

Forest plot of the network meta-analysis results for function scores. (a) results at 6 months post-injection. (b) results at 12 months post-injection. A random effects model was used for comparisons with SVF as the reference; the dashed line indicates the MCID value based on SVF. SVF, stromal vascular fraction; HA, hyaluronic acid; MD, mean difference; CI, confidence interval; SUCRA, surface under the cumulative ranking curve; MCID, minimal clinically important difference

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DETAILED ANATOMY OF THE MENISCOTIBIAL LIGAMENT AND CLOCK FACE POSITION OF MENISCAL ATTACHMENTS IN THE TIBIA

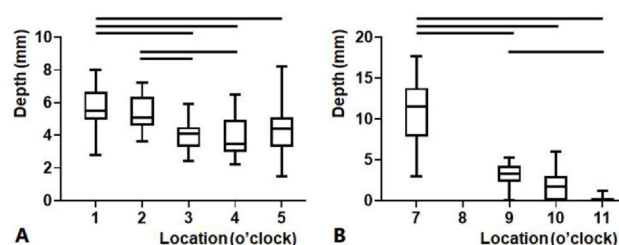
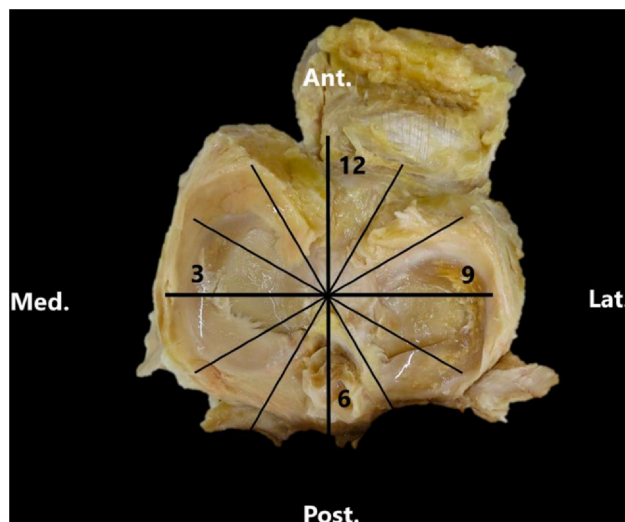
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Purpose (the aim of the study): The meniscus is firmly attached to the tibia through the anterior root, the posterior root, and the meniscotibial ligament (MTL). The MTL contributes to knee joint stability and induces medial meniscal extrusion (MME) that leads to knee osteoarthritis when retracted by osteophytes. Surgical efforts have been reported that MTL repair for the knee joint stabilization or meniscal centralization to restore the MME via anchoring of the MTL. However, the detailed anatomy of the attachment of MTL to the tibial rim remains unclear. This study aimed to investigate the detailed anatomy of the attachment and to propose a method of clock face position.

Methods: Twenty knees of the embalmed cadavers were included. An imaginary line was drawn connecting the medial edge of the patellar tendon to the attachment point of the posterior cruciate ligament (Akagi line). Additionally, a line representing the maximum diameter of the medial and lateral sides of the tibia was drawn perpendicular to the Akagi line. The menisci's attachment positions were analyzed using the clock face positions, with the anterior side defined as 12 o'clock, the posterior side as 6 o'clock, the medial side as 3 o'clock, and the lateral side as 9 o'clock (Figure 1). To examine the frequencies of the various locations of the MTL attachments to the tibial rim, we determined them at 1-hour intervals by applying the method for the shoulder labrum. We documented the location of the ligament's attachment on the plateau, edge, or wall of the tibia at each clock face position. If it was attached to the wall, the distance from the articular surface to the meniscal tibial ligament attachment was measured. We compared the extent of the MTL attachment in terms of clock face positions at 1-hour reference intervals using a one-way analysis of variance. P-values < .05 were considered statistically significant.

