ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

Superior Healing Rates in Lateral vs. Medial Meniscus Posterior Root Repairs: The Impact of Postoperative Meniscal Extrusion on Healing Rates and Clinical Outcomes- A Systematic Review

Lika Dzidzishvili, MD, PhD

Ester García-Oltra, MD, PhD

Vicente López, MD

José Antonio Hernández-Hermoso, MD, PhD

Hospital Universitari Germans Trias i Pujol, Universidad Autónoma de Barcelona, Barcelona, Spain

Germans Trias i Pujol Hospital

UAB Universitat Autònoma de Barcelona

Author´s Disclosure

The authors declare no conflict of interest.

PURPOSE, HYPOTHESIS, AND METHODS

Purpose: (1) To summarize the available literature evaluating the healing rates after lateral (LMPRR) and medial meniscus posterior root repair (MMPRR). (2) To assess the correlation between postoperative meniscal extrusion (ME) and healing status on magnetic resonance imaging (MRI) and second-look arthroscopy.

Hypothesis: LMPRR would result in higher healing rates compared to MMPRR as observed through second-look arthroscopy and MRI. Furthermore, we expected that postoperative ME would have a negative correlation with healing outcomes following root repair.

Methods: A comprehensive literature search was conducted using the Scopus, PubMed, and Embase databases. Human clinical studies evaluating healing status on second-look arthroscopy and MRI after LMPRR and MMPRR were included.

Study design: Systematic review of level III and IV studies. Level of Evidence: IV

