may indicate a need for higher activation of core muscles. Therefore, GS-EE exercises could also develop core muscles that have protective mechanism on low back.

134 WHAT ARE THE MOVEMENT PATTERNS ASSOCIATED WITH GOOD AND POOR LUMBOPELVIC STABILITY?

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Background Poor lumbopelvic stability (LPS), defined as the lack of optimal alignment of the spine, pelvis, and thigh, is a risk factor for sports injury. Clinicians can validly assess LPS using rating criteria for two movement tests: single leg squat (SLS) and dip test (DT) to assess movement pattern errors. LPS is typically categorised as good, poor or neither but simplistic categories are not sensitive to change nor provide direction for management. Specific movement errors made in each test may be more sensitive to change after exercise interventions than the three-category rating and require investigation.
Objective To establish which movement errors and demographic factors are associated with LPS categories.
Design Observational study.
Setting Adult recreational athletes.
Participants Recreational athletes (n =122, 50 men, 73 women) 18–49 years, playing land-based sports, with no conditions preventing performance of movement tests.
Assessment of Risk Factors Independent variable: LPS rating category: good, neither, poor.
Main Outcome Measurements Athletes were filmed performing SLS and DT on each leg. Two physiotherapists independently categorised their LPS, noting the presence of movement errors defined in the rating criteria. Dependent variable: movement errors, demographic factors.
Results Good LPS was associated with the absence of specific movement errors: trunk lateral flexion or rotation, hip adduction and jerky movement in SLS and pelvic obliquity and jerky movement in DT (sensitivity 0.97, specificity 0.94). Poor LPS was associated with hip abduction (non-trial leg) in SLS, jerky movement in DT and limited ankle dorsiflexion (sensitivity 0.80, specificity 0.75). An increase of 2° dorsiflexion reduced the risk of being categorised as having poor LPS by 26%. Increasing age was associated with sub-optimal LPS (p = 0.014).
Conclusions Specific movement errors, and limited dorsiflexion and increasing age are associated with sub-optimal LPS. Strength programs improving movement control and mobility exercises improving ankle dorsiflexion should be implemented. As athletes age they should give more attention to maintaining optimal LPS.

135 ABSTRACT WITHDRAWN

136 PSYCHOSOCIAL FACTORS ARE ASSOCIATED WITH LOWER RE-INJURY RISK IN COMPETITIVE ATHLETES

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Background Psychosocial factors have achieved growing acceptance in their role in successful return to sport. However, as yet, few studies have demonstrated which of the commonly cited psychosocial variables can most strongly predict re-injury rates in competitive athletes. Understanding this could support clinicians in best directing valuable resource towards the holistic support of injured athletes, with a view to facilitating a successful return to sport.
Objective To examine whether social support, psychological readiness to return to sport and re-injury anxiety can predict re-injury in competitive athletes
Design Retrospective, cross-sectional study.
Setting Competitive sport.
Participants 141 competitive athletes, from a range of sports, aged 19 to 24 years (mean age: 20.1 years; SD 1.1 years; 72 male and 69 female).
Interventions (or Assessment of Risk Factors) Independent variables injury time-loss, perceived availability of social support, psychological readiness to return to sport and re-injury anxiety.
Main Outcome Measurements Re-injury.
Results There was a significant difference (p = <0.001) between competitive athletes who re-injured the same injury versus those who didn't. Specifically, re-injury anxiety was lower in athletes who did not re-injure, and perceived availability of social support and psychological readiness to return to sport were higher in athletes who did not re-injure. Athletes who did not re-injure also had a longer return to sport. There was no significant difference in injury rates between male and female athletes (p = .105). Regression analysis indicated that 61.9% of variance in re-injury rates was predicted by the included predictor variables, with the most significant predictors of reduced re-injury risk being perceived availability of informational support (p = 0.003) and time out of sport (p= 0.003).
Conclusions Clinicians seeking to reduce the risk of re-injury in competitive athletes should consider strategies to reduce reinjury anxiety and facilitate the provision of social support, specifically the provision of high-quality informational support. Delayed return to sport is also important in reducing the risk of re-injury.

