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ISAKOS SUBCLASSIFICATION OF ROCKWOOD TYPE III AC JOINT DISLOCATIONS IN A STABLE AND AN UNSTABLE TYPE IS NOT CLINICALLY RELEVANT

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Background ISAKOS upper extremity committee has suggested a subclassification of Rockwood type III acromioclavicular (AC) joint dislocations in a stable type A recommended non-surgical treatment and an unstable type B recommended surgical treatment. The objective of this prospective cohort study was to investigate if this subclassification is clinically relevant.

Methods Inclusion criteria were patients aged 18–60 with acute AC joint dislocation and >50% superior displacement of the clavicle. Patients were treated non-surgically with 3m of home-based training and the option of delayed surgical intervention. Assessment was at baseline and 6w, 3m, 6m and 1y after the injury. At 6w, patients were classified as stable if they presented with no scapular dyskinesia (SD) and no over-riding of the clavicle to the acromion on radiographs, and unstable if they presented with any of the two. The primary outcome was the Western Ontario Shoulder Instability Index (WOSI).

Results Eighty-eight patients contributed data for the subclassification at 6w; 20 patients were classified as stable and 68 as unstable. There was a statistically significant but not clinically relevant difference in WOSI between the two groups at 6m ($p=0.03$), but not at 3m and 1y. No patients from the stable group had surgery. From the unstable group, 9/68 (13%) had surgery. Patients presenting with SD had worse WOSI at all time-points compared to those without SD.

Conclusion The ISAKOS subclassification of Rockwood type III in a stable type A and an unstable type B is not clinically applicable. The presence of SD was associated with a worse result.

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FROM CHILD TO TEEN; PROSPECTIVE CHANGES IN KNEE KINEMATICS DURING DROP JUMP PERFORMANCE

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Introduction Most studies focusing on differences between males and females in children through to adulthood are cross-sectional in nature. The aim of this study was to prospectively examine kinematics during a drop jump (DJ) performance in male and female athletes, focusing on the knee at initial contact (IC).

Materials and Methods Athletes from local sports clubs ($n=293$, age 9–12 years), participated in a data collection

where they performed a bilateral DJ (ten trials) while marker-based 3D motion capture was used to obtain kinematic data of each lower limb. Over a third of them ($n=105$) returned after five years and repeated the procedure. A mixed-model analysis of variance (ANOVA) for repeated measures was used for statistical analysis of knee angles in the sagittal plane at IC, using limb (right vs. left) and time (child vs. teen) as within subject factors and sex for groups. Alpha was set at 0.05 for significance.

Results Males increased the knee flexion angle at IC over time, while females leaned towards greater extension (interaction; $p<0.001$). Moreover, a significant 3-way interaction showed that while both sexes demonstrated inter-limb symmetry for knee flexion angles at IC as children, females increased asymmetry over time, while males did not (interaction; $p<0.001$).

Conclusion This prospective study demonstrates that age influences DJ performance and that changes for females, not males, generally move towards a more extended knee and greater asymmetry between limbs. This may have implications for knee injury and may be a target for intervention to lower injury risk.

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DIFFERENT STROKES FOR DIFFERENT RISK FACTORS – TASK SPECIFICITY IN THE CONTEXT OF ACL INJURY RISK

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Introduction The dynamic knee valgus and the stiff landing are movement patterns associated with the anterior cruciate ligament (ACL) injury mechanism. Drop jumps (DJ) and cutting maneuvers (CM) are used to assess the risk of ACL injuries, but it is not known if such standardized athletic tasks are suitable to represent and assess these movement patterns. The aim of this study was to compare the DJ and CM impact-phase (within 70 ms) knee abduction moment (KAM) and the initial contact knee flexion angle (KFA).

Materials and Methods 100 athletes performed 10 repetitions of each movement before adolescence (aged 9–12) and again during adolescence, 5 years later. Kinematic and kinetic data were obtained using marker-based motion capture with force plates. Mixed models were used to assess the difference in the KAM and KFA during DJ and CM and adjusted for sex, leg, and age.

Results The DJ was associated with a lower KAM compared to the CM (0.23 Nm/kg vs 0.31 Nm/kg, $p < 0.001$). The DJ was associated with a lower KFA compared to the CM (28° vs 40°, $p < 0.001$).

Conclusion The CM is superior to demonstrate movement patterns that produce a higher KAM, but the drop-jump is superior to demonstrate propensity to land with a smaller KFA. Each task demonstrates separate movement patterns and should not be used inter-changeably. Researchers should diversify movement tasks and design them to induce kinematics and kinetics reflecting a specific movement pattern.