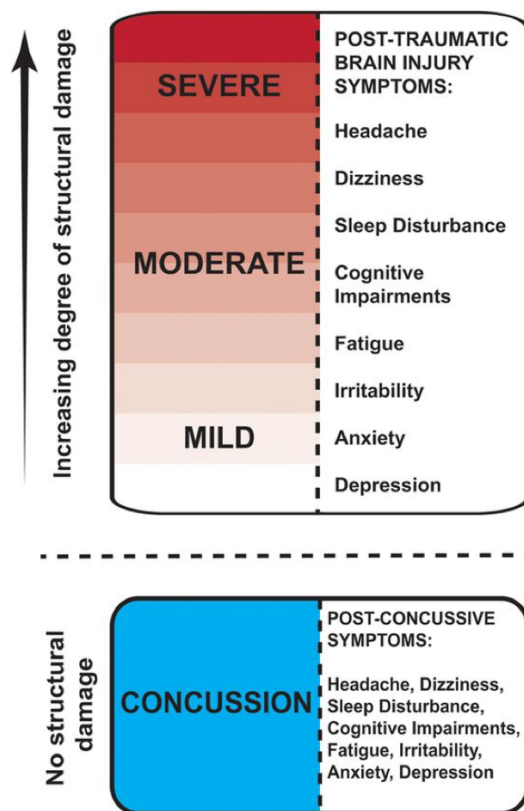
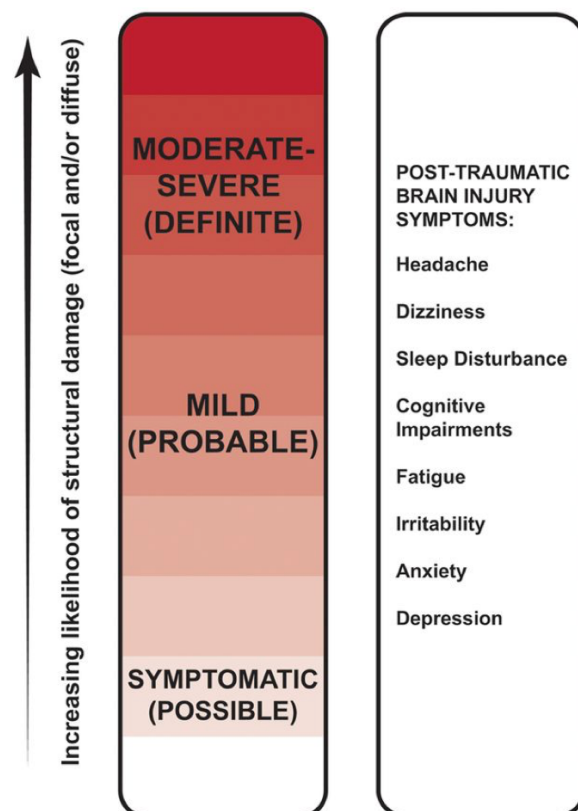


CONCUSSION/mild Traumatic Brain Injury (mTBI) definition: Concussion/mTBI results from a blow to the head or to another part of the body that leads to injury to the brain, and may or may not involve loss of consciousness (LOC). We often use the terms concussion and mild traumatic brain injury (mTBI) as synonyms, though some sources clearly separate the two conditions (Sharp & Jenkins, 2015; Voss, et al. 2015). When concussion is viewed as separate from mTBI, it is because any symptoms the concussed patient experiences are believed to be due to temporary adjustments the nervous tissue may be making to its upset, and not to any focal or diffuse injury (Sharp & Jenkins, 2015). However, the prevailing modern view, and that endorsed by the Centers for Disease Control in the United States (Traumatic Brain Injury and Concussion, 2017) is that concussion is a mild TBI. Accordingly, this guide uses the framework “B” below (Sharp & Jenkins, 2015), which includes “concussion” as a type of TBI, in which symptoms may range from minimal and brief to more invasive and persistent:

**A Concussion as a separate entity to Traumatic Brain Injury Classification**



**B Combined Traumatic Brain Injury Classification using the Mayo criteria and separating post-injury symptoms**



“Two potential classification systems for traumatic brain injury and concussion” by (Sharp & Jenkins, 2015). Licensed under CC BY 4.0

Regardless of the approach to categorization a given physician may use, those suffering from concussion/mTBI may experience symptoms immediately, or they may evolve over a period of days, weeks, or even longer (Crawford & Sirmon-Taylor, 2014). Whatever it is called, the effects can be long-lasting and severe enough to interfere with daily life such as school, work, family, and other social relationships. When symptoms do not improve within a few weeks, the condition is then sometimes called “Post-concussion Syndrome”. It is not typical for an SLP to be involved early in the concussion recovery process. These patients are hardly ever admitted to the hospital. They are treated and released from the ER in most cases.

