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Infographic: 'As Easy As Riding A Bike': A narrative review of injuries and illness in road cycling

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British Journal of Sports Medicine

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"AS EASY AS RIDING A BIKE" - A narrative review of injuries and illness in road cycling

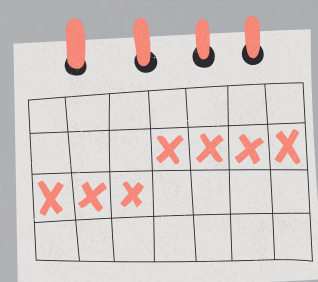
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AIMS

1. TO EVALUATE THE INCIDENCE OF INJURIES AND ILLNESS REPORTED IN ROAD CYCLING
2. TO EVALUATE THE EFFECT OF AGE ON REPORTED INJURIES, THE MOST COMMON INJURY TYPE AND LOCATIONS AS WELL AS THE DIFFERENCE IN INJURY INCIDENCE BETWEEN AMATEUR AND PROFESSIONAL CYCLISTS



INCLUDED STUDIES



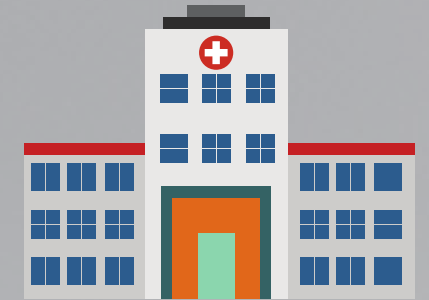
5 INVOLVED MULTI-DAY EVENTS



4 INVOLVED ONE-DAY EVENTS



2 INVOLVED QUESTIONNAIRE REPORTS



1 INVOLVED SURVEILLANCE OF A&E ATTENDANCE FOR CYCLING INJURIES

WE REVIEWED STUDIES DESCRIBING INJURIES IN CYCLISTS:

- 1) AGED ≥ 18
- 2) WHO CYCLED FOR PURPOSES OTHER THAN COMMUTING

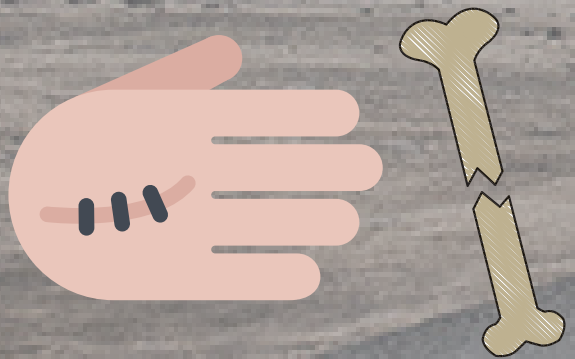
FINDINGS



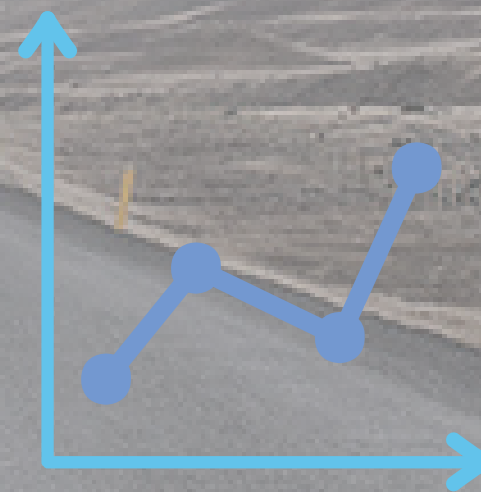
- 1 UPPER LIMB INJURIES ARE MORE COMMON THAN LOWER LIMB INJURIES



- 6 DIFFICULT CYCLING TERRAIN INCREASES THE RISK OF INJURY AMONGST CYCLISTS



- 2 THE MOST COMMON INJURIES WERE LACERATIONS FOLLOWED BY FRACTURES



- 7 THE INCIDENCE RATE OF INJURIES VARIED WIDELY AMONGST STUDIES
In amateur cyclists, the injury incidence ranged from 3 to 116 per 1000 persons



- 3 THE CLAVICLE IS THE MOST COMMON LOCATION OF FRACTURES

Surgical management allowed for quicker return to competitive action versus conservative management

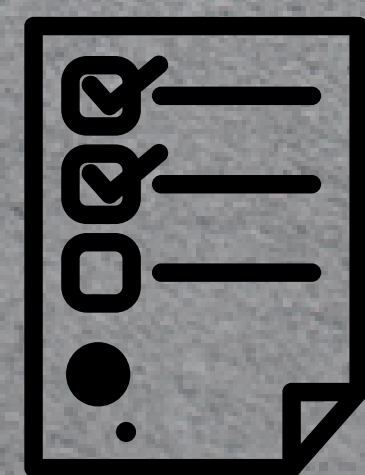


- 8 ILLNESS IS A COMMON CAUSE OF RACE WITHDRAWAL, WITH THE RATE OF ILLNESS INCREASING WITH AGE
In professional cyclists, 47% of race withdrawals were due to non-traumatic causes, e.g. medical illness

