

Types of Retears After Knot-tying and Knotless Suture Bridge Rotator Cuff Repair

A Systematic Review and Meta-analysis

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DISCLOSURE



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- No conflict of interest for all authors

INTRODUCTION



Knot-tying repair



Strangulate the tendon vascularity

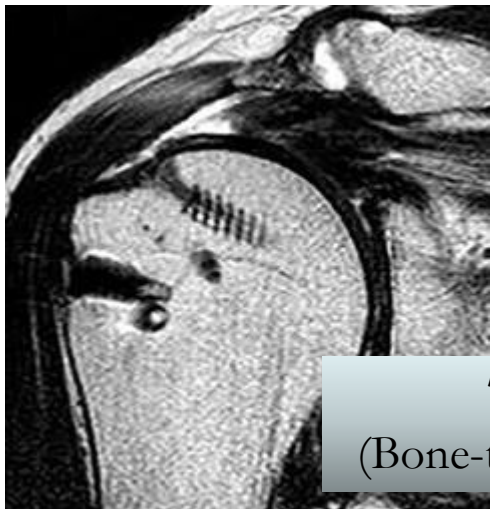


Higher risk of musculotendinous junction rupture (Type-II re-tear)

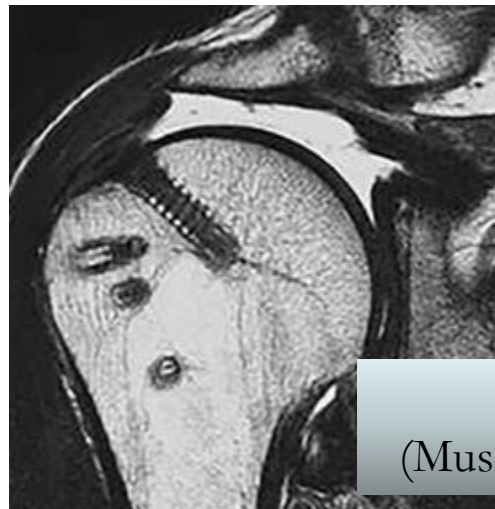
Knotless repair



Improve the tendon vascularity & less risk of tendon re-tear



Type-I
(Bone-tendon failure)



Type-II
(Musculotendinous failure)

Cho's classification for rotator cuff re-tear

- Many literatures showed no difference of re-tear rate, re-tear pattern & functional outcomes between knot-tying & knotless repairs

PURPOSE OF STUDY



7 To compare studies on knot-tying versus knotless double-row repair of rotator cuff tears according to retear type and clinical and radiological outcomes



METHODS



- Systematic literature search with the 2020 PRISMA statement
- All articles were published in PubMed, Embase, Scopus, and Cochrane databases, between 2008 and 2021

Inclusion Criteria

- Level-I to level-III studies
- Full-text English-language articles
- Comparison between knotless and knot-tying double-row rotator cuff repair
- Report post-operative outcomes or re-tear rates

Exclusion Criteria

- Basic science or biomechanics article
- Case series or case reports
- Study reviews
- Studies on rotator cuff repair associated with arthroplasty or trauma
- Overlap of populations in the study with same authors or institutions.

