p<0.05) and 32% (OR 0.68, 95% CI: 0.53, 0.86, p < 0.05) decreased odds of future knee injuries, respectively. Results of best-evidence synthesis found that 10 of 15 proximal stability variables were not associated with future knee injuries.

Conclusions Hip extension and external rotation strength are the strongest predictors of future knee injuries. The majority of proximal stability variables included in this review were not associated with knee injuries. This review was limited by heterogeneity of measurement methods, making categorizing them difficult. Future studies should consider larger sample sizes to ensure adequate power, and the use of multivariable and complex systems approaches to account for the multifactorial nature of athletic injuries.

145 CORE STABILITY AS A RISK FACTOR FOR THE DEVELOPMENT OF ACUTE LOWER EXTREMITY INJURIES IN AN ATHLETIC POPULATION: A PROSPECTIVE STUDY

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Background Impaired core stability has been suggested to influence lower extremity functioning and might contribute to the development of acute lower extremity injuries. Prospective studies that examine this relationship are currently lacking.

Objective The objective of this study was to investigate the role of different components of core stability as risk factors for the development of acute lower extremity injuries.

Design A prospective study was set up with a follow-up and injury registration period of 1,5 years. Afterwards, cox regression analyses were performed to identify significant contributors in the development of acute lower extremity injuries.

Setting Male and female freshmen students, enrolled in the physical education teacher studies of the University Colleges in Ghent participated in this study. The study was performed at the Ghent Sports Arena.

Patients (or Participants) 150 healthy participants enrolled and were excluded if they had a history of lower extremity surgery or if they reported a musculoskeletal injury in the 6 months prior to testing. Eleven participants were excluded which resulted in 139 included participants.

Interventions (or Assessment of Risk Factors) Measures for dynamic postural control, isometric core and hip muscle strength, core muscle endurance, core neuromuscular control and proprioception were taken at baseline.

Main Outcome Measurements The occurrence of an acute lower extremity injury was the primary study outcome.

Results During follow-up, 27 injuries of interest occurred (19%). After multivariate model building, a significant predictive effect was found for a muscle strength imbalance for hip flexion (p=0.016). The risk of developing an injury increased with a greater strength imbalance, regardless of sex and other core stability measures.

Conclusions This study identified hip strength imbalance as a risk factor for the development of acute lower extremity injuries. Normalizing hip strength imbalance might be beneficial for injury prevention. However, further research is needed to support this claim.

146 PSYCHOLOGICAL DISTRESS AND MALADAPTIVE COPING IN OLYMPIC-LEVEL SWIMMERS FOLLOWING POSTPONEMENT OF THE 2020 OLYMPIC GAMES DUE TO COVID-19

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Background Elite-level athletes are vulnerable to psychological distress due to rigorous training and competitive schedules. Psychological screening is a preventative strategy to target athletes at risk for maladaptive coping and psychopathology; however, psychological screening is rarely implemented in elite sport environments.

Objective To assess psychological distress (i.e., anxiety, psychological strain, and burnout) and coping behavior in Olympic-level swimmers following a major athletic stressor: postponement of the 2020 Olympics due to COVID-19.

Design A retrospective mixed-methods design was used.

Setting An online psychological assessment and a follow-up telehealth semi-structured interview were completed.

Participants Participants (n=14) included international swimmers who: achieved a top 10 time; placed in the top 3 in their 2019 national meet; or qualified for the World Championships.

Assessment of Risk Factors Anxiety, psychological strain, and burnout were evaluated as risk factors for maladaptive coping.

Outcome Measurements Assessment included Generalized Anxiety Disorder-7 (GAD-7), Athlete Psychological Strain Questionnaire (APSQ), and Athletic Burnout Questionnaire (ABQ) scales. Coping behaviors were derived from interview content (available for 12 of the 14 participants).

Results Findings (mean ± SD) indicated mild anxiety (6.29 ± 4.87) and severe psychological strain (22.71 ± 4.83). Higher psychological strain associated with higher emotional and physical exhaustion—a subscale of the ABQ (r = 0.791; p = 0.001). A subset of athletes (n=5) reported moderate-to-severe anxiety. Most athletes (n = 9) practiced maladaptive coping (75%) (e.g., behavioral and mental disengagement); however, maladaptive coping was more frequent in athletes with greater psychological distress.

Conclusions Several athletes reported levels of anxiety and psychological strain that, according to APSQ and GAD-7 guidelines, necessitated clinical evaluation. Higher psychological distress coincided with more frequent maladaptive coping. Findings urge implementation of psychological screening in elite athletics to better support athletes' mental health and prevent development of maladaptive coping and psychopathology.