SUMMARY OF RESULTS

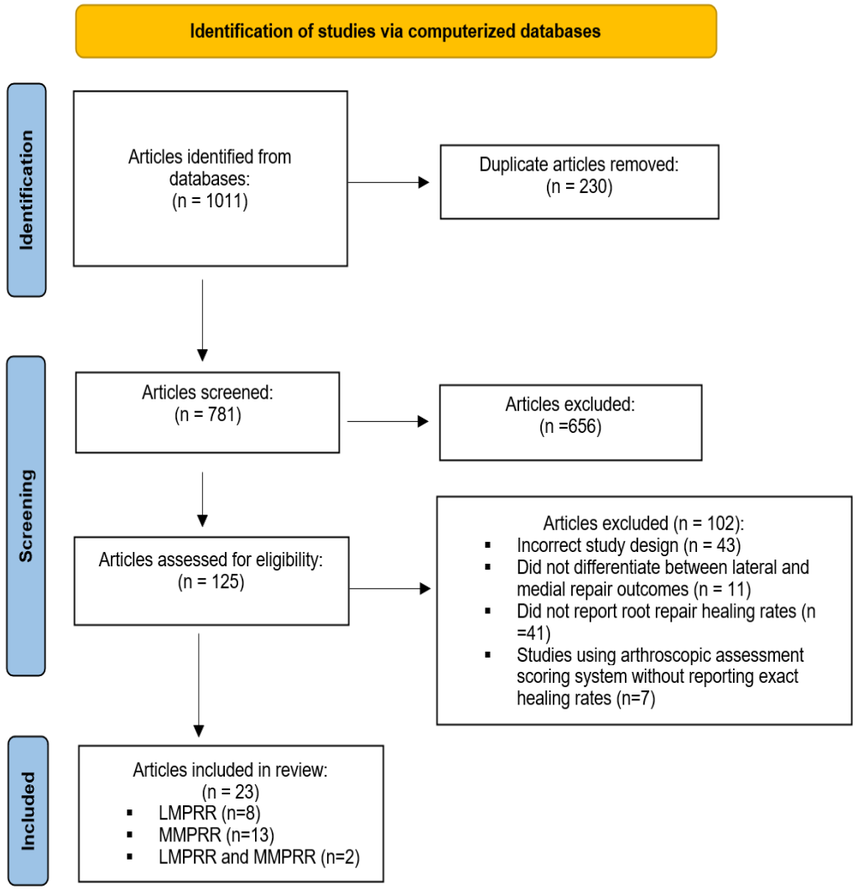
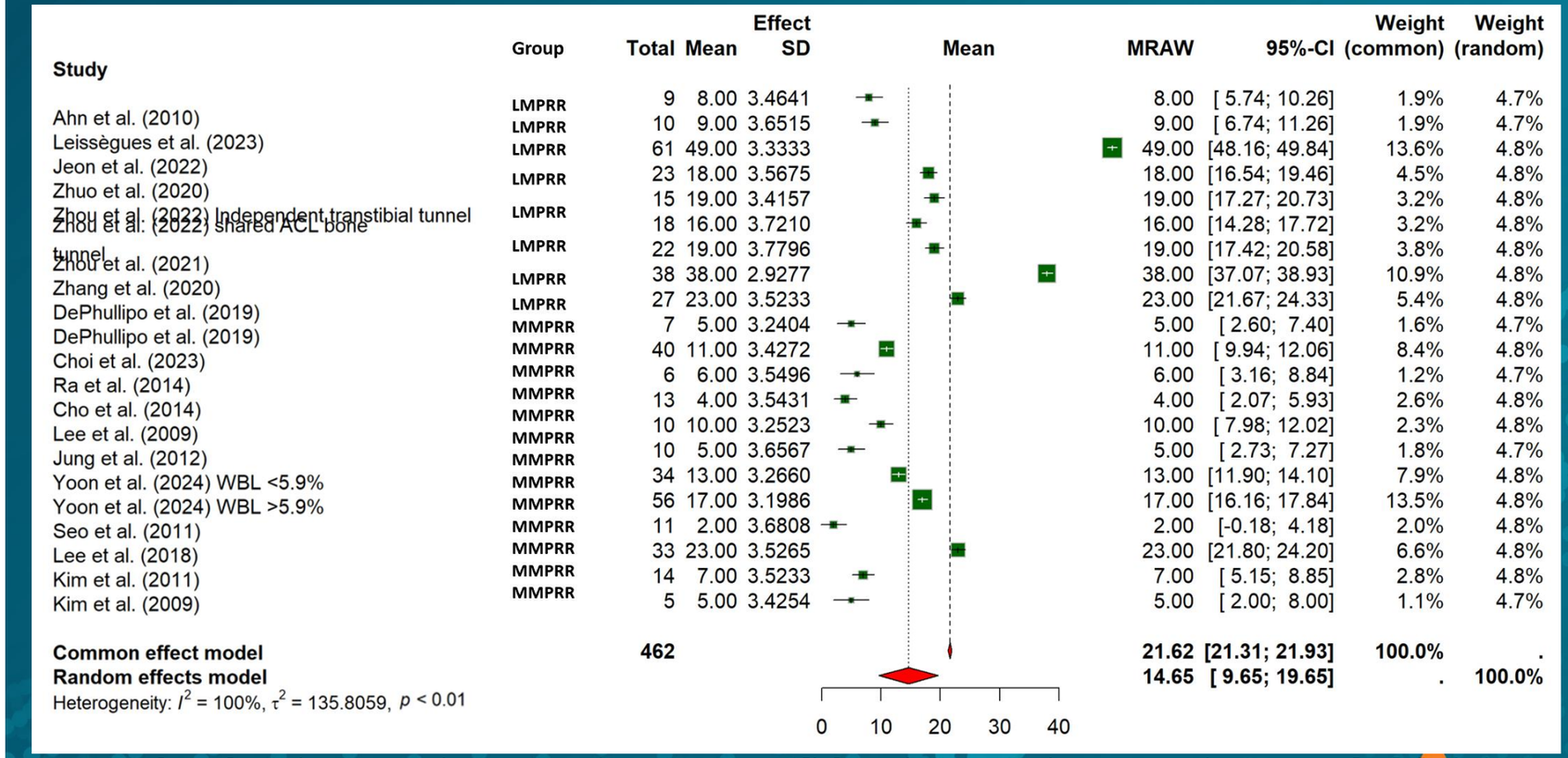


Figure 1. Flowchart of study selection process according to 2020 PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) statement.

Complete root healing was observed in 190 (85.2%) patients in the LMPRR group versus 78 (52.3%) in the MMPRR group (p<0.001). There were six (2.7%) failed repairs in the LMPRR group compared to 21 (14.09%) in the MMPRR group (p<0.001).



LMPRR: lateral meniscus posterior root repair, MMPRR: medial meniscus posterior root repair, SD: standard deviation, CI: confidence intervale, MRAW: Mean Relative Absolute Weight.

Figure 2. Forest plot illustrates the weighted mean difference in healing status on second look arthroscopy. The summary estimate is represented by the center of the diamond, with the 95% CI indicated by the width of the diamond, reflecting the range of the true mean difference.

