


Knee arthroscopy: evidence for a targeted approach

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Like many areas of medicine, the role of arthroscopy is evolving and its use must be guided by critical analysis of the scientific evidence. Data evaluating arthroscopic knee surgery is complex with heterogeneous pathology, patient populations and techniques and, therefore, must be interpreted with care. Attention-grabbing headlines and animations can stimulate discussion, but when key aspects of published science are overlooked, they risk oversimplification. We believe a number of articles published in a recent edition of the *British Journal of Sports Medicine* (BJSM) represent examples where science may be overshadowed by oversimplification. Thus, we offer additional insights to focus the place of arthroscopy in the management of joint problems.

OVERSIMPLIFICATION CAN BE MISLEADING

To our interpretation, recent BJSM publications appear to take an emotional stance, indicating that all arthroscopy for conditions that cause joint pain is bad and should be stopped.^{1,2} Following an article reporting a decline in the rate of arthroscopy in Finland,³ Ardern *et al* provided

a provocative editorial citing reasons for this change as reduced reimbursement, medical overuse and grass roots pressure.¹ Scientific evidence was not one of the five reasons given directly.

An editorial by Engebretsen and Moatshe⁴ in the same edition provides a more balanced discussion on the 5-year results of the Finnish Degenerative Meniscus Lesion Study (FIDELITY) trial also published in the same issue.⁵ This editorial contends that the conclusion by Sihvonen and colleagues that arthroscopic partial meniscectomy is associated with a greater risk of osteoarthritis is too strong for the data presented.⁴ They also point out that patients with an obvious traumatic onset or a recent locked knee were excluded, thus not representing the wider population of patients undergoing arthroscopy.

Despite this, the ‘warm-up’ article from the editor remarks that the patients in the FIDELITY study were ‘classic patients for arthroscopy—classic in the sense that they very typically were slam-dunks for surgery’. This contradictory commentary encourages surgeons to follow the editorial of Engebretsen and Moatshe⁴ and yet asks them to ‘walk away’ from arthroscopy. The BJSM issue was promoted by a very one sided cartoon condemning the ‘legend of arthroscopy’. Editorials and cartoons are appealing as they provide an interpretation of science from a ‘senior’ source, reaching wide audiences rapidly. However, particular care is required to avoid specific harm in the opposite direction to the condition or treatment that is being debated.

TARGETED LESIONS: RECENT VIEWS ON INDICATIONS

Arthroscopy continues to have a role in the management of knee conditions. Arthroscopy has increased our understanding of intra-articular pathology and enables surgery to be performed with lower morbidity and less pain than open surgery. Focusing on knee surgery,

scientific study has clearly shown that arthroscopic ‘washout’ for degenerative knee conditions is not better than non-operative treatment. However, many of the procedures where arthroscopy is used have not been subjected to such study, and a blanket condemnation of arthroscopy is inappropriate.

Substantial global efforts have directed the current place of arthroscopy in knee surgery. The British Association for Surgery of the Knee published a concept of targeted lesions where arthroscopy has a role and a practical approach that clinicians can follow.⁶ We agree that, for patients with advanced osteoarthritis on imaging or arthritic symptoms only, arthroscopic meniscal surgery is not recommended. Few would contest that in patients with a meniscal lesion and a locked knee, urgent arthroscopic surgery is recommended, and yet no trials have been performed in this setting. The challenging area is the role of partial meniscectomy in the degenerative knee where data are marred by broad inclusion criteria and trials with a high cross-over rate in patients recruited to a non-arthroscopic treatment arm.⁷ When authors questioned outcome from arthroscopic partial meniscectomy versus skin incisions only in a sham-controlled randomised trial in patients aged 35–55 years with knee pain and an MRI-verified meniscal tear, greater improvement was reported following surgery at 2 years.⁸ However, citing statistical uncertainty, underpowering and one-third crossover, the authors who had previously reported that arthroscopy was not beneficial, concluded that the results could not be generalised to the greater patient population.⁸

NON-OPERATIVE TREATMENT FIRST

Studies have established that a period of non-operative treatment is valid before undergoing surgery. Evidence for this is based on clinical trials where patients have non-specific clinical and radiological findings. Webster and Feller drew attention to this in 2018,⁹ noting that Liebs *et al*⁷ questioned the validity of meta-analyses that studied randomised controlled trials for arthroscopy in degenerative knee disease. They specifically asked ‘was conservative therapy appropriately tried prior to arthroscopy?’ and showed that a trial of conservative treatment before arthroscopy was only mandatory in 2 of 13 studies. Where conservative treatment was undertaken before surgery but without adequate improvement, subsequent partial meniscectomy was effective.⁷

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RESOLVING THE DEBATE

The delivery of the best possible care for patients requires a commitment from all to critically examine the best available evidence. Orthopaedic surgeons need to focus surgical indications on targeted lesions based on sound clinical assessment. Those who have delivered blanket criticisms of arthroscopy need to recognise the complexities of the data and the limits of our current knowledge. The results of the Finnish study are relevant to the specific study population but not all meniscal tears. Just as surgeons should not generalise and apply surgical techniques across all patients regardless of indications, researchers should not generalise and apply the results of specific studies to all applications of a particular surgical technique.

