

# Prevalence of Acute Injuries in Amateur and Elite Mountain Bikers

Study Type:	Complete anonymous questionnaire
Study Design:	Cross-sectional observational study
Study Categorisation:	N/A
Study Registration:	ClinicalTrials.gov NTC03690219
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Protocol ID	According to Article 25 of the Human Research Ordinance, this anonymous questionnaire does not require ethics approval.
Protocol Version and Date:	Version 01 (dated xxx)

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## **1. Introduction**

Mountain biking has developed into a popular sport performed by both amateurs and professionals. Physical activity is often related to an increasing risk of injury which may lead to high socioeconomic costs. To avoid accident-related injuries, each racing discipline demands its own set of specific skills and training regimens. The aim of this study is to perform a descriptive analysis of the causes and effects of mountain biking related injuries in amateur and professional athletes.

## **2. Methods**

A survey (as outlined below) of mountain biking related injuries will be conducted on the participants of the Swiss Epic mountain bike event in 2017 held in Valais. The retrospective questionnaire is designed in accordance with existing literature ((Gaulrapp et al., 2001; Lareau and McGinnis, 2011), will include 25 questions and will be translated into English, French, Italian, Spanish and German. The participants will be asked to tick the most appropriate answer. The questionnaire aims to assess the athletes' 1) basic demographics, riding level and years of experience, 2) number of races per year and mean hours of training per week, 3) number and kind of suffered injuries related to mountain biking and medical treatment requirement, 4) and amount and kind of protective gear items.

## **3. Statistical analysis plan**

Data analyses will be performed using the Statistical Package for Social Sciences (SPSS), version 24.0 (IBM Corporation, Armonk, NY, USA).

Descriptive statistics [means  $\pm$  standard deviations (SD) and relative frequencies (%)] will be retrieved. Pearson correlations will be used to assess correlations between the outcome variables. Chi-squared tests will be applied to determine group differences of injury prevalence and the occurrence of severe, respectively mild injury events. Multivariate logistic regressions will be performed to evaluate predictive factors among the outcome variables (independent variables) of severe injury events (dependent variable; no severe injury = 0 versus severe injury = 1) in elites and amateurs separately. Independent samples t-tests will be used to evaluate mean group differences in demographics, and training and injury related variables between the elite and the amateur mountain bikers. P-values  $< 0.05$  will be considered as statistically significant. According to Cohen (1992), effect sizes will be calculated for the correlation analyses and defined as follows;  $r = 0.20$  small,  $r = 0.50$  medium,  $r = 0.80$  strong.

## Mountain biking Injury Questionnaire

*Thank you for agreeing to take part in this important questionnaire about mountain biking injuries. The information we can obtain from this survey may help to improve the knowledge about injury prevalence in mountain biking. With this knowledge, it may be possible to improve safety in future and prevent injury.*

*Be assured that all answers you provide will be kept in the strictest confidentiality. This survey is anonymous. Do not write your name on the survey.*

*Please tick only the most correct answer.*

**Gender**

male       female       other

**Date of birth**

\_\_\_\_\_ (day/month/year)

**Race format**

swiss epic       swiss epic 2 day  
 swiss epic flow       swiss epic 2 day flow

**1. Since how many years do you participate in mountain biking?**

\_\_\_\_\_ Years

**2. On what level do you participate in mountain biking?**

recreational       amateur       elite-amateur       professional

**3. What's your motivation to participate in mountain biking?**

risk       challenge       health factor       fun       beeing outdoors  
 excitement       physical exercise

**4. Rider type**

cross country       trail riding       all mountain       downhill       freeride

**5. Pedal System**

cleat (i.e. Shimano SPD)       platform

**6. Estimated training hours per week in regard to the season**

Spring \_\_\_\_\_ h/Week      Summer \_\_\_\_\_ h/Week      Autumn \_\_\_\_\_ h/Week      Winter \_\_\_\_\_ h/Week

**7. How many races per year**

\_\_\_\_\_

**8. Protective gear**

helmet       gloves       eyewear       upper armour       lower armour

other \_\_\_\_\_

**9. Number of injuries obtained during mountain biking**

\_\_\_\_\_

**10. How long ago was your most recent injury?**

\_\_\_\_\_ /months

**11. Mechanism of injury**

loss of control       loss of traction       collision with object       collision with rider       mechanical problem  
 unknown       other \_\_\_\_\_

**12. Severity of injury** (if more than one injury occurred, choose the most severe one)

no medical treatment needed     self-administered medical treatment     MD administrated medical treatment     Medical treatment in ER     Overnight hospitalization

**13. Body location affected**

hand/finger     calf and knee     hip and thigh     trunk     foot and ankle joints  
 shoulder     head     internal organs     upper arm and forearm

**14. Type of injury**

bone fractures     joint injuries     skin and soft tissue injuries     concussion

**15. Days return to sports**

\_\_\_\_\_ days

**16. Days return to work**

\_\_\_\_\_ days

**17. Did you fully recover from the injury?**

full recovery     partial recovery

**18. Do you experience injury related pain before/during/after mountain biking?**

before     during     after     no

**19. Do you experience NOT injury related pain before/during/after mountain biking?**

before     during     after     no

**20. If you experience NOT injury related pain, where is it located?**

knee     neck     lower back     hip     buttocks

other \_\_\_\_\_

**21. Treatment of muscle soreness/problems**

massage lotions     electrostimulation     supplements     NSAID pain relievers  
 cooling applications     other \_\_\_\_\_  
*(i.e. Ibuprofen, dafalgan, aspirin, voltaren)*

**22. Do you use warming up cremes/ointments before the race?**

yes     no

**23. Do you use any cremes/ointments after the race?**

yes     no

**24. Do you use any Perskindol products?**

yes     no

**25. If yes, before/during/after race?**

before     during     after