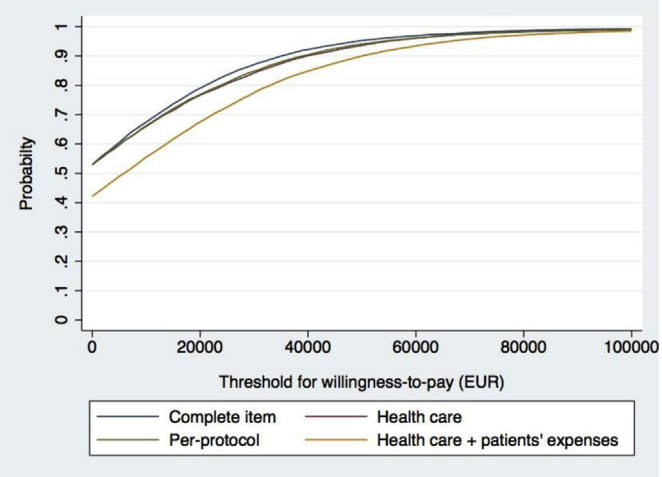

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GREATER QUALITY OF EXERCISE THERAPY INTERVENTIONS IN ARTHROSCOPIC SURGERY TRIALS FOR DEGENERATIVE KNEE DISEASE INCREASES THE PAIN RELIEF

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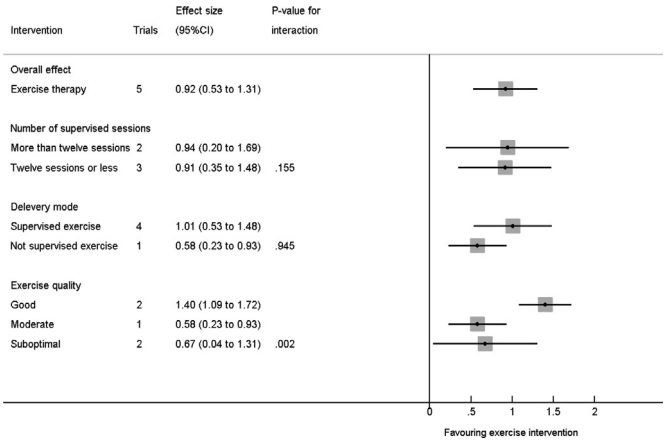
Purpose: Five recently published high-quality randomized controlled trials (RCT) have studied the additional effect of arthroscopic surgery for degenerative knee disease in combination with a non-surgical treatment of which exercise therapy was the dominant component. Our aims were to determine: 1) quality of the exercise programs employed, 2) within-group treatment effect from exercise therapy alone in the comparator arms, and 3) if quality of the exercise programs explained observed variability in treatment effect.
Methods: We scrutinized exercise programs used in the five available high quality RCTs comparing the effect of exercise therapy alone with exercise therapy in addition to knee arthroscopic surgery for degenerative knee disease. First, the lead author (EMR) compared methodological quality of each exercise program with American College of Sports Medicine's evidence-based recommendations for exercise programs for the general population to ensure a sufficient dose to induce improvement in muscle strength. In addition, they were compared with exercise programs associated with pain relief in patients with knee OA. Overall, exercise program quality was graded good, moderate, or suboptimal. Programs were graded 'good' if the exercise program fulfilled at least 4 of the following 6 stated characteristics: well-described, supervised, of adequate content, with a sufficient number of sets and repetitions, levels of progression were stated, and prescribed for at least 12 sessions. Programs were graded as 'moderate' when they fulfilled fewer characteristics, while 'suboptimal' was graded if programs were either poorly described or did not prescribe the dose recommended for a physiological response or knee pain relief. The evaluation was confirmed by a second author (CBJ), with resolution of discrepancies by consensus. A random effects model meta-analysis was applied stratifying for more than twelve prescribed sessions, supervision of exercise and exercise quality.
Results: The level of detail in description, and the quality of the exercise programs varied greatly. Two programs were insufficiently described to allow for quality assessment of key characteristics and were scored as suboptimal. Compared to evidence-based recommendations for an effective exercise program and current knowledge about the optimal exercise program for knee OA, two programs were considered to be of good quality, one of moderate quality, and two of suboptimal quality.
The overall within-group pain relief from exercise was large (SMD 0.92 95%CI: 0.53 to 1.31), however with large heterogeneity (I2=84.5%), Figure 1. SMDs for the individual studies ranged from 0.34 to 1.46. Greater pain relief was seen for exercise programs considered of good quality (SMD 1.40 95%CI: 1.09 to 1.72) compared to moderate (SMD 0.58 95%CI: 0.23 to 0.93) and suboptimal quality (SMD 0.67 95%CI: 0.04 to 1.31) (P=0.002). More than 12 prescribed sessions and supervision of programs were not associated with differences in pain relief, Figure 1.
Conclusions: In high quality randomized trials investigating the additional effect of knee arthroscopic surgery of the degenerative knee when added to exercise, the quality of the exercise program varied greatly from being suboptimal to achieve a physiological response to very well corresponding to guidelines for physiological response and knee pain relief. The within-group effect from exercise alone was large and associated with the overall quality of the program, but not with individual characteristics such as number of prescribed sessions or if supervised. Our findings emphasize the need for well-designed exercise programs for this patient group to allow for high quality clinical trials comparing effects of exercise and arthroscopic surgery.



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PREDICTORS AND OUTCOMES OF CROSS-OVER TO SURGERY IN A RANDOMIZED TRIAL OF SURGERY VS. PHYSICAL THERAPY FOR MENISCAL TEAR AND OSTEOARTHRITIS

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Purpose: Symptomatic meniscal tear in the setting of concomitant osteoarthritis (OA) is a common, disabling problem. Several recent randomized trials suggest that treatment with arthroscopic partial meniscectomy (APM) and physical therapy (PT) yields similar results after 6-12 months, as compared with PT alone. However, around one-third of patients randomized to PT in these trials have crossed over to receive APM. The goal of this study is to identify factors associated with crossing over to APM among patients who initially received PT and to compare the likelihood of successful pain relief in patients who crossed over as compared with those originally randomized to APM.
Methods: We conducted a secondary analysis of data from the MeTeOR (Meniscal Tear in Osteoarthritis Research) Trial, a 7-center randomized controlled trial of APM with PT vs. PT alone in subjects > 45 years old with meniscal tear and concomitant degenerative changes. We used generalized linear models with a binary outcome (cross-over or not) to assess potential predictors of cross-over to APM among those originally randomized to PT. Potential predictors included duration of symptoms, age, sex, body mass index, preoperative level of pain and functional status, mechanical symptoms and mental health status, Kellgren-Lawrence radiographic grade and several physical examination variables including passive range of motion, strength, muscle lengths and the timed up and go test. We eliminated variables that did not contribute meaningfully to arrive at a parsimonious model. We used similar modeling techniques to compare the likelihood of achieving a 10 point improvement in pain after six months of follow-up between those randomized to PT who crossed over to APM vs. those originally randomized to APM, adjusting for covariates.