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Failure and Complication Rates Following Meniscal All-Inside and Inside-Out Repairs: A Systematic Review and Meta-Analysis

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DISCLOSURES

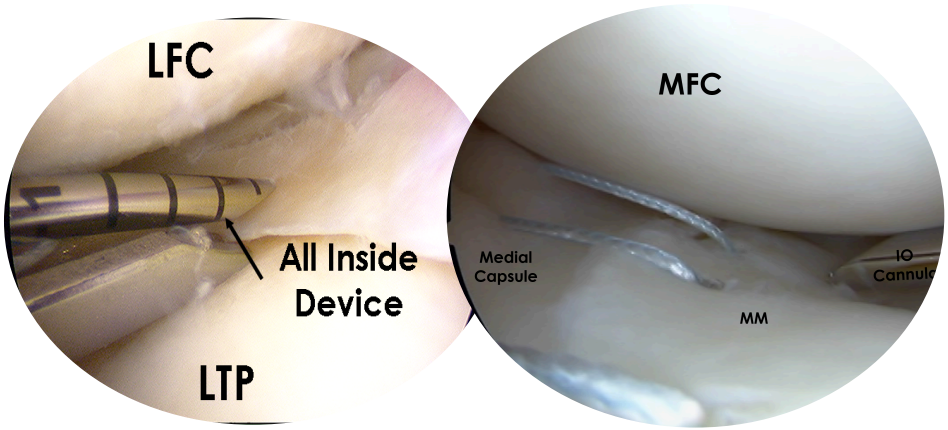
Authors Juan Bernardo Villarreal-Espinosa, Rodrigo Saad Berreta, Lucas Pallone, Jared Rubin, Felicitas Allende, Fernando Gómez-Verdejo, Zeeshan A. Khan, Sachin Allahabadi do not possess any potential conflicts of interest.

Jorge Chahla reports a relationship with American Orthopaedic Society for Sports Medicine: Board or committee member; Arthrex, Inc: Paid consultant; Arthroscopy Association of North America: Board or committee member; CONMED Linvatec: Paid consultant; International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine: Board or committee member; Ossur: Paid consultant; Smith & Nephew: Paid consultant; Paid presenter or speaker

OBJECTIVES

To examine:

- Failure
- Complication rates
- Patient reported outcome measures (PROMs)
  - International Knee Documentation Score (IKDC)
  - Tegner Score



All inside (AI) Vs. Inside Out (IO) Meniscal Repair

METHODS

- PRISMA Guidelines
- Inclusion:
  - Level I-III (comparative)
  - Reporting outcomes after all-inside vs. inside out meniscal repair
  - Non dart, arrow, screw, or hook-based AI devices.
- MINORS/GRADE
- Fixed/Random-effects meta-analysis

