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Participation of Physical Activity following Knee Arthroplasty: A Meta-Analysis

A Magan, B Kayani, W Wignadasan, D Giebaly, F Ronca, FS Haddad

Trauma& Orthopaedics

University College London Hospitals NHS Foundation Trust

London, UK

Disclosures

None

Introduction

- The primary aim of knee arthroplasty (TKA/UKA) is to alleviate pain and improve function.
- The frequency of knee arthroplasty is increasing, particularly in younger and more active patients
- Younger and more active patients, have an expectation to return to sports following surgery

Objective

- This was to determine the **time** and **proportion** of patients that were able to continue to return to sports following TKA & UKA.

Materials and Methods

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- A search was performed on PUBMED, MEDLINE, EMBASE, and the Cochrane Library for trials on TKA or UKA and RTS.

- **PICO** was created for this study: Population - Patients with knee arthritis that previously participated in sporting activity; Intervention – TKA/UKA Comparison - Not applicable; and Outcome - Time for return to sports (RTS)

Outcome measures

- Primary outcome
  - Time to return to sports following knee arthroplasty (UKA/TKA)

Figure 1: PRISMA Flowchart TKA

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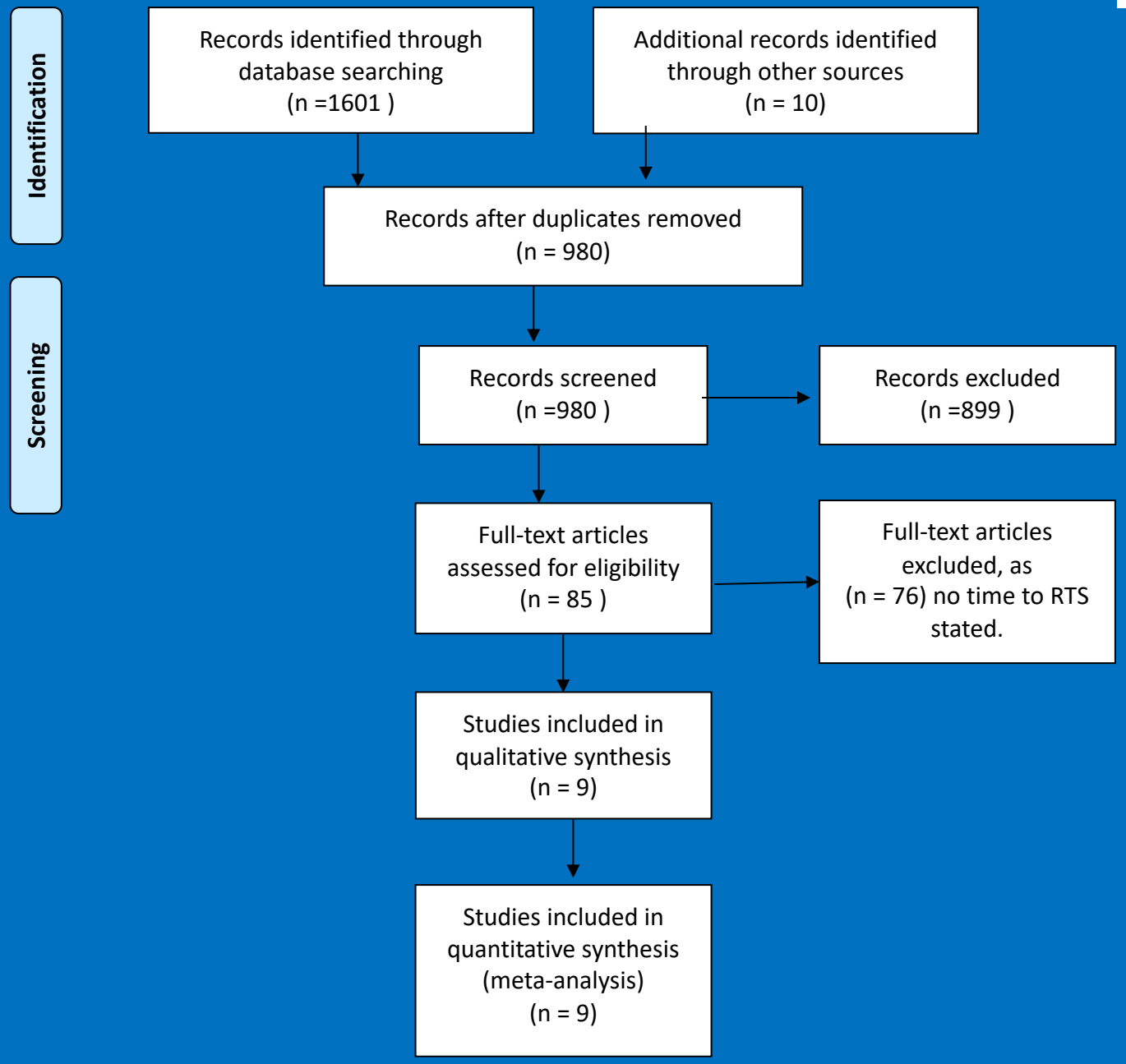
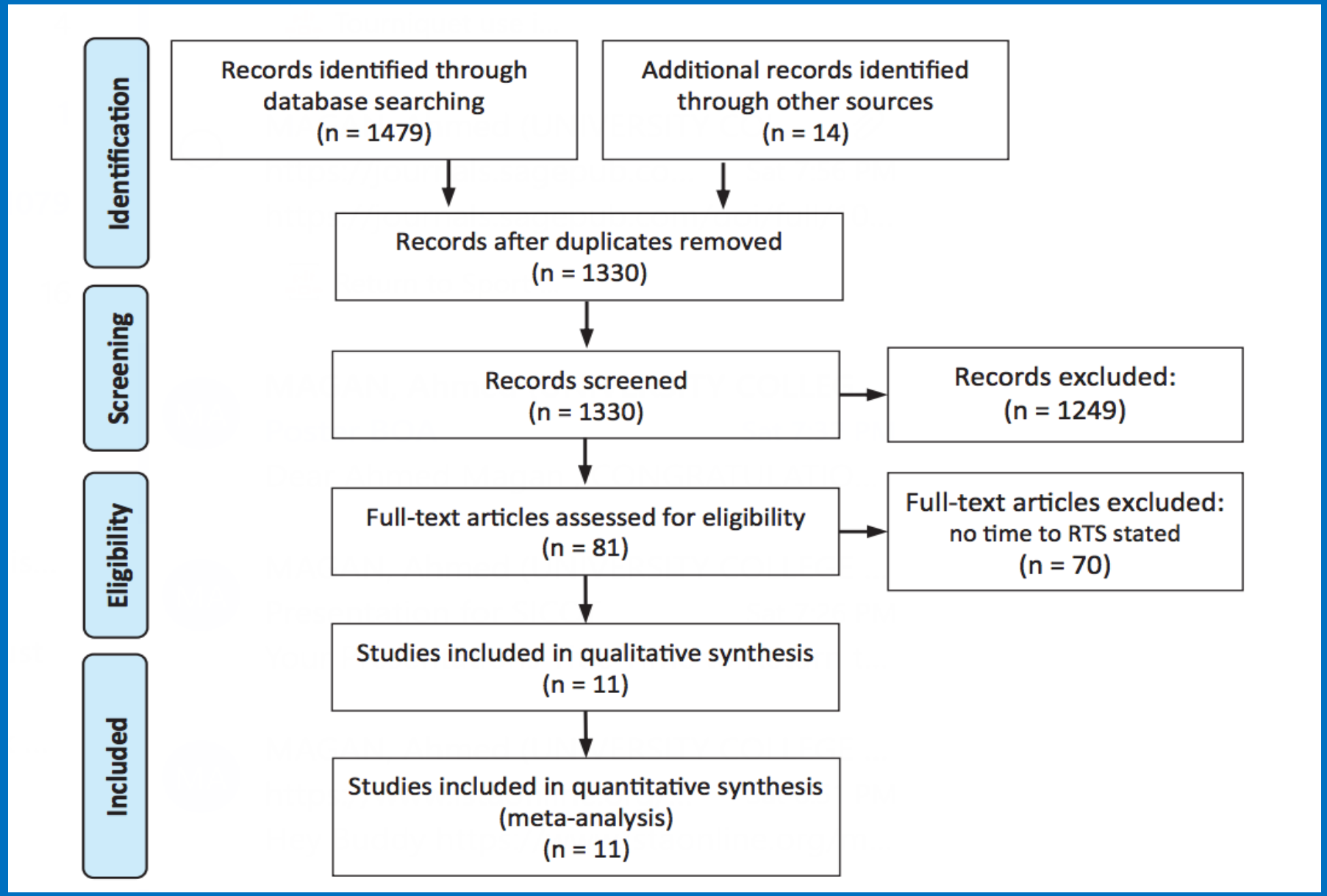