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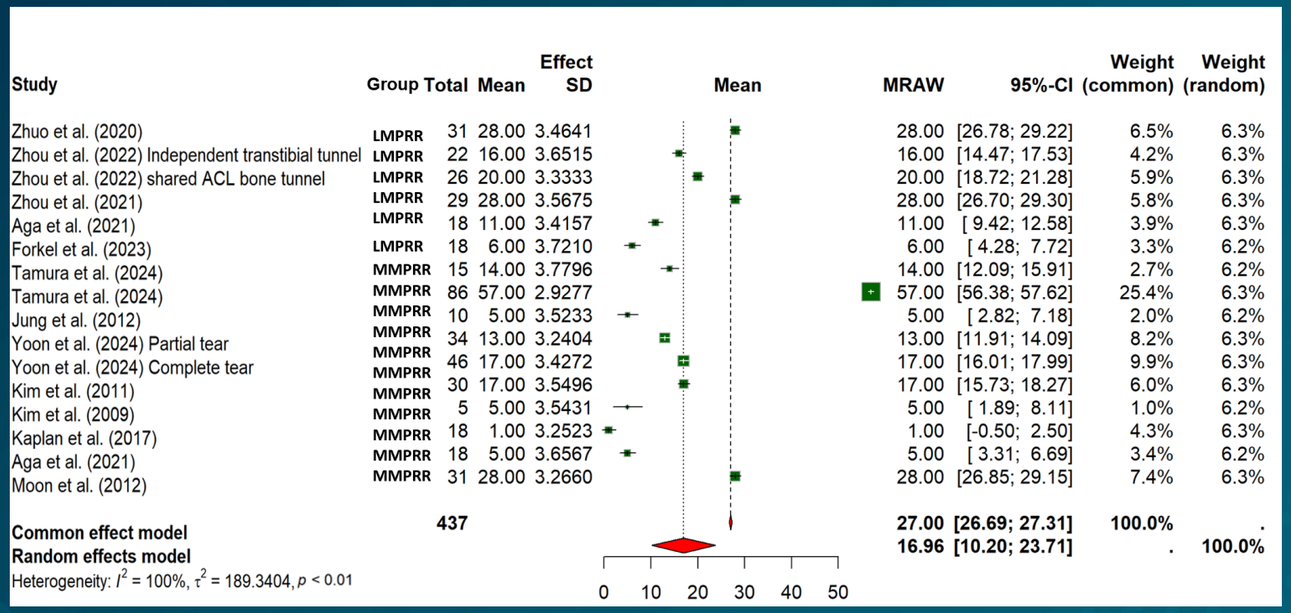
SUMMARY OF RESULTS

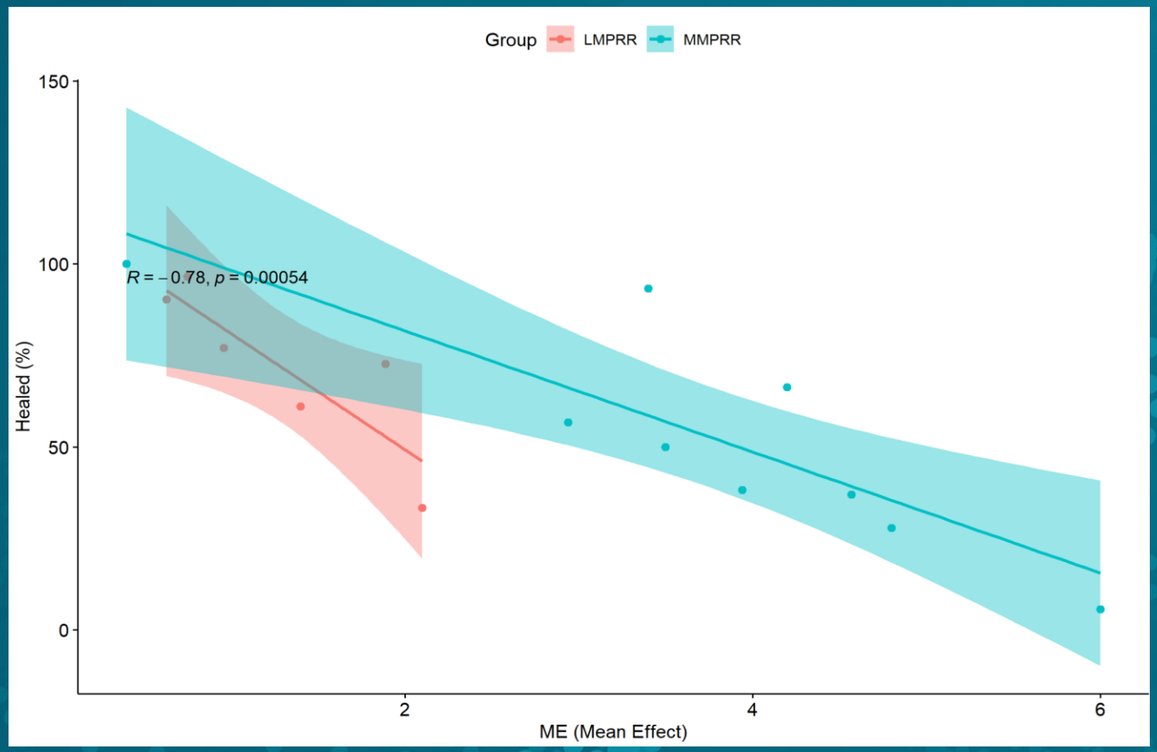
On postoperative MRI, 109 (75.7%) root repairs were healed in the LMPRR group compared to 192 (52.9%) in the MMPRR group (p<0.001).