Results: The distances from the articular surface were as follows: 1 o'clock: 6.0 ± 1.1 mm, 2 o'clock: 5.5 ± 1.0 mm, 3 o'clock: 4.2 ± 0.9 mm, 4 o'clock: 3.9 ± 1.1 mm, 5 o'clock: 4.4 ± 1.5 mm, 7 o'clock: 12.4 ± 3.3 mm, 9 o'clock: 3.8 ± 1.0 mm, 10 o'clock: 3.2 ± 1.4 mm, and 11 o'clock: 0.1 ± 0.3 mm. No ligament was attached at 8 o'clock due to the popliteal fossa. On the medial side, 1 o'clock and 2 o'clock were significantly larger than 3 o'clock and 4 o'clock, and on the lateral side, 7 o'clock was significantly larger than 9 o'clock, 10 o'clock, and 11 o'clock (all $p < 0.05$) (Figure 2). All clock position of the medial MTL and the lateral MTL at the 7 o'clock position were all attached to the tibial lateral wall. At 9 o'clock, 10 o'clock, and 11 o'clock, there were cases in which the MTL was attached at the articular surface level, with marginal attachment in 3 knees, 6 knees, and 8 knees, and suprasedgmental attachment in 0 knees, 2 knees, and 9 knees, respectively.

Conclusions: We revealed the detailed anatomy of the MTL and defined a novel method of clock face position. The medial MTL was not attached to the articular surface, whereas the lateral MTL was more anteriorly attached to the articular surface. These findings may facilitate the development more accurate surgical techniques for repair of MTL to restore MME and knee joint stability.



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EFFICACY AND SAFETY OF ANALGESICS IN THE TREATMENT OF POSTOPERATIVE PAIN AFTER KNEE AND HIP REPLACEMENT: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS

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Purpose (the aim of the study): Adequate postoperative pain management following knee replacement (KR) and hip replacement (HR) yields profound benefits, yet a comprehensive evaluation of available analgesics is lacking. We aimed to identify the most efficacious analgesics following KR and HR via a network meta-analysis.

Methods: We systematically searched randomised controlled trials (RCTs) comparing analgesics with placebo or other analgesics for postoperative pain following KR or HR. The search encompassed databases of PubMed, Embase, Cochrane Library, Web of Science, and relevant reference lists from inception to July 2023. The primary outcome was pain, complemented by common adverse events. We employed a random walk model to address outcome data correlation assessed at various follow-ups within a trial in calculating effect sizes in mixed multiple-treatment comparisons.

Results: Of 27,998 studies identified, 201 RCTs (21,997 participants) featuring 155 different analgesic regimens were eligible (Fig 1). Following KR, intravenous paracetamol combined with ibuprofen (standardised mean difference [SMD] -3.73, 95% credible interval [CrI] -5.90 to -1.56), intravenous ibuprofen (SMD -3.12, 95% CrI -5.29 to -0.95), nerve-block levobupivacaine combined with dexmedetomidine (SMD -2.50, 95% CrI -3.96 to -1.03), and local levobupivacaine (SMD -1.81, 95% CrI

-2.81 to -0.81) all exceeded the prespecified minimum clinically important difference (MCID) (-0.67) with 99% probability for pain improvement compared with placebo (Fig 2). Following HR, only local ropivacaine combined with ketorolac and adrenaline (SMD -1.28, 95% CrI -1.83 to -0.75) reached MCID with a 99% probability (Fig 3). None of these effective analgesics increased risks for any common adverse event. Between-trial heterogeneity was small-to-moderate, with consistent estimates in various sensitivity analyses.

Conclusions: Short-term use of intravenous paracetamol combined with ibuprofen, intravenous ibuprofen alone, and nerve-block levobupivacaine combined with dexmedetomidine appeared to be the three most effective options following KR; local ropivacaine combined with ketorolac and adrenaline appeared effective following HR. The evidence from this study could be considered conclusive to inform clinical decision-making.

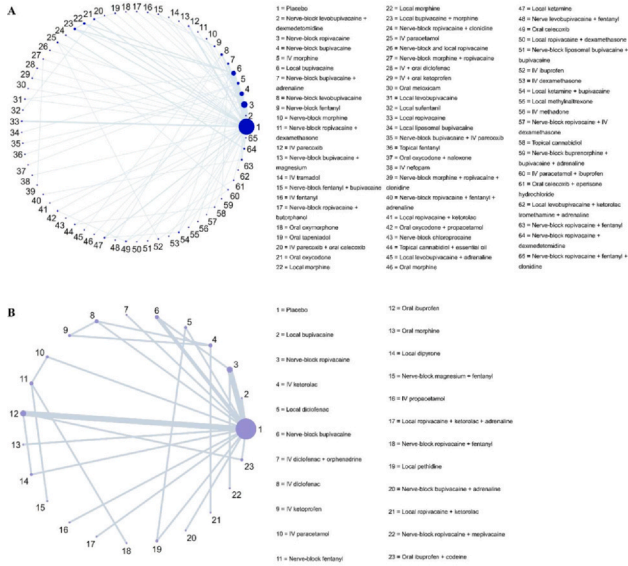


Fig. 1 Network of comparisons included in the analysis. (A) Network of comparisons included in the knee replacement analyses. (B) Network of comparisons included in the hip replacement analyses. The size of the nodes is proportional to the number of included patients, and the width of the lines for each connection is proportional to the number of randomized controlled trials comparing each pair of treatments.

