

Multi-Disciplinary Treatment of Prolonged Symptoms of mTBI: a model of care

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Overview

I have no disclosures to report

- Review of concussion symptoms and trajectory
- What prolonged recovery looks like
- A model of Multi-D care
- Case examples

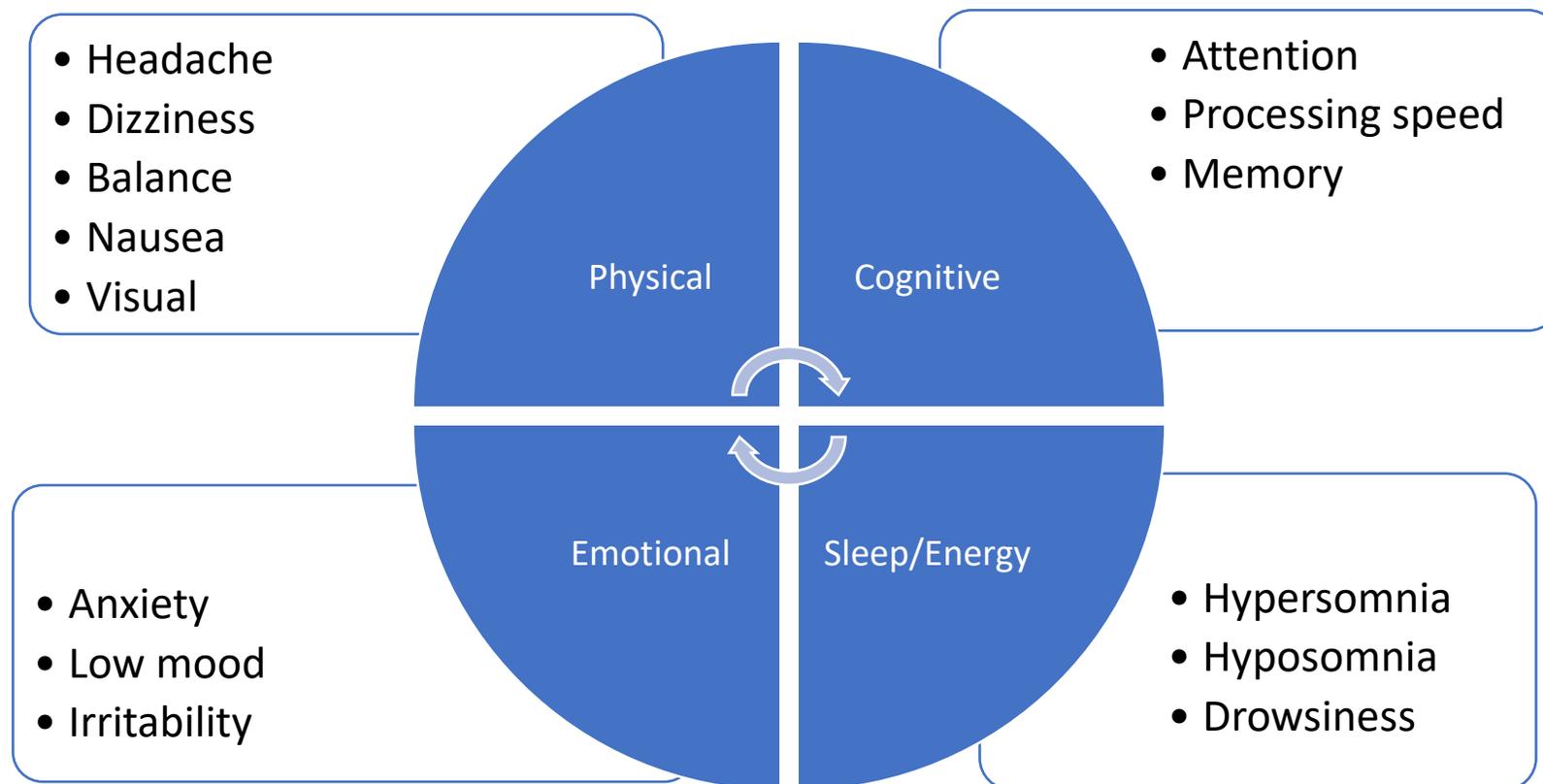


What is a Concussion?

