PO055
Muscle injuries and hamstring muscle injuries during the international athletics championships between 2007 and 2015
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Objective The purpose of this study was to analyse the incidence and characteristics of muscle injuries and hamstring muscle injuries occurring during the international athletics championships from 2007 to 2015.

Results A total of 720 muscle injuries have been reported on the total of 1762 recorded injuries, 40.5% of injuries; 57.5% (n = 414) have resulted in time loss of sport. The overall incidence of muscle injuries was significantly higher among male athletes than female athletes (49.1 ± 4.4 vs. 28.7 ± 3.7 injuries per 1000 registered athletes, respectively; RR = 1.71; 95% CI: 1.46 to 2.00).

A total of 185 hamstring muscle injuries were reported on the total of 1082 recorded injuries (9 championships included). This represented 17.1% of total injuries; 61.1% lead to time loss of sport. Hamstring muscle injuries represented 39.8% of all muscle damage, and 74.6% of all thigh muscle injuries. The overall incidence of hamstring muscle injuries was significantly higher in athletes than female athletes (22.4 ± 3.4 vs. 11.9 ± 2.6 injuries per 1000 registered athletes, respectively; RR = 1.94; 95% CI: 1.42 to 2.66). The impacts of hamstring muscle injuries were significantly higher in male than female athletes for the sprints, hurdles and jumps. There was no difference between male and female athletes in the frequency of hamstring muscle injuries between outdoor and indoor championships, the type, cause, severity, discipline and age categories.

Discussion/Conclusion During international athletics championships, muscle injury is the principal type of injury, and among those, the hamstring is the most commonly affected, with a two times higher risk in male than in female athletes. Athletes in explosive power events, male athletes and older male athletes, in specific were more at risk of muscle injuries and hamstring injuries. Injury prevention strategies should be sex-specific.

Keywords Hamstring; Muscle; Athletics; Epidemiology; Sports injury prevention

Disclosure of interest The authors declare that they have no competing interest.

Further reading

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PO056
Prevalence of vitamin D deficiency in high-level athletics athletes
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Objective Vitamin D works on many biological parameters, functions and pathophysiological phenomena, such as bone metabolism but also extra-osseous metabolism (muscular role immunomodulator, cardiac, infectious).

In France, the prevalence of vitamin D deficiency is estimated between 36% and 79–81% based on a threshold set at 50 nmol/L or 75 nmol/L, respectively. Due to these effects, vitamin D seems necessary to the health of athletes.

The objective of this study was to determine the vitamin D status of in athletics athletes, and to analyse the possibilities of a screening questionnaire of vitamin D deficiency.

Patients and methods We conducted a prospective study on an athletics season including high-level athletics athletes. Athletes performed 2 blood sample to determine the vitamin D level during the season: one in winter and one in summer, and completed a questionnaire on the day of the winter blood sample.

Results During the winter, the average vitamin D level was 76.8 nmol/L and 72% of athletes had normal (greater than 50 nmol/L); 11.1% of athletes were impaired (below 30 nmol/L). During the summer, the average rate was 102.3 nmol/L, 95% of athletes had normal, and no athlete had a deficiency of vitamin D.

There was a significant relationship between vitamin D levels and the score found by the questionnaire. The deficiency of factors that appeared to be significantly associated with vitamin D levels were: skin color, the use of sunscreen, working conditions for sun exposure and craving for the sun.

Discussion/Conclusion The high-level athletics athletes were less deficient than the general population. This could be explained by the fact that they were training most often outside and had better eating habits. The questionnaire was correlated to blood sample for vitamin D and could be a relevant factor in the screening strategy.

Disclosure of interest The authors declare that they have no competing interest.

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PO057
Athletic injury prevention: Determinants of sprint performance
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Objective The purpose of this study was to analyse the incidence and characteristics of muscle injuries and hamstring muscle injuries occurring during the international athletics championships from 2007 to 2015.

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