

baseline. Patients were followed for 12 months and assessed for the presence of mechanical symptoms at 3, 6 and 12 months.

Results In total, 63/121 patients reported mechanical symptoms at baseline (surgery, n=33 and exercise, n=30), while 9/26 in the surgery group and 20/29 in the exercise group reported mechanical symptoms at 12-month (missing data on 8 patients). During follow-up 8 patients crossed over from the exercise group to use the opportunity for later surgery.

At 12-month the risk difference was 34.4% (95% CI 9.5–59.2) and the relative risk was 1.99 (95%CI, 1.11–3.57) in favour of the surgery group. Similarly, a larger proportion of patients in the exercise group reported mechanical symptoms at 3 and 6 months.

Conclusion Our results suggest that meniscal surgery may be superior in alleviating mechanical symptoms compared with exercise therapy and patient education with the option of later surgery in young patients with meniscal tears and self-reported mechanical symptoms.

141

TERMINOLOGY AND DIAGNOSTIC CRITERIA USED IN CLINICAL STUDIES INVESTIGATING SUBACROMIAL IMPINGEMENT SYNDROME: A SCOPING REVIEW

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Introduction Lack of consensus regarding terminology and diagnostic criteria used to describe and identify patients with subacromial impingement syndrome (SIS) could be an important driver of misconceptions and misinterpretations of scientific results in this population. We aim to map the literature regarding terminology and diagnostic criteria used in clinical studies investigating SIS.

Materials and Methods PubMed, Embase, CINAHL and SPORTDiscus were searched from inception to June 2020 using known terms for SIS. Peer-reviewed clinical studies investigating SIS were eligible for inclusion. Studies containing secondary analyses of a previously published study, reviews, pilot studies and studies with less than ten participants were excluded. Two reviewers independently screened titles and abstracts, three reviewers independently applied inclusion and exclusion criteria to full-text versions of the articles and one reviewer extracted data. Disagreement between the reviewers was resolved through dialogue.

Results 11,056 records were identified. 911 were retrieved for full-text screening. 535 were included. 20 different terms for SIS were identified. The diagnostic criteria were generally based on a cluster of pain provocative shoulder tests. 134 different diagnostic criteria were identified. 30% of the studies used a combination of clinical tests and imaging. 9% of the studies specified that they included patients with full-thickness supraspinatus tears and 46% specified that they did not.

Conclusion There is a worrying lack of consensus regarding terminology and diagnostic criteria for SIS. This calls for careful consideration when interpreting the results of studies investigating SIS and when comparing studies.

144

GOOD RESULTS OF SURGICALLY TREATED PEDIATRIC KNEE LIGAMENT INJURIES IN DENMARK 2011–20 AT ONE-YEAR FOLLOW-UP

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Introduction Prospective data on treatment outcome from unselected cohorts of children with anterior cruciate ligament (ACL) injury are sparse. Since 2011 the surgical treatment of children with ACL injury in Denmark has been concentrated at two centers. The aim was to present one-year results after pediatric ACL-reconstruction in Denmark for the period 2011–20.

Materials and Methods Consecutive children (< 16 years old) who had an ACL-reconstruction were prospectively followed with patient reported outcome measure Pedi-IKDC, pivot shift and instrumented laxity before surgery and one year later. One-year follow-ups were performed by independent observers.

Results A total of 518 children had an ACL-reconstruction. Median age: 14.6 years (range 8–16) and 45% were girls. A quadruple semitendinosus or a doubled semitendinosus-gracilis autologous tendon was used as graft in all but one child. Pedi-IKDC score was 57.0 preoperatively and 85.7 at 1-year (maximum score 92). Side-to-side difference of instrumented anterior laxity was 4.25 mm preoperatively and 1.3 mm at follow-up. Pivot-shift was preoperatively/at 1-year: no pivot: 3/22%, grade 1: 20/56%, grade 2: 74/21%, and grade 3: 3/1%. Two (0.3%) had an operatively treated deep infection, 3 (0.5%) were treated for reduced range of motion, 2 (0.3%) for a cyclops, and 4 (0.7%) had a rupture of the graft.

Conclusion ACL reconstruction resulted in a large increase in Pedi-IKDC score, a large decrease of instrumented laxity, and a reduction of pivot shift. Complication rate was low and 1-year re-rupture rate was 0.7%.

148

MUSCLE STRENGTH TESTS IN INDIVIDUALS FOLLOWING AN ANTERIOR CRUCIATE LIGAMENT OR MENISCUS INJURY: A SYSTEMATIC REVIEW OF MEASUREMENT PROPERTIES (OPTIKNEE)

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Introduction There is a lack of consensus on the most relevant and clinically applicable tests to evaluate knee muscle strength

following a knee injury. This systematic review aimed to critically appraise and summarize the measurement properties of knee muscle strength tests in young individuals with anterior cruciate ligament (ACL) or meniscus injury.

