28th ECSS Anniversary Congress, Paris/France, 4-7 July 2023

Multifactorial individualised programme for hamstring muscle injury risk reduction in professional football: a prospective cohort study

Lahti, J., Edouard, P., Morin, J.B., Fleres, L., Ahtiainen, J., Mendiguchia, J.

Arcada University of Applied Sciences

INTRODUCTION:
The aim of this prospective cohort intervention study was to test whether an innovative hamstring injury risk reduction program could further reduce the risk of hamstring muscle injuries (HMI) in professional football settings with ongoing risk reduction efforts.
METHODS:
HMI and player exposure were registered prospectively during the two seasons (2019 & 2021) in 5 Finnish premier football league teams. The 2019 season was used as a control (n = 90), while the intervention was conducted in the 2021 season (n = 87). Questionnaires for the coaching staff were also used to better understand the differences between the 2019 and 2021 seasons in terms of HMI risk reduction strategies. Cox regression hazard ratio (HR) was used as the primary analysis to compare seasons, which was adjusted for age, team, team position, body mass, height, and history of HMI. Secondary analysis included adjusting for program compliance.
RESULTS:
The seasons were similar in nature, including non-significant differences in match exposure, age, and previous HMI. A total of 20 index HMI were registered during the control 2019 season (average injury per team: 4.8, range: 4-5, injury burden: 15.1) and 16 index HMI during the intervention season (average injury per team: 3.2, range: 1-6, injury burden: 14.5). Average compliance of the intervention program was 50% (CI95%: 38-62). Cox regression analysis showed a non-significant trend toward increased risk of hamstring injuries during the intervention season (HR: 1.35, CI95: 0.68 – 2.66, p = 0.39). However, when controlling for total compliance, there was a non-significant trend toward the intervention season reducing the risk of injury (HR: 0.52, CI95%: 0.05 – 5.33, p = 0.58). Furthermore, players showing reductions in maximal theoretical horizontal force or knee flexor force between pre-season and mid-season screening measurements had a significantly higher risk of sustaining an HMI later in the season (Risk Ratio: 5.6 – 12.1, p < 0.05).
CONCLUSION:
The innovative multifactorial and individualized injury risk program was not successful in further reducing HMI risk in a professional football setting with ongoing risk reduction protocols. The program remained feasible as it didn't increase risk, while future research should explore whether increased compliance in a multifactorial and individualized approach can improve the HMI risk outcome.

Topic: **Training and Testing**

Presentation **E-poster**