subscases Pain, Symptoms, Sports/Recreation and Quality of Life), presented as the odds ratio (OR) with a 95% confidence interval (CI). Revision rates within two years were examined for the surgeon clinic groups, and an adjusted Cox regression analysis was conducted to determine the hazard ratio (HR) with 95% CI of ACL revision surgery. Results 16,317 out of 35,371 patients completed the two-year KOOS. Surgeons and clinics with high total caseload/annual volume operated their patients earlier (time from injury to surgery), and with a decreased operating time (α = 0.001). The rates of perioperative complications, use of thromboprophylaxis and non-recommended perioperative antibiotics were lower among patients operated by surgeons with high caseload/annual volume (α = 0.001). Similar trends were seen for the clinics (α = 0.001). Significantly decreased odds of achieving MIC-KOOS4 (OR 0.74, 95% CI 0.62-0.88) and PASS-KOOS4 (OR 0.71, 95% CI 0.60-0.84) (but not TF-KOOS4) were found for ACLRs performed by inexperienced surgeons (low caseload/annual volume) compared to experienced (high caseload/annual volume) ones at two-year follow-up. Clinical volume did not influence MIC-KOOS4, PASS-KOOS4 or TF-KOOS4. There were 804 patients (2.2%) having a subsequent ACL revision surgery within two years from primary ACLR. ACL revision rates were higher among patients operated at high volume clinics (α = 0.001). However, when adjusting for potential confounders (age, sex, time from injury to surgery, activity at time of injury and preoperative KOOS4) in the Cox regression analysis, surgeon and clinic experience had no influence on the subsequent risk of revision surgery. Conclusion Patients having primary ACLR by high volume surgeons experienced an increased improvement and satisfaction regarding subjective knee function, compared to patients operated by low volume surgeons.

Category: Knee - ACL

Bilateral Changes In Knee Joint Laxity During The First Year After Non-Surgically Treated Anterior Cruciate Ligament Injury

Abstract ID# 21906
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Summary: Knee laxity increased bilaterally during the first year after non-surgically treated ACL injury and knee laxity was weakly associated with knee function and perceived knee stability.

Data: Background: Knee laxity in the non-surgically treated ACL-injured knee joint may increase further over time due to excessive load exposure to the secondary restraints. However, there are no data on an objective measure of the clinical course of knee laxity. Further, the importance of knee laxity for recovering knee function and patients' perception of knee instability and fear of reinjury at different timepoints after ACL injury is uncertain. Objectives: To analyse changes in knee joint laxity between 3, 6, 12 and 24 months after non-surgically treated ACL injury and to analyse associations between knee joint laxity and knee function, self-reported knee stability, fear and confidence at different timepoints during recovery. A secondary aim was to compare knee joint laxity at 3 months between patients who did not have an ACLR within 24 months after the ACL injury and patients who had undergone an ACL reconstruction at the 3-month follow-up but had an ACL reconstruction later. Method: Design: Prospective cohort study, part of the NACOX study. Participants: 125 patients (67 males, mean age 25.0 ± 7.0 years) with acute ACL injury. Main outcome: At 3, 6, 12 and 24 months after injury, knee joint laxity was measured using KT-1000 arthrometer. Self-reported knee function was assessed using the International Knee Documentation Committee Subjective Knee Form (IKDC-SKF). Confidence and fear were assessed with two questions from the ACL-Return to Sport after Injury (ACLR) scale. Subjectively perceived knee joint stability was assessed using a single question. Results: Knee laxity increased bilaterally from 3 to 12 months, and in the non-involved knee from 3 to 24 months (p(0.05), although mean change was below 1 mm. Side-to-side difference in knee laxity was correlated with IKDC-SKF (r = -0.283, p = 0.016) and self-reported perception of knee stability in rehabilitation/sport activities (r = 0.315, p = 0.007) at 6 months, but not at 3, 12 and 24 months. There was no correlation between side-to-side difference in knee laxity and confidence and fear. At assessment 3 months after the ACL injury, side-to-side difference in knee laxity did not differ between patients who did not have an ACL reconstruction within the 24-month follow-up period (mean side-to-side difference 3.56, 95% CI 2.90-4.24, n = 65) compared to patients who had an ACL reconstruction after the 3-month assessment (mean side-to-side difference 4.00, 95% CI 3.13-4.87, n = 42) (mean group difference -0.45, 95% CI -1.51-0.65, p = 0.429). Conclusion: Knee laxity increased bilaterally during the first year after non-surgically treated ACL injury. Knee laxity was weakly associated with knee function and perceived knee stability at 6 months after injury. Clinical implications: The increase in laxity over time in the ACL injured knee could be attributed to excessive load on secondary restraints. Patients with non-surgically treated ACL injury might also develop increased laxity in the non-involved knee over time, which may be interpreted as an adaptation towards the injured knee. The present findings could contribute to the basis for treatment decisions after ACL injury. However, the mean change in knee laxity was below 1 mm and might be of limited clinical significance.

