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When can exercise supplant surgery for degenerative meniscal tears?

Patients with a medial, degenerative meniscal tear and a minimal history of osteoarthritis make good candidates for physical therapy—and there is an added benefit, too.

PRACTICE CHANGER

Recommend supervised exercise therapy to your patients with a medial, degenerative meniscal tear and a minimal history of osteoarthritis because it is as effective as partial meniscectomy, entails little risk, and has the added benefit of increasing muscle strength.¹

STRENGTH OF RECOMMENDATION

B: Based on a single, good quality, randomized controlled trial.

Kise NJ, Risberg MA, Stensrud S, et al. Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up. *BMJ*. 2016;354:i3740.

ILLUSTRATIVE CASE

A 48-year-old man presents to your office for follow-up of right knee pain that has been bothering him for the last 12 months. He denies any trauma or inciting incident for the pain. On physical exam, he does not have crepitus, but has medial joint line tenderness of his right knee. A magnetic resonance image (MRI) shows a partial, medial meniscal tear. Do you refer him to Physical Therapy (PT) or Orthopedics for arthroscopy and repair?

The meniscus—cartilage in the knee joint that provides support, stability, and lubrication to the joint during activity—can tear during a traumatic

event or because of degeneration over time. Traumatic meniscal tears typically happen to younger adults and teens (<30 years of age) during sports, such as basketball and soccer, whereas degenerative meniscal tears generally present in patients ages 40 to 60 years.^{2,3} The annual incidence of all meniscal tears is 79 per 100,000.⁴ While some physicians can diagnose traumatic meniscal tears based on history and physical examination, degenerative meniscal tears are generally more challenging, and typically warrant an MRI for confirmation.³

Meniscal tears can be treated either conservatively, with supportive care and exercise, or with surgery. Unfortunately, there are no national orthopedic guidelines available to help direct care. In one observational study of surgery as treatment for both traumatic and degenerative meniscal tears, 95 out of 117 patients (81.2%) were generally satisfied with this treatment at the 4-year follow-up, with higher satisfaction in the traumatic meniscal tear group than in the degenerative tear group.⁵

Two systematic reviews of surgery vs nonoperative management or sham therapies found no additional benefit of surgery for meniscal tears in a variety of patients with and without osteoarthritis.^{6,7} However, both studies were of only moderate quality because of the number of patients in the nonoperative groups who ultimately

obtained surgery. And neither of the studies directly compared surgery to nonoperative management.^{6,7}

Yet another investigation, a multicenter, randomized, double-blind, sham-controlled study conducted in Finland involving 146 patients, compared sham surgery to arthroscopic partial meniscectomy. Both groups received instruction on performing post-procedure exercises, and both groups had similar and marked improvement in pain and function.⁸

■ **Clinical practice recommendations** devised from a systematic and vast review of the literature recommend that the decision for surgery be based on patient-specific factors such as symptoms, age, mechanism of tear, extent of damage, and occupational/social/activity needs.⁹

STUDY SUMMARY

Exercise is as good as—and in one way, better than—surgery

The current randomized controlled superiority trial compared exercise therapy to arthroscopic partial meniscectomy in patients ages 35 to 60 years presenting to the orthopedic departments of 2 hospitals in Norway with unilateral knee pain for more than 2 months and an MRI-delineated medial meniscal tear. Patients were included only if they had radiographic evidence of minimal osteoarthritis (Kellgren-Lawrence classification grade ≤ 2). Exclusion criteria were acute trauma, locked knee, ligament injury, and knee surgery in the same knee within the previous 2 years.

■ **The primary outcomes** were change in patient-reported knee function as determined by overall knee injury and osteoarthritis outcome score (KOOS₄) after 2 years and thigh muscle strength at 3 months as measured by physiotherapists. The KOOS₄ consists of 4 out of the 5 KOOS subscales: pain, other symptoms (swelling, grinding/noise from the joint, ability to straighten and bend), function in sports/recreation, and knee-related quality of life (QOL). This study utilized the average score of each subscale.

■ **Secondary outcomes** were the 5 individual KOOS subscales (the 4 previously

mentioned plus activities of daily living [ADLs]), as well as thigh muscle strength and lower extremity performance test results.

■ **Methods.** Testing personnel were blinded to group allocation; participants wore pants or neoprene sleeves to cover surgical scars. A total of 140 patients were randomized to either 12 weeks (24-36 sessions) of exercise therapy alone or a standardized arthroscopic partial meniscectomy with written and oral encouragement upon discharge to perform simple exercises at home 2 to 4 times daily (to regain range of motion and reduce swelling).

