

OP-40: The effects of soccer match like exercise on ankle position sense in healthy athletes

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Introduction: Ankle proprioception is the body's ability to identify the ankle joint position during movement. It plays a major role during sports and exercise to maintain balance and upper body adjustments and is the commonly affected joint during soccer. Fatigue occurring during soccer can disturb this ability which in return can increase the injury risk in the ankle. Thus, this study aimed to investigate the effects of soccer match-like exercise on ankle position sense.

Methods: This study was a laboratory-based experimental study design. Eighteen healthy male recreational athletes with no history of ankle sprains performed a 90-minute soccer-like exercise that replicated the physiological demands of a soccer match. Main outcome measures were position matching tasks of the dominant leg (unilateral replication) which was assessed using six wireless motion tracking sensors (Xsens). The ankle was taken to a desired position measured by the Xsense and the participant was advised to match that angle with the opposite limb. Angle matching was assessed actively at 10° dorsiflexion and 20° plantarflexion during pre-exercise and post-exercise sessions. The measurement taken before the exercise session was used as the control measurement. Body fatigue and heart rate was measured at the end of each exercise cycle using the rating of perceived exertion scale and polar heart rate monitor. Data were analysed by an independent sample t test.

Results: No significant change in matching tasks was seen between the control and pre-exercise sessions. There was a significant increase in heart rate and exertion levels after exercise ($p < 0.05$), indicating that the exercise protocol fatigued the athletes. No significant change in matching tasks was seen between the control and pre-exercise sessions. Immediately after exercise, for the 20° plantarflexion, an increase in absolute error (-1.3°; 95% CI: -2.03, -0.57) and variable error (-1.1°; 95% CI: -1.79, -0.41) was observed.

Conclusions: Ankle plantarflexion position sense was impaired by soccer match like exercise and is likely to have implications for the risk of ankle injuries

Keywords: proprioception, exercise, ankle, limb awareness