

# A call to action: the need for concussion assessment and diagnostic protocols for use in the different elite cycling disciplines, including paracyclists

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The public, athletes, support staff and sports administrators are increasingly aware of concussions, including their diagnosis and short and long-term complications. This is particularly true in the UK with the release of the first pan-sport, grassroots concussion guidance in May 2023.<sup>1</sup> In terms of elite sports, some sports have well-developed concussion guidance, while others are more embryonic. So, where is the sport of cycling regarding concussion diagnosis and management, particularly as we build up to the first pan-cycling World Championships in Scotland in August 2023?

## HARROWGATE CONSENSUS STATEMENT FOR CYCLING

At the road world championships in Harrogate, UK in 2019, the Union Cycliste Internationale (UCI) held a consensus meeting to establish concussion guidelines for cycling.<sup>2</sup> However, these are general guidelines for concussion management in cycling and need to be adapted to the needs of the individual cycling sports, and this was highlighted within the consensus statement itself.

## IS CYCLING JUST ONE SPORT?

Various cycling disciplines come under the guidance of the UCI, and all need individual concussion diagnosis and management guidelines specific to their demands, using the three-step approach for concussion management as previously described.<sup>2</sup> That is, concussion assessment should consist of the following:

- ▶ Stage 1: assessment at the time of injury.
- ▶ Stage 2: following completion of the event but on the same day as the potential concussive event.
- ▶ Stage 3: 24–48 hours after the initial potential concussive event.

The cycling disciplines include road, BMX freestyle and BMX racing, track, cyclocross, mountain biking, trials, gravel, cycling esport, paracycling and indoor cycling. Additionally, within these disciplines, there are further subdisciplines of cycling. For example, mountain biking includes downhill and cross-country, which are very different sports. Overall, these events can be categorised as point-to-point racing (start and finish at different points, eg, road racing), circuit (competitors doing laps of a circuit, with the start and finish lines close to each other, eg, cyclocross) and pitchside/trackside disciplines, including cycle-ball. Thus, concussion protocols need to be developed for each of these areas of cycling sport and then adapted to the individual needs of each cycling discipline.

## WHAT ABOUT PARACYCLING?

Paracycling events also present unique considerations for concussion diagnosis and assessment. For example, how do we make the assessment process appropriate for those visually impaired cyclists who are being ‘piloted’ by a fully sighted co-pilot at the front of the bike? Authors have recently considered adapting the concussion assessment and increasing concussion knowledge in blind football.<sup>3</sup> Still, further work is required in this area of cycling. Additionally, in such ‘piloted’ events, there may be more than one casualty and event medical teams need to ensure they are equipped to manage several athletes simultaneously. Mass casualties will also occur in other cycling disciplines, and the concussion assessment and diagnosis pathways need to ensure that they consider this.

## ISSUES TO CONSIDER WHEN IMPLEMENTING ANY CONCUSSION PROTOCOL?

As the international federation governing cycling sports, the UCI needs to consider the practicalities of implementing concussion protocols in competitions. For example, in



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road cycling, if an athlete undergoes a stationary concussion assessment during the race, then they will be left behind by the rest of the peloton and will essentially be out of the race without being able to draft behind the team cars that are usually positioned behind the peloton. This occurred at the 2023 Tour Down Under race this year and resulted in race disqualification for a rider.<sup>4</sup> Thus, appropriate rule changes, with the education of riders, staff, the public and officials, need to be put in place to implement any new concussion guidelines within the different cycling disciplines.

## WHERE DO WE GO FROM HERE? A CALL TO ACTION FOR CONCUSSION PROTOCOLS IN THE INDIVIDUAL CYCLING DISCIPLINES

All individual cycling disciplines (and subdisciplines) need to develop a concussion diagnosis and assessment protocol unique to the individual demands of their sport. Some of this work has already begun with initial protocols developed in the road,<sup>5</sup> downhill mountain biking<sup>6</sup> and track cycling,<sup>7</sup> but this needs to be expanded into the other cycling disciplines, particularly the para-sport events. This work should be coordinated by the UCI, being aware of the individual cycling discipline regulations, which may require rule changes, with appropriate monitoring by the UCI to ensure that any non-compliance with the new protocols or abuse of the system is appropriately penalised. This will also allow the concussion guidelines to be updated regularly as new guidelines become available.

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