

Background Return to play decisions are complex. Pathways considering effective communication should be considered. High correlations between sports medicine/management communication and athlete injuries have been reported.

Objective Design and implement a practical sports medicine/management communication tool with UCD Athletic Football Club's (AFC) Premier division team for an 8 week trial.

Design Prospective Exploratory study.

Setting UCD Physiotherapy Hub- physiotherapists, supported by students provide sports physiotherapy services. UCD AFC's top tier team competes in the Irish Premier Division.

Patients (or Participants) UCD AFC team selected through purposive sampling. Coaches approached seeking qualitative feedback regarding the communication tool. Only de-identified data reported.

Main Outcome Measurements 'Traffic Light System': Model chosen based on sports medicine and management staff consensus. Players were categorised as Green-fit to play, Yellow-fit to play with caution, Amber-fit for light training only or Red-not fit to play. Classification was based on combining return to play criteria/outcome measures and clinical decision making by the Physiotherapist. Player availability (group and individual) in pie chart and table format was shared with management prior to training sessions/games.

Qualitative Feedback Management feedback gathered through a survey at the end of the 8 week trial.

Results *Descriptive results* Twenty seven UCD Soccer athletes of mean age 20.26 ± 1.3 years monitored over an 8 week mid-season period. Sixteen initial Physiotherapy clinical sessions completed. Average availability 69% Green 8.6% Yellow 9.3% Amber 13% Red.

Qualitative results Surveys were completed by 3 AFC Management staff. Key themes: i) Ease of interpretation ii) Application to training session/game planning iii) Improving availability and transparency

Conclusions The 'Traffic light System' was time efficient, low cost, and has received positive preliminary feedback. Trialling the system over a full season is needed to gauge long term utility.

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THE BAN OF TRAMADOL AND HAZARD PREVENTION IN CYCLING

¹Xavier Bigard, ³Angeline Turin, ²Olivier Salamin, ²Raphael Faiss, ⁵Youssef Daali, ⁴Serge Rudaz, ³Francesca Rossi, ²Martial Saugy. ¹Union Cycliste Internationale, Aigle, Switzerland; ²Center of Research and Expertise in anti-Doping sciences, Lausanne, Switzerland; ³Cycling Anti-Doping Foundation, Aigle, Switzerland; ⁴Analytical Sciences – School of Pharmaceutical Sciences, Geneva, Switzerland; ⁵Centre Médical Universitaire, Geneva, Switzerland

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Background Tramadol is a synthetic opioid not banned by WADA, but included in the Monitoring Program since 2012. The prevalence of use of tramadol in competition was approximately 5% in cycling. These data clearly suggest that there was a misuse of tramadol in cycling. Opioids have several adverse effects, including nausea, dizziness and reduced vigilance. Such effects might be a potential cause of falls during races. Moreover, the psychoactive effects of tramadol are known to lead to abuse and then to drug dependence.

Objective In order to decrease the risk of falls and prevent the occurrence of opioid-related side effects, the UCI has decided to ban the use of tramadol in competition from the

1st March 2019. This regulation was part of a vast program of injury prevention in cycling, and was included in the UCI medical rules.

Main Outcome Measurements The tramadol controls are done in dried blood spots (DBS). The capillary blood is taken from a finger using a specific device that allows reliable collection (Hemaxis-DB10, DBS-System SA, Gland, Switzerland). DBS samples are sent to the reference laboratory in sealed bags through a reliable courier company. Tramadol analyses are performed by using the UHPLC-MS/MS technique. Positive results are based on the presence of the parent compound and its two main metabolites. The results are reviewed by an independent third entity, and sent to the UCI Medical Director. Positive controls are sanctioned with disqualification of the event and a fine.

Results As this summary is being written, 520 controls have been done in UCI-WorldTour races and World Championships. No positive results were reported.

Conclusions The ban on tramadol in cycling is a UCI medical regulation totally independent of the WADA rules, and supported by medical reasons intended to prevent the risks of injuries and opioid-related side effects. The introduction of the Tramadol-DBS tests has obviously a strong deterrent effect on its use in cycling.

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INJURIES AMONG YOUTH MOUNTAIN BIKE RACERS: THREE-YEAR DATA FROM A NATION-WIDE INJURY SURVEILLANCE SYSTEM IN THE UNITED STATES

¹Meredith Ehn, ¹Daniel M Cushman, ¹Masaru Teramoto, ²Chris Spencer, ¹Stuart Willick. ¹University of Utah, Salt Lake City, USA; ²National Interscholastic Cycling Association, Berkeley, USA

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Background Youth mountain bike racing is a rapidly growing sport in the United States. An injury surveillance system (ISS) is now implemented through a collaboration between University of Utah researchers and the National Interscholastic Cycling Association (NICA), referred to as NICA-ISS, to better understand injury characteristics in this sport and pursue data-driven injury prevention strategies.

Objective Describe types of and factors associated with injuries sustained by youth mountain bike racers during NICA-sanctioned mountain bike racing and training.

Design NICA-ISS was developed using a web-based system. Data were collected from NICA leagues during the 2018–2020 seasons. Designated reporters on each team were asked to complete weekly incident and exposure report forms.

Setting Nation-wide youth mountain biking leagues in the United States.

Participants Student-athletes on NICA teams in grades 8–12 participating in the 2018–2020 seasons.

Assessment of Risk Factors Variables analyzed included injury characteristics, athlete demographics, trail conditions, incline during crash, weather, crash circumstances (practice, race, passing, trail familiarity), and health factors (dehydration, sleep, illness).

