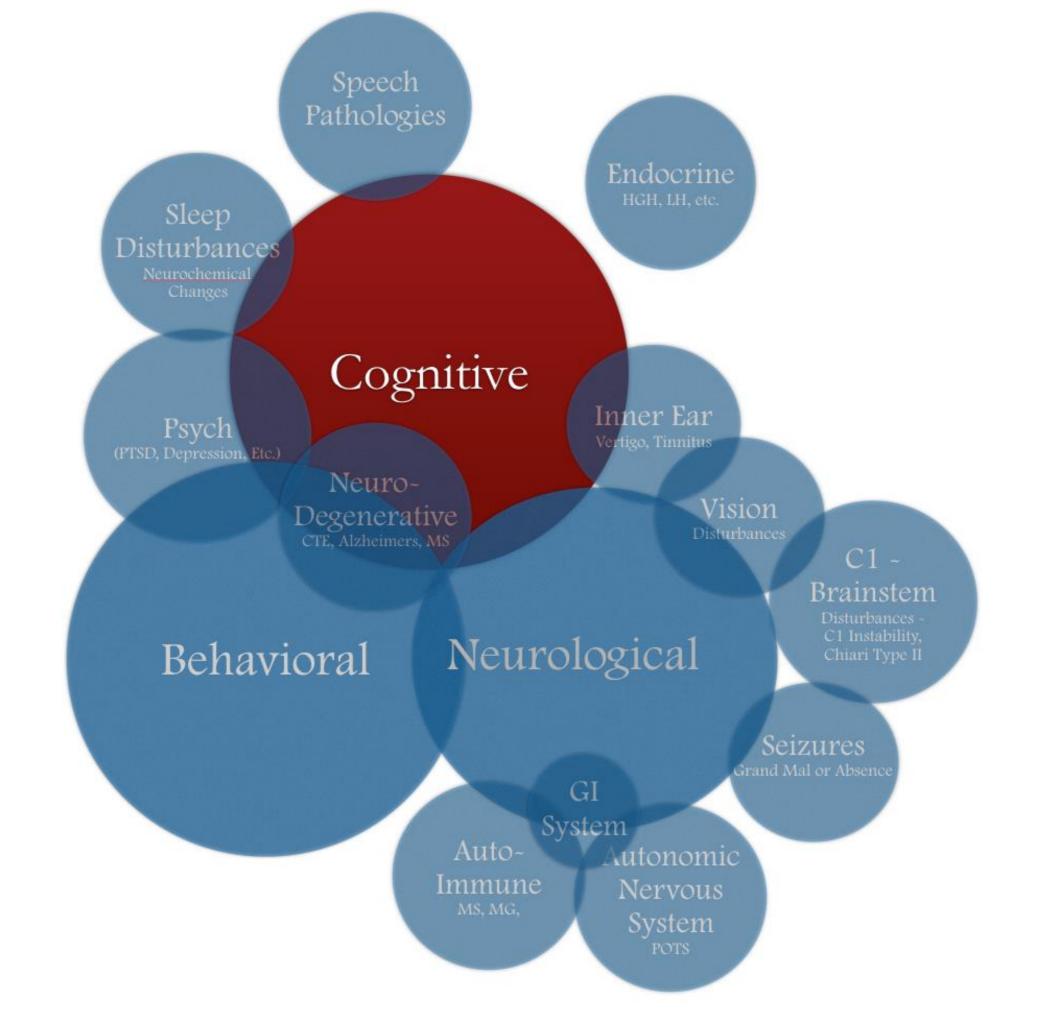


Speech Pathologies Endocrine Sleep Disturbances Cognitive Inner Ear Psych Vertigo, Tinnitus (PTSD, Depression, Etc.) Neuro-Vision Degenerative Disturbances CTE, Alzheimers, MS Vascular Brainstem Neurological Behavioral Seizures Grand Mal or Absence GI System Auto-Autonomic Immune Nervous System

# TBI - The Silent Epidemic

- •TBI are not rare at all.
- Estimated 1.7 million brain injuries per year, but this is an underestimate.
- •ER Visits from TBI 1,365,000 or 3,740/day
- Hospitalizations: 275,000 (753 per day)
- Deaths: 52,000 (142 per day)
- Nearly 1/3 of all injury-related deaths in the US involve a traumatic brain injury
- About 80% of TBIs that occur each year are mild traumatic brain injury with no visible signs on MRI or CT.
- mTBIs are rarely diagnosed in the ER, therefore if there are 1.3 Million ER visits for TBI, the number of mTBIs is much more.

