

# Chronic Pain and TBI



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Speaker Information

Presented by Gayle M Taylor-Ford, LSCSW, LCAC

Executive Director, Therapy Services LLC

[www.therapyservicesonline.com](http://www.therapyservicesonline.com)

International Pain Foundation Board Member, Secretary

[www.internationalpain.org](http://www.internationalpain.org)

Government Relations Advisory Committee Member, National MS Society

[www.nationalMSsociety.org](http://www.nationalMSsociety.org)



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Session Goals

- Gain a basic understanding of TBI and its common effects.
- The prevalence of chronic pain as an underdiagnosed consequence of TBI.
- Learn how TBI can be underdiagnosed among Chronic Pain Patients.
- Identify the characteristics of pain after TBI.
- Some research on measuring chronic pain.
- What research on chronic pain has found related to TBI.
- Learn coping skills for dealing with chronic pain.



## Types of Brain Injury

- A **traumatic brain injury (TBI)** is an injury to the brain caused by an external force after birth. Common causes of a traumatic brain injury include gunshot wounds, motor vehicle crashes, assaults, or falling and striking your head.
- An **acquired brain injury (ABI)** includes all types of traumatic brain injuries and brain injuries caused after birth by cerebral vascular accidents (commonly known as stroke), and loss of oxygen to the brain (hypoxic brain injury).
- Injuries to the brain that are present at birth or progressive in nature, such as Alzheimer's disease or Parkinson's are not considered a traumatic or acquired brain injury.

[www.biausa.org/FAQs](http://www.biausa.org/FAQs)



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Closed vs. Open TBI

- **TBIs** may be open or closed head injuries.

**Closed** head injuries often occur from falls, MVA, sports injuries, and non-bullet assaults. They often result in inattention, poor memory, reduced processing speed, depression and impulse control.

**Open** head injuries involve penetration of the protective outer layers, and skull. This can be from a bullet or other high-impact object. They often result in very specific (focal) problems (e.g., right sided motor loss). This occurs because less overall area of the brain is impacted, but the areas that have been impacted are often extensively damaged (Ambler & Shaughnessy, 2009).



## Primary vs. Secondary TBI

**TBI** injury may be primary or secondary.

**Primary** injury is the damage that occurs at the time of impact.

**Secondary** injury occurs because of the body's response to the primary injury and can be influenced by the medical interventions.

**Coup** injury occurs under the site of impact with an object.

**Contrecoup** injury occurs on the side opposite the area that was hit.

When a moving object impacts the stationary head, **coup** injuries are typical, while **contrecoup** injuries are produced when the moving head strikes a stationary object.



## Coup Contrecoup Brain Injuries

- A coup contrecoup (pronounced coo contra coo) brain injury is an injury that occurs both at the site of trauma and the opposite side of the brain.
- A "coup" injury is the initial site of impact. For example, if you were in a car accident and struck your head on the steering wheel, you might have a "coup" brain injury near the location of the forehead.
- A contrecoup injury happens at the opposite side of the site of injury, so if you struck your forehead, the brain injury would be at the back of the brain. The movement of the brain within the skull causes the second impact against the back of the skull.

Whitlock (2019)



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Traumatic Brain Injury (TBI)

- TBI is NOT a rare occurrence and its impact is severe and persistent. It is the leading cause of death and disability in the US per the CDC.
- Even outside of the military and professional athletes, TBI is among the most common injuries sustained by young men and boys.
- TBI is three times more common in men versus women.





## TBI, How common is it?

- In 2014, there were about 2.87 million TBI-related emergency department visits, including 837,000 of these for children.
  - TBI contributed to the deaths of 56,800 people, including 2,529 children.
  - TBI was diagnosed in approximately 288,000 hospitalizations, with over 23,000 of them children. These included both TBI alone and TBI with other injuries. (cdc.gov 2019)



## TBI Common Consequences

- Common consequences of TBI include problems with depression, anxiety, impaired relationships, impaired vocational capabilities, substance use, loss of self-esteem, irritability, PTSD, perseveration (insistent or redundant repetition), egocentricity, impulse control, slower thinking, inattention, memory inconsistencies, feeling “in a fog”, frequent medical visits, dependence, difficulty learning new information, word finding problems and personality change.
- Sleep problems are also a major issue resulting in fatigue, trouble falling asleep, not sleeping soundly, sleep cycle disturbed, and not feeling rested after sleep.



## Mild TBI

- Mild TBI is sometimes referred to as a concussion.
- Many Mild TBIs (especially pediatric) do not require medical attention.
- A study in 2000 by the CDC found that TBI was the leading cause of death and disability in children and adolescents.
- Sports related TBIs are gaining greater attention and are now handled with greater care during and after athletic events.



## CTE in the NFL

Chronic traumatic encephalopathy (CTE) is a progressive neurodegenerative disease associated with repetitive head trauma.

From a study published in the July 25, 2017 issue of JAMA;  
“Among 111 players who played in the National Football League (NFL),  
99% had CTE.”

