

Setting Focus groups were conducted with Para athletes at the National Paralympic training center in Accra, Ghana and virtually via Zoom.

Participants Twenty-six national- and international-level Para athletes with varying disabilities, 18 years or above, living and training in Ghana, India, or Brazil.

Main Outcome Measurements Four a priori themes with multiple subthemes were considered: characteristics of, effects of, growth after, and strategies to address abuse.

Results Athletes described a wide range of harms experienced both within and outside of sport. In addition to more commonly recognized modes of abuse such as physical and sexual, athletes focused on three less easily recognized forms of abuse: financial abuse, neglect, and disability stigma. Athletes described abuse as operating on both interpersonal and systemic levels. Cultural and societal factors influenced athletes' perceptions and experiences of harms.

Conclusions Para athletes from less-resourced countries represent the largest pool of global sportspersons eligible for Olympic-level participation, and have the highest need for protection against abuse, but their voices are seldom heard. Sport stakeholders concerned with abuse prevention must understand their experiences and integrate their insights and priorities into sport safeguarding policies, programs, and interventions. As new insights are added to the current evidence base, athlete-generated and locally-relevant preventative strategies can better protect all athletes.

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ABSTRACT WITHDRAWN

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INCIDENCE OF HEAD CONTACTS, PENALTIES AND PLAYER BEHAVIOUR IN YOUTH ICE HOCKEY: EVALUATING THE 'ZERO TOLERANCE FOR HEAD CONTACT' POLICY CHANGE

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Background Concussion risk in ice hockey is amongst the highest for youth sport. To reduce this burden, in 2011 Hockey Canada implemented a national 'zero tolerance for head contact (HC)' policy mandating referees to penalize all player HCs; however, higher concussion rates have been observed following this policy in players aged 11–14.

Objective To compare HC rates and HC-policy enforcement in U15 (previously Bantam) ice hockey leagues before (2008–09) and after (2013–14) the 'zero tolerance for HC' policy implementation.

Design Prospective cohort.

Setting Calgary, Alberta, Canada.

Participants Thirty-two elite (upper 30% by division, allow body checking) U15 games pre ($n_{2008-09}=16$, $n=510$ players)

and post ($n_{2013-14}=16$, $n=486$ players) HC-policy implementation.

Assessment of Risk Factors The 2011 HC-policy change mandates the penalization of any intentional or unintentional player/direct HC.

Main Outcome Measurements Dartfish video-analysis software with validated criteria for identifying HC types [direct HC (HC1), indirect HC (e.g., boards) (HC2)] and other player-to-player contact behaviours were used. Univariate Poisson regression [adjusted for cluster by team-game, offset by game length (minutes)] was used to estimate HC incidence rates (IR) and incidence rate-ratios (IRR) between cohorts.

Results A total of 506 HCs ($n_{2008-09}=261$, $n_{2013-14}=245$) were analyzed (IR₂₀₀₈₋₀₉=16.6/100 team-minutes; IR₂₀₁₃₋₁₄=15.5/100 team-minutes). The rate of HC1 (IRR=1.05, 95% CI: 0.86–1.28) and HC2 (IRR=0.74, 95% CI: 0.50–1.11) did not differ with the implementation of the HC-policy. Only 12.0% and 13.6% of HC1s were penalized pre- and post-policy respectively. Pre-policy, HC1s were commonly penalized as roughing or elbowing penalties (59%), while post-policy HC1s were penalized with the HC penalty (76%).

Conclusions Despite policy implementation for mandatory enforcement of direct HCs, there was no difference in the rate of HC1s and HC2s, or the proportion of HC1 penalized pre- and post-HC-policy enforcement. This research will be instrumental to inform Hockey Canada's future referee training and rule enforcement modifications.

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SURVIVAL AND RISK ANALYSIS OF 10 MONTHS SURVEILLANCE IN ELITE PARA ATHLETES

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Background Injury and illness surveillance in Paralympic athletes was implemented in the past. First studies reported high incidences but are often limited to rates per exposure.

Objective Survival and risk analysis of longitudinal data on health problems and their burden were performed.

Design Prospective observational study

Setting Surveillance of elite Paralympic athletes from May 2019 until February 2020.

Participants 85 German Paralympic athletes preparing for Tokyo 2020 were included. Six athletes dropped-out during the monitoring phase, leaving 79 athletes included in the evaluation (30 females; 49 males; age: 29.5±10.9 years).

Intervention Weekly completion of the Oslo Sports Trauma Research Center questionnaire on health problems using a web application.