METHODS

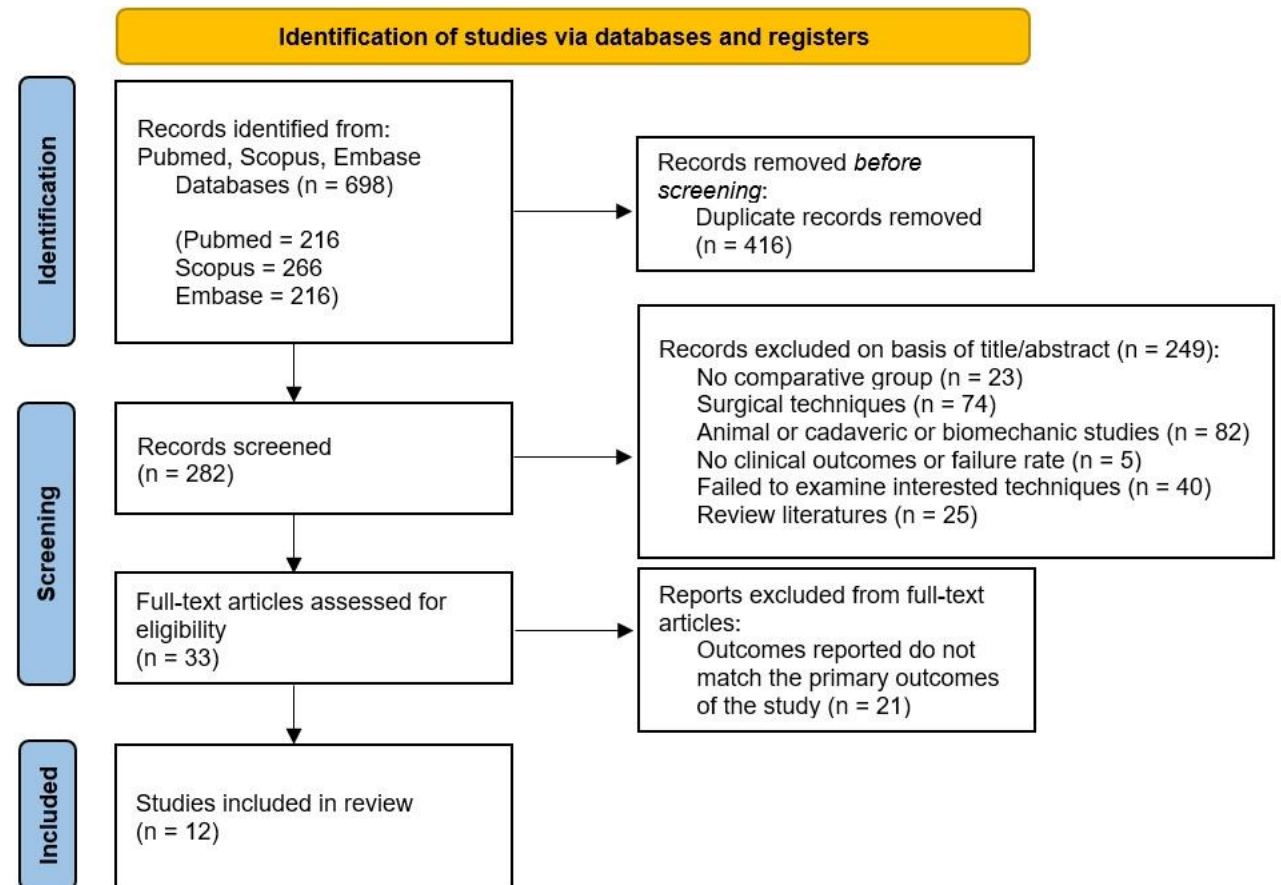


- Two reviewers (N.P., N.T.) reviewed the studies to determine study eligibility.
- Any disagreements were resolved by a third author (T.I.).
- Data extracted from the included studies were (1) article information, (2) patient characteristics, (3) surgical techniques and implants, (4) retear rate and retear location (type-I or type-II according to Cho classification), (5) functional outcome scores, (6) range of motion, and (7) muscle strength.
- The Methodology Index for Non-Randomized Studies (MINORS) criteria were used for methodological quality assessment of the included studies.

RESULTS



- 12 included studies, 1411 shoulders
 - One level-I study
 - Three level-II studies
 - Eight level-III studies
- 15 to 19 of MINORS score (Fair to good quality)