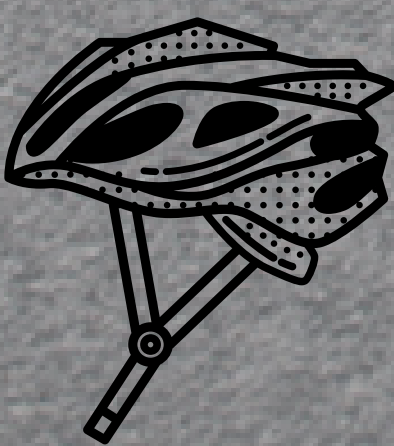


- 4 THE KNEE IS THE MOST COMMON LOCATION FOR OVERUSE INJURIES

The commonest overuse diagnosis was patellofemoral pain

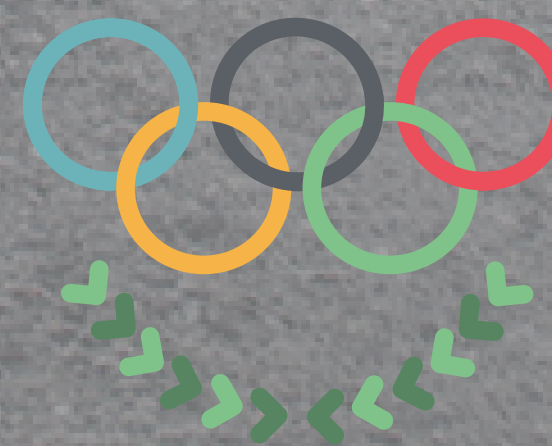


- 9 ROAD CYCLING INJURY STUDIES HAVE REPORTED THEIR FINDINGS INCONSISTENTLY



- 5 HEAD INJURIES ARE COMMON IN ROAD CYCLING

Head injuries and concussion accounted for 2-15% of all injuries sustained in studies included in the review



- 10 FUTURE STUDIES SHOULD USE A STANDARDISED METHOD TO REPORT THEIR FINDINGS

E.g. As recommended in the International Olympic Committee consensus statement on illness and injury reporting

CONCLUSIONS

- 1 THIS STUDY IDENTIFIED UNIQUE INJURY PATTERNS RELATED TO ROAD CYCLING
- 2 SPECIFIC PREVENTION STRATEGIES ARE REQUIRED TO IMPROVE RIDER SAFETY
- 3 FUTURE STUDIES SHOULD USE A STANDARDISED METHOD FOR RECODING AND REPORTING INJURIES AND ILLNESSES IN ROAD CYCLING

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2 BJSM Infographic

3 **Infographic: 'As Easy As Riding A Bike':** A narrative review of injuries and
4 illness in road cycling

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11
12 **Word Count:** 400

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15 Belfast. Email – N.Heron@qub.ac.uk

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3 18 The World Health Organisation (WHO) recommends that adults should do at least 150
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5 19 minutes of moderate-intensity physical activity or 75 minutes of vigorous physical activity
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8 20 per week (1). Despite this, recent statistics show that one in four adults do not meet the
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10 21 recommended physical activity guidelines (2). Road cycling is an effective form of exercise
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12 22 that can help overcome the population's failure to meet physical activity guidelines. In
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14 23 addition, the popularity of cycling at an elite level continues to grow. Injuries sustained
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16 24 during road cycling can act as a deterrent to future participation; both at amateur and
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18 25 professional levels. Whilst studies have described the most common types of injuries
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20 26 experienced by amateur cyclists, (3, 4) the findings to date have been heterogenous.
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23 27 For this reason, we conducted a systematic review into the injuries and illnesses sustained
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25 28 during road cycling at both amateur and professional levels (5). The systematic review was
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27 29 reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-
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29 30 analyses (PRISMA) guidance (6). Knowledge of road cycling injuries will allow
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31 31 implementation of preventative measures, improving the safety of road cycling. This will
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33 32 increase the likelihood that the general population will pursue road cycling as a form of
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35 33 physical activity whilst also maximising competition availability for elite road cyclists.
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37 34 Further, it is vital that we have information regarding the rate of illness amongst road
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39 35 cyclists and the factors that need to be addressed to reduce this risk.
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51 **FIGURE 1 HERE**
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57 39 Results of our review indicated that the injury type with the highest incidence were
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59 40 abrasions, lacerations and haematomas, accounting for 40-60% of the total injuries
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3 41 recorded. Fractures (6-15%) were the second most common type of injury, with the clavicle
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5 42 being the most common fracture site. Head injuries (including concussions) accounted for 2-
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8 43 15% of injuries with musculoskeletal injuries accounting for 2-18%. Upper limb injuries
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10 44 were more common than lower limb injuries, and amateurs appeared to be at higher risk of
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12 45 injury/illness than professionals. Patellofemoral pain syndrome was the most common
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14 46 overuse injury. Illness was a common cause of withdrawal from cycling events and the rate
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16 47 of illness increased with age. For instance, amongst professional cyclists, 47% of race
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18 48 withdrawals were due to non-traumatic causes such as medical illness. Importantly, our
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20 49 review highlights that the incidence rate reported in prior studies varies widely and this can
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22 50 be largely explained by inconsistencies in the recording and reporting of injuries.
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24 51 Accordingly, it highlights the need for a standardised method when conducting future
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26 52 research, such as that outlined by the International Olympic Committee, to allow direct
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28 53 comparison to other sports using the same method of injury classification (7).
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39 55 Our study has identified unique injury patterns related to road cycling. As such, unique harm
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41 56 minimisation strategies are required to improve rider safety. Amateurs appear to have a
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43 57 higher risk of injury compared to professional cyclists, and this may require specific
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45 58 prevention strategies targeted to this group, such as bike handling skill courses. The results,
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47 59 summarised in our infographic, can help guide these measures that will minimise drop-out
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49 60 from competitive cycling events and cycling as a recreational activity.
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6 63 **CONTRIBUTORS**
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9 64 DR and NH conceived the idea and wrote the initial draft. All authors contributed and
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11 65 approved the final infographic and accompanying text.
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25
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97 **FIGURE LEGENDS**

98 Figure 1. Infographic

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