Main Outcome Measurements The primary outcome was the overall injury prevalence (%) measured every fortnight with the online Oslo Sports and Trauma Research Centre questionnaire. Secondary outcome scores included prevalence of substantial injuries, overall incidence, time-loss injuries, exposure, adherence and experiences.
Results The mean injury prevalence was 23% (95% CI 20–26) in the IPPON group and 28% in the control group (95% CI 25–30). The risk of reporting injuries was 18% lower in the IPPON group (OR 0.72 95% CI 0.37–1.39, adjusted p-value of 0.33). Secondary outcome scores showed no differences between groups. For substantial injuries there was a 22% lower risk in the IPPON group (OR 0.80, 95% CI 0.36–1.78, adjusted p-value 0.58). Trainers and athletes experienced the IPPON intervention as successful.
Conclusions The IPPON trainer-supervised judo-specific injury prevention programme did not reach statistical significance in reducing the overall injury prevalence. The best-estimate of 18% injury reduction rate and successful experience indicate that the IPPON intervention might be practicable and relevant for the judo community.

220 DOES INCREASING THE SEVERITY OF PENALTIES ASSESSED IN ASSOCIATION WITH THE 'ZERO TOLERANCE FOR HEAD CONTACT' POLICY TRANSLATE TO A REDUCTION IN HEAD IMPACT RATES IN YOUTH ICE HOCKEY?

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Background The risk of concussion is high in Canadian youth ice hockey. Aiming to reduce this burden, in 2011 Hockey Canada implemented a national 'zero tolerance for head contact (HC)' policy mandating the penalization of any player-to-player HC. In 2018–20, Hockey Canada further amended this HC-policy including stricter enforcement of severe HCs.
Objective To compare HC rates and HC enforcement pre-policy, post-policy, and following policy amendments in elite U15 Canadian youth ice hockey.
Design Prospective cohort.
Setting A collection of events recorded with a video-camera located at the highest point near centre-ice in public ice hockey arenas in Calgary, Alberta.
Participants A convenience sample of 10 AA (elite) U15 (13–14 year old) games pre-policy (2008–09), 8 games post-policy (2013–14), and 10 games following policy amendments (2020–21).
Assessment of Risk Factors An analysis of HC-policy implementation and policy amendments across three cohort years.
Main Outcome Measurements Using Dartfish video-analysis software; all player contacts and HCs [direct (HC1), indirect (e.g., boards, ice) (HC2)] were tagged using validated criteria. Univariate Poisson regression [clustering by team-game offset by game-length (minutes)] was used to estimate HC1 and HC2 incidence rates (IR) and incidence rate ratios (IRR) between cohorts.
Results A total of 11,427 physical contacts were tagged ($n_{2008–09}$=3896, $n_{2013–14}$=3183, $n_{2020–21}$=4348), with 538 contacts including the head (340 HC1,198 HC2) ($n_{2008–09}$HC1=125, HC2=66; $n_{2013–14}$HC1=110, HC2=44; $n_{2020–21}$HC1=105, HC2=88). With additional rule modifications, a 30% reduction in HC1s emerged ($IRR_{2013–2020}$=0.70, 95%CI:0.51–0.95). Since the HC-policy implementation, HC1s decreased by 24% ($IRR_{2008–2020}$=0.76, 95%CI:0.58–0.99). The proportion of HC1s penalized was similar across cohorts ($P_{2008–09}$=14.4%; $P_{2013–14}$=15.5%; $P_{2020–21}$=16.2%).
Conclusions The HC-policy amendments and increased policy implementation time have led to a decreased rate of HC1s. However, referee enforcement can further boost the HC-policy effectiveness. These findings can help future referee training and potential rule modifications to increase player safety nationally.

221 INJURIES IN PORTUGUESE RECREATIONAL SURFERS

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Background Surfing practice has been growing in recent years with an increasing number of recreational practitioners, especially in countries like Portugal with very good ocean conditions. Most studies consider all professional and recreational surfer injuries.
Objective Determine the rate of injuries and their characteristics during the recreational surf practice.
Design Retrospective cohort study.
Setting Standardised data collected with a validated questionnaire.
Patients 150 Portuguese surfers aged between 8 to 68 years practising during at least one of the two seasons in the study agreed to participate.
Interventions Both gender recreational surfers.
Main Outcome Measurements Retrospective assessment of the last 2 years injuries occurrence and conditions of occurrence.
Results A total of 33 athletes sustained 45 injuries (22% injured players) with 9,72 injuries per 1000 h of exposure. The greatest number of injuries occurred in the lower leg (ankle 20%; knee 13%) followed by the shoulder (17.8%). The most common injury mechanism was collision/direct contact (59%) or torsion (11.4%) with the joints most affected (24.4%). Injuries more frequent were wound (17.8%), contusion (11%) and inflammation (11%). The surfboard (28.9%) and the athlete itself (24.4%) were the main cause of the injury, occurring mainly when performing manoeuvres (20.9%) especially descending the wave (16.3%). There are no statistically significant differences in injury frequency per 1000 h of exposure with regards to sex, surfer position (goofy or regular), surfing side (left, right or both). Male athletes demonstrate higher injury rates (women 7.94, SD 1.96; men 10.27, SD 2.89) per 1000 h of exposure.

