

## New England Journal of Medicine Article Evaluating the Usefulness of Meniscectomy Is Flawed

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**Abstract:** A controversial article was recently published in the *New England Journal of Medicine* titled “Arthroscopic Partial Meniscectomy Versus Sham Surgery for a Degenerative Meniscal Tear” by Sihvonen et al. We believe that readers of this article should be careful about making sweeping generalizations regarding the study findings given several methodologic flaws inherent in the population studied. There are significant concerns regarding the generalizability of these data. The actual study sample group is exceedingly small as compared with the normal volume of meniscal surgery the authors are reported to routinely perform. The authors’ definition of a sham procedure must be revisited. The authors’ final conclusion that “arthroscopic partial meniscectomy is of no value” is simply not what the study found. We share the concerns that several other leading authorities have recently expressed about the societal implications of this work. Arthroscopic partial meniscectomy has revolutionized the way we are able to treat symptomatic meniscal pathology. However, this procedure, like all surgical procedures, must be properly indicated to truly benefit our patients.

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A controversial article was recently published in the *New England Journal of Medicine* titled “Arthroscopic Partial Meniscectomy Versus Sham Surgery for a Degenerative Meniscal Tear” by Sihvonen et al.<sup>1</sup> This study was a randomized, multicenter, double-blind trial performed in Finland. We congratulate the authors for this well-intended and -designed trial, and we respectfully comment on important aspects of this study that we believe were neglected in the discussion of the data and conclusions. We believe that readers of this article should be careful about making sweeping generalizations

regarding the study findings given several methodologic flaws inherent in the population studied.

There are significant concerns about the generalizability of these data. The actual study sample group is exceedingly small compared with the normal volume of meniscal surgery the authors report they routinely perform. Among the 205 patients identified as eligible, 59 were ultimately excluded, including 24 patients who declined to participate and 14 who were excluded at the time of surgery. Patients with traumatic meniscal tears, lateral meniscal tears, acute tears, or acute-on-chronic tears, as well as patients with radiographic evidence of arthritis, were excluded. More than 5 years was required to obtain the 205 study participants. On the basis of previously reported surgical volumes for the surgeons involved in this study,<sup>2</sup> a sample population of approximately 1,000 to 1,500 patients would have been available. Therefore, fewer than 10% to 15% of the meniscectomy patients were eligible for inclusion in the study, a fraction of the pool of patients who would normally present to these centers with meniscus-related pathology. The authors did not provide the number of patients who were treated in the “pragmatic” cohort, that is, patients who did not meet the inclusion criteria yet went on to undergo arthroscopic meniscectomy. Thus, generalizing these findings to the population at large becomes problematic given the small number of patients ultimately selected. Furthermore, there is no mention made of preoperative

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magnetic resonance imaging findings, and more specifically, the assessment of the meniscal tear pattern, as well as the evaluation of the chondral surfaces within the medial compartment, was not discussed. The authors report that 39 of 140 study patients (28%) had arthroscopically documented osteoarthritic changes.<sup>1</sup> Even though the authors mention that there were no significant changes between groups in the arthroscopic findings, the study does not seem to be powered to make that distinction.

The authors' definition of a sham procedure must be revisited. The groups underwent virtually identical treatment, other than the actual trimming of the meniscal tear. In the so-called sham group, standard medial and lateral arthroscopic portals were established, and a diagnostic arthroscopy with joint irrigation and lavage was performed. Given that these patients had "degenerative" meniscal tears, it stands to reason that this could be considered a competent surgical treatment because both groups improved similarly after the failure of some form (not provided by the authors) of conservative nonsurgical treatment.

The authors' final conclusion that "arthroscopic partial meniscectomy is of no value" is simply not what the study found. In fact, both groups had "marked improvement" in their Lysholm, Western Ontario Meniscal Evaluation Tool (WOMET), and visual analog scale pain scores after exercise 1 year postoperatively. The differences between the groups were not large enough to show that the meniscectomy group was better off. The study was powered to detect a "clinically important improvement" in Lysholm and WOMET scores of 11.5 and 15.5, respectively, as well as an improvement in pain scores of at least 2 points. In the case of degenerative meniscal tears, in patients with arthroscopic evidence of chondral degeneration, the expected clinical differences at 1 year may be subtle at best. Multiple studies have reported the lack of efficacy of knee arthroscopy in patients with osteoarthritis.<sup>3-5</sup> Although these findings may have some applicability to the Finnish population studied, they are not generalizable. Although the authors make specific mention of the frequency of arthroscopic partial meniscectomy in the United States, these results should not be assumed to apply here or in any other country, for that matter, that does not closely mirror their study population.

We share the concerns that several other leading authorities have recently expressed about the societal implications of this work. In the current socioeconomic

climate, policymakers and insurers may erroneously conclude that partial meniscectomy is not beneficial. Nothing could be further from the truth. Knee arthroscopy, including partial meniscectomy, when properly indicated, results in evidence-based improvement in quality of life while being cost-effective.<sup>6</sup> Many patients who do not have the time or the inclination to critically analyze the medical literature may be apprehensive about undergoing surgery that could be of great benefit to them simply because they have been misinformed.

In a troubling trend, the *New England Journal of Medicine* has published only 4 original articles about knee arthroscopy in the past 15 years, none of which support surgical treatment. It would be interesting to know the number of Level I studies submitted that support surgical treatment for orthopaedic conditions that were not accepted for publication or even reviewed. We acknowledge that studies such as these are required to rigorously assess the clinical efficacy of our most common procedures. Arthroscopic partial meniscectomy has revolutionized the way we can treat symptomatic meniscal pathology. However, this procedure, like all surgical procedures, must be properly indicated to truly benefit our patients.

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