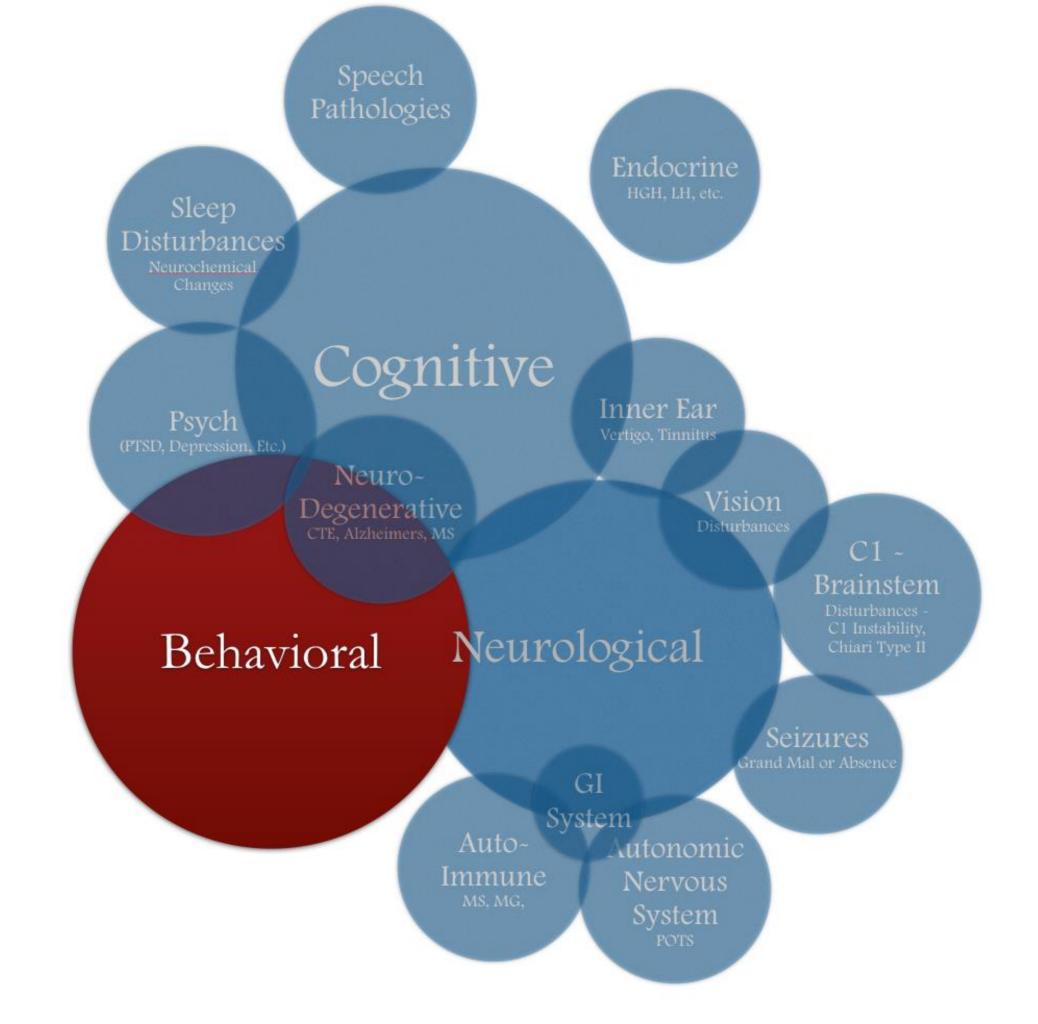


- •Nausea
- Vomiting
- •"Blackouts" Since Collision
- Headaches
- Dizziness
- Difficulty concentrating
- Short Term Memory Loss
- Long Term Memory Loss
- Amnesia (Retrograde or Anterograde)

- Failure to remember appointments
- Failure to turn off stove
- •Difficulty multi-tasking
- •Reading Problems
- •Writing Problems
- Typing Problems
- Speech difficulties
- Difficulty finding words
- Forgetting Numbers

- Overwhelmed by conversations
- •Inability to organize home / office
- •Sleep Disturbances
- Sensitivity to Alcohol
- •Impaired comprehension
- Impaired Learning
- Attention Difficulties
- •Inability to Recognize people
- Cognitive / Mental fatigue

- •Neuropsychological testing is aimed at testing and determining the severity of these deficits.
- •There is a 15% permanency for cognitive symptoms in first time concussion cognitive deficits. Likelihood of permanency increases considerably with repeated concussions particularly close together (Second Impact Syndrome) in which people can die or have serious permanent complications.
- Some cognitive symptoms are more likely to improve than others (i.e. long term memory tends to improve better than short term.)