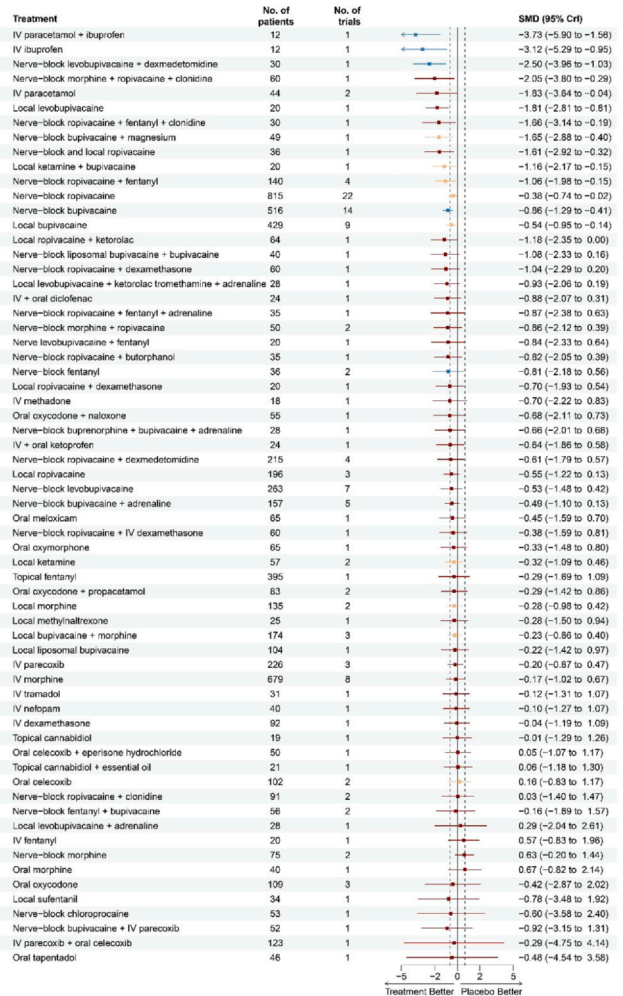


Fig. 2 Forest plot for effects of analgesics on knee replacement compared with placebo. Estimates of the treatment effects on pain for analgesics compared with placebo following knee replacement. Effects for pain relief are represented as standardized mean differences (SMDs). The colours of the lines reflect confidence in the estimates, with blue representing moderate confidence, orange representing low confidence and red representing very low confidence. SMD=standardized mean difference; CrI=credible interval; IV=intravenous.

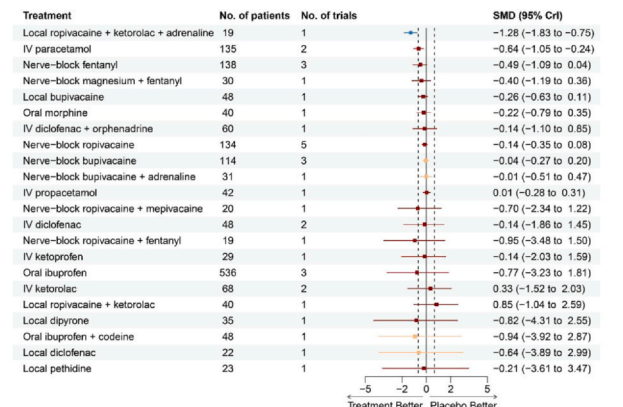


Fig. 3 Forest plot for effects of analgesics on hip replacement compared with placebo. Estimates of the treatment effects on pain for analgesics compared with placebo following hip replacement. Effects for pain relief are represented as standardized mean differences (SMDs). The colours of the lines reflect confidence in the estimates, with blue representing moderate confidence, orange representing low confidence and red representing very low confidence. SMD=standardized mean difference; CrI=credible interval; IV=intravenous.