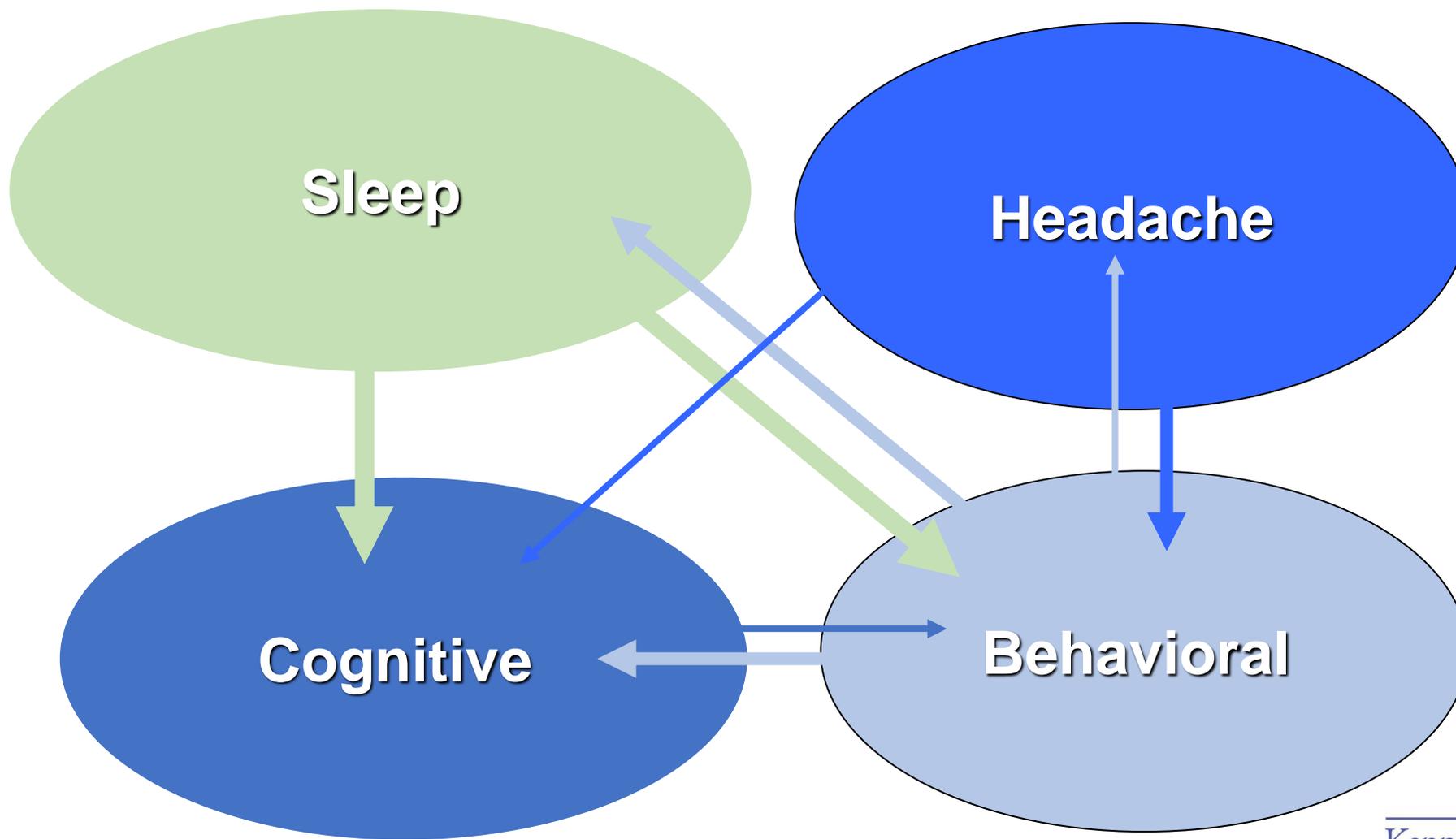
- CDC Definition of Brain Injury
 - “a disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head, or penetrating head injury”
- Concussion = Mild Traumatic Brain Injury (mTBI)
 - Normal Imaging
 - Loss of Consciousness (LOC) 0-30 minutes
 - Glasgow Coma Scale (GCS) score 13-15
 - Post Traumatic Amnesia (PTA) \leq 24 hours
- Estimate of sports related concussions in youth¹
 - 1,876,700