- •Withdrawal from Friends / Family / Society
- •Personality changes
- Emotional fragility
- Emotional volitility
- •Socially Inappropriate Behavior
- Unusual Sexual Behavior
- Loss of Libido
- · Aggressive Behavior
- Criminal Conduct
- Lack of Emotion

- •"I don't care" attitude which can extend to feelings about everyone including spouse / children.
- Change political beliefs.
- •Reports of cases of people going from religious to out of control.
- Failure to recognize deficits
- •Substance Abuse
- •Impulsiveness
- Apathy

- Communication Difficulties
- •Missing periods of time (fugue / DDX of temporal lobe seizures)
- •Relationship difficulties
- Irritability
- Failure to finish tasks
- •Resistance to health care
- Neglect of Hygiene
- Poor Judgment

Loss of Insight

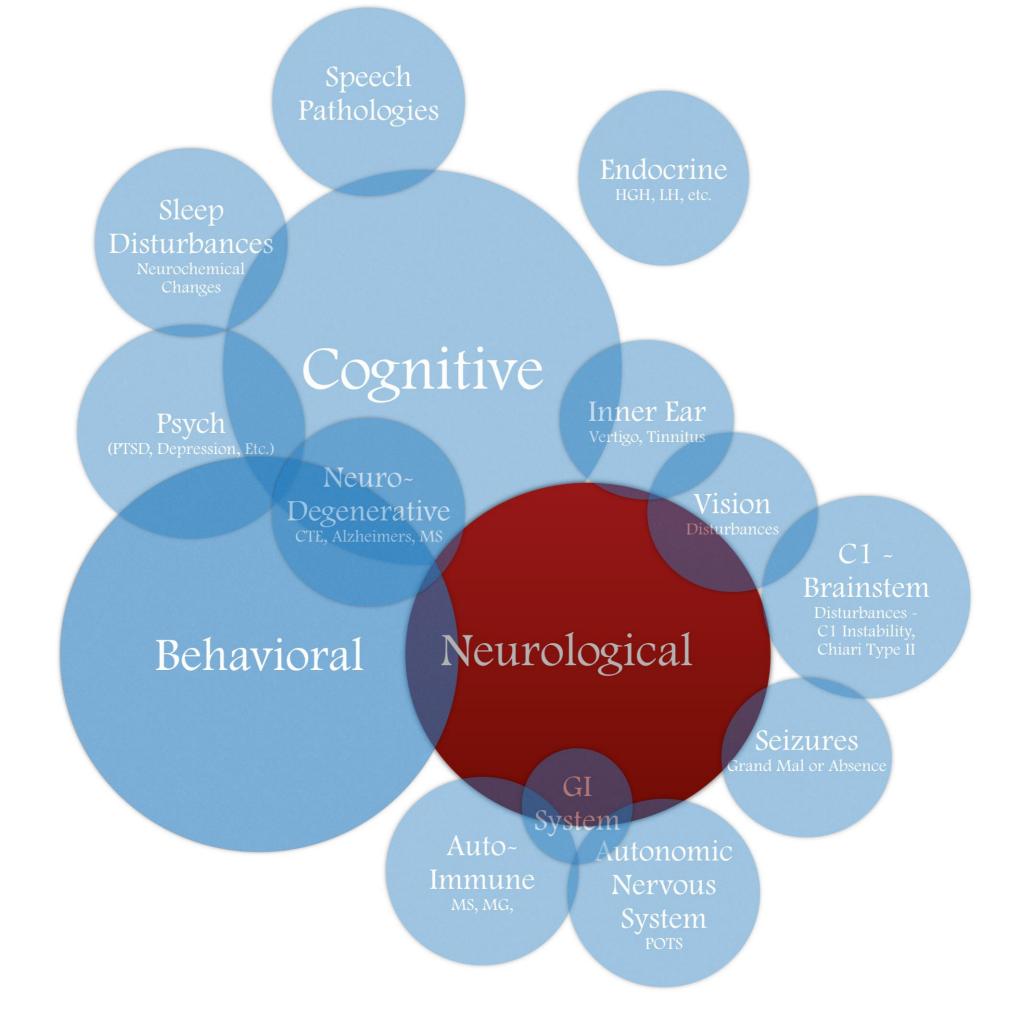
Disorganization (often including messy house or hoarding).

