

Returning to Learn Post-Concussion: Invisible Struggles of an Invisible Injury

A Phenomenological Investigation of College Student Experiences

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35

The Issue: Academic Challenges

- Symptoms
- Initial steps
- **Self-advocacy**
- Resource awareness
- Symptom management- no protocol
 - ADA Constraints

ADA AMERICANS WITH
DISABILITIES ACT

"(A) An individual meets the requirement of 'being regarded as having such an impairment' if the individual establishes that he or she has been subjected to an action prohibited under this Act because of an actual or perceived physical or mental impairment whether or not the impairment limits or is perceived to limit a major life activity.

"(B) Paragraph (1)(C) shall not apply to impairments that are transitory and minor. A transitory impairment is an impairment with an actual or expected duration of 6 months or less.

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The Current Study

Research Aims

- Student experiences
- Student care pathways
- Possible avenues of improvement

Qualitative Design

- Phenomenology
 - Emergent hypothesis
 - Holistic description of phenomena
 - Commonalities among participants

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Data Collection and Sample

Participants

- Purposefully selected
 - Non-athletes
- 1 male, 11 females
 - Colvin et al., 2009
 - Harmon et al., 2016
- Various academic levels
-

Data Collection

- Academic dysfunction survey (Wasserman et al., 2017)
- Learning and Study Strategies Inventory (LASSI; Weinstein et al., 2016)
- Semi-structured interviews
- Audio recorded

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Aim 1: To Describe College Student Experiences of Concussion

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Concussion Consequences

- Physical effects
- Cognitive effects
 - Sleep effects
 - Social effects

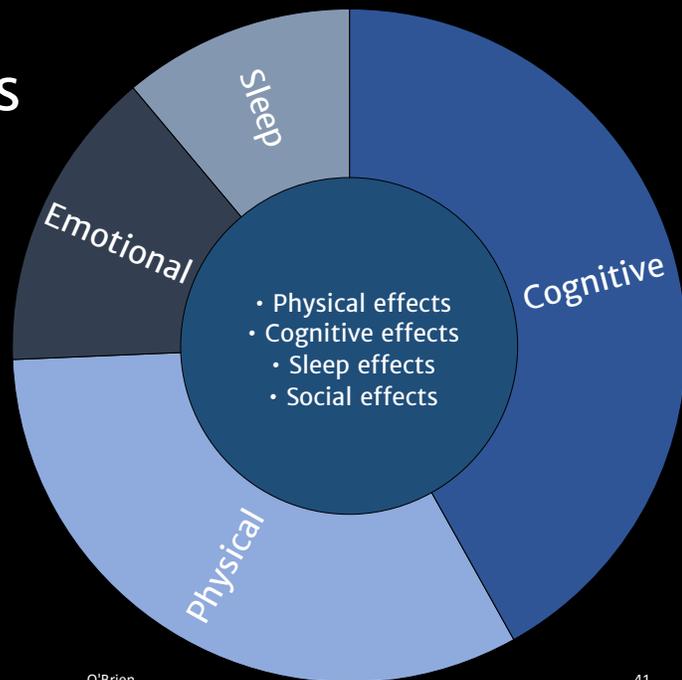
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Academic Effects

- Primarily cognitive effects
 - 11 students
 - 49 statements
- Physical effects
 - 7 students
 - 38 statements



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Aim 2: To Describe Student Care Pathways Following Concussion

