructions/directions slowly and one at a time
- Ask if it would be helpful to repeat or rephrase your message
- Let the individual know that you value their input, thoughts, and feelings

**Accommodations for Social Pragmatics**

- Provide direct, structured and concrete feedback
- Do not rely on body language to convey a message
- Role play
- Provide shaping, cueing and fading
- Videotaping interactions

**Accommodations for Receptive Language**

- Do not interpret body language
- Use inappropriate eye contact
- May get in your space
- May either say too little or too much
- Have little insight or awareness of how their behavior may be inappropriate

**Language (Receptive)**

- Ability to understand what is being said.
- Confused
- May say “huh” frequently
- Follows
- Struggle with abstract language/sarcasm
- May withdraw
WHAT DOES BRAIN INJURY “LOOK” LIKE?

**Language (Expressive)**
- Poor grammar or immature speech
- Difficult to follow in conversation
- Difficulty staying on topic
- Difficulties navigating social rules
- May withdraw

**Memory**

**Sensory - Motor**

**Inhibition**

**Attention**

**Processing Speed**

**Language Processes**
- Learning Processes
- Visual - Spatial Processes

**Social Emotional Competency**

**Executive Functions**

**Achievement / Cognitive Ability / Reasoning**

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**ACCOMMODATIONS FOR EXPRESSIVE LANGUAGE**

- Redirect if the individual is off topic
- Provide opportunities to practice expression
- Role play common real life conversations
- Teach individual to rehearse silently before replying
- Be patient and allow person time to respond

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**WHAT DOES BRAIN INJURY “LOOK” LIKE?**

**Executive Function: Initiation**
- Ability to start an action or activity
- Appears lazy or spacey
- Appears unmotivated
- Follows
- Needs constant cuing
- Lags in independent living skills

**Memory**

**Sensory - Motor**

**Inhibition**

**Attention**

**Processing Speed**

**Language Processes**
- Learning Processes
- Visual - Spatial Processes

**Social Emotional Competency**

**Executive Functions**

**Achievement / Cognitive Ability / Reasoning**

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**ACCOMMODATIONS FOR INITIATION DEFICITS**

- Provide written instructions
- Ask client to repeat instructions to ensure comprehension
- Use underlining and highlighting for significant parts of directions
- Break complex directions into simple steps and assign action items
- Utilize color-coding
- Help the person get started
- Repeat instructions or interventions multiple times in different ways
**Executive Function: Mental Flexibility**

- Difficulties taking feedback
- Resistant
- Can appear stubborn or argumentative
- May appear to lack empathy

**Executive Function: Reasoning**

- Concrete thinkers
- Can't think of alternative solutions
- Difficulties answering open ended questions
- Difficulties learning from experience, cause and effort

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**ACCOMMODATIONS FOR MENTAL FLEXIBILITY DEFICITS**

- Develop and practice routines & plan ahead for changes in routines
- Prepare for transitions
- Help develop alternative plans
- Assist in prioritizing goals, breaking them down into smaller tangible tasks
- Provide respectful feedback to potential or obvious problem areas

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**ACCOMMODATIONS FOR REASONING DEFICITS**

- Point out possible consequences of decisions, short- & long-term
- Teach step by step approach to problem solving
- Avoid open-ended questions
- Speak concretely
- Be clear on expectations and consequences of risk taking behaviors
- Be supportive and continually identify strengths
WHAT DOES BRAIN INJURY “LOOK” LIKE?

Emotional/Behavioral:
- Over/under reaction
- Difficulties with anger management
- Meltdowns
- Can appear emotionally “flat”
- Difficulties making friends
- Can appear argumentative

Memory:
- Sensory-Motor
- Inhibition
- Attention
- Processing Speed
- Language

Processes
- Learning Processes
- Visuo-Spatial Processes

Social
- Emotional
- Competency
- Executive Functions

Achievement/Cognitive Ability/Reasoning

FUNCTION OF THE BEHAVIOR

WHAT YOU THINK DETERMINES HOW YOU ACT:

Do you “treat” or do you “consequence”?

Do “consequences” = “treatment”?

If so, when do you use “consequences” versus “treatment” and on which individuals?

Do you “treat” or do you “consequence”? If you think they have the skill but choose not to use it, you are likely to go quickly to punishment. If you think they don’t have the skill, you are less likely to go quickly to punishment and more likely to think about teaching the skill.
FUNCTION OF THE BEHAVIOR

BEHAVIOR MANAGEMENT
2. ANTECEDENT MANAGEMENT

Thus, behavior management techniques can be classified into two categories:
(1) antecedent strategies, which are used before a behavior occurs in an effort to prevent or elicit a behavior, and
(2) consequent strategies, which are used after a behavior occurs in an effort to prevent the continuation and recurrence of a behavior or to reinforce a behavior.

Antecedent Management:
• Does not presuppose skill in favor of will
• Starts from a place of “teaching and intervention” rather than “correcting”
• Is proactive not reactive
• Is humane and educational not punitive
• Focuses on Crisis Prevention instead of Crisis Management

BEHAVIOR MANAGEMENT:
1. CONSEQUENCE-BASED STRATEGIES

Thus, behavior management techniques can be classified into two categories:
(1) antecedent strategies, which are used before a behavior occurs in an effort to prevent or elicit a behavior, and
(2) consequent strategies, which are used after a behavior occurs in an effort to prevent the continuation and recurrence of a behavior or to reinforce a behavior.

GOING BEYOND THE FBA

Functional Behavior Assessment (FBA)
• Behaviors serve a function and have a purpose, usually:
  • To get something (e.g., attention, money, good grades, power, control)
  • To avoid/escape something (e.g., punishment, embarrassment, out of work)
  • Presupposes “will”

But what if the function of the behavior is to cover up the skill deficit of poor memory or slowed processing speed? What if the function of the behavior is to “save face”?
What if we don’t automatically assume that Sam is missing appointments with his probation officer because he is lazy and non-compliant? What if we don’t start with these questions: What is he trying to get away with? What responsibility is he trying to shirk?

What if we start from a place of curiosity and ask instead … What if Sam misses appointments with this probation officer because his memory is SO poor? His poor memory could be coming from:

- A stressful childhood
- Numerous assaults
- Substance abuse
- You name it... X, Y and Z

The Building Blocks Model allows us to come up with a plan to teach Sam some remedial and compensatory skills to enhance memory. What if the correct (and humane) lens of intervention leads to a more effective change on behavior?

Simultaneously, it is a more positive and proactive way to interact with Sam.

One study found that 42% of persons who indicated they had incurred a TBI as defined by the CDC did not seek medical attention (Corrigan & Bogner, 2007)

It is important to know the big picture …

Ask about brain injuries multiple times, in multiple ways and be sensitive to the stigma inherent in the question.

But remember, the diagnosis does not define the treatment. Knowledge of neurological insult may inform some of our treatment but in the end, we are left dealing with the individual and unique sequelae within each person … That is where we start!

RESOURCES AND REFERRAL

QUESTIONS?

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