

## 1 THE EFFECT OF EXERCISE THERAPY AND SURGERY ON MECHANICAL SYMPTOMS IN YOUNG PATIENTS WITH A MENISCAL TEAR

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**Introduction** A common treatment strategy to alleviate mechanical symptoms in young patients with meniscal tears is meniscal surgery, however, it is unknown whether this is superior to a non-surgical strategy. Therefore, we aimed to compare meniscal surgery to early exercise therapy and patient education.

**Materials and Methods** In a randomized controlled trial, 121 patients aged 18–40 years with a MRI-verified meniscal tear were randomized to surgery or 12-weeks supervised exercise and education. For this study 63 patients (33 and 30 patients in surgery and exercise groups, respectively) reporting baseline mechanical symptoms were included. Primary outcome was self-reported mechanical symptoms (yes/no) at 3, 6, and 12 months assessed using a single item from the Knee Injury and Osteoarthritis Outcome Score (KOOS). Secondary outcomes were KOOS4 and the 5 KOOS-subcales and the Western Ontario Meniscal Evaluation Tool (WOMET).

**Results** In total, 55/63 patients completed the 12-month follow-up. At 12 months 9/26 (35%) in the surgery group and 20/29 (69%) in the exercise group reported mechanical symptoms. The risk difference and relative risk at any time point was 28.7% (95% CI 8.6 to 48.8) and 1.83 (95% CI, 0.98 to 2.70) of reporting mechanical symptoms in the exercise group compared with the surgery group. No between group differences were found in secondary outcomes.

**Conclusion** Surgery seems to be more effective for relieving self-reported mechanical symptoms, but not for improving pain, function and quality of life in young patients with a meniscal tear and mechanical symptoms compared with a strategy of exercise and education.

## 2 ARTHROSCOPIC CAPSULAR SHIFT SURGERY IN PATIENTS WITH ATTRAUMATIC SHOULDER INSTABILITY: A RANDOMISED PLACEBO-CONTROLLED TRIAL

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**Introduction** Atraumatic shoulder instability (ASI) occurs in the absence of significant trauma and can impair shoulder function. Arthroscopic capsular shift (ACS) is recommended in persistent symptoms. The primary objective of this trial was to determine the effect of ACS in ASI.

**Materials and Methods** A single-centre, two-arm, randomized, placebo-controlled clinical trial incorporating concealed intervention assignment, blinded assessment, and analysis by intention-to-treat was conducted. Patients over 18 years, with positive apprehension tests and evidence of capsulo-labral damage on arthroscopy, were eligible for inclusion. Participants were randomised to ACS or arthroscopy only. All patients received the same post-operative care.

The primary outcome was the Western Ontario Shoulder Instability Index (WOSI), a change of 10.4 points was considered to be clinically significant. Secondary outcomes included global perceived change and episodes of dislocations. Patients were followed up at 6, 12 and 24 months.

**Results** 68 patients, average age 25.6 (SD 6.4), 53 females (77.9%) were randomised into the trial. Complete primary outcome data were available for 61 (90%), 59 (87%) and 56 (82%) at 6, 12 and 24 months respectively.

Mean change on the WOSI scores at 6, 12 and 24 months were 5, 1 and 2 points respectively. Confidence intervals were narrow enough to rule out a clinically worthwhile beneficial effect of ACS at 6 months and the confidence intervals were nearly narrow enough to rule out clinically worthwhile effects at 12 and 24 months.

**Conclusion** The data suggest that ACS has no additional benefit in management of ASI compared to placebo.

## 3 THE EFFECT OF PROGRESSIVE RESISTANCE EXERCISE ON KNEE MUSCLE STRENGTH AND FUNCTION IN PARTICIPANTS WITH PERSISTENT HAMSTRING DEFICIENCY FOLLOWING ACLR

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**Introduction** We investigated the effect of progressive resistance exercise on knee-muscle strength and joint function in anterior cruciate ligament reconstructed (ACLR) participants with persistent hamstring muscle deficiency, 12–24 months post-surgery.

**Materials and Methods** A prospective, superiority, randomised controlled trial (RCT) with parallel groups, balanced randomization (1:1) and blinded outcome assessment (level of evidence: II). ACLR (hamstring autograft) participants with persistent hamstring muscle deficiency were recruited, 12–24 months post-surgery, and randomised to either 12-weeks of supervised progressive strength and neuromuscular training (SNG), or home-based low-intensity exercises (CON). Primary outcome was between-group change in maximal isometric knee flexor muscle strength at 12-weeks follow-up. Secondary outcomes included measures of objective strength, MRI and patient reported outcomes.

**Results** Fifty-one participants (45% women, 27 ± 6 years) were randomized to SNG (n = 25) or CON (n = 26), with data obtained from 88% of participants at 12-weeks follow-up. SNG improved more than CON from baseline to 12 weeks in knee flexor muscle strength (0.18 Nm/kg, 95% CI 0.07 to 0.29; p = 0.002). Furthermore, the SNG group improved in KOOS Pain (4.56, 95% CI 0.43 to 8.69; p =