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Pathways of Care

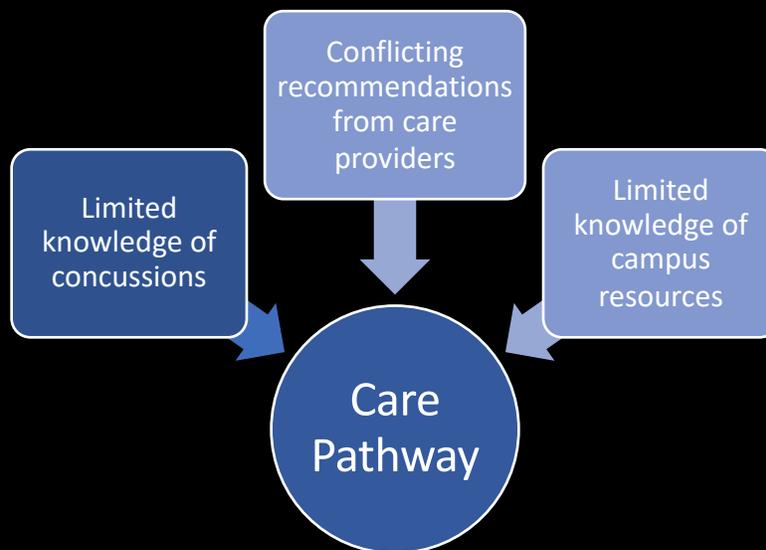
- 10 sought care
- 4 sought immediate care on recommendation of someone else
- 4 delayed care (+48 hours post)
- 8 received imaging
- 3 to urgent cares
- Others to ER or MD
- 2 thought they could manage on their own



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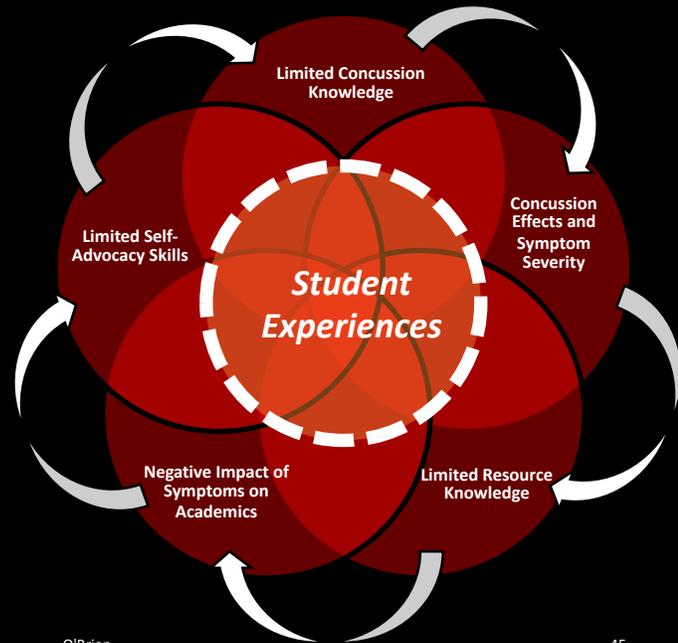
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Interaction Effect

- *Interaction* of factors & impact on RTL
- Contributions to experience + student reaction
- Recommendations generated from experiences



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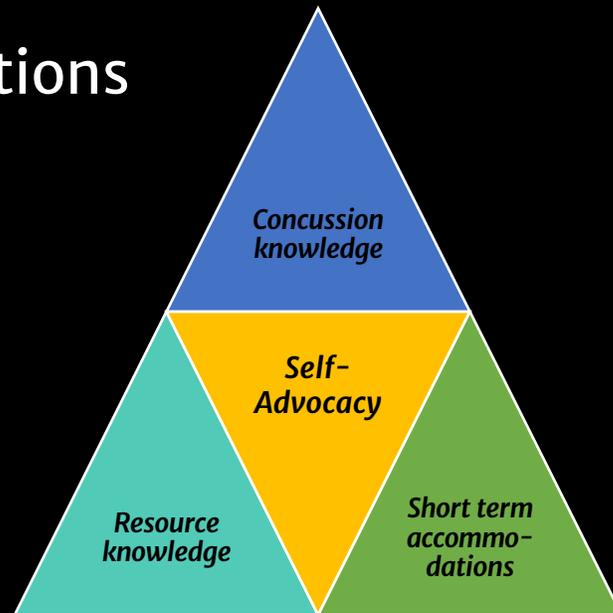
Aim 3: To Identify Avenues to Improvement of Care for Students with Concussion on Campus