Football, in my opinion, is most likely the most preventable causes of CTE.



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Chronic Pain

- About 100 million Americans suffer from chronic pain, defined as pain that lasts longer than six months. (\*some other sources say chronic pain is pain lasting longer than three months).
- Chronic pain can be mild or excruciating, episodic or continuous, merely inconvenient or totally incapacitating.
- The most common sources of pain stem from headaches, joint pain, pain from injury, and backaches. Other kinds of chronic pain include tendinitis, sinus pain, carpal tunnel syndrome, and pain affecting specific parts of the body such as shoulders, pelvis, and neck. This is a very limited list and in no way covers all sources of chronic pain.
- Unlike what is seen objectively on sophisticated scans, pain is never clearly understood because the suffering is subjective. Meaning that it is relatively easy to comprehend pain in the presence of fractures, but even severe changes in degenerative neck and back films are not necessarily objective indications of pain.

[www.webmd.com/pain-management/guide/](http://www.webmd.com/pain-management/guide/)



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Blood Test For Pain?

Professor Alexander Niculescu at the Indiana University School of Medicine, department of Psychiatry has led a team that has developed this test.

“We have developed a prototype for a blood test that can objectively tell doctors if the patient is in pain, and how severe that pain is. It’s very important to have an objective measure of pain, as pain is a subjective sensation. Until now we have had to rely on patients self-reporting or the clinical impression the doctor has,”

Quoting an article from February 14, 2019 by Iqra Farooq in Drug Target Review. The study was published in the journal *Molecular Psychiatry*.



## More about this blood test...

Professor Niculescu, “described blood biomarkers as being ‘like a fingerprint’, and that matching them against a prescription database would identify the compound that could normalize the signature.”

“We found some compounds that have been used for decades to treat other things pair the best with the biomarkers. We have been able to match biomarkers with existing medications, or natural compounds, which would reduce or eliminate the need to use opioids,” Professor Niculescu explained.

Quoting an article from February 14, 2019 by Iqra Farooq in Drug Target Review. The study was published in the journal *Molecular Psychiatry*.



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Chronic Pain and Mild TBI

- People with milder brain injury have HIGHER rates of complaints of headaches when compared to those with moderate and severe brain injury.
- The reason for the higher rates of headaches with milder severity brain injury is not well understood. (\*In my opinion it could likely be due to cognitive and/or communication impairments of people with more severe TBI).
- Treatment of pain is difficult when considering medications since many of the medications that treat pain can worsen memory and cause sleepiness, especially in the opioid and antidepressant classes.
- Patients with TBI may be even more vulnerable than other patients to the cognitive side effects of pain medications.

(Greenwald 2014)



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)



## Chronic Pain and Moderate to Severe TBI

- Pain is often underappreciated and undertreated in cognitively impaired patients.
- Common neurological complications after traumatic brain injury include pain, spasticity, and late functional decline.
- Pain may be acute or chronic. Pain may be musculoskeletal, neuropathic “nerve pain”, or secondary to medical complications.
- A generalized pain management protocol is not one size fits all and is especially inappropriate for TBI patients. An individualized pain management protocol is required. This is partially due to the brain damage and damaged receptor sites in the brain. As a result medications do not always work the way they should with a TBI patient.



# INTERNATIONAL PAIN SUMMIT 2019

## Research on Chronic Pain has Found that some could have a TBI.....

The researchers conclude:

- "We propose that the Chronic Pain (CP) patients who endorse or complain of memory or concentration problems, who express confusion about their diagnosis, complain of pain in head, neck, and arms, and/or were injured in motor vehicle accident should be further questioned about the possibility of concurrent TBI."
- "Treatment outcome of patients with dual diagnosis (Chronic Pain and TBI) is similar to patients with CP alone, although treatment length tends to be longer."
- "One important finding of this study was that dual diagnosis is apparently more common than previously thought. When the researchers were looking for the chronic pain patients without a history of TBI to use as a comparison group, 17% had to be disqualified because of a history of head injury. None of these patients had been evaluated or treated for TBI."

(Andary, Crewe, Ganzel, et al, 1997)



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Pain with TBI

- Researchers estimate the rate of posttraumatic headaches to approach 90% early on after injury and 44% within six months after injury.
- Pain can appear at anytime after TBI (either in the acute stage, during recovery, or in the stable phase).
- When experiencing ongoing severe pain, life's daily stressors become magnified and appear to be insurmountable obstacles. It can lead to depression, anxiety, social withdrawal, feelings of inadequacy, and feelings of being "beaten down" and abandoned.



## So, what can be done to cope with such chronic pain?

1.Utilizing relaxation techniques can help to reduce the stress caused by the chronic pain, making it easier to cope with stressors of daily life, despite the pain. In addition, relaxing the body can help to reduce the experience of pain (i.e., through the release of "endorphins", natural pain-killers released by the brain during deep relaxation and through the decrease of the secondary symptoms caused by stress, such as the fatigue, muscle tension, and insomnia mentioned above).