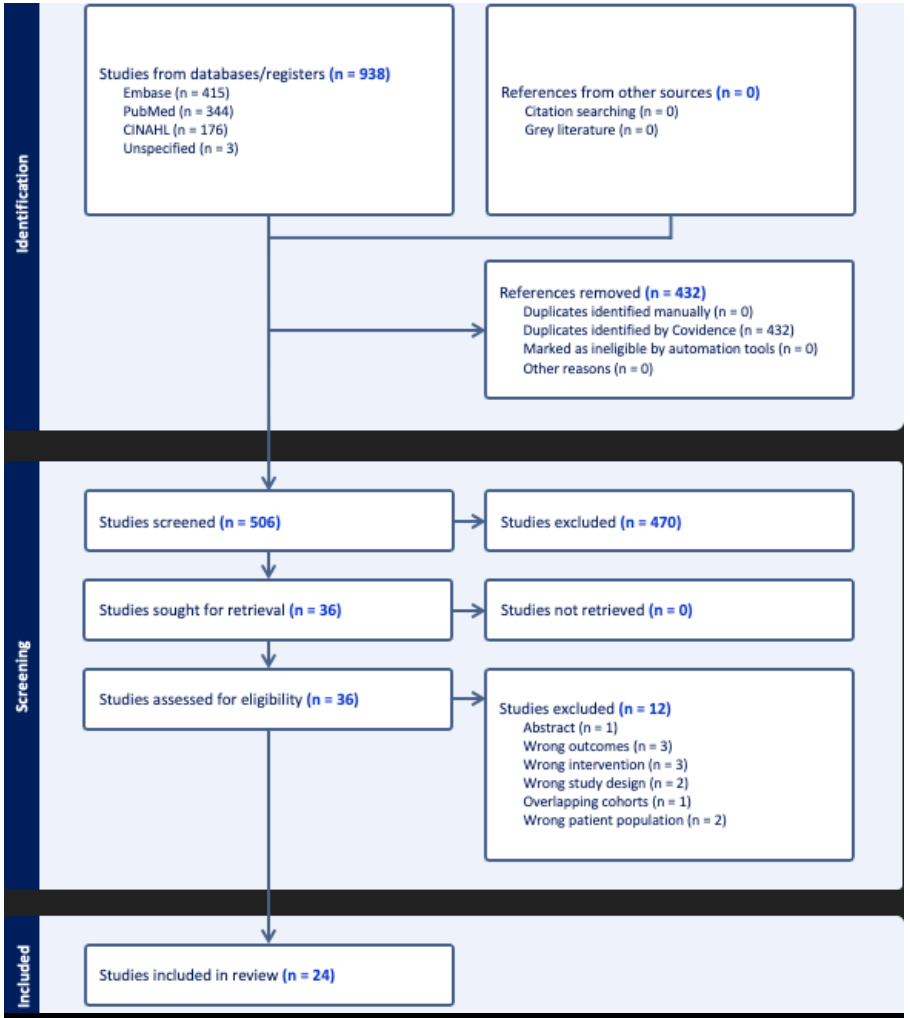


Figure 1. PRISMA Flowchart.

RESULTS

- 24 studies
  - 912 AI
    - Mean follow-up: 22-192 months
    - Failure rate: 5-35%
      - 5-34% in concomitant ACLR
  - 1,117 IO
    - Mean follow-up: 18.5-155 months
    - Failure rate: 0-25%
      - 0-12.9% in concomitant ACLR