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Recommendations

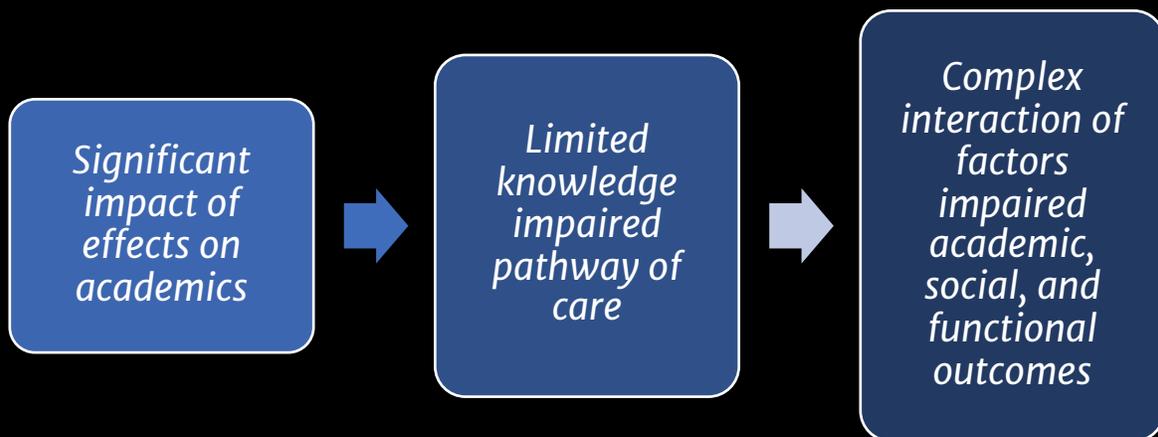


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Conclusions and Implications



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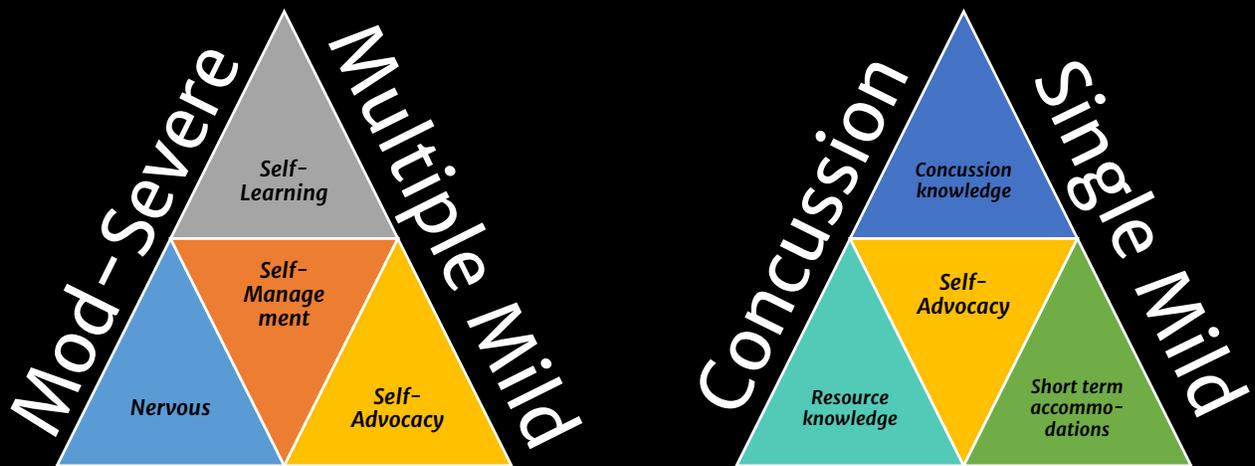
Return to Learn: What Now?

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Two Populations of Learners



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CDC HEADS UP

HEADS UP to Youth Sports

To help ensure the health and safety of young athletes, CDC developed the HEADS UP Concussion in Youth Sports initiative to offer information about concussions to coaches, parents, and athletes involved in youth sports. The HEADS UP initiative provides important information on preventing, recognizing, and responding to a concussion.

Specific Concussion Information for...