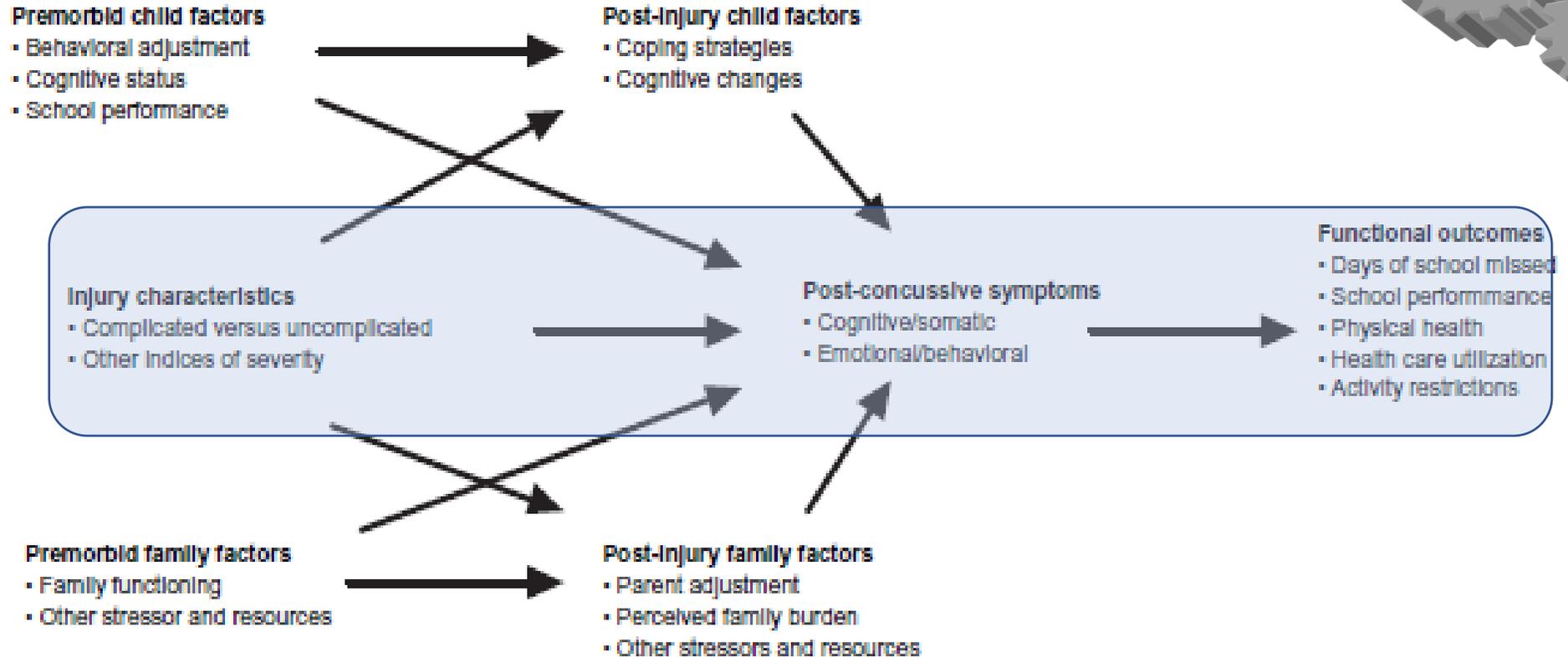
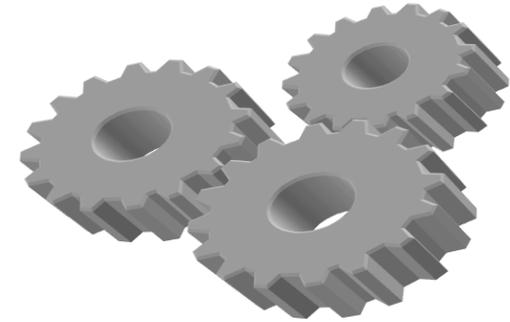
Concussion Symptom Domains



Clinical Considerations



A Biopsychosocial Approach



Prolonged recovery

- Most pediatric concussion patients recover within a few weeks.
- Nearly all return to baseline within 3 months.