12

•Neuropsychological testing is not really aimed at picking up these deficits.

•Behavioral problems tend to be less likely to improve than cognitive problems.



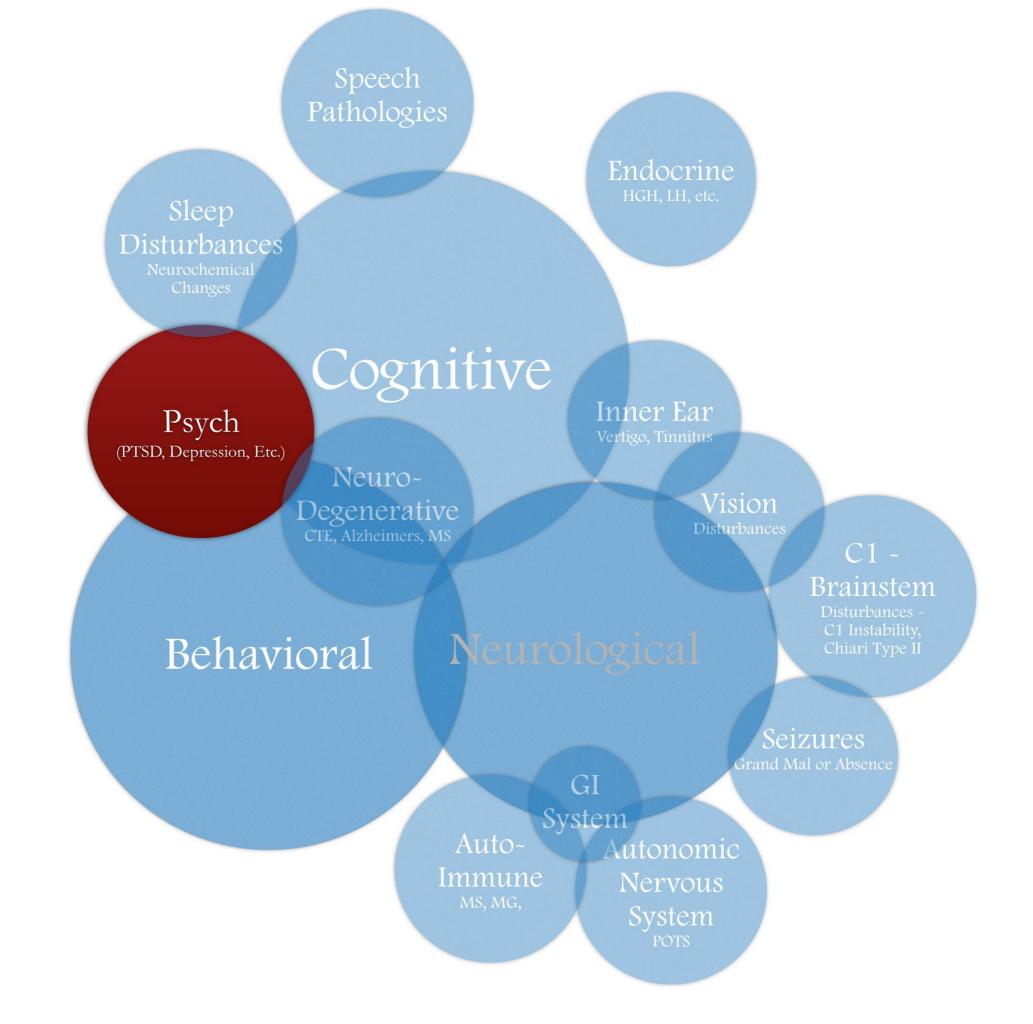


#### Neurological Symptoms

The reality is that only approximately 10% of people with mild and moderate TBIs have neurological deficits that will show up on most neurological examinations. Of those, the most likely is nystagmus and in my experience many neurologists do not observe that well or do any testing on it.

• Given that statistic, 90% of mild and moderate TBI survivors will have a completely normal neurological exam.

• For those people with severe TBI, they are much more likely to have frank neurological signs and symptoms, but this is a very small percentage of all TBI cases.



#### PTSD

#### -Symptoms include:

- Intense fear
- Intrusive Thoughts of Event
- Nightmares
- Sense of reliving the trauma
- Psychological distress when re-experiencing event
- Withdrawal
- Emotional Numbing
- Sleep Disturbances
- Irritability
- Hypervigilance
- Difficulty Concentrating
  - Exaggerated Startle Response

Want to be in control - extra jumpy in the passenger seat.

17