Concussion resources for youth sports coaches

More >



Concussion resources for parents of youth athletes

More >



Concussion resources for youth sports officials

More >



Concussion resources for youth athletes

More >

<https://www.cdc.gov/headsup/youthsports/index.html>

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CDC Pediatric mTBI Guidelines

Traumatic Brain Injury & Concussion

CDC > Traumatic Brain Injury & Concussion > Resources for Healthcare Providers

CDC Pediatric mTBI Guideline

Take Action to Improve

The goal of the CDC Pediatric Mild TBI Guideline is to help healthcare providers improve the health of their patients. The CDC Pediatric mTBI Guideline provides 19 sets of clinical recommendations for management and treatment. These recommendations are for providers working in inpatient, emergency department, and outpatient settings.

The CDC Pediatric mTBI Guideline was developed through a process guided by the American Academy on the Medical Aspects of National Academy of Sciences methodological review of the scientific literature, spanning 25 years.

Key Recommendations from the CDC Pediatric mTBI Guideline:

1. Do not routinely image patients to diagnose mTBI.
2. Use validated, age-appropriate symptom scales to diagnose mTBI.
3. Assess evidence-based risk factors for prolonged recovery.
4. Provide patients with instructions on return to activity customized to their symptoms.
5. Counsel patients to return gradually to non-sports activities after no more than 2-3 days of rest.

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Return to Play

- Five step progression
- No activity to full activity
- Progress through each step unless symptoms return
- Return to previous step, wait 24 hours and repeat
- **Based on symptom reporting**



Graduated Return to Play Protocol

1. NO ACTIVITY (RECOVERY) Complete Physical and Cognitive Rest until Medical Clearance	2. LIGHT AEROBIC EXERCISE (INCREASE HEART RATE) Walking, Swimming, Stationary Cycling Heart Rate <70% - 15 min	3. SPORT SPECIFIC EXERCISE (ADD MOVEMENT) Skating Drills (Ice Hockey), Running Drills (Soccer, etc) NO Head Impact Cycling Heart Rate <80% - 45 min	4. NON-CONTACT TRAINING DRILLS (INCREASED EXERCISE, COORDINATION & ATTENTION) Progress to Complex Training Drills (e.g., Passing Drills, etc) May Start Resistance Training Heart Rate <90% - 60 min	5. FULL CONTACT PRACTICE (RESTORE CONFIDENCE & ASSESS FUNCTIONAL SKILLS) If Symptom Free, Return to Normal Training Activities
Symptom Free for Next 24 Hours? Yes: Begin Step 2 No: Continue Resting	Symptom Free for Next 24 Hours? Yes: Move to Step 3 No: Rest Further until Symptom Free	Symptom Free for Next 24 Hours? Yes: Move to Step 4 No: Return to Step 2 until Symptom Free	Symptom Free for Next 24 Hours? Yes: Move to Step 5 No: Return to Step 3 until Symptom Free	Symptom Free for Next 24 Hours? Yes: Return to Play No: Return to Step 4 until Symptom Free
Date Attained:	Date Attained:	Date Attained:	Date Attained:	Date Attained:

Reference: Consensus Statement on Concussion in Sport: the 3rd International Conference on Concussion in Sport held in Zurich (2008), Br J of Sports Med 2009; 43: 176-184 doi:10.1136/bjism.2009.035248

Return to School

Step 1. Total rest.	<ul style="list-style-type: none"> • No mental exertion (computer, texting, video games, or homework), stay at home, no driving.
Step 2. Light mental activity.	<ul style="list-style-type: none"> • Up to 30 minutes of mental exertion but no prolonged concentration, stay at home, no driving. • Progress to next level when able to handle 30 minutes of mental exertion without worsening of symptoms.
Step 3. Part-time school.	<ul style="list-style-type: none"> • Maximum accommodations (shortened day/schedule, built-in breaks, provide quiet place for mental rest, no significant classroom or standardized testing, modify rather than postpone academics, and provide extra time, extra help, and modified assignments). • Progress to next level when able to handle 30-40 minutes of mental exertion without worsening of symptoms.
Step 4. Part-time school.	<ul style="list-style-type: none"> • Moderate accommodations (no standardized testing, modified classroom testing, moderate decrease in extra time, help, and modification of assignments). • Progress to next level when able to handle 60 minutes of mental exertion without worsening of symptoms.
Step 5. Full-time school.	<ul style="list-style-type: none"> • Minimal accommodations (no standardized testing, but routine testing ok; continued decreasing extra time, help, and modification of assignments; might require more supports in academically challenging subjects). • Progress to next level when able to handle all class periods in succession without worsening of symptoms AND medical clearance is given for full return to academics.
Step 6. Full-time school.	<ul style="list-style-type: none"> • Full academics with no accommodations (attends all classes, full homework).

