

runners), implying a decreased efficacy in jumpers and increased in runners.

**Conclusions** Throughout season neuromuscular adaptations occurred accordingly with sports gestures and this might explain the different results found between groups. Fatigue can be an important factor to explain the decrease of performance of runners. Sports with consecutive jumps maybe are related with the reduction of asymmetry, what does not happen between runners.

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### INJURY BURDEN AND CHARACTERISTICS IN AESTHETIC SPORTS AMONG HIGH SCHOOL ADOLESCENTS

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**Background** Aesthetic sports require athletes to showcase extreme flexibility, aerial maneuvers and perform hard surface landings that may increase injury risk. However, very few studies have examined injury risk in this population.

**Objectives** To identify aesthetic sport injury prevalence among high school students and to describe the type, location and severity of injury in adolescents who practice aesthetic sports.

**Design** Cross-sectional study.

**Setting** High schools in Calgary area, Canada.

**Participants** Adolescent students (n=2029; 958 male, 1048 female, 23 identified 'other'; ages 14–19 year) from 24 high schools.

**Assessment of Risk Factors** Self-reported participation in aesthetic sport (i.e., gymnastics, dance, figure skating) in previous one-year (based on top three sports for participation).

**Main Outcome Measurements** Self-reported injury (time loss/medical attention), type, anatomical location, and severity. Proportions [95% confidence intervals (CI)] were adjusted for cluster by school.

**Results** Among the 2029 students who completed the question about sport participation, 15% (302/2029) participated in aesthetic sports (282 female, 20 males; dance (247/302; 82%), gymnastics (50/302; 16%), figure skating (22/302; 7%). In the previous one-year, 74 females (26.2%; 95% CI, 20.8–32.6) and 2 males (10.0%; 95% CI, 2.6–31.2) listed aesthetic sport injury as the most severe. Ankle (26.3%; 95% CI, 17.5–37.6), knee (25.0%; 95% CI, 16.4–36.2), and back (9.2%; 95% CI 4.4–18.4) were the most common injury sites. Ligament sprains (22.7%; 95% CI 14.4–33.7), muscle strains (14.7%; 95%CI 8.2–24.9), and fractured bones (12.0%; 95% CI 6.3–21.8) were most common injury types. Medical attention injury rate was 20.5/100 athletes/year and time-loss >7 days injury rate was 11.9/100 athletes/year.

**Conclusions** Aesthetic sport participation and injury rates among high school students are high. The most serious injuries reported were lower extremity injuries with a greater proportion of females reporting aesthetic sport injuries than males. Future research should focus on mitigation of lower extremity injuries among these high-risk aesthetic athletes.

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### PREVALENCE AND BURDEN OF HEALTH PROBLEMS IN COMPETITIVE ADOLESCENT DISTANCE RUNNERS: A 6-MONTH PROSPECTIVE COHORT STUDY

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**Background** Little is known about the overall health of adolescent distance runners.

**Objective** To describe all health problems (injuries and illnesses) in relation to type, location, incidence, prevalence, time loss, severity, and burden, in competitive adolescent distance runners in England.

**Design** Prospective observational study monitoring all health problems for 24-weeks between May and October (2019).

**Setting** Competitive adolescent distance runners (i.e., 800 m to 10,000 m, including steeplechase) in England.

**Patients (Or Participants)** Distance runners (13–18 y) were invited to participate if they had achieved a top-50 performance in their age-group (U20, U17 and U15) during 2018. A total of 644 athletes were invited to take part, with 136 athletes (73 females) having enrolled and completed the study (lost to follow-up: n = 7).

**Main Outcome Measurements** The prevalence and burden of health problems was recorded using the Oslo Sports Trauma Research Center Questionnaire on Health Problems (OSTRC-H). The OSTRC-H was completed online, via Qualtrics, on a weekly basis.

**Results** A total of 363 health problems were registered during this study, including 213 injuries and 150 illnesses. At any time, 24% [95% Confidence Intervals (CI): 21–26%] of athletes reported a health problem, with 11% [95% CI: 9–12%] having experienced a health problem that had substantial negative impact on training and performance. Female athletes reported noticeably more illnesses, compared to male athletes, including higher prevalence, incidence, time loss, and severity. The most burdensome health problems, irrespective of sex, included lower leg, knee, and foot/toes injuries, alongside upper respiratory illnesses. The mean weekly prevalence of time loss was relatively low, regardless of health problem type or sex.

**Conclusions** Competitive adolescent distance runners are likely to be training and competing whilst concurrently experiencing health problems. These findings will support the development of injury and illness prevention measures.

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### DOES THE FIFA 11+ SHOULDER INJURY PREVENTION PROGRAM REDUCE THE INCIDENCE OF UPPER EXTREMITY INJURIES AMONG SOCCER GOALKEEPERS? A RANDOMISED CONTROLLED TRIAL

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**Background** Goalkeepers appear to be the players who are at most risk of sustaining a shoulder injury. Many researchers have reported that goalkeepers are more likely, than outfield players, to injure their upper limb. The FIFA 11+S is