Category: Knee - ACL

Kinesiophobia and Self-Reported Outcome Measures Are Not Related to Knee Function And Muscle Strength 5 Years After Anterior Cruciate Ligament Reconstruction

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Summary: At 5 years after ACLR, operated leg functional performance is equal to that of the non-operated leg; however, kinesiophobia is present in nearly half of patients.

Data: Background Psychological and physiological factors could negatively affect patients' recovery and increase re-injury rate after anterior cruciate ligament reconstruction (ACLR). In daily practice, surgeons and physiotherapists see athletes struggling to improve muscle strength and complaining of a lack of self-confidence during their progress to return to sport. The Tampa Scale for Kinesiophobia is a valid questionnaire to measure a patient's psychological status, and an isokinet test is widely used to measure muscle recovery. Hypothesis Patients with kinesiophobia have inferior self-reported and functional outcomes after ACLR. Methods 140 patients – 100 (71%) men and 40 (29%) women, mean age 32.5 (±8.3) – were included in the study 5.5 (+1.25) years after ACLR. All patients were operated by two senior surgeons. Preoperative and postoperative assessments were performed by two sports-specialized physical therapists. Patients completed the Knee injury and Osteoarthrisis Outcome Score (KOOS), Oxford Knee Score and Tampa Scale of Kinesiophobia (TSK-17) questionnaires. Quadriiceps and hamstring muscle isokinetic strength was assessed at 60/sec and 180/sec using the HumaNorm dynamometer. Functional performance was tested with the single-leg hop test for distance and the Y-balance test for anterior reach. Variables of the study were described by means and standard deviations. A Shapiro-Wilk test was conducted to test for normality of the variables, and unpaired t-tests were used to test for differences between subgroups. After tests were conducted, simple Bonferroni adjustment was applied to account for the number of tests made. Results 68/140 patients (48.6%) reported a TSK-17 score equal to or higher than 37 points, above which is the cut-off score for kinesiophobia. Patients with kinesiophobia had statistically significantly lower KOOS Symptoms (p < 0.001) and Quality of Life subscores (p = 0.001), Total score (p = 0.001) and Oxford Knee Score (p = 0.024). Isokinetic peak torque muscle strength mean deficits at 60/sec and 180/sec for knee flexion and extension were between 6% and 7% for patients with kinesiophobia, and they were between 2% to 4% for patients without kinesiophobia compared with the contralateral side, with no significant differences between groups. There was no statistically significant difference in the single-leg hop test for distance mean leg ratio (0.98 (±0.19) and 1.00 (±0.26)) or the Y-balance test for anterior reach mean leg ratio (0.99 (±0.08) and 1.01 (±0.07)), respectively, between the groups. Conclusion At 5 years after ACLR, operated leg functional performance is equal to that of the non-operated leg. However, kinesiophobia is present in nearly half of patients. Strength and functional tests alone are not good enough instruments for assessing complete recovery; on the other hand, self-reported questionnaire scores show a high correlation with kinesiophobia after ACLR. Further studies are needed to help in avoiding development of kinesiophobia, as well as recognizing the phobia at early stages of rehabilitation.