Symptoms after 3 months  Prolonged Recovery



Post-Concussive Syndrome: the great debate

- ICD-10 guidance
 - Presence of head trauma (usually with LOC)
 - At least 3 of the following:

Headache	Dizziness	Fatigue
Irritability	Difficulty concentrating	Memory problems
Insomnia	Reduced tolerance to stress or excitement	

Research is increasingly demonstrating that factors **NOT** related to the injury itself are predictors of prolonged recovery

If diagnostic criteria has not been established, how do we know when people get better?



Why Multi-D Treatment?

- Specialty evaluation and treatment of symptom domains
 - Less of an opportunity for conflicting information from a “patchwork” of providers
 - Ability to focus on predictive factors related to recovery
 - Clear treatment plan for patients and families
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- Multi-D treatment is increasingly recommended in the literature, particularly when recovery is prolonged

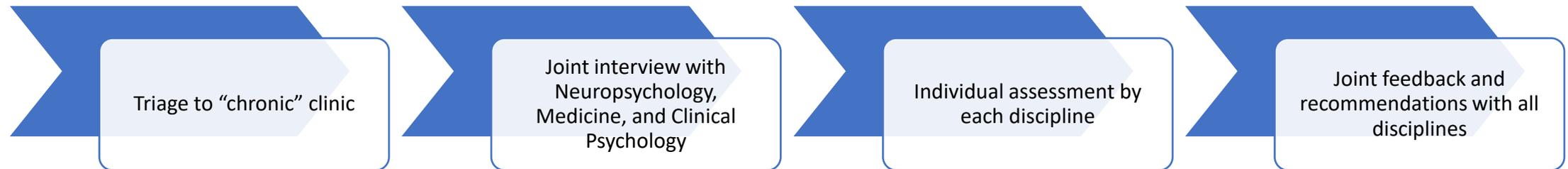


KKI – Our Multi-Disciplinary Team

- Medicine: Neurology or Physical Medicine and Rehabilitation
- Nursing
- Neuropsychology
- Clinical Psychology (Behavioral Health)



A model of Multi-Disciplinary Care



Case 1 - Emily

- 15yo white female
- Premorbid history: GI concerns and Hashimoto's Disease

Sustained a concussion secondary to being hit in the head with a soccer ball during high intensity play. Loss of consciousness was denied, but she had PTA for the few hours leading up to the concussion.

Chief Complaints:

- Headache, balance difficulties, trouble falling asleep, problems with memory, depression and anxiety
- Using OTC pain relievers daily

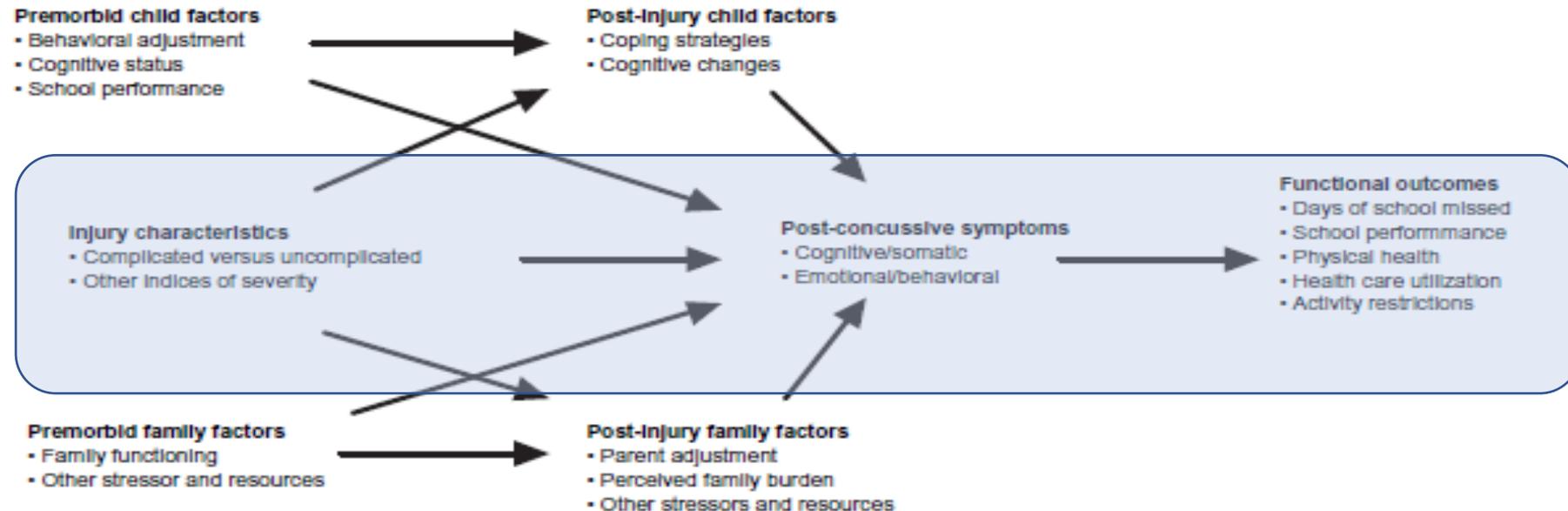
Other factors:

- Substance abuse and frequent screaming matches at home
- Inadequate hydration
- School recommending home and hospital to “catch up”



Thinking out loud...

- Is there anything additional you would want to know?
- What jumps out at you?
- What non-injury factors may be at play here?



Case 1 – Emily

- Multi-disciplinary recommendations:
 - Referral to headache clinic
 - Alternative therapies for headache
 - Increase hydration
 - Stay in school
 - Sleep hygiene
 - Anxiety management



Case 2 - Sarah

- 17yo white female
- Premorbid history: anxiety disorder, vestibular migraine, possible Postural Orthostatic Tachycardia Syndrome

Sustained a concussion as a passenger in a motor vehicle collision. No loss of consciousness.

Chief Complaint

- Brain fog and significant daily fatigue; headache

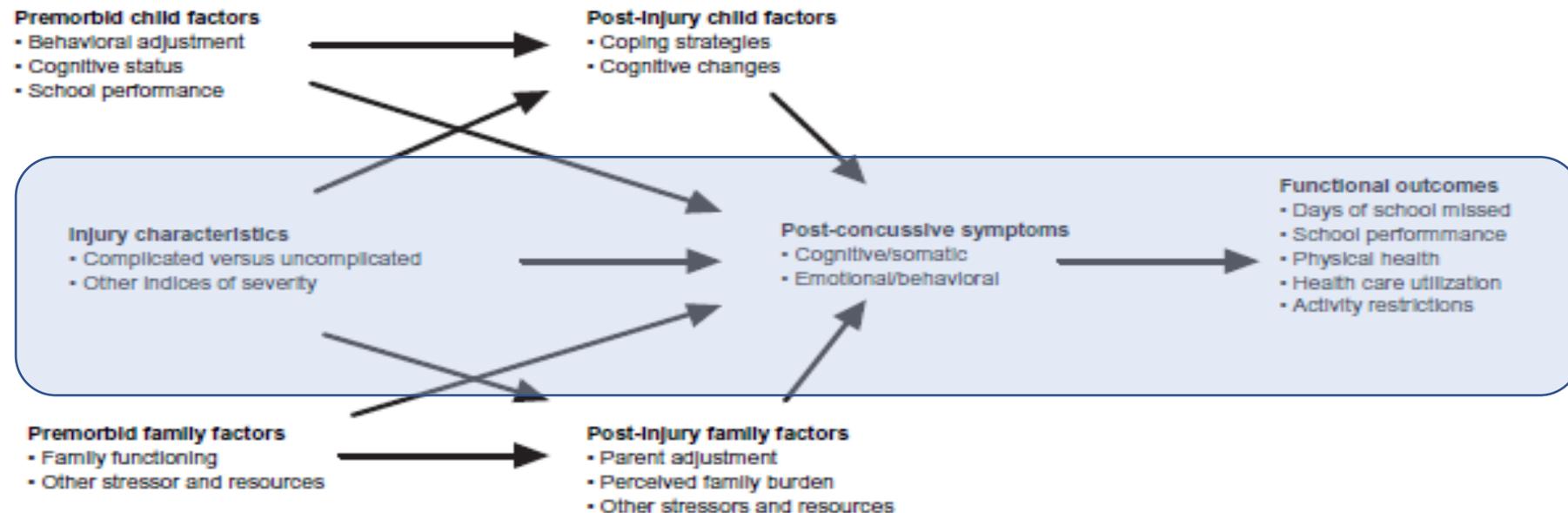
Other Factors:

