

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:	ClincialTrials.gov NTC03690219
Sponsor:	Thim van der Laan, Thim van der Laan AG, Weststrasse 8, 7302 Landquart +41 81 300 01 70
Principal Investigator:	Dr. Ron Clijsen, PhD University of Applied Sciences of Southern Switzerland SUPSI, Rehabilitation and Exercise Science Laboratory (RESlab), Weststrasse 8, 7302 Landquart +41 81 300 01 75
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 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-administrated 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