<https://cbirt.org/back-school>

Effect of Cognitive Activity Level on Duration of Post-Concussion Symptoms

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WHAT'S KNOWN ON THIS SUBJECT: Cognitive rest is recommended for the management of sport-related concussions. There are limited data to support this recommendation.

WHAT THIS STUDY ADDS: This study adds empirical data supporting the recommendation for cognitive rest after a sport-related concussion.

TABLE 1 Cognitive Activity Scale

0	Complete cognitive rest	No reading, homework, text messaging, video game playing, online activity, crossword puzzles, or similar activities. The most stimulating activities at this level would be watching television, watching movies, or listening to music.
1	Minimal cognitive activity	No reading, homework, crossword puzzles, or similar activities. Less than 5 text messages per day, less than 20 min per day <u>combined</u> of online activity and video games.
2	Moderate cognitive activity	Reading less than 10 pages per day, less than 20 text messages per day, and doing less than 1 h <u>combined</u> of homework, online activity, and video games per day.
3	Significant cognitive activity	Reading less, doing less homework, working less online, text messaging less, and doing crossword or other activities than you would normally do, but more than listed in level 2.
4	Full cognitive activity	You have not limited cognitive activity at all.

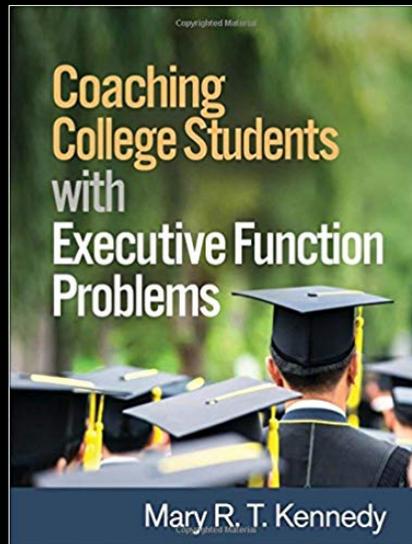
Patients were given the following instructions: "Cognitive activities are those activities which require you to think harder than usual. Homework, reading, playing video games, text messaging, doing crossword puzzles, playing trivia games and working online are all forms of cognitive activity. Below is a scale, from 0-4, of various levels of cognitive activity. Using the scale, please circle the average level of cognitive activity you have participated in since your last visit."

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55

Current Work

- Coaching has been manualized for other researchers' and clinicians' use (Kennedy, 2017)
- Developing coaching program at UGA to support students with concussion and TBI



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Monitoring Over Time

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Andee's ARMY
Child Brain & Spinal Cord Foundation

SUCCESS

Success in College after Concussion with Effective Student Supports

Our goal is to develop a peer mentoring program for college students seeking care at Shepherd Center's Complex Concussion Clinic (CCC) that supports short and long term success.

58

Acknowledgments

- We thank all of our research participants for sharing their time and experiences.
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- This work could not have been possible without the contributions of the students in the Cognitive-Communication Rehab Lab.



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REHABILITATION LAB

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cogcomlab.uga.edu

UGA'S COGNITIVE COMMUNICATION REHABILITATION LAB

RESEARCH OPPORTUNITIES

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Welcome to the Cog-Com Rehab Lab at the University of Georgia

The Cognitive-Communication Rehabilitation Lab serves adults and adolescents with traumatic brain injury (TBI) or concussion.

2019 | Our work examines functional rehabilitation to support people with brain injury returning to productivity at work and school. | 60