Does the Ream-And-Run Technique Produce Better Patient Outcomes Compared with Total Shoulder Replacement? A Systematic Review and Meta-Analysis

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Faculty Disclosure Information

- **Peter D'Alessandro** –
  - Speaker for Medacta, Smith & Nephew, Arthrex.
  - Paid Consultant for Smith & Nephew;
  - Support received from Smith & Nephew, Arthrex;
  - Board of Directors member for Australian Orthopaedic Association
- **Jarret Woodmass**
  - Paid Consultant for Stryker, ConMed, Smith & Nephew

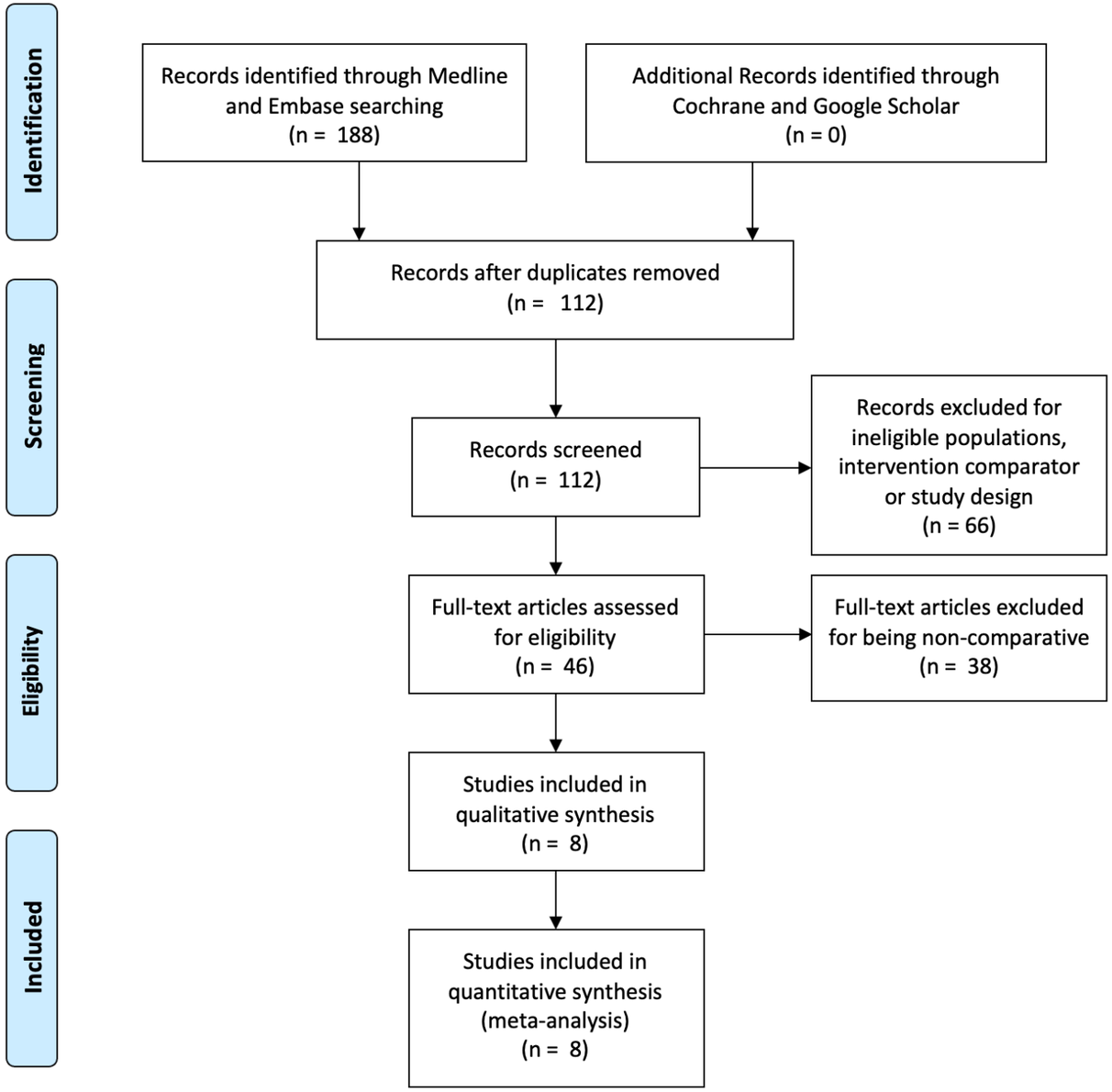
Background

- Glenoid component loosening is a recognised leading cause for failure of anatomical Total Shoulder Replacement (aTSA).
- The introduction of Ream-and-Run (RnR) technique for GHJ OA has a positive potential in reducing failure rate and improve patient outcomes, especially in younger patients.
- A literature review was performed to compare clinical outcomes and complications of both procedures.