■ **Results.** The overall mean improvement in KOOS₄ score from baseline at 2 years was similar between the exercise group and the meniscectomy group (25.3 points vs 24.4 points, respectively; mean difference [MD], 0.9; 95% confidence interval [CI], -4.3 to 6.1; $P=.72$). Additionally, muscle strength (measured as peak torque flexion and extension and total work flexion and extension) at both 3 and 12 months showed significant objective improvements favoring exercise therapy.

Secondary outcomes comparing the change from baseline of KOOS subscale scores showed 4 of the 5 having non-significant differences (pain, ADL, sports/recreation, and QOL). Only the symptoms subscale had a significant difference favoring exercise therapy (MD, 5.3 points; 95% CI, 0.5 to 10.2; $P=.03$), which was likely clinically insignificant when using a grading scale of 0 to 100.

Of those patients allocated to exercise therapy alone, 19% crossed over and underwent surgery during the 2 years of the study.

WHAT'S NEW

Head-to-head comparison adds evidence to previous findings

This is the first trial to directly compare exercise therapy to surgery in patients with meniscal tears. Interestingly, exercise therapy was as effective after a 2-year follow-up period and was superior in the short term for thigh muscle strength.¹ The results of this study build on those from the smaller study conducted in Finland mentioned earlier.⁸ In that study, both groups received instruction

➤ **Exercise therapy was as effective as surgery after a 2-year follow-up period and was superior in the short term for thigh muscle strength.**

for the same graduated exercise plan. The researchers found that exercise was comparable to surgery for meniscal tears in patients with no osteoarthritis.

CAVEATS

Results may not translate to those with more severe osteoarthritis

This trial included patients with only mild to no osteoarthritis in addition to their meniscal tear.¹ It is unclear if the results would be maintained in patients with more advanced disease. Additionally, 19% of patients crossed over from the exercise group to the surgery group, even though muscle strength improved. Therefore, education about the risks of surgery and the potential lack of benefit is important.

CHALLENGES TO IMPLEMENTATION

The cost and effort of physical therapy may be a deterrent

The cost of PT can be a barrier for some patients who have adequate insurance coverage for surgery, but inadequate coverage for PT. Additionally, exercise therapy requires significant and ongoing amounts of time and effort, which may be a deterrent for patients with busy lifestyles. Patients and physicians may view surgery as an “easier” fix. **JFP**

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References

1. Kise NJ, Risberg MA, Stensrud S, et al. Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up. *BMJ*. 2016;354:i3740.
2. Beals CT, Magnussen RA, Graham WC, et al. The prevalence of meniscal pathology in asymptomatic athletes. *Sports Med*. 2016;46:1517-1524.
3. Maffulli N, Longo UG, Campi S, et al. Meniscal tears. *Open Access J Sports Med*. 2010;1:45-54.
4. Peat G, Bergknut C, Frobell R, et al. Population-wide incidence estimates for soft tissue knee injuries presenting to healthcare in southern Sweden: data from the Skåne Healthcare Register. *Arthritis Res Ther*. 2014;16:R162.
5. Ghislain NA, Wei JN, Li YG. Study of the clinical outcome between traumatic and degenerative (non-traumatic) meniscal tears after arthroscopic surgery: a 4-years follow-up study. *J Clin Diagn Res*. 2016;10:RC01-RC04.
6. Khan M, Evaniew N, Bedi A, et al. Arthroscopic surgery for degenerative tears of the meniscus: a systematic review and meta-analysis. *CMAJ*. 2014;186:1057-1064.
7. Monk P, Garfield Roberts P, Palmer AJR, et al. The urgent need for evidence in arthroscopic meniscal surgery: a systematic review of the evidence for operative management of meniscal tears. *Am J Sports Med*. 2016;pii: 0363546516650180. [Epub ahead of print]
8. Sihvonen R, Paavola M, Malmivaara A, et al; Finnish Degenerative Meniscal Lesion Study (FIDELITY) Group. Arthroscopic partial meniscectomy versus sham surgery for a degenerative meniscal tear. *N Engl J Med*. 2013;369:2515-2524.
9. Beaufils P, Hulet C, Dhénain M, et al. Clinical practice guidelines for the management of meniscal lesions and isolated lesions of the anterior cruciate ligament of the knee in adults. *Orthop Traumatol Surg Res*. 2009;95:437-442.

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