Conclusions Recreational surfers reveal a considerable injury frequency per 1000 h of exposure, independent of gender, surfer position or side. The greater incidence of lower-limb and shoulder injuries must be underlined, as well as the fact that collision/direct contact represents more than 50% of the injury mechanisms.

222 DO PHYSICAL CONTACTS AND HEAD CONTACTS DIFFER IN FEMALE ICE HOCKEY AND RINGETTE? A VIDEO-ANALYSIS STUDY

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Background A Canadian study reports the highest concussion rates in ringette and ice hockey, compared to other female team sports. Although high-intensity physical contacts (PC) are prohibited in both sports, player-to-player PCs accounted for 58–64% of injuries.
Objective To compare incidence rates (IR) of in-game PCs, head contacts (HC), and suspected injuries in female varsity ice hockey and ringette.
Design Cross-sectional.
Setting Canadian ice hockey arenas.
Participants Female university ringette and ice hockey tournament/playoff games in the 2018–2019/2019–2020 seasons.
Assessment of Risk Factors Game video-recordings were analyzed using Dartfish video-analysis software. Validated criteria were used to assess PC intensity (level 1–5), PC type (e.g., trunk contact, push), HC type (i.e., HC1=direct player-to-player, HC2=indirect environmental), and suspected injury (i.e., concussion, musculoskeletal).
Main Outcome Measurements Univariate Poisson regression analyses (adjusted for cluster by team, offset by game-minutes) was used to estimate PC and HC IRs and incidence rate ratios (IRRs, 95% confidence intervals) comparing sports.
Results Analyses of 36 team-games (n=18 ringette, n=18 ice hockey) revealed that ringette had a 19% lower rate of PCs (IR=310.38 contacts/100 team-minutes, 95%CI;285.40–337.54) than ice hockey (IR=382.48 contacts/100 team-minutes, 95%CI;356.80–410.00) (IRR=0.81, 95%CI;0.73–0.90). Ringette had a 68% higher rate (IRR=1.68, 95% CI:1.22–2.31) of total HCs (IR=17.92 contacts/100 team-minutes, 95%CI;14.71–21.83) compared to ice hockey (IR=10.67 contacts/100 team-minutes, 95%CI;8.28–13.75). Ringette had a 3-fold higher rate (IRR=3.11, 95%CI;1.13–8.60) of suspected injury (IR=1.46 HCs/100 team-minutes, 95%CI;0.72–2.93) compared to ice hockey (IR=0.47 HCs/100 team-minutes, 95%CI;0.22–1.00).
Conclusions This study demonstrated a lower rate of PCs in ringette than female ice hockey. However, ringette had a significantly higher rate of HCs and suspected injuries than ice hockey. These findings can inform future research targeting prevention strategies in both sports.

223 INJURY AND ILLNESS EPIDEMIOLOGY DURING THE 53RD FIS NORDIC WORLD SKI CHAMPIONSHIPS 2021 IN OBERSTDORF: A PROSPECTIVE COHORT STUDY

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Background Nordic skiing consist of cross-country skiing (CC), ski jumping (SJ) and Nordic combined (NC). Only little injury and illness data from elite competitions in these sports are currently available.
Objective To analyse injuries and illnesses during the FIS Nordic World Ski Championships 2021.
Design Prospective cohort study.
Setting FIS Nordic World Ski Championships in Oberstdorf, Germany, 23rd February to 7th March 2021.
Participants All registered athletes (n=663).
Main Outcome Measure Daily report of newly incurred injuries and illnesses according to the respective IOC consensus statement (2020) by the medical teams.
Results About half of the nations (32/65), covering 51.6% of the registered athletes (n=342), participated in the study and returned 88.4% of the daily report forms. During the 12 championships days, 16 injuries were reported (incidence rate: 4.6%, 95%CI 2.4 to 6.9%), 12 in CC and 2 injuries each in NC and SJ. Six injuries affected the upper and 6 the lower extremities, 2 the lumbar-sacral spine/buttock and 2 the head. Most injuries occurred suddenly (n=13), 3 gradually. Eleven injuries (69%) were non-time-loss, Four injuries resulted in an estimated time-loss of 3–7 days, 1 in an estimated time-loss of 21 days (fracture of metacarpal bone).

Out of the 16 illnesses (incidence rate: 4.6%, 95%CI 2.4 to 6.9%), 11 were reported in CC, 3 in NC and 2 in SJ.. Regarding etiology, 5 illnesses were environmental (4 exercise-related and 1 non-exercise related), 4 infectious, 3 allergic, 2 metabolic/nutritional, 1 degenerative/chronic and 1 unknown. Most illness occurred suddenly (n=10), 4 gradually and 2 had a mixed mode of onset. Twelve illnesses (75%) were non-time-loss. Three illnesses resulted in an estimated time-loss of 3 days, 1 in an estimated time-loss of 20 days (COVID-19 infection).
Conclusion The injuries or illnesses incidence rate was lower than in Winter Olympic Games. The low illness rate might be due to COVID-19 hygiene measures.

224 ABSTRACT WITHDRAWN