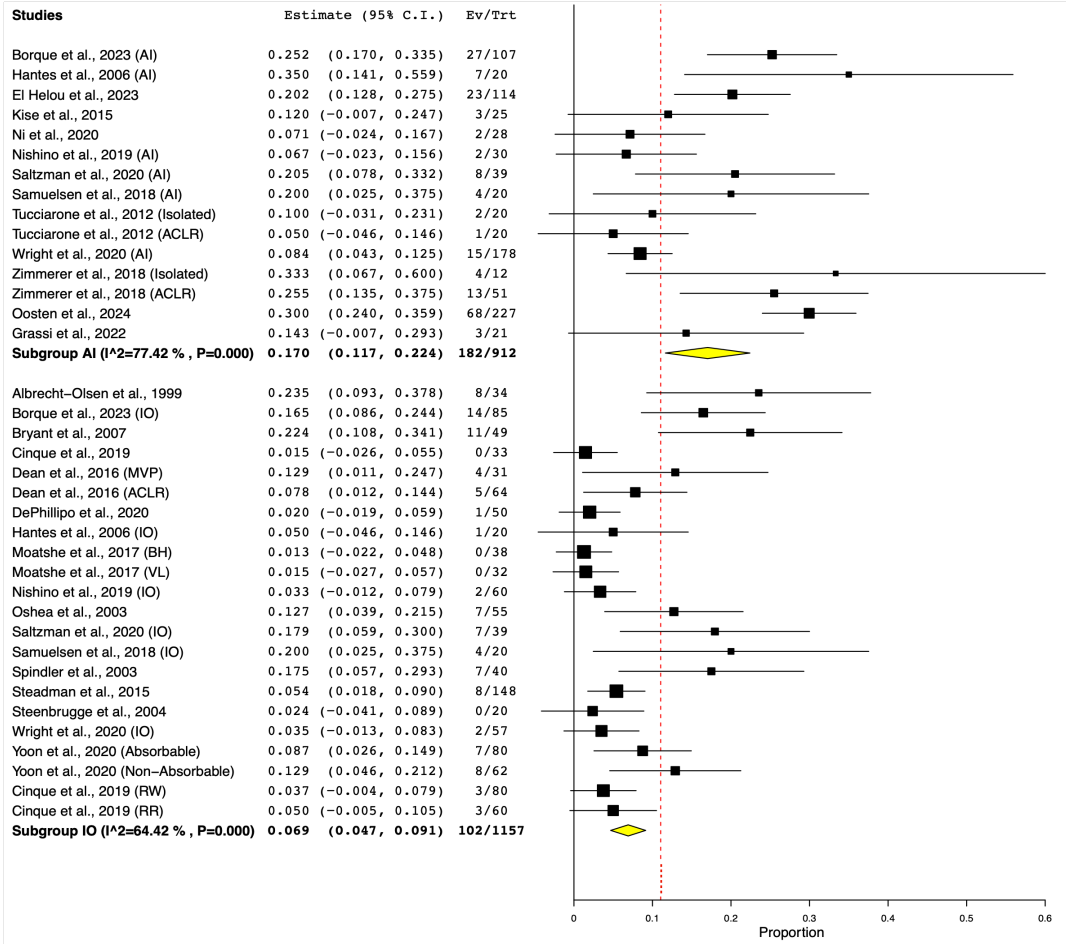


Figure 2. Single-arm forest plot representing meniscal failure rates for comparative and non-comparative level of evidence I-III studies.

RESULTS

- 24 studies
  - 912 AI
    - Mean follow-up: 22-192 months
    - Complication rate: 0-40%
    - PO Tegner: 4-7 / IKDC: 81.2-93.8
  - 1,117 IO
    - Mean follow-up: 18.5-155 months
    - Complication rate: 0-20.5%
    - Postoperative Tegner: 4-8 / IKDC: 89.6-94