Materials and Methods Studies evaluating at least one measurement property of a knee extensor or flexor strength test in individuals with an ACL or meniscus injury with a mean injury age of ≤ 30 years were included. The COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) Risk of Bias checklist was used to assess methodological quality. A modified Grading of Recommendations Assessment, Development, and Evaluation (GRADE) assessed evidence quality.

Results Thirty-four studies evaluating 30 muscle strength tests following an ACL or meniscal injury were included. Strength tests were assessed for reliability ($n=8$), measurement error ($n=7$), construct validity ($n=25$) and criterion validity ($n=7$). Concentric extensor and flexor strength tests showed sufficient ratings for two measurement properties, namely for intra-rater reliability (very low quality of evidence) and construct validity (moderate quality of evidence). Isotonic extensor and flexor strength tests displayed sufficient criterion validity (high quality of evidence).

Conclusion This review highlights an important lack of evidence on measurement properties of strength tests following ACL tear and meniscus injury. Concentric strength tests are currently the most promising tests following an ACL injury. High-quality studies on measurement properties are needed to recommend muscle strength tests in research and clinical practice.

149

COMPREHENSIVE SUPERVISED HEAVY TRAINING PROGRAM VERSUS HOME TRAINING REGIMEN IN PATIENTS WITH SUBACROMIAL IMPINGEMENT SYNDROME: A RANDOMIZED TRIAL

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Objectives There is no consensus on the best training regimen for subacromial impingement syndrome (SIS). Several have been suggested, but never tested.

In this study, we hypothesized, that a supervised exercise protocol (STR) based on motion, stretching, and muscle and tendon strengthening with heavy slow resistance training and focus on both scapula stabilizing muscles, and rotator cuff tendons, would be superior to a simpler home exercise program that resulted in higher function score, and shoulder satisfaction than the untreated control group

Materials and Methods Randomised control trial with blinded assessor. 126 consecutive patients with SIS were recruited and equally randomised to 12 weeks of either supervised training regimen (STR), or home-based training regimen (HTR). Primary outcomes were Constant Score (CS) and Shoulder Rating Questionnaire (SRQ) from baseline and 6 months after completed training. Results were analyzed according to intention-to-treat principles.

Results CS improved by 22.7 points for the STR group and by 23,7 points for the HTR ($p=0.0001$). The SRQ improved by 17.7 and 18.1 points for the STR and the HTR groups respectively ($p=0.0001$). The inter-group changes were non-significant. All secondary outcomes (passive and active range of motion, pain on impingement test, and resisted muscle tests) improved in both groups, without significant inter-group difference.

Conclusion We found no significant difference between a comprehensive supervised training regimen including heavy training principles, and a home-based training program in patients with SIS.

152

'I FEEL I'M LEADING THE CHARGE.' A QUALITATIVE ANALYSIS OF A VIRTUAL PHYSIOTHERAPIST-GUIDED PROGRAM FOR PERSONS WITH SPORT-RELATED KNEE TRAUMA

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Introduction SOAR (Stop OsteoARthritis) is a virtual, physiotherapist-guided knee health program that aims to reduce osteoarthritis risk after sport-related knee trauma. This study qualitatively explored individuals' experiences of the SOAR program.

Materials and Methods Individuals with varied lived experience of knee trauma completed a 4-week SOAR program consisting of 1) Knee Camp (interactive group education and 1:1 exercise and activity goal-setting); 2) weekly home-based exercise and activity program with tracking, and; 3) weekly 1:1 physiotherapy counselling. On completion, participants attended semi-structured 1:1 interviews responding to open-ended questions about their experiences. Content analysis was conducted.

Results 12 women and 4 men [median (range) age; 30 (19-46) years, 75% with past ACL tears] were interviewed. Most participants reported being satisfied with SOAR. Knee Camp and weekly 1:1 physiotherapy counselling were the components that most influenced participants' exercise participation by promoting autonomy and accountability. Participants had mixed feelings about using an activity tracker (i.e., Fitbit) and exercise tracking app. Data analysis identified three main themes: 1) Regaining control of knee health; 2) Importance of social support 3) Program limitations and strengths. Suggestions to improve the program included: more opportunities to connect with other persons with knee trauma, and access to web-based resources beyond the study.

Conclusion Persons with a past sport-related knee trauma report the SOAR program as acceptable and relevant. Strategies that include education, promote therapeutic alliance and social support, and foster autonomy may be important methods for long-term management of osteoarthritis risk after knee trauma.