Methodology

- **Registration & Guidelines:**
  - Prospectively registered on **INPLASY (INPLASY202470094)**
  - Conducted in accordance with **PRISMA** guidelines
- **Literature Search:**
  - Databases: **MEDLINE, Embase, PubMed**
  - Search performed in March 2024
- **Inclusion Criteria:**
  - Comparative studies reporting functional outcome, complications or radiological outcomes in RnR and aTSA were included.
- **Quality Appraisal:**
  - Methodological quality assessed using the **NOS** tool

Search Strategy



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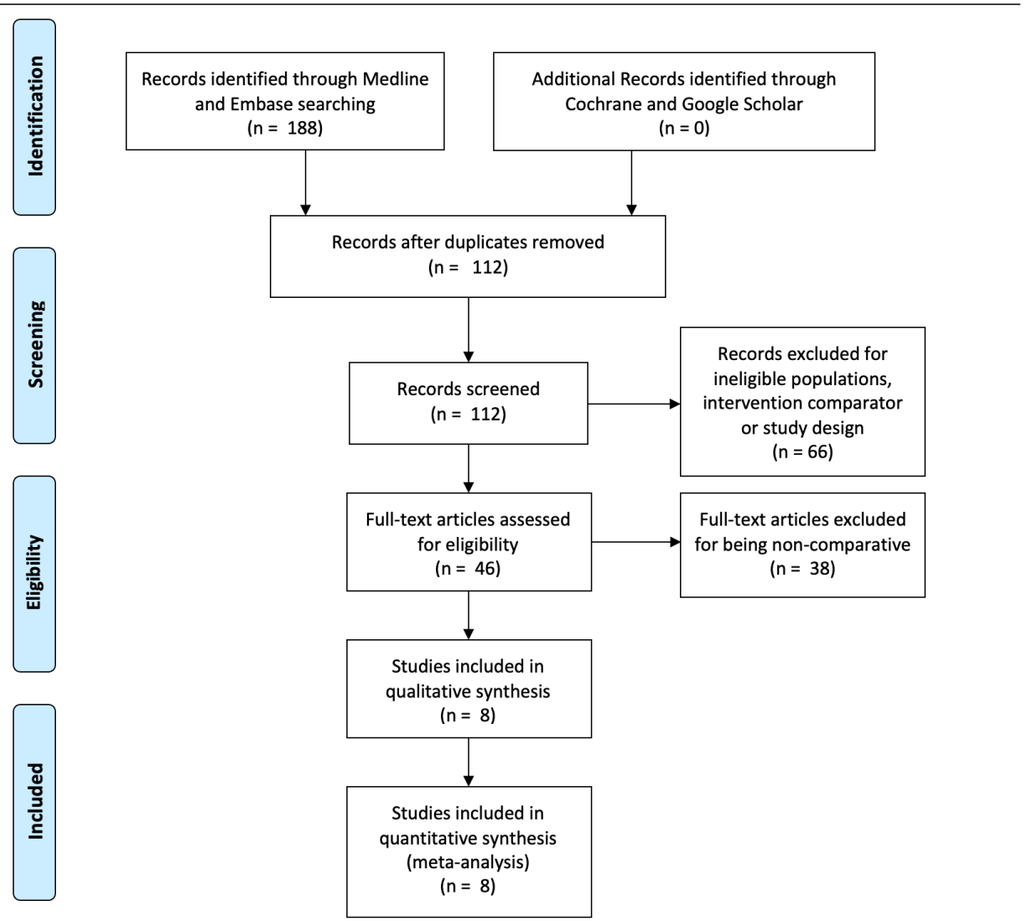

Results

Total Studies Included

8 studies included (Level III)

- Total Patients: RnR 738 vs aTSA 810

Patient demographics (RnR vs aTSA):

- Male %: 93.6% vs 56.0%
- Average follow up: 2 years – 11 years
- Pre-operative glenoid type A: 137 vs 180
- Pre-operative glenoid type B: 213 vs 158
- Pre-operative glenoid type C: 5 vs 3

Results: Main Outcomes

Element	RnR	aTSA	P- Value
Postop SST Score (range)	0 - 12	0 - 12	0.4
Postop ASES Score (range)	77 - 94	78 - 92	0.57
Postop VAS Score (range)	0.6 - 2.3	0.3 - 1.6	0.3
Postop Forward Flexion (degrees, range)	124 - 155	131 - 165	0.41
Postop External Rotation (degrees, range)	30 - 60	28 - 65	0.01

aTSA provided a statistically significant improvement in postoperative degree of external rotation

Results: Complications and Re-operation

Complication	RnR	aTSA
Overall	15.4%	5.3%
Chronic Pain & Stiffness	3.9%	1.2%
Humeral Head Problems	2.6%	-
Soft Tissue Failure	-	1.2%
Loosening of Prosthesis	-	0.86%

Re-operation	RnR	aTSA
Return to Theatre	7.0%	2.7%
Culture Positive infection	22.0%	9.0%

Conclusion

- Both aTSA and RnR offer improvement in shoulder PROMS with significant improvement in range of motion favoring RnR.
- The overall re-operation rate appeared higher in RnR group compared to aTSA.
- Further randomised control trials are needed to assess superiority in clinical, functional, and long-term outcomes of one technique over another.

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