

## Clinical Outcome of the Ream-and-Run Technique vs Anatomical Total Shoulder Arthroplasty: A Systematic Review and Meta-Analysis

INPLASY202470094

doi: 10.37766/inplasy2024.7.0094

Received: 23 July 2024

Published: 23 July 2024

Mostafa, OES; Jordan, RW; Thangarajah, T; MacLean, S; Woodmass, J; D'Alessandro, P; Malik, SS.

### Corresponding author:

Omar Mostafa

omar.mostafa1@nhs.net

### Author Affiliation:

Dudley Group NHS Foundation Trust.

### ADMINISTRATIVE INFORMATION

**Support** - None to Declare.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202470094

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 July 2024 and was last updated on 23 July 2024.

### INTRODUCTION

**Review question / Objective** To systematically review and meta-analyse the clinical outcomes, range of motion and complications of patients undergoing a ream-and-run technique compared with an anatomical total shoulder replacement.

**Rationale** It is recognised that anatomical shoulder replacement is associated with risks of dislocation and loosening of prosthesis due to heterogenous glenoid morphology and loss of bone associated with the technique. The Ream-and-Run technique was introduced by Matsen III and Lippitt to counter this biomechanical compromise and result in lower risk of humeral dislocation and soft tissue failure. However, there remains a lack of high level evidence to support the superiority of one technique over another.

**Condition being studied** Ream and Run technique vs Anatomical Total Shoulder

Replacement in Adult Patients undergoing the procedure for a Glenohumeral Joint Arthritis.

### METHODS

**Search strategy** Databases searched were Medline, Embase, EBSCO, Cochrane from inception until March 2024

Search was done using MeSH key-terms concentric, eccentric, ream-and-run, ream and arthroplasty.

**Participant or population** Comparative studies of adult patients with GH joint OA.

**Intervention** Ream-and run technique.

**Comparator** Anatomical total shoulder replacement.

**Study designs to be included** Randomised Controlled Trials (RCTs) and observational studies (Cohort and Case-Control).

---

**Eligibility criteria** Only studies with adult patients (age > 18 years) and who reported either functional scores, revision rates, complications or radiographic outcomes were included. Case reports, case series, conference abstracts, editorials and reviews on this topic were excluded.

**Information sources** Electronic databases and literature references.

**Main outcome(s)** 1. Patient Reported Outcome Measure (PROM) 2. Range of Motion (ROM) 3. Radiographic outcomes 4. Complications 5. Revision Surgery.

**Data management** Microsoft Excel RevMan Web (Cochrane).

**Quality assessment / Risk of bias analysis** Newcastle Ottawa Score (NOS) tool.

**Strategy of data synthesis** Statistical heterogeneity performed using I<sup>2</sup> statistic. Forest plots generated for meta-analyses. Descriptive statistics used for non-meta-analysed data. Continuous variables were reported as mean (standard deviation) or as mean difference with 95% confidence interval (CI) where appropriate. Categorical data was reported in the form of percentages or frequency. A P value of <0.05 for statistical significance.

**Subgroup analysis** Not applicable.

**Sensitivity analysis** Using Random-Effect vs Fixed-Effect model.

**Country(ies) involved** United Kingdom, Australia, Canada, New Zealand.

**Keywords** Ream; arthroplasty; eccentric; concentric; outcomes; review.

#### **Contributions of each author**

Author 1 - Omar Mostafa.

Author 2 - Robert Jordan.

Author 3 - Tanujan Thangarajah.

Author 4 - Simon MacLean.

Author 5 - Jarret Woodmass.

Author 6 - Peter D'Alessandro.

Author 7 - Shahbaz Malik.