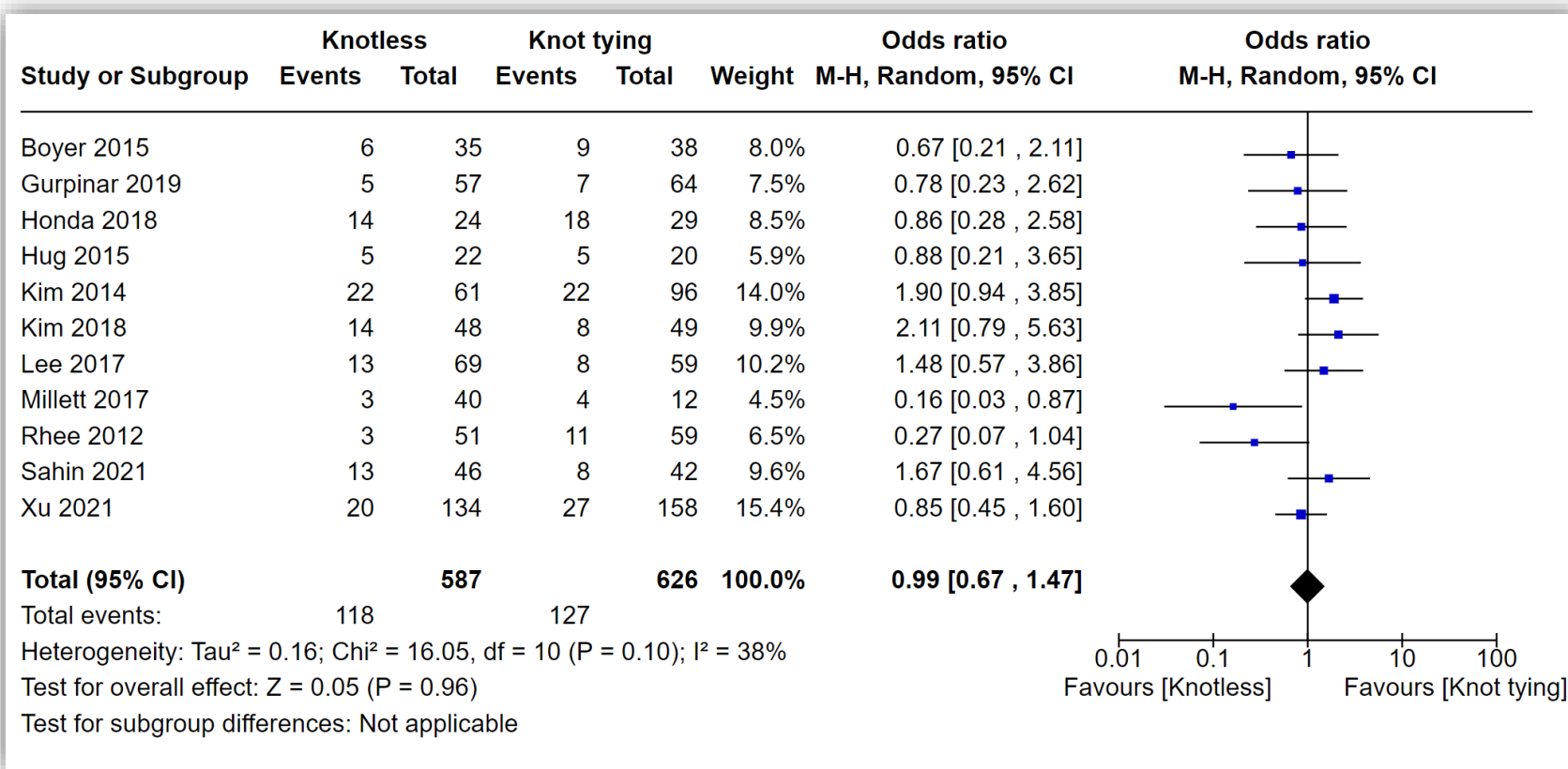


RESULTS

Overall Re-tear Rate



No statistically significant difference
between knot-tying & knotless repair
(95%CI, 0.67 to 1.47, p=0.96)



