

4 PRE-SEASON HIP/GROIN STRENGTH AND RATINGS OF HEALTH ARE ASSOCIATED WITH PROSPECTIVE INJURY IN PROFESSIONAL FOOTBALLERS

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Background Hip and groin injuries are a significant cause of time lost from training and competition in elite football.

Purpose To explore the association between hip/groin injury in professional footballers and pre-season assessment of 1) hip adductor and abductor strength, and 2) the Copenhagen Hip and Groin Outcome Score (HAGOS).

Study Design Prospective cohort.

Methods In total, 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.

5 FRONTAL PLANE FEMORAL ADDUCTION DURING SINGLE-LEG LANDING AND LOW BACK PAIN IN YOUNG ATHLETES: A PROSPECTIVE PROFITS COHORT STUDY

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Introduction Prospective studies investigating risk factors for low back pain (LBP) in young athletes are limited. The aim of this prospective cohort study was to investigate the association between LBP and selected biomechanical factors and postural stability during dynamic movement tasks in young athletes.

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 in 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.

6 IMPROVED DAILY MOVEMENT PATTERNS IN AN ACCELEROMETER-ASSESSED 8-WEEKS EXERCISE PROJECT IN OLDER ADULTS

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Background Many beneficial health outcomes for elderly are associated with sedentary (SED) and physical activity behavior (PA). However, research is scarce regarding how elderly-interventions can improve various SED- and PA-behavior.

Purpose The aim with this study was to determine if eight-weeks of regular supervised exercise would have any effect on movement-patterns in elderly. For comparison, a control group, not receiving supervised exercise, performed similar pre- and end-tests intervals. Reliability of elderly accelerometer measures, in two separate pre-tests was also investigated.

Methods Seventy-eight elderly exercised (65–91 years) and 43 participated in a control group (65–88 years). The exercise group had combined aerobic and strength-training, twice/w à 1 hour. Accelerometer assessments for the exercise group were performed three times; Pre-1 and Pre-2 and one test in the last week of the 8-week-exercise-period. The controls made one pre-test and one end-test at corresponding spring time intervals, without receiving any supervised physical activity.

Results The exercise-group significantly improved from Pre-1 to End-test moderate-to-vigorous-PA-intensity (MVPA +41 min/week=+0.8% of-total-daily-wear-time), light-intensity (LPA +228 min/w=+3.9%), total-SED-time (-254 min/w=-4.7%) and SED-bouts-à-10 min (-320 min/w=-5.7%). The controls showed no significant improvements