### **SYMPTOMS RELATED TO CONCUSSION PER THE CDC (CDC.GOV)**

<b>COGNITIVE</b>	<b>PHYSICAL</b>	<b>EMOTIONAL/MOOD</b>	<b>SLEEP</b>
Mentally foggy	Headache	Irritability	Sleeping excessively
Attention and concentration problems	Nausea and/or vomiting (early on)	Depression	Trouble falling asleep
Memory problems including new learning difficulties	Dizziness	Emotional lability (sadness)	
	Hypersensitivity to light and/or noise	Anxiety	
	Impaired balance		
	Lethargic, tired		

- In addition to the above, language problems, in the form of word retrieval deficits are sometimes reported by the patients.

### **BARRIERS TO OPTIMAL IMPROVEMENT (SOHLBERG and MACCLENNAN) of COGNITIVE PROBLEMS (ATTENTION, MEMORY, EXECUTIVE FUNCTION)**

<b>IATROGENIC FACTORS</b>	<b>COMORBID CONDITIONS</b>	<b>PSYCHOLOGICAL FACTORS</b>	<b>PRE-INJURY FACTORS</b>
Incorrect diagnosis	Depression	Always thinking about symptoms	Decreased resilience
Expectations of not getting better	PTSD	Little to no control	Previous concussions
Too much testing	Chronic pain	Personal gain	Poor coping
	Fatigue/poor sleep		Little social support



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## OTHER CONSIDERATIONS WHEN TREATING PERSONS WITH CONCUSSION:

- Usually high-level patients with specific complaints.
- If patient has ocular-motor disturbances, a physical therapist trained in neurological disorders will need to see the patient. Sometimes a referral to PT is the first referral made. Headaches and dizziness are characteristics of Ocular Motor Disturbance and can be triggered by any activity requiring horizontal and/or vertical movements of the eyes.
- We can make patients worse by providing them with tasks that trigger symptoms. Be careful of any computer based (screen) activity and defer to PT as to when screens can be introduced.
- Family intervention is not well studied in adults. We must decide if they will be a hindrance or help (Prigatano, 2013).
- Treatment failures are associated with staff incompetence, fragmented treatment teams, and poorly defined goals (Prigatano, 2013).
- Factors influencing prognosis for community re-entry in order of importance are:
  - Problems with social behavior
  - Failure to recognize and use compensatory strategies
  - Pre-morbid characteristics
  - Physical impairments (Prigatano, 2013)

**TREATMENT?** Usually these patients are treatment candidates. Treatment is usually elective and they choose to participate. Even when barriers are present as listed earlier, they can still benefit from therapy. Collaboration with the patient regarding goal setting is a must. Patients can usually identify their problems. They are usually referred by Neurologists and/or Neuropsychologists. Family physicians are not always up to date on concussion management and either are ER physicians. Many of these patients want to return to school, work, and/or resume their former life style. Development of accommodations for return to work or school may be necessary (McGrath, 2010). Collaboration with Neurology and Neuropsychology is helpful to SLP and patient.



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## REFERENCES:

Crawford, N. & Sirmon-Taylor, B. (2014). Community-Based Resources for Concussion Management. *Seminars in Speech and Language*, 35(03), 166-172. doi:10.1055/s-0034-1384678

Mcgrath, N. (2010). Supporting the Student-Athletes Return to the Classroom After a Sport-Related Concussion. *Journal of Athletic Training*, 45(5), 492-498. doi:10.4085/1062-6050-45.5.492

Prigatano, G. (2013). Challenges and opportunities facing holistic approaches to neuropsychological rehabilitation. *Neurorehabilitation*, 32(4), 751-759.

Traumatic Brain Injury & Concussion. (2017, March 22). Retrieved from <https://www.cdc.gov/traumaticbraininjury/symptoms.html>

Sharp, D. J., & Jenkins, P.O., (2015). Concussion is confusing us all. *Practical Neurology*. Jun;15(3):172-86. doi: 10.1136/practneurol-2015-001087.

Sohlberg M, Maclennan D. Beyond Cognitive Rest: Treating Patients with Persistent Cognitive and Somatic Symptoms Following Concussion. Paper presented at: ASHA, 2016.

Voss, J.D., Connolly, J, Schwab, K. A., Scher, A.I., (2015). Update on the Epidemiology of Concussion/Mild Traumatic Brain Injury. *Current Pain Headache Reports*, Jul;19(7):32. doi: 10.1007/s11916-015-0506-z.