LMPRR: lateral meniscus posterior root repair, MMPRR: medial meniscus posterior root repair, SD: standard deviation, CI: confidence intervale, Mean Relative Absolute Weight: mean relative absolute weight.

Figure 3. Forest plot illustrates the weighted mean difference in healing status on postoperative MRI. The summary estimate (center of the diamond) and a 95% CI (width of the diamond) depict the true mean difference. The diamond represents the overall effect size, where its width indicates the 95% of CI.

A greater degree of postoperative ME was associated with lower healing rates (R = -0.78, p<0.0005).



***LMPRR: lateral meniscus posterior root repair, MMPRR: medial meniscus posterior root repair,* R: Pearson´s correlation coefficient, ME: meniscal extrusion.**

Figure 4. Pearson's correlation analysis illustrates the relationship between postoperative (residual) ME and observed healing rates. The light blue and red shaded areas represent the confidence intervals around the regression lines.

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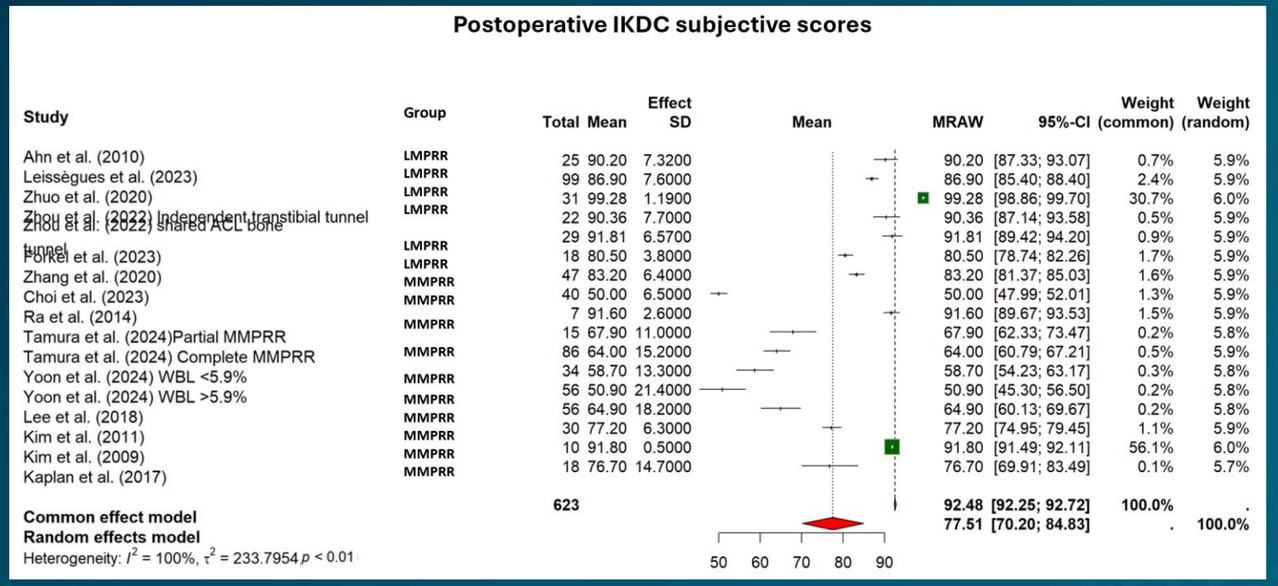
SUMMARY OF RESULTS

