

Letter to the Editor

Knee Joint Distraction with an External Fixator Requires Further Investigation

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No abstract

Degenerative osteoarthritis of the knee (OA) involves about one-third of human beings older than 65 years. If pain persists after noninvasive treatment, some intraarticular drugs can be attempted prior to surgical treatment. Surgical management, including high tibial osteotomy (HTO), unicompartmental knee arthroplasty (UKA), and total knee arthroplasty (TKA), can be carried out if conservative management goes amiss.¹⁻¹⁰ Knee joint distraction (KJD) is a surgical technique in which the two osseous ends of the knee are little by little separated and then maintained in this position for 6-8 weeks using an external fixator.¹

There is some controversy in the literature regarding the role of KJD with an external fixator in knee OA. That is why I asked myself: Is it currently clear whether KJD with an external fixator is a useful treatment for knee OA? This letter aimed to look into the potential benefits of KJD in knee OA. A review was performed on the influence of KJD on knee OA. The search engine used was MEDLINE (PubMed), and the final date was 31 March 2023. The keywords used were “knee distraction osteoarthritis”. Of the 170 articles reviewed, only ten were ultimately included because they were considered the 10 of greatest interest.

In a study, the WOMAC (Western Ontario and McMaster Universities Osteoarthritis) index was significantly augmented, and VAS (visual analog scale) pain was significantly diminished.¹ Other authors found clinical amelioration at the 2-year follow-up: WOMAC significantly improved by 74%, and VAS pain significantly decreased by 61%.²

In a controlled trial comparing KJD with TKA, all patient-reported outcome measures (PROMS) ameliorated significantly over one year in both groups. Twelve patients (60%) in the KJD group had pin tract infections.³ In 2018, Jansen et al. stated that KJD caused long-lasting clinical and structural improvement.⁴

Some authors have affirmed that there is moderate quality evidence supporting the beneficial outcomes of KJD.⁵ In 2019, Takahashi et al. stated that KJD might represent a potential treatment, though further trials with longer-term follow-up were required to establish its efficacy compared with other treatments.⁶

Some authors found that treatment of knee OA by either HTO or KJD led to clinical benefit and an increase in cartilage thickness on weight-bearing radiographs for over two years posttreatment.⁷ In 2021, Jansen et al. affirmed that KJD caused clear benefits in clinical and structural parameters, both in the short and long run.⁸

In another study by Jansen et al. in 2022, KJD resulted in significant short- and long-run cartilage regeneration up to 10 years post-treatment.⁹ In the same year, Mastbergen et al. affirmed that KJD treatment resulted in bone changes in the first two years after treatment.¹⁰

[Table 1] summarizes the reported systematic reviews on the role of KJD in knee OA.^{5,6,8}

KJD with external fixator needs more study because the three systematic reviews reported so far have drawn the following conclusions: Larger RCTs with longer follow-up (> one year) are required to determine the true effect size of KJD.⁵ KJD might represent a potential management for knee OA. However, further trials with longer-term follow-up are needed to establish its effectiveness compared with other treatments.⁶ Longer follow-up with more individuals is needed to validate results and potentially facilitate patient selection for this management.⁸

In conclusion, I believe that the role of KJD in knee OA is currently quite controversial and should not be recommended until further research is conducted.

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Table 1. Reported systematic reviews on the role of knee joint distraction (KJD) in treating knee osteoarthritis (OA).

AUTHORS [REFERENCE]	YEAR	METHODS	RESULTS	CONCLUSIONS
Goh et al ⁵	2019	This systematic review evaluated the short- and long-run clinical and structural results after KJD.	There were substantial ameliorations in the WOMAC index, VAS pain score, and JSW following KJD, which persisted for up to 9 years. KJD also demonstrated comparable clinical results with HTO and TKA.	Larger RCTs with longer follow-up (>1 year) are necessary to establish the true effect size of KJD.
Takahashi et al ⁶	2019	Systematic review and meta-analysis (level 1 of evidence).	KJD was associated with improved WOMAC from baseline to 1 year and reduced pain scores. KJD was associated with a high risk of pin site infection.	KJD might represent a potential treatment for knee OA, though further trials with longer-term follow-up are required to establish its efficacy compared with other treatments.
Jansen et al ⁸	2021	This systematic review and meta-analysis assessed short- and long-run clinical benefits and tissue structure changes after KJD.	Significant improvements in all primary parameters were encountered, and the benefit lasted up to 9 years. Overall, results were comparable with control groups, including HTO, although TKA showed better clinical response.	Longer follow-up with more individuals is necessary to validate the outcome and potentially improve patient selection for this treatment.

WOMAC, Western Ontario and McMaster Universities Osteoarthritis Index; VAS, Visual analog scale; JSW, joint space width; HTO, high tibial osteotomy; TKA, total knee arthroplasty; RCTs, randomized controlled trials.

DECLARATION OF CONFLICT OF INTEREST

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Not applicable.

DECLARATION OF INFORMED CONSENT

Not applicable

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