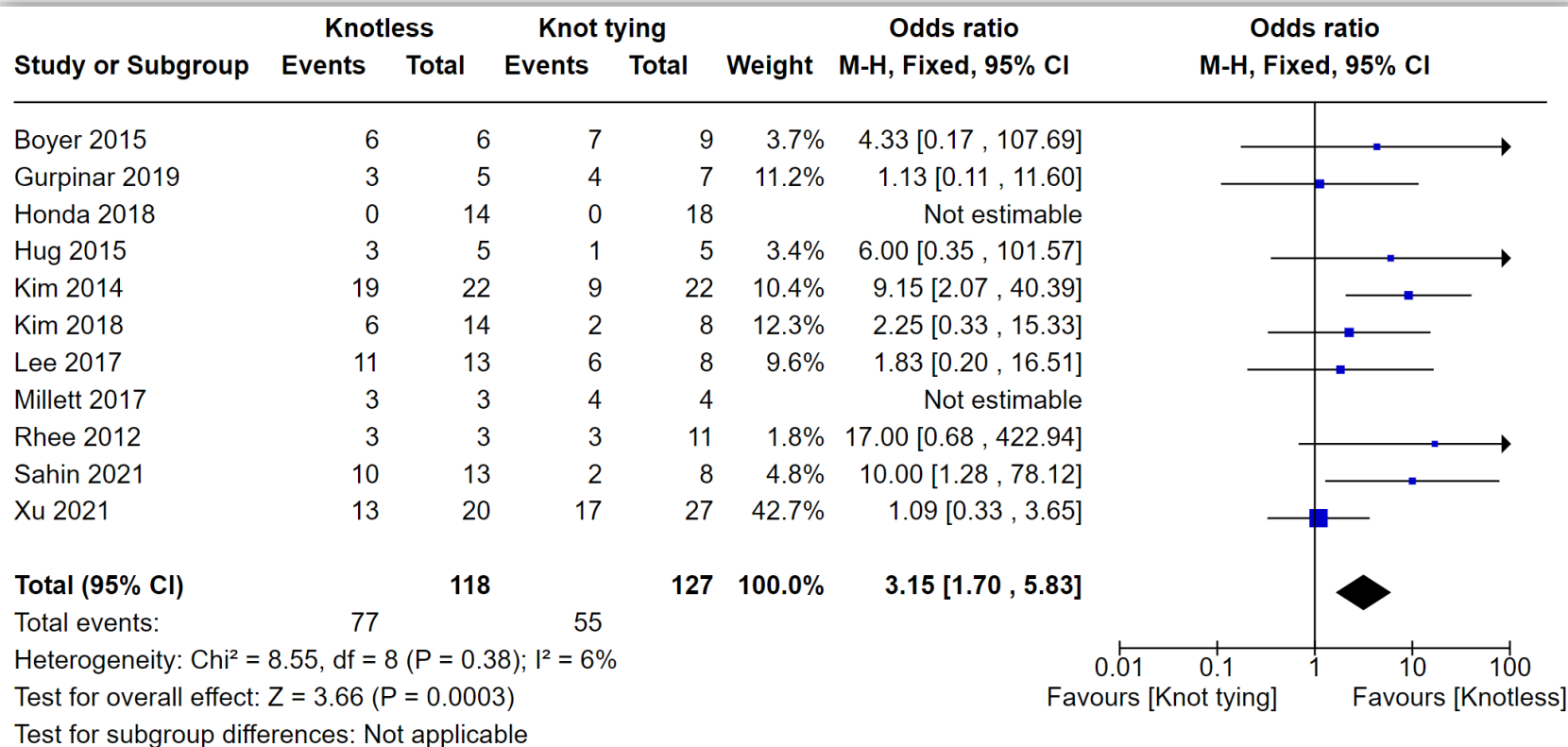
RESULTS

Type-I Re-tear



Higher risk of **type-I re-tear rate**
in **knotless repair**

(95%CI, 1.70 to 5.83, p=0.0003)