- Sleeping 10 hours per night and continues to feel fatigued. Naps daily in the nurse's office at school
- Active figure skater. Skates 3-4 days per week.
- Adequate hydration
- Fatigue occasionally prevents her from participating in activities.
- Seeing multiple medical providers and receiving conflicting information



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Case 2 - Sarah

Recommendations:

- Whittle down providers to decrease appointments; recommend neurology for headache management
- Referral for Cognitive Behavioral Therapy
- Pacing activity
- Sleep study
- Lifestyle management for headaches
- Focus on function



Case 3 - Zachary

- 17yo white male
- Premorbid history: none
- Chief complaint: feelings of being disconnected from his body; inability to sleep in own bed; difficulty focusing; anxiety

Other factors:

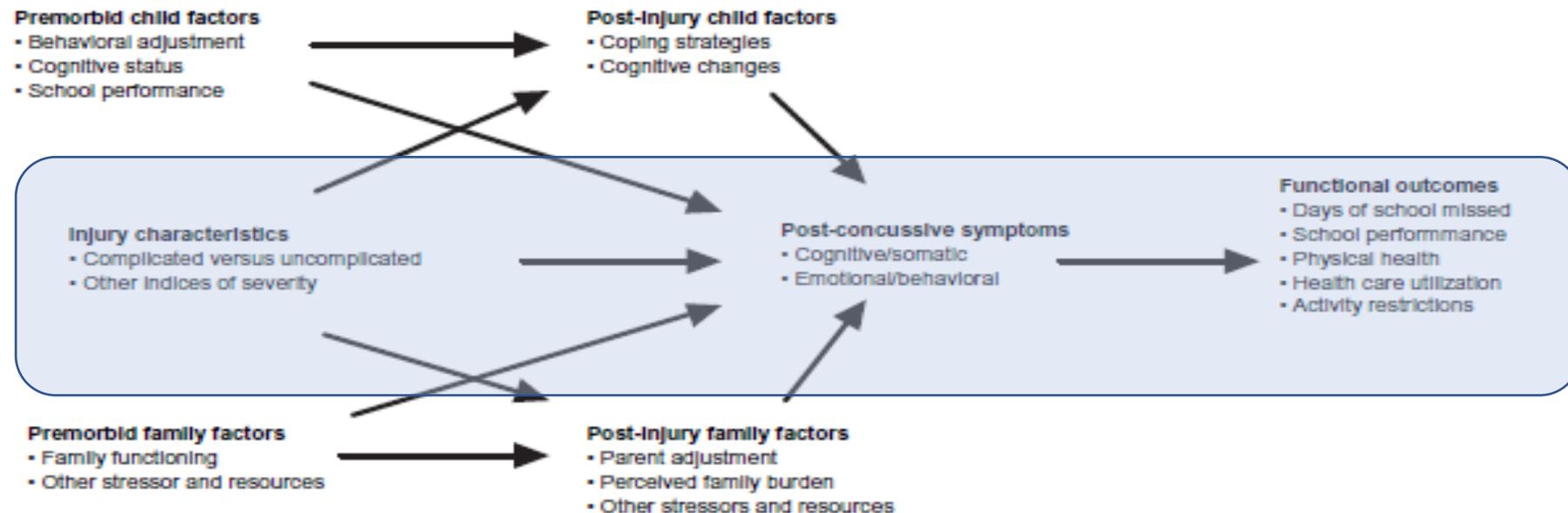
- Occasional use of marijuana; more frequent binge drinking
- Pretty quick resolution of all other symptoms
- New and highly demanding school & soccer schedule

“I feel like my hands don’t belong to me. I know they do, but I feel like they don’t”



Thinking out loud...

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Depersonalization/Derealization Disorder

Symptoms

- Derealization
 - Experiences of unreality or detachment with respect to surroundings
- Depersonalization
 - Experiences of unreality, detachment or being an outside observer of one's self

Diagnostic Criteria

- Persistent symptoms of depersonalization and/or derealization
- Intact reality testing
- Symptoms cause distress
- Not attributable to substance use or another medical condition



Case 3 - Zachary

Recommendations

- Eliminate marijuana and alcohol use
- Cognitive Behavioral Therapy to treat Depersonalization/Derealization Disorder
- Referral to psychiatry
- No need for further concussion treatment
- Sleep hygiene: gradual return to room
- Limit distractions when doing schoolwork



Pediatric Psychology
Consultation Service



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