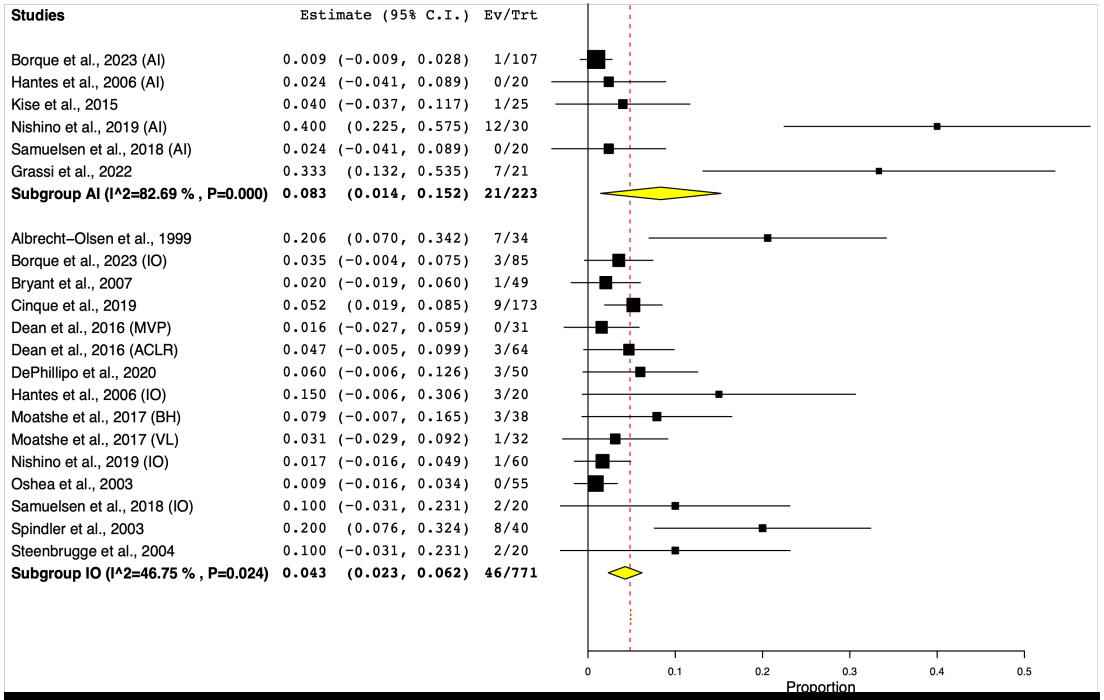


Figure 3. Single-arm forest plot representing meniscal complication rates for comparative and non-comparative level of evidence I-III studies.

RESULTS

- Data pooling (n=6 studies)
  - Failure
    - AI: 15.9%
    - IO: 11.1%
  - Complications
    - AI: 7.3%
    - IO: 4.8%

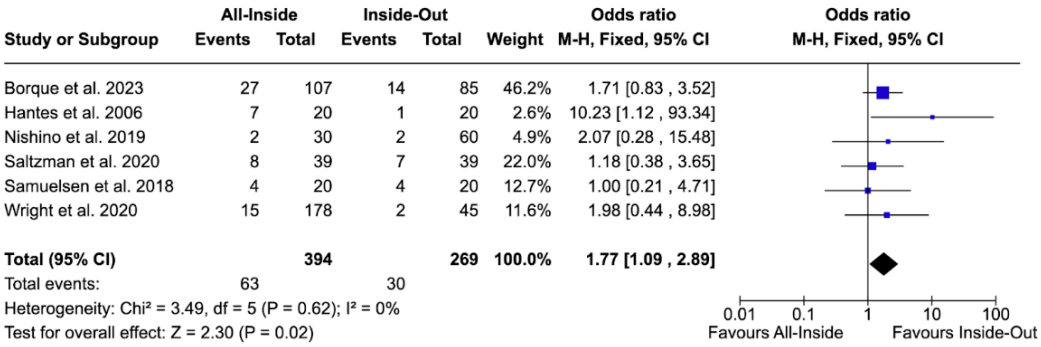


Figure 4. Meta-analysis of comparative studies comparing meniscal failure rates between all-inside and inside-out techniques.

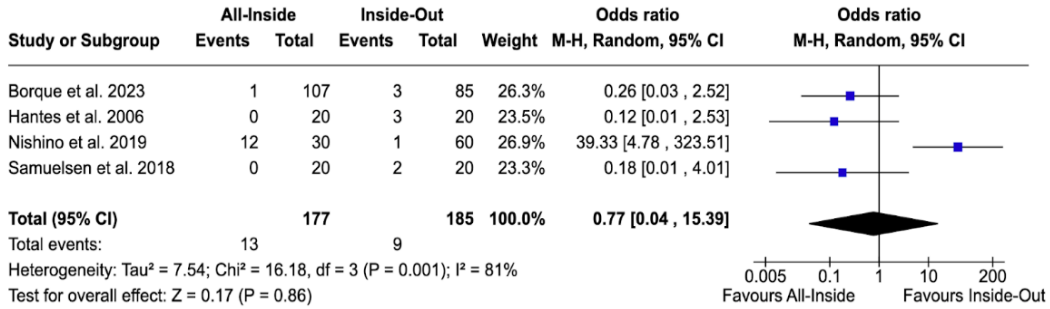


Figure 5. Meta-analysis of comparative studies comparing complication rates between all-inside and inside-out techniques.

LIMITATIONS

- Heterogeneity in concomitant procedures
- Lack of uniformity in patient activity levels
- Inability to stratify results by tear type, location, augmentation strategies, and presence of chondral lesions
- Lack of uniformity in AI devices used

CONCLUSION

"The present study underscores comparable clinical success between AI and IO meniscal repair techniques, with both techniques demonstrating similar complication rates. However, the AI repair technique was associated with 1.77 times higher odds of failure compared to the IO cohort."

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THANK YOU!