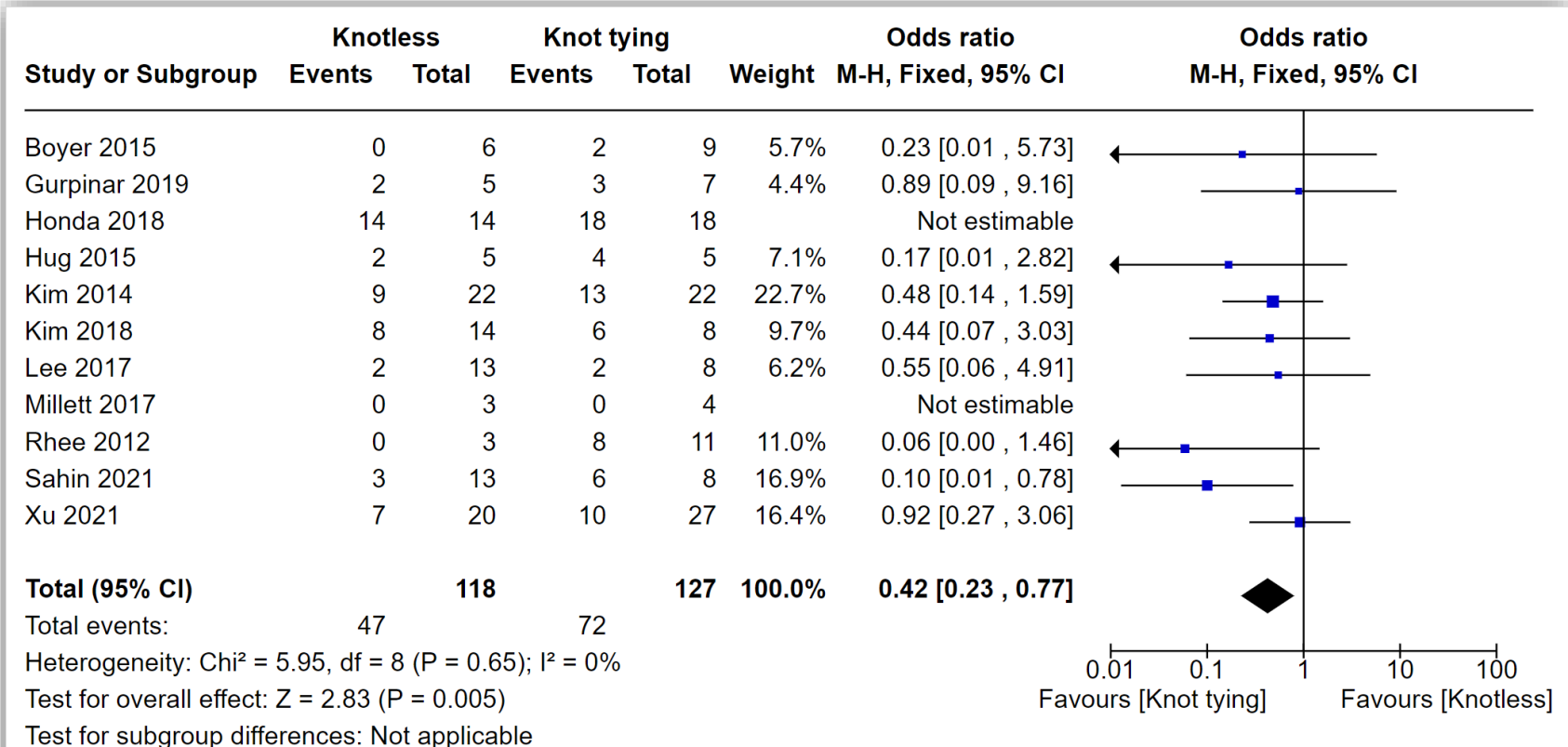
RESULTS

Type-II Re-tear



Higher risk of **type-II re-tear rate**
in **knot-tying repair**

(95%CI, 0.23 to 0.77, p=0.005)



