025 BARRIERS TO WRIST PROTECTOR USE IN SWISS SNOWBOARDERS
Flavia Buergi, Philip Demer, Steffen Niemann, Othmar Bruegger. BFU – Swiss Council for Accident Prevention, Bern, Switzerland
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Background Wrist injuries are the most common type of injury sustained while snowboarding, with 2500 Swiss snowboarders injuring their wrist or forearm annually. The effectiveness of wrist protectors in preventing these injuries is scientifically proven, yet the use of wrist protectors has decreased 17% over the last 10 years, to 25% in 2018.

Objective To identify barriers to the use of wrist protectors among Swiss snowboarders in order to promote their use in the future via specific measures.

Design Face-to-face interviews were conducted on the slopes of 21 ski resorts in Switzerland in the 2017/18 winter season using a standardized questionnaire including information about demographics, snowboarding skills, and snowboarders’ behaviour regarding the use of wrist protectors.

Setting Recreational sport.

Participants 721 snowboarders (mean age: 28±9.1 years, 34% females) residing in Switzerland (aged ≥15 years) were included in the study. The response rate was 79%.

Main Outcome Measurements The prevalence of and barriers to wrist protector use.

Results In this study, a total of 16% of the snowboarders used wrist protectors. We found a difference between adolescents (15–17 years) and adults (≥18 years): 28% vs. 15% (p=0.001). However, no difference was found concerning sex or skill level. The most important barriers to the use of wrist protectors were a belief that they increase injury risk (22%), that they aren’t effective (18%), or that they are uncomfortable (16%).

Conclusions In Switzerland, snowboarders are badly informed about the efficacy of wrist protectors and a minority of snowboarders use them. Therefore, further efforts will be taken in Switzerland to adequately inform non-users. Future prevention measures are planned to ensure that effective protectors are available on the market and to target the lack of knowledge among snowboarders and suppliers.

Design Prospective cohort study.

Setting Norwegian rhythmic gymnasts at national and international level.

Participants One-hundred and seven out of 133 (80.5%) female rhythmic gymnasts participated (mean age: 14.5 years (SD 1.6), mean BMI: 18.9 (SD 2.2)).

Interventions All gymnasts completed a baseline questionnaire and the ‘Triad-Specific Self-Report Questionnaire’. Injuries, illnesses and training hours were recorded prospectively for 15 weeks during preseason using the ‘Oslo Sports Trauma Research Center Questionnaire on Health Problems’ (OSTRC-H2).

Main Outcome Measurements Prevalence and incidence of injuries (all physical complaints) and illnesses.

Results Gymnasts’ response rate to OSTRC-H2 was 97%. Mean overuse and acute injury prevalence were 37% (95% CI: 36% to 39%) and 5% (95% CI: 4% to 6%), respectively. Incidence was 4.2 overuse injuries (95% CI: 3.6 to 4.9) and 1.0 acute injuries (95% CI: 0.5 to 1.6) per gymnast per year. Overuse injuries in knees, lower back and hip/groin represented the greatest burdens. Previous injury increased the odds of injury (OR 30.38, (95% CI: 5.04 to 183.25)), while increased age (OR 0.61 per year, (95% CI: 0.39 to 0.97)) and presence of menarche (OR: 0.20, (95% CI: 0.06 to 0.71)) reduced the odds of all injuries and substantial injuries, respectively.

Conclusions Overuse injuries were common among Norwegian rhythmic gymnasts. Younger gymnasts had higher all-injury risk. Gymnasts who were not menstruating had higher substantial injury risk. Injury prevention interventions should start at an early age and focus on preventing knee, lower back and hip/groin injuries.

027 RESPIRATORY VIRAL INFECTIONS IN TEAM FINLAND DURING 2019 NORDIC WORLD SKI CHAMPIONSHIPS: A CONTROLLED STUDY
1Maarit Valtonen, 2Wilma Gronroos, 3Raakel Luoto, 4Matti Waris, 5Matti Uhari, 6Olli Heinonen, 7Olli Ruuskanen. 1Research Center for Olympic Sports, Jyvaskylä, Finland; 2Research Center for Olympic Sports, Jyväskylä, Finland; 3Research Center for Olympic Sports, Jyväskylä, Finland; 4Department of Studies, University of Turku Hospital and Turku University, Turku, Finland; 5Institute of Biomedicine, University of Turku and Department of Clinical Virology, Turku University Hospital, Turku, Finland; 6Department of Paediatrics and Adolescent Medicine, Turku University Hospital and Turku University, Turku, Finland; 7Department of Obstetrics and Gynecology, Åkershus University Hospital, Lørenskog, Norway
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Background The occurrence, etiology and clinical presentation of respiratory viral infections in elite athletes is unclear.

