

Conference abstract

# The Knowledge and Attitudes of UCI Competitive Cyclists towards Sports Related Concussion

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## 1. Introduction

Sports related concussion (SRC) is categorised as a mild traumatic brain injury (McCrory et al. 2017). Despite the general increase in knowledge of SRC risks, many athletes remain unaware that the injuries sustained may be symptomatic of SRC (Hurst et al. 2019). The body of literature informing the level of knowledge and attitudes of athletes towards SRC is mainly focused on field-based sports due to their physical nature (Sullivan et al. 2016; Williams et al. 2018). However, in the scarce epidemiological data of injury incidences within cycling, it is evident that SRC is not only inherent in contact sports (Rooney et al. 2020).

There have been several noteworthy examples of SRC and unsafe attitudes within the professional peloton. Most notably in 2020, when Roman Bardet crashed during stage 13 of the Tour de France with 87Km remaining. Bardet subsequently completed the stage when he was later diagnosed with SRC and removed him from the race. The death of professional cyclist and Olympic silver medalist Kelly Catlin in 2019 is an example of the longer-term risks associated with the condition (Lutz 2019). This riders' suicide was attributed to mismanaged post-concussion syndrome which anecdotally highlights the importance of SRC knowledge in recognition and safe, short- and long-term management of the condition.

The Union Cycliste Internationale (UCI) have recently published a consensus statement for the diagnosis and management for SRC in cycling after many calls for action (Swart et al. 2021; Elliot et al. 2019). It may be argued that competitive athletes are more at risk of SRC and portray a willingness to take risk due to the fast, results driven nature of the sport. The aim of this study was to explore and quantify competitive cyclists' level of knowledge and safety of attitudes around SRC using an amended version of Rosenbaum's Concussion Knowledge and Attitudes Survey (RoCKAS).

## 2. Materials and Methods

The study was a cross sectional study which aimed to recruit competitive cyclists. Competitive cyclists were defined and identified as "those who held an UCI racing license affiliated to their respective national governing body, partook in at least club level racing league and were over 16 years old". An amended version of the RoCKAS was used as a validated means of quantifying the cyclists' knowledge and attitudes towards SRC (Rosenbaum and Arnett 2010). Due to the survey originating from field-based sports minor amendments were made to the scenario-based sections making them applicable to cycling which improved the face/content validity.

## 3. Results

A total of 155 competitive cyclists completed the online survey. The mean Concussion Knowledge (CK) score was 24.4 (SD=3;



range 0-36) which was a mean overall percentage score of 67.9% (SD=9.5). The mean score for Concussion Attitudes (CA) was 49.05 (SD=4; range 19-59) which was a mean overall percentage of 83.15% (SD=7). Two separate regression models were carried out to examine the influence of age, history of SRC education, SRC diagnosis and overall CK levels on CA and CK scores. Through individual section analysis there was a notable disparity between athletes' attitudes and actions. The study found a previous history of official SRC diagnosis and SRC education, had a significant positive association with overall CK scores. Conversely, age category had a significant negative association with CK. With CA levels, only age group was found to have significant positive associated with CA, with older aged categories having safer attitudes.

#### 4. Conclusion

Competitive cyclists have a comparable level of CK and CA to other sports, however, there remains a notable disparity between CK, and CA. Competitive athletes were aware of the risks associated with SRC, however, they portrayed a willingness to stay within a race when experiencing signs and symptoms of SRC. Medical professionals responsible for the assessment of SRC should be cognisant of younger athletes' lower attitudes scores despite having adequate CK. This is a cause of concern and may prove to be an additional diagnostic challenge for medical professionals working within cycling. The study findings support the view that early on in competitive cyclists' careers is a key period to influence safer CA and educational strategies should place a greater emphasis on the translation of knowledge to safer attitudes.

**Keywords:** Concussion; Cycling; Knowledge; Attitudes.

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**Competing Interests:** TF is a Cycling Performance Coach and Chartered Physiotherapist working within the Musculoskeletal Specialty. GB is a Chartered Physiotherapist with special interests in Neurological Rehabilitation. GB is a Senior Lecturer at QMU, Edinburgh.

**Conflict of Interest:** The authors report no conflict of interest.

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