147 ABSTRACT WITHDRAWN

148 PERCEIVED INJURY RISK AMONG ELITE TRACK & FIELD ATHLETES — A QUESTIONNAIRE-BASED STUDY

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Background Studies of Swedish track and field athletes have shown that there is a substantial risk of injury. None of these studies have investigated the potential role of how athletes perceive their injury risk, and how it may play a part in the occurrence of sport injuries.
Objective Explore how Swedish track and field athletes perceive their injury risk, and examine the potential correlation with prior injury experience.
Design A quantitative design, an exploratory study.
Setting Swedish junior elite track and field athletes.
Patients (or Participants) The convenience sample comprised 69 out of 97 Swedish junior elite track & field athletes. The entry criteria included injury free when answering the questionnaire, active in track & field, participated in at least one youth or junior national team between 2013 and 2017.
Interventions (or Assessment of Risk Factors) The participants had four weeks to fill out a two-part online questionnaire. The first part requested relevant personal information including previous injuries in the past 12 months; the second part consisted of 'The Perception of Risk of Injury Scale' (RISSc), but modified accordingly to the targeted sport.
Main Outcome Measurements RISSc scores were set as the dependent variable.
Results Non-significant results (p=0,095) were found between gender and perceived injury risk. If an athlete reported more than one injury in the past 12 months, they perceived their re-injury risk (p<0,025) to be higher. Significant results were found between perceived injury risk and the severity of the injury (p<0,006, r=-0,32).
Conclusions Previous injury has a small correlation to perceived injury risk. It may be possible to reduce negative perceptions concerning re-injury in athletes with higher perceptions of injury risk. Awareness of re-injury should be increased among athletes with a history of severe injury. This study may serve as a springboard for additional research.

149 RUNNING STYLE-DEPENDENT RISK FACTORS FOR PATELLOFEMORAL PAIN

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Background Patellofemoral-pain is a widespread problem among recreational-runners. Often it comes to training absenteeism because of pain at the proximal edge of the patella.
Objective To examine if there is a connection between the occurrence of patellofemoral pain and the running style.
Design Retrospective case-control-study.
Setting The running analyses all took place in the same 2 D running lab. The selected analyses are of recreational and amateur runners, running at least 10km/week, who were complaining of patellofemoral pain.
Patients (or Participants) There was a pool of 1013 running-analyses in which the subjects complained of patellofemoral complaints (234 analyses), then all dates of recreational and competitive athletes (234 analyses) were first filtered out. This resulted in an analysis number of 113 analyses, which were included. All participants were examined by a sport medicine specialist and the diagnosis of patellofemoral pain syndrome were determined by X-ray and MRI imaging.
Interventions (or Assessment of Risk Factors) Primary contact with the ground, malposition of the legs, Achilles tendon angle, pelvic stability, knee inflection and lower leg swing were observed via a 2D running-analyse.
Main Outcome Measurements The 113 analyses were examined in terms of running technique and dynamic biomechanical misalignments. The evaluation was based on the 4-point model of Marquardt.
Results It was noteworthy that in 98.2% (n = 111) of the examined subjects, the primary contact with the ground was via the heel. In 90.9% (n = 101) of these subjects, there was also increased knee flexion in the medium support phase. This was also observed in the other two subjects without heel strike (91.1% (n = 103) increased knee flexion).
Conclusions The primary contact of the heel and also an increased knee flexion in the medium support phase can increased the risk of patellofemoral-pain occurrence.

150 A RISK FACTOR ANALYSIS FOR HEAD, NECK, AND FACE INJURIES BETWEEN US MEN AND WOMEN RUGBY-7S PLAYERS BY AGE-GROUPS

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Background Previous studies have highlighted the prevalence of head, neck, and face (HNF) injuries among male and female rugby-15s players; however, differences in risk-factors between sexes and age have not yet been examined in Rugby-7s.
Objective To identify risk factors of HNF injuries and sex risk differences among Rugby-7 players by age-groups.
Design Logistic regression analysis.
Setting USA Rugby tournaments/series and championships (U-19 to Elite; 2010–2016).
Participants 1,307 (68%=men, 31%=women) head neck and face injured U.S. Rugby-7s tournamnent players.
Assessment of Risk Factors A cross-sectional analysis was conducted using the *RISE*Rugby Injury Registry. Anthropometric data, injury mechanism, and other factors were tabulated by HNF injuries and sex. Logistic regression determined the relationship between sex and HNF injuries. A final multivariable model was used to calculate the probability of HNF injuries and differences between sex and age-groups.
Results From 2010–2016, 1,679 match injuries were seen (68%=men, 32%=women) injuries. A total of 474 (28%) HNF injuries were documented. The most commonly