## Coping Skills for Chronic Pain

2. Increasing your level of pleasurable activities is very important. People with chronic pain tend to think that they cannot or do not deserve to engage in pleasurable activities. Yet, this is very important, both for distraction from the pain and for decrease of the depression that may result from the pain.



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Coping Skills for Chronic Pain

**3.** Changing your thoughts about the pain and changing your thoughts about yourself for having the pain may be necessary. Many people tend to put themselves down for having chronic pain, as they may think of themselves as inadequate to meet this challenge or that they are defective. One of the most powerful tools for changing the way that you think is to notice your "self-talk" and to rephrase it or challenge it. For example, if you say to yourself, in response to having chronic pain, "I'm defective," then you are likely to experience feelings of depression or low self-esteem. Notice the difference when you change this to: "Being in pain curtails my activities, but it does not reflect on my character" (Caudill, 1995).



## Coping Skills for Chronic Pain

4. Pace yourself. Engaging in an activity routine that alternates between less demanding and more physically demanding activities can help you to increase your activity level and decrease your pain. Consider asking others for assistance, when possible. Be sure to include in your schedule some high-quality recuperative time. The body has a chance to recuperate most effectively when it is not in a constant state of exhaustion (Caudill, 1995).



## Coping Skills for Chronic Pain

**5.** Poor sleep quality or insomnia can make the experience of pain much worse. Good quality sleep is necessary for rejuvenating and repairing the body. In addition, poor sleep can increase the risk for depression. Here are some recommendations to improve your sleep (Caudill, 1995):

- Have a regular bedtime and wake-up time
- If naps are necessary, sleep only for 30-45 minutes
- Take a hot shower or bath about 2 hours before sleep
- A small carbohydrate snack before bed can induce sleep
- If sleep is delayed or you have trouble falling back to sleep for more than 30 minutes, get up and do something until you feel sleepy again
- Utilize a relaxation technique before you go to bed or if you wake up during the night.





## Thank you

- SUPER BRAIN YOGA to improve memory.
- Visit the Therapy Services LLC Facebook page for a video with interviews and instruction on Super Brain Yoga.



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## References

- Ambler, C., & Shaughnessy, M. F. (2009). An interview with Christian Ambler: Traumatic brain injury in sports. *North American Journal of Psychology*, 11, 297-308.
- *Andary MT, Crewe N, Ganzel SK, et al. Traumatic brain injury/chronic pain syndrome: a case comparison study. The Clinical Journal of Pain 1997;13:244-250.*
- Caudill, M. A. (1995). *Managing Pain Before It Manages You*. The Guilford Press: New York, NY.
- Centers for Disease Control and Prevention (2019). Surveillance Report of Traumatic Brain Injury-related Emergency Room Visits, Hospitalizations, and Deaths – United States, 2014. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.
- Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. Report to Congress on mild traumatic Brain Injury in the United States: steps to prevent a serious public health problem. Atlanta (GA): Centers for Disease Control and Prevention; 2003.
- *Coping with Chronic Pain (2009).* <http://www.brainline.org/content/2009/09/coping-with-chronic-pain.html>



## More References

- Farooq, Iqra, (2019). Developing a blood test for pain measurement. Drug Target Review 14 February 2019.
- Kirkwood, M.W., Yeates, K.O., Taylor, H.G., Randolph, C., McCrea, M., & Anderson, V.A. (2008). Management of pediatric mild traumatic brain injury: A neuropsychological review from injury through recovery. The Clinical Neuropsychologist, 22, 769-800. doi: 10.1080/13854040701543700.
- Nampiaparampil, Devi E., (2008) Prevalence of chronic pain after traumatic brain injury: A systemic review. JAMA, 300(6): 711-719 (doi:10.1001/jama.300.6.711).
- Stein, M. B., & McAllister, T. W. (2009). Exploring the convergence of posttraumatic stress disorder and mild traumatic brain injury. American Journal of Psychiatry, 166, 768-776.
- Forey, PhD, DABCC/TC, Robert, (2012). Traumatic Brain Injury Pain Phenomena. Practical Pain Management. [www.practicalpainmanagement.com/pain/other/brain-injury/traumatic](http://www.practicalpainmanagement.com/pain/other/brain-injury/traumatic).
- Greenwald, MD, Brian (2014) Why does everything hurt so much after a brain injury? [www.brainline.org](http://www.brainline.org)
- Whitlock, RN,MSN,FN, Jennifer (May 21, 2019) Coup Contrecoup Brain Injuries. [www.VeryWellHealth.com](http://www.VeryWellHealth.com)



## Questions?



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)

## Contact Information

GAYLE M TAYLOR-FORD, LSCSW, LCAC

15147 Beverly Street

Overland Park, Kansas 66223

[GAYLE@THERAPYSERVICESONLINE.COM](mailto:GAYLE@THERAPYSERVICESONLINE.COM)

785-221-7560



#NERVEember

[www.InternationalPain.org](http://www.InternationalPain.org)