Design A prospective controlled follow-up study.

Objective Do elite athletes have an increase in risk of acute respiratory viral illnesses?

Setting We followed respiratory viral infections in Team Finland during 2019 Nordic World Ski Championships and in sex and age-matched controls in Finland.

Participants 26 athletes, and 36 staff members. 52 control subjects were adjusted for age sex and number of children.

Intervention Nasal swabs were taken from team members on days 1, 7 and 13 during the Games which lasted 14 days. Respiratory symptoms were recorded daily. At the onset of a symptom two nasal swabs were taken. One swab was analysed within 60 minutes using a point-of-care test (POCT) for 15 viruses. The other swab was tested for 16 viruses in laboratory.
Abstracts

Results Respiratory viruses were detected in 35%, 36% and 25% of the athletes, the staff members and the controls, respectively. Ten out of 26 (38%) athletes and 6 out of 36 (17%) staff members and 3 out of 52 (6%) controls experienced symptoms of respiratory infection. Asymptomatic infections were identified in 4%, 19% and 21%, respectively. The etiology of respiratory infections was detected in 84% of the cases. Four virus clusters were identified caused by rhinovirus, coronavirus 229E and NL63 and respiratory syncytial virus B. The clinical presentation of the infections in athletes was mild and the median duration of symptoms was 5.5 days. One athlete lost a competition due to a viral respiratory infection.

Conclusions The athletes had a 6-fold increase in risk of illness compared to normally physically active controls. The athletes had significantly less asymptomatic infections compared to staff and controls. Despite the infection prevention protocols, viruses circulated actively within the team.

028 ABSTRACT WITHDRAWN

029 DOES ACUTE FATIGUE NEGATIVELY AFFECT THE LOWER EXTREMITY INJURY RISK PROFILE? A SYSTEMATIC AND CRITICAL REVIEW

Background Acute fatigue is hypothesized to alter injury risk profiles by affecting intrinsic risk factors (i.e. postural control, hamstring strength). However, no systematic overview exists that merges the insights of prospective lower extremity injury risk profiling with the effect of acute fatigue on functional test performance.

Objective The objective of this review was to identify the influence of acute fatigue on prospectively determined modifiable intrinsic risk factors for lower extremity injuries and to determine if individual fatigue outcomes should be integrated within an athlete centred injury risk profile and prevention strategies.

Design Systematic review

Methods PubMed (MEDLINE), Web of Science, PEDro, and Cochrane Library were searched until 29 May 2019. Studies were eligible when the study outcomes encompassed intrinsic modifiable risk factors, an acute fatigue intervention, and included healthy athletes or physically active people. Intrinsic modifiable risk factors were identified through recent systematic reviews and meta-analyses. Referenced original research papers were used to determine outcome measures associated with increased injury risk.

Main Outcome Measurements Acute fatigue effect on the intrinsic modifiable risk factors for lower extremity injuries.

Results Forty studies reported acute fatigue effects on modifiable risk factors, with eight studies matching all criteria for data-extraction. Acute fatigue can decrease single leg postural control, decrease ankle joint position sense, decrease isokinetic strength of hamstring and quadriceps muscles and can affect isokinetic H:Q ratios.

Conclusions Acute fatigue affects prospective intrinsic modifiable risk factors, indicating an altered injury risk profile for lateral ankle sprain, patellofemoral pain syndrome and hamstring injuries when fatigued. Current data does not allow conclusions for non-contact ACL injury risk. Clinicians should consider acute fatigue responses as part of injury risk profiling strategies. Future research should allow for individual fatigability as a relevant injury risk outcome and merge insights from athlete centred injury risk profiling and fatigue research.