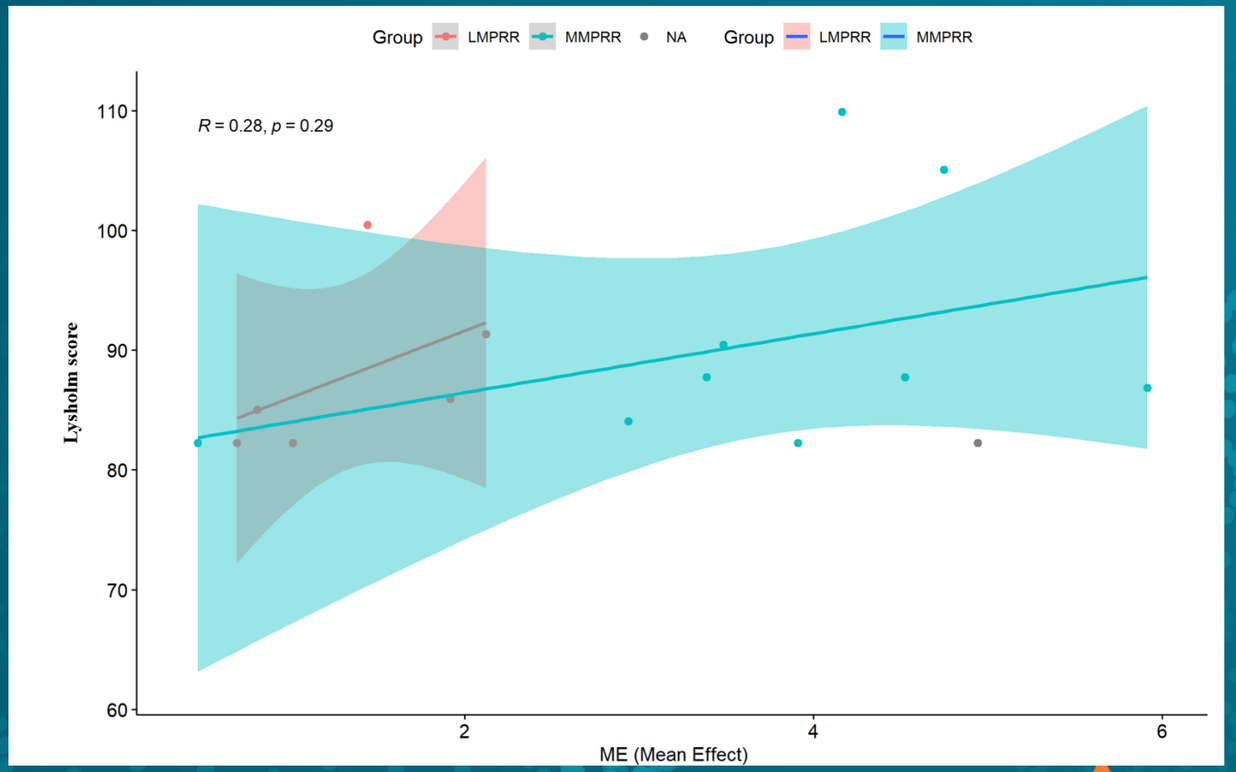
Significantly better clinical outcomes were observed in the LMPRR group compared to the MMPRR group.



LMPRR: lateral meniscus posterior root repair, MMPRR: medial meniscus posterior root repair, IKDC: International Knee Documentation Committee Subjective Knee score, SD: standard deviation, CI: confidence interval, MRAW: Mean Relative Absolute Weight.

Figure 5. Forest plot illustrates the weighted mean difference in postoperative IKDC scores. The summary estimate is represented by the center of the diamond, with the 95% CI indicated by the width of the diamond, reflecting the range of the true mean difference

No significant correlation was found between the degree of postoperative ME and the reported clinical outcomes (Figure 6).



LMPRR: lateral meniscus posterior root repair, MMPRR: medial meniscus posterior root repair

Figure 6. Pearson's correlation analysis illustrates the relationship between postoperative ME and clinical outcomes. The light blue and red shaded areas represent the confidence intervals around the regression lines.

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CONCLUSIONS

- Lateral meniscus posterior root repairs showed higher healing rates compared to MMPRR on both second-look arthroscopy and postoperative MRI.
- Meniscal extrusion decreased after LMPRR but not after MMPRR.
- Greater residual ME correlated inversely with healing rates, as more extrusion was linked to lower healing. Postoperative clinical improvement did not affect ME or healing status

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Thank you