RESULTS

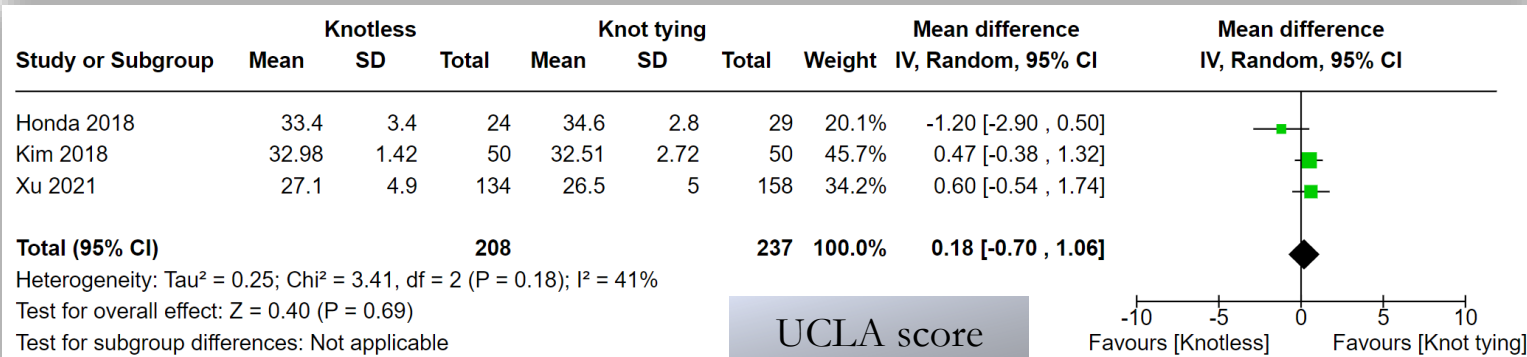
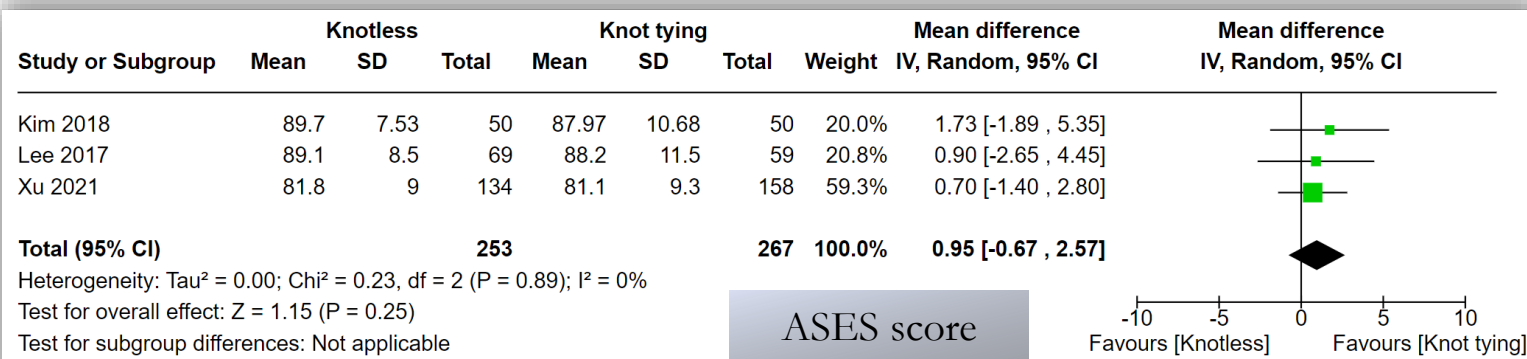
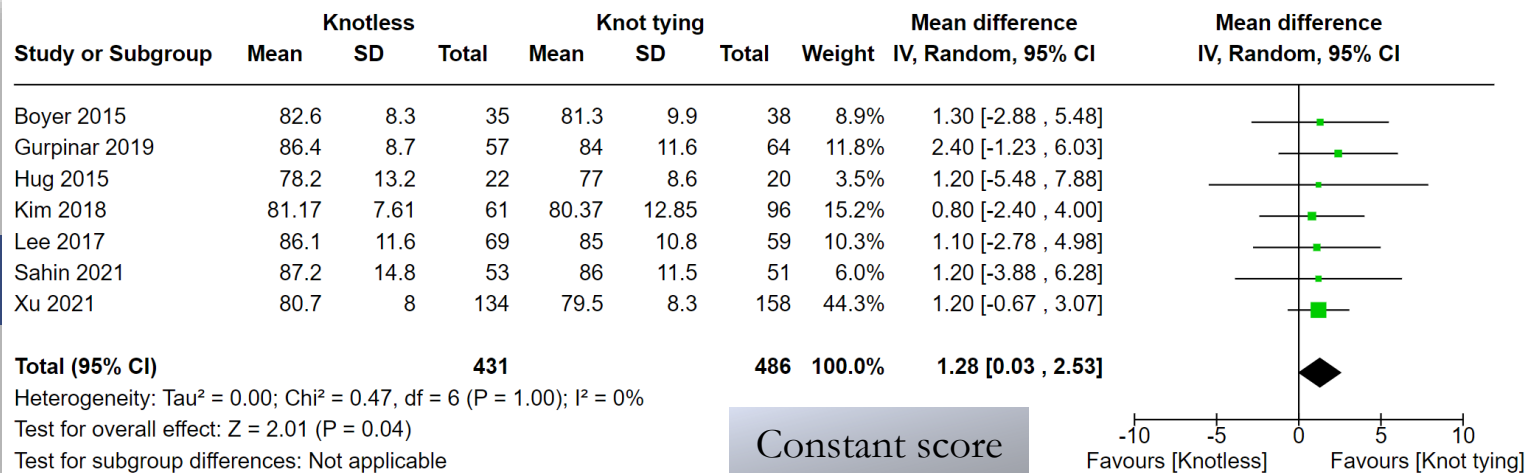
Functional Outcomes

Statistically higher **Constant score** in **Knot-tying repair**

(95%CI, 0.67 to 1.47, p=0.96)

No statistically significant difference in **ASES & UCLA scores**

But, no clinically significant difference, because the difference is less than MCID.



CONCLUSION



No significant difference in overall retear rates between the knotless and knot-tying techniques

Higher type-I retear rates after knotless repairs.

Higher type 2 retear rates, after knot-tying repairs

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