Main Outcome Measurements Median time to first severe health problem, leading to time loss or restriction of full participation in training or competition, and hazard ratio (HR) depending on sex, age or impairment. Calculation of the burden (time loss days per athlete per year) of health problems.

Results 55 participants reported with a median time of 63 days (95%CI: 35–133) a severe health problem. Women had significantly ($p=0.02$) shorter median time to first health problem (35 days; 95%CI: 7–105) compared to men (98 days; 95%CI: 49–294) and nearly twice as high risk to sustain a severe health problem (HR: 1.88; 95%CI: 1.1–3.24). Age or impairment comparisons showed no significant differences. Injuries at the shoulder resulted in the highest burden with 6.5 time loss days per athlete per year followed by the hand (2.9) and trunk (2.6). Respiratory infections showed the highest burden with 5.2 time loss days per athlete per year followed by genitourinary illnesses (1.9) and infectious diseases (1.8).

Conclusion Sex but not age or impairment type showed significant differences on time to health problem and enhanced risks. Upper body injuries and respiratory infections generated high burden.

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INJURY AND ILLNESS IN ELITE ATHLETICS: A PROSPECTIVE COHORT STUDY OVER THREE SEASONS

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Background Athletics is one of the most popular sports in the world and is the centrepiece of the Summer Olympic Games. Participation in athletics training and competition involves a risk of illness and injury.

Objective This paper reports and summarises injury and illness in British Olympic track and field athletes over three full training and competition seasons.

Study Design Descriptive epidemiological study

Setting Elite athletics training centres

Participants Elite track and field athletes from the British national programme

Main outcome measures Exposure, incidence, severity, burden, mechanism- acute vs overdue

Methods A total of 111 athletes on the British national programme were followed prospectively for three consecutive seasons between 2015–2018. Team medical personnel recorded all injuries and illnesses during this time, following current consensus-based methods.

Results The average age of the athletes was 24 years for both males and females (24 years, SD: 4). Total exposure for the three seasons was 79 205 athlete days (217 athlete years). Overuse injuries (56.4%) were more frequent than acute injuries (43.6%). The thigh was the most common injury location (0.6 per athlete year), followed by the lower leg (0.4 per athlete year) and foot (0.3 per athlete year). Muscle and tendon were the most commonly injured tissues, while strains and tears were the most common pathology type. Respiratory illness was the most common illness type (0.3 per athlete year). Hamstring muscle strain was the most common diagnosis causing time loss, followed by Achilles tendinopathy and soleus muscle strain.

Conclusion Our findings indicate that future injury prevention efforts within elite athletics need to focus specifically on hamstring strains, Achilles tendinopathy, and soleus strains. Improved knowledge of the aetiology and risk profile of these problems in elite athletes is needed.

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SPORTS INJURIES IN ADAPTED SPORTS: A SYSTEMATIC REVIEW WITH QUALITY ASSESSMENT

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Background Participation in sport is associated with a risk of sports injuries and illnesses. For athletes with an impairment, sports related health issues pose further burden upon an already restricted lifestyle. This underlines the importance of injury prevention in adapted sports.

Objective To provide an overview of the current evidence regarding injuries and their prevention in adapted sports.

Design A systematic review with quality assessment.

Setting Peer-reviewed literature on sports injuries in adapted sports.

Participants Individuals with a physical impairment that affects motor function, and who are active in sports or physical activity.

Assessment of Risk Factors This study was conducted in accordance with the ‘Preferred Reporting Items for Systematic Reviews and Meta-Analyses’ (PRISMA) guidelines.

Main Outcome Measurements Literature and evidence was categorised by the sequence of prevention; i.e. (1) problem magnitude; (2) aetiology of injury; (3) development of preventive measures; and (4) evaluation of effectiveness.

Results 52 studies were included. A total of 5 studies reported on the first step of the sequence of prevention (problem magnitude) only. 28 studies reported information on both the first and second step, 15 studies on only the second step and only 4 studies on the third and fourth step of the sequence. Most studies included participants of an elite level (82.7%). There is a wide range of injury and illness incidence between various sports (2.2 - 90.9 per 1000 athlete days) and impairment categories (0.6 - 50.0 per 1000 athlete days).

Conclusions Current evidence regarding injuries in adapted sports is mostly limited to elite level athletes. The evidence regarding the development of preventive measures and their effectiveness is limited in this target group. More knowledge is needed of the aetiology and risk factors of various adapted sports, physical impairments and level of performance to develop future prevention strategies for this population.

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INJURY RATES, TYPES AND MECHANISMS IN SLEDGE HOCKEY: IMPLICATIONS FOR GRASSROOTS THROUGH ELITE PARTICIPATION

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