

The Knowledge and Attitudes of Union Cycliste Internationale (UCI) Competitive Cyclists around Sports Related Concussion.

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What is Sports Related Concussion?

- Sports related concussion (SRC) is categorised as a mild traumatic brain injury (mTBI).
- Generally, the rapid onset of SRC leads to a short-lived neurological deficit normally resolving within 7-10 days (McCrorry et al. 2017).

Risks Associated with Mismanaged Concussion

- Chronic neurodegenerative conditions (Mackay et al. 2019)
- Chronic pain (McCrorry et al. 2017)
- Depression (McCrorry et al. 2017)
- Suicidal ideation and mortality (McCrorry et al. 2017)
- Post-concussion syndrome (McCrorry et al. 2017).
- Early Retirement (Davis-Hayes et al. 2018)
- Higher reinjury risk (McPherson et al. 2019)



Sports Related Concussion in Cycling

- Cycling lacks prospective injury insights (Rooney et al. 2020)
- Injury incidences of concussion are between 5-15% of injuries in road, mountain biking and enduro cycling (Kronisch et al. 1996; Decock et al. 2016; Helmich et al. 2019; Palmer et al. 2020).
- World Tour in seasons injury Insights show 3 concussions (Edler et al. 2021)
 - The diagnosis of concussion occurred only in cases of severe trauma, exposing cyclists to the risk of serious underdiagnoses.

Riders battles with SRC;

- Lizzy Banks- Full re-count 2021
- Eddie Dunbar- Under-23 Giro d'Italia 2017
- Tao Geoghegan Hart – Paris Nice 2021



HARROGATE CONSENSUS AGREEMENT CYCLING-SPECIFIC SPORT RELATED CONCUSSION

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The Culture in Cycling

- Lawson Craddock
 - “Something's not quite right.” You know something's possibly broken. But you also tell yourself, “You can continue. If you pull out now, you're gonna regret it”.
- Romain Bardet 2020 TdF, Stage 13
- Tom Skujins Tour of California .



What do cyclists know and how do they act?

- The preliminary study in the aera by Hurst et al. (2019)
 - Found adequate Concussion Knowledge and safe/desirable reporting
 - Respondents were still willing to take risk whilst continuing to cycle with SRC Symptoms.
- Hardwicke and Hurst (2020)
 - UK Competitive cyclists have moderate concussion Knowledge and Good Symptom Knowledge
 - Younger athletes were more willing to take risk.
- Amongst New Zealand Cyclists O'Reilly et al. (2020)
 - Age, gender and SRC history were all significantly associated with higher CK scores
- Common theme- Adequate Concussion Knowledge levels.
- Notable Disparity in Attitudes.

Where this Research fits

- **Aim:**
 - To explore and quantify UCI competitive cyclists' level of knowledge and safety of attitudes around SRC using an amended version of Rosenbaum's Concussion Knowledge and Attitudes Survey (RoCKAS).
- **Objective:**
 - Provide insights into the knowledge of Competitive Cyclists
 - Provide Medical Professionals and Stakeholder in cycling a greater understanding of cyclists' attitudes around SRC.



Methods & Survey

- Cross Sectional Study design using online convenience sampling of competitive cyclists.
- Competitive cyclists were defined as;
 - *“those who held an UCI racing licence affiliated to their respective national governing body, partook in at least club level racing league and were over 16 years old”.*
- Between February 2020 – March 2020.
- Rosenbaum’s Concussion Knowledge and Attitudes Survey
- Survey Breakdown
 - 3 examining knowledge levels (36 questions)
 - 2 which examine attitudes (20 questions).

Scoring

Concussion Knowledge

- Section 1 and 2 examined general and contextualised knowledge of SRC.
- Answers options for these sections were “true” or “false”.
- Section 3 examined concussion symptom knowledge.
- Answer options, “Yes”, “No”.
- Concussion Knowledge score between 0-36

Concussion Attitudes

- Section 4 and 5 examined participants attitudes towards SRC.
- The answer options for these sections questions were scored on a 3-point Likert scale,
 - “Agree”, “Neutral”, “Disagree”.
- Concussion Attitudes Score between 20-59.

Results

- Total 155 Athletes
- 19% International
- 84% Road Cyclists
- 33% between 19-39 years
- 30% had an officially SRC diagnosis
- 41% suspected SRC attributed to cycling.
- 67% had never received education about the condition.



