Background Hip and groin injuries are a significant cause of time lost from training and competition in elite football. The purpose of this study was to investigate the association between LBP and selected biomechanical factors and postural stability during dynamic movement tasks in young athletes.

Methods A total of n=204 elite male footballers from ten professional clubs underwent assessments of hip adductor and abductor strength and completed the HAGOS in pre-season. In-season hip/groin injuries were assessed and reported by team medical staff. Data reduction was conducted using principal component analysis. The subsequent factor component for HAGOS, and three factor components for strength and imbalance measures, were entered with age into a multivariate logistic regression model to determine their association with prospectively occurring hip/groin injury.

Results Twenty-four players suffered at least one hip/groin injury throughout the 2017–18 competitive season. The principal component for between-limb abduction imbalance (peak strength in the preferred [kicking] limb – non-preferred limb) (OR=0.61, 95% CI=0.40 to 0.92), and the principal component for HAGOS (OR=0.80, 95% CI=0.64 to 0.99) were independently associated with a reduced risk of future hip/groin injury. Receiver operator curve analysis of the whole model revealed an area under the curve of 0.76.

Conclusion These data demonstrate that a lower likelihood of prospective hip/groin injury during the season was associated with a hip abduction imbalance that favoured the preferred kicking limb and higher HAGOS obtained at pre-season.

Materials and methods 396 young floorball and basketball players (mean age 15.8±1.9) were included and followed prospectively for 1–3 years (2011–2014). In the beginning of every study year the players were tested. The physical tests included single-leg squat (SLS), single-leg vertical drop jump (SLVDJ), vertical drop jump (VDJ) and Star Reach Excursion Balance Test (SEBT). Individual exposure time and LBP resulting in time-loss were recorded prospectively. Cox’s proportional hazard models with mixed effects and time-varying risk factors were used.

Results In SLVDJ landing with non-dominant leg, the risk for general LBP and non-traumatic LBP in specific, was significantly higher with increased femoral adduction (HR 1.10, 95% CI 1.02–1.19 and HR 1.12, 95% CI 1.03–1.22, respectively) and significantly lower with increased femur-pelvic angle (FPA; angle-between pelvis and femur) (HR 0.93, 95% CI 0.88–0.99 and HR 0.92, 95% CI 0.86–0.99, respectively). However, the ROC analysis revealed poor combined sensitivity and specificity for femoral adduction and for FPA.

Conclusions Increased femoral adduction and decreased FPA during SLVDJ landing are associated with risk of LBP in young team ball players. However, the identified risk factors do not discriminate players with or without future LBP well enough and therefore further studies on effect of neuromuscular training on lumbo-pelvic control and LBP incidence are warranted.