Main Outcome Measurements Proportions/rates of injuries overall, by type and location, and by group of athletes.

Results Injuries were tracked in 66,588 student-athlete-years, resulting in 2,587 injuries in 1,677 student-athlete injury events reported. The most commonly reported injury was

concussion (23.3%), followed by injury to the wrist/hand (22.7%), shoulder (16.7%), and knee (14.3%). Over a half (52.1%) of injury events occurred on downhills. Males and females reported similar injury rates (2.43% and 2.86%, respectively), but females sustained significantly more lower limb injuries ($p = 0.003$). A large portion (72.4%) of injured athletes were unable to complete the ride; 49.3% of crashes resulted in an emergency room visit.

Conclusions Acute traumatic injuries are common in mountain bike racing, including concussions and injuries to the upper extremities. Males and females have similar injury rates but different injury types. To our knowledge, this is the largest mountain bike racing ISS in existence.

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INJURIES AMONG YOUTH MOUNTAIN BIKE RACING COACHES: THREE-YEAR DATA FROM A NATION-WIDE INJURY SURVEILLANCE SYSTEM IN THE UNITED STATES

¹Meredith Ehn, ¹Daniel Cushman, ¹Masaru Teramoto, ²Chris Spencer, ¹Stuart Willick. ¹University of Utah, Salt Lake City, USA; ²National Interscholastic Cycling Association, Berkeley, USA

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Background As youth mountain bike racing is a rapidly growing sport in the United States, it is essential to monitor injuries in both student-athletes and coaches who ride with student-athletes during practices. An injury surveillance system (ISS) implemented through a collaboration between University of Utah researchers and the National Interscholastic Cycling Association (NICA), referred to as NICA-ISS, helps to better understand injury characteristics in this sport and pursue data-driven injury prevention strategies.

Objective Describe the types of and factors associated with injuries sustained by coaches during NICA-sanctioned mountain bike training.

Design Data were collected via NICA-ISS, developed using a web-based system, from NICA leagues during the 2018–2020 racing seasons. A designated reporter from each team reported injuries sustained by coaches along with those sustained by student-athletes.

Setting Nation-wide youth mountain biking leagues in the United States.

Participants NICA coaches participating in the 2018–2020 seasons.

Assessment of Risk Factors Variables analyzed included injury characteristics, coach demographics, and factors associated with injuries.

Main Outcome Measurements Summary measures (frequency and proportion) of injuries and associated factors.

Results Injuries were tracked in 31,280 coach-years, resulting in 407 injuries in 227 reported injury events. The most commonly reported injury was to the shoulder (34.8%), followed by concussion (17.6%) and wrist/hand (17.6%). 57.3% of injuries occurred on downhills. Males and females reported similar injury rates (0.70% and 0.80%, respectively). Injury characteristics differed between sexes, with female coaches sustaining more lower limb injuries while males sustained more upper limb injuries. Whereas 56.4% of crashes resulted in an emergency room visit, 9.3% required hospital admission.

Nearly half (48.3%) of injury events resulted in time-loss of 4 weeks or greater.

Conclusions Acute traumatic injuries are common in mountain bike racing coaches and in student-athletes. Dissimilarly to student-athletes, coaches sustain upper extremity injuries more often than concussions. To our knowledge, this is the first ISS to track injuries in mountain bike racing coaches.

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SPORTS-RELATED CONCUSSION (SRC) IN ROAD CYCLING: ESTABLISHING THE ROADSIDE HEAD INJURY ASSESSMENT (RIDE) FOR ELITE ROAD CYCLING

^{1,2}Neil Heron, ²Elliott Jonathan. ¹Keele University, Keele, UK; ²Queen's University Belfast, Belfast, UK

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Background Despite recent advances in the diagnosis and management of sports-related concussion (SRC) in the sports medicine community; as well as heightened recognition of the condition by the public and media, some sports, such as road cycling, appear to lack effective concussion assessment, diagnosis and management protocols.

Objectives Undertake a systematic review of the literature on SRC assessment in road cycling and from this evidence, suggest a model for the Roadside head injury assessment (RIDE) as well model return to riding guidelines.

Design Systematic review.

Setting Elite Sport.

Patients (Or Participants) This systematic review is reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidance.

Interventions (Or Assessment Of Risk Factors) The Physiotherapy Evidence Database (PEDro) scale was used to assess the quality of included papers in the review.

Main Outcome Measurements From 94 studies identified, 65 studies were excluded after screening the titles and abstracts and two studies were included in the review.

Results Gordon et al describe the presentation of a single case of paediatric concussion following a cycling crash. They highlight the utility of SRC evaluation using the Sport Concussion Assessment Tool (SCAT) as well as the importance of a step-wise return-to-play protocol. Greve and Modabber discuss a number of traumatic brain injuries that occurred during the 2011 road cycling season and, as a minimum, call for riders to be withdrawn from competition following loss of consciousness or amnesia. From this review, we then suggest a Roadside head injury assessment (RIDE) for assessing SRC in elite road cycling.

Conclusions The elite road cycling race environment poses a unique challenge to the identification of suspected SRC and this review illustrates the lack of published evidence to advise effective means of SRC assessment within road cycling. We are calling for The Union Cycliste Internationale (UCI) to host a consensus meeting to agree the operational detail required to implement a standardised RIDE - informed by the Berlin Consensus Guidelines, SCAT5 and return-to-riding protocol for road cycling.