Concussion Knowledge

- Concussion Knowledge score was 24.4 (range 0-36).
- Overall percentage score of 68%.
- Main misunderstanding in knowledge was one mismanaged concussion can have long term risk

Most Common **Correct**

- Confusion
- Dizziness
- Blurred Vision
- Headache

Most Common **Incorrect**

- Weakness in Neck
- Abnormal Sense of Taste
- Abnormal Sense of Smell



Attitudes

- Overall Concussion Attitude Score was 49.05 (range 20-59)
- Overall percentage of 83% (SD=7).
- 95% of athletes felt coaches need to be cautious about RTP.
- 46% of participants were likely or indifferent to the idea of hiding symptoms to stay within a race/event.
- 100% Agreed Concussion Education is important

Contextualised Attitude Scenarios

Significant difference between “*what the athletes feels*”(Mdn=86.4) and “*what they feel most athletes would feel*” (Mdn=56.1) P=.04

Influence of Age, History of SRC, Concussion Education

Concussion Knowledge

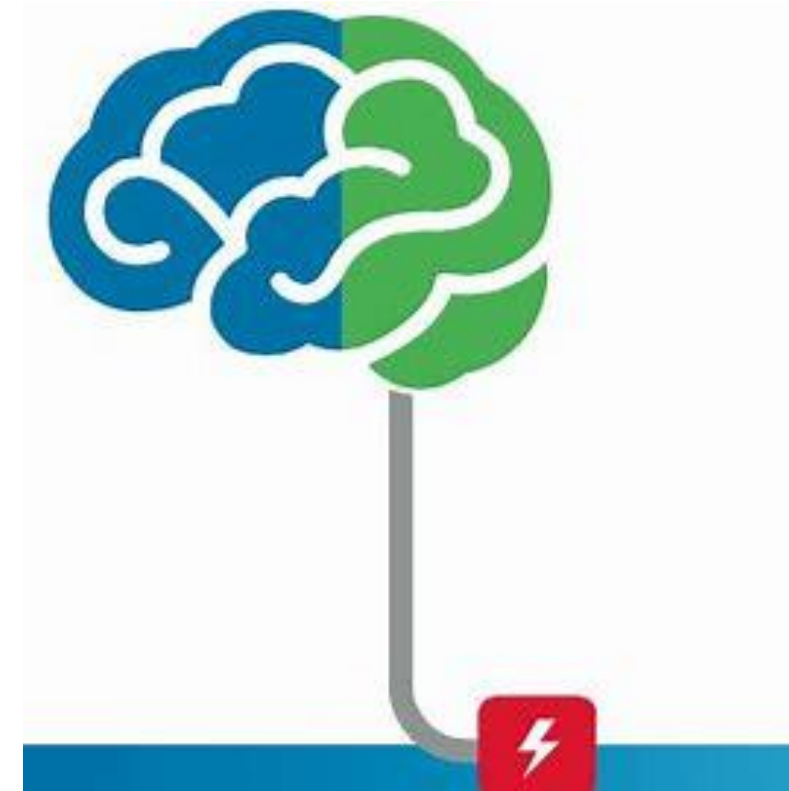
- ↑ in age category accounted for ↓ Concussion Knowledge by 2.6 (%) for each category.
- A previous education of SRC accounted for 4.8% ↑ in Knowledge
- A previous diagnosis of SRC was found to account for 4.1% ↑ in Knowledge

Concussion Attitudes

- ↑ Age category explained a 2.8(%) ↓ in Concussion Attitude scores
- Neither education ($p=.511$) or a history of official diagnosis ($p=.970$) were found to influence overall Attitudes.

Discussion- Concussion Knowledge

- Overall CK Levels similar to Football, Rugby, Cycling (O'Reilly et al. 2020, Hutchison et al 2019).
- Lower than Previous Cycling Studies (Hurst et al.2020 , Hardwicke et al 2021)
- Symptom Knowledge was similar to field based sports (Hutchison et al 2019).
- Previous History of SRC = ↑ Knowledge
- ↓ Age = ↑ Knowledge
- History of SRC Education = ↑ Knowledge



Discussion- Concussion Attitudes

- Consistent with field based studies (Hutchison et al 2019)
- Reporting Intentions.
- Difference between “what the athlete feels” and what they “feel most athletes would feel”.
- Athletes may favour an unsafe attitude though a fear of not wanting to appear “weak”, “soft” or lacking an alpha personality (Hardwicke 2022., Sanderson et al. 2016).
- \uparrow Age = \uparrow in Attitude Safety
- SRC Education = No effect on Attitudes



Limitations

- The cross-sectional nature of the research
- Online convenience sampling
- Amendments made to the survey



Summary

- Competitive cyclists having a comparable level of concussion knowledge and attitudes scores as seen in athletes in other sports.
- Unsafe willingness to hide symptoms to stay within a race/event.
- Education was effective in improving overall Knowledge scores.
- There is a lack of transfer between Concussion knowledge scores with safer Attitudes
- Athletes in younger age groups have significantly higher levels of concussion knowledge compared to their older counterparts.
- Younger age categories portrayed significantly lower Attitude levels.



**IF IN
DOUBT,
SIT
THEM
OUT.**

Practical Implications.

- Medical professionals
- Educational interventions
- Early on in an athletes career should be considered an important point for educational interventions



Future Recommendations



The Cyclists' Alliance

- Further research is warranted to explore the cultural context within cycling that undirectedly and directly influences athletes decisions.
- The UCI in conjunction with National Governing bodies and representative unions should develop educational workshops to standardise the messages around Sports Related Concussion in cycling.
- These educational pieces should be delivered by medical professional and science experts with a strong knowledge of cycling.

Thanks for taking the time to listen

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