137 PSYCHOLOGICAL DISTRESS AND WELLBEING IN UK OLYMPIC AND PARALYMPIC ATHLETES

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Background Despite the known mental health benefits of exercise the prevalence of mental health symptoms and disorders in high performance athletes appears to be slightly higher than in the general population and athletes with disabilities

may be especially at risk. However data is scarce and valid comparisons are difficult.
Objective To gauge the prevalence of psychological distress and the level of wellbeing amongst UK Olympic and Paralympic programme athletes.
Design Cross-sectional questionnaire cohort study.
Setting UK Olympic and Paralympic, summer and winter sport athletes.
Patients (or Participants) 394 athletes from 29 sports.
Interventions (or Assessment of Risk Factors) Between October 2018 and June 2019, participants completed the Kessler Psychological Distress Scale (K10) and the World Health Organisation-Five Well-Being Index (WHO5) questionnaires that indicate levels of psychological distress and subjective wellbeing respectively.
Main Outcome Measurements Percentage of athletes reporting low, moderate, high and very high psychological distress. Percentage of athletes reporting high and low wellbeing.
Results 24% of athletes reported high or very high psychological distress. More Paralympic that Olympic athletes reported high/very high distress (27% vs 22%). The mean distress score was comparable to age matched population samples. 19% of athletes reported low psychological wellbeing and this was more common in Paralympic athletes than Olympic athletes (23% vs 17%). The mean wellbeing score was comparable to age matched population samples.
Conclusions UK Olympic and Paralympic athletes report psychological distress and wellbeing levels similar to aged matched populations. Paralympic athletes have slightly higher levels of distress and lower wellbeing than Olympic athletes and this may relate to disability specific stressors. Sport programmes should have robust mental health support plans that includes regular athlete screening and commensurate support services with additional specific support for athletes with disabilities.

138 ACUTE PERIPHERAL FATIGUE INDUCES BRAIN ACTIVITY CHANGES DURING PREDEFINED AND REACTIVE BALANCE TASKS: NEW INSIGHTS CONCERNING THE FATIGUE-INJURY HYPOTHESIS

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Background An abundance of literature on the acute peripheral fatigue (APF)-injury-hypothesis exists without showing uniformity to support or refute this hypothesis. Previous research demonstrated that a decreased balance ability increases injury risk, and APF affects balance performance. Recently, reactive balance tasks were developed to assess balance performance in a more sport related context. However, it is unknown if APF induces changes in brain activity during predefined and reactive balance tasks and how it relates to injury occurrence.
Objective To study whether (1) APF fatigue alters brain activity during one predefined and one reactive balance task, and (2) performance on these balance tasks.
Design Cross-over design.
Setting Primary clinical setting.
Participant Twenty healthy participants (age = 24 ± 3 years; height = 1.8 ± 0.1 m; weight = 73.2 ± 11.3 kg).
Interventions APF was induced through a 30-second modified Wingate-protocol, while the control task encompassed sitting quietly on the stationary bike for 30s.
Main Outcome Measurements Brain activity was measured through electroencephalography during both balance tasks and computed by means of spectral power analysis. The predefined balance task was the Y-balance test (YBT), while the neurocognitive balance test encompassed the reactive balance test (RBT).
Results Decreased RBT accuracy was observed after APF ($p < 0.05$), yet YBT performance and RBT visuomotor reaction time were unaffected. APF induced α- and β-spectral power increments in the prefrontal, motor and posterior parietal cortex during YBT performance ($p < 0.05$). For the RBT, an α-spectral power increment in the posterior parietal cortex and a β-spectral power increment in the prefrontal cortex were observed due to APF ($p < 0.05$).
Conclusions APF induces different changes in brain activity during predefined and reactive balance tasks. It is likely that different central mechanisms are affected depending on the type of balance task. Further research is needed in an applied setting in order to gain insight in the possible interaction between APF and injury occurrence.

139 MENTAL FATIGUE INTERACTS WITH BRAIN ACTIVITY DURING PREDEFINED AND REACTIVE BALANCE TASKS: IS IT TIME TO ADD MORE CONTEXT TO INJURY PREVENTION SCREENING?

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Background Athletes indicate that mental fatigue (MF) interferes with maximal performance. MF has also been hypothesized to play an important role in injury occurrence. Clinically applied studies show that MF affects brain activity and decreases endurance, skill and decision-making performance. Nevertheless, no clear insights exist on how MF might affect brain activity during predefined and reactive balance test performance. Gaining insights into this topic could further strengthen or challenge the MF-injury hypothesis.
Objective To study whether (1) MF alters the electrophysiological functioning of the brain during one predefined and one reactive balance task, and (2) performance on these balance tasks.
Design Cross-over design.
Setting Primary clinical setting.
Participants Twelve healthy participants (age = 22 ± 1 years; height = 176.9 ± 8.4 cm; weight = 69.7 ± 10.4 kg).
Interventions MF was induced by a 90-minute Stroop task, while the control task included watching a 90-minute documentary.