CONCLUSION

Clinicians and researchers should be guided by critical analysis of emerging scientific data that influence shared decision-making between clinicians and patients. As outlined here, knee arthroscopy has a role in the management of targeted lesions and in certain situations where non-operative measures have proved unsuccessful. The leading role BJSM has taken in publishing high-quality studies and in advancing the role of editorial commentary and images to deliver key messages in a more impactful way and to reach a wider audience should be applauded and welcomed. However, these powerful tools risk oversimplification and must be used judiciously.

Correction notice This article has been corrected since it published Online First. The first affiliation has been corrected.

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Contributors All authors contributed to this work (editing and crafting the work).

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests RFL is a consultant for Arthrex, Ossur, Smith and Nephew and Linvatec; receives royalties from Arthrex, Ossur, Smith & Nephew, and Elsevier; Editorial Boards of AJSM, JEO and KSSTA. TS is a consultant for Conmed, Episurf and has an Educational contract with Smith & Nephew. IRM is on the Editorial board for The Bone and Joint Journal and Bone and Joint Research. JC is a consultant for Smith & Nephew, Arthrex, CONMED, Ossur and receives royalties for Elsevier. MS is a consultant for Smith & Nephew and Medacta; Royalties from Smith & Nephew. CL is a consultant for Smith & Nephew. SF is a consultant for Smith & Nephew, Trice, Artoss and Allosource; Editorial board for Arthroscopy. RVB is a consultant for Smith & Nephew. RHB is a Deputy Editor for JAAOS. RM is a consultant Smith & Nephew and Stryker; Editorial Board Revista Artroscopia. AJK is a consultant and receives royalties from Arthrex. LE is a consultant and receives royalties from Arthrex and Smith & Nephew; Editorial board for BJSM.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.



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To cite LaPrade RF, Spalding T, Murray IR, et al. *Br J Sports Med* 2021;**55**:707–708.

Accepted 24 November 2020
Published Online First 7 December 2020

Br J Sports Med 2021;**55**:707–708.
doi:10.1136/bjsports-2020-103742

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REFERENCES

- 1 Ardern CL, Paatela T, Mattila V, et al. When taking a step back is a veritable leap forward. reversing decades of arthroscopy for managing joint pain: five reasons that could explain declining rates of common arthroscopic surgeries. *Br J Sports Med* 2020;**54**:1312–3.
- 2 Khan KM. Deimplementing arthroscopy, improving concussion reporting and celebrating research quality. *Br J Sports Med* 2020;**54**:1305–6.
- 3 Karelson MC, Jokihaara J, Launonen AP, et al. Lower nationwide rates of arthroscopic procedures in 2016 compared with 1997 (634925 total arthroscopic procedures): has the tide turned? *Br J Sports Med* 2020;bjsports-2019-101844. doi:10.1136/bjsports-2019-101844
- 4 Engebretsen L, Moatshe G. Arthroscopic partial meniscectomy for degenerative meniscus tears in middle age patients: why surgeons should change their approach. *Br J Sports Med* 2020;**54**:1311–2.
- 5 Sihvonen R, Paavola M, Malmivaara A, et al. Arthroscopic partial meniscectomy for a degenerative meniscus tear: a 5 year follow-up of the placebo-surgery controlled fidelity (Finnish degenerative meniscus lesion study) trial. *Br J Sports Med* 2020;**54**:1332–9.
- 6 Abram SGF, Beard DJ, Price AJ, et al. Arthroscopic meniscal surgery: a national Society treatment guideline and consensus statement. *Bone Joint J* 2019;**101**-B:652–9.
- 7 Liebs TR, Ziebarth K, Berger S. Randomized controlled trials for arthroscopy in degenerative knee disease: was conservative therapy appropriately Tried prior to arthroscopy? *Arthroscopy* 2018;**34**:1680–7.
- 8 Roos EM, Hare KB, Nielsen SM, et al. Better outcome from arthroscopic partial meniscectomy than skin incisions only? A sham-controlled randomised trial in patients aged 35-55 years with knee pain and an MRI-verified meniscal tear. *BMJ Open* 2018;**8**:e019461.
- 9 Webster KE, Feller JA. Editorial commentary: should we stop asking the question of whether arthroscopic knee surgery is worth it? *Arthroscopy* 2018;**34**:1688–9.