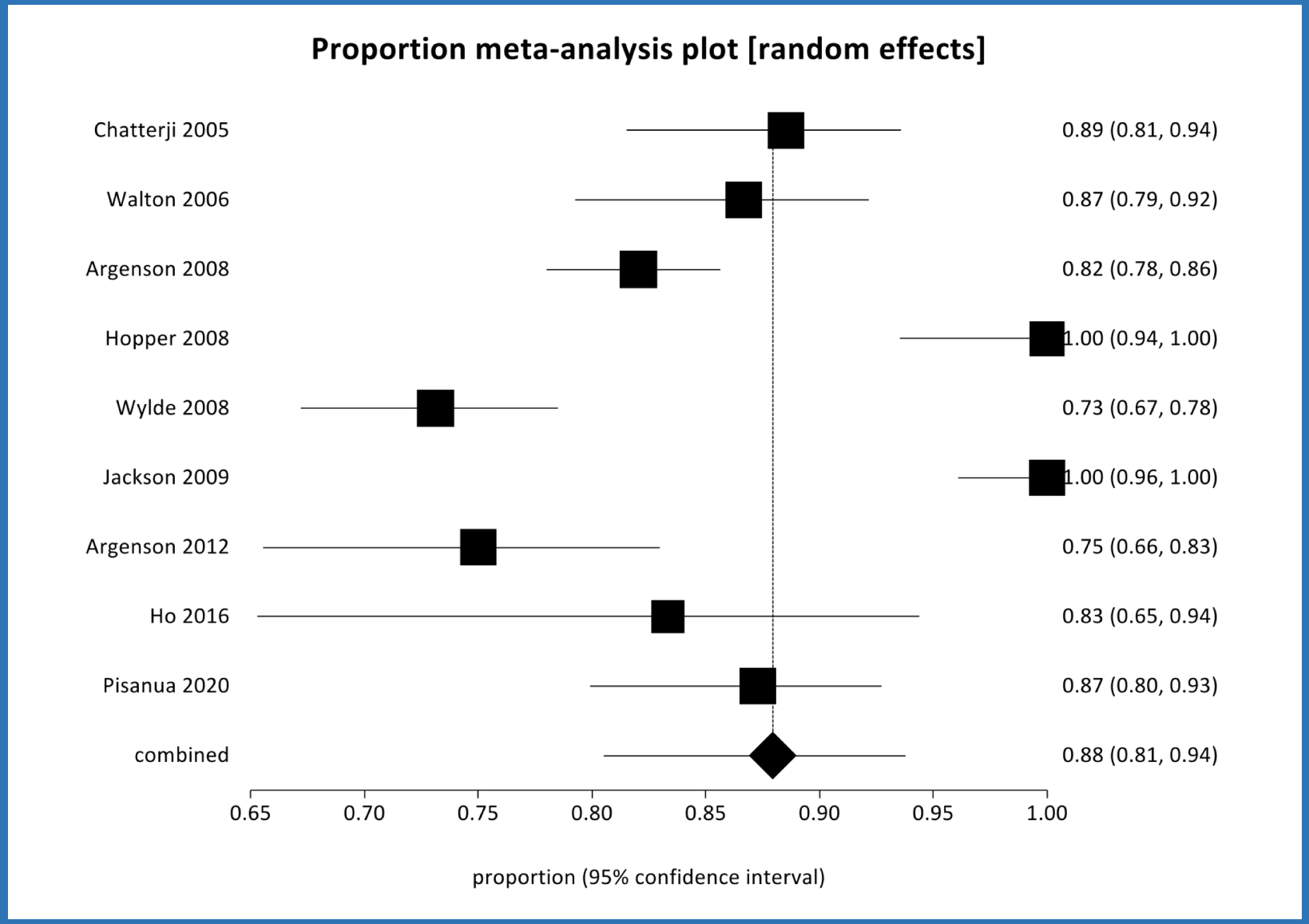
Figure 1: PRISMA Flowchart UKA



Results TKA

- Nine studies with a total of 1,089 patients included
- The overall adjusted rate of participating sports was 87.9% (95% CI: 80.5 - 93.8) at the end of follow-up.
- The pooled proportion for participating sports
  - at 3 months was 18.7% (95% CI: 8.2% - 32.3%)
  - at 6months was 70.% (95% CI: 48-88.4) RTS
  - At 9 months was 75.9% (95% CI: 69.7% – 81.6%)
  - At 12 months was 84.0% (95% CI: 77.1% – 89.9%)

The Forest-plot is showing the Overall proportion of patients participating sports at the end of follow-up for all studies.



The proportion of patients precipitating sports at the end of the follow-up period ranging between 3 and 36 months. The proportions are expressed between 0-1 representing 0% - 100% respectively. The studies are ordered based on the length of final follow-up.

Results UKA

- This meta-analysis involves 11 studies (749 patients), published between 2006 and 2021 and with follow-up times between 1 and 49 months [6-16]

- **Overall return to sport participation was 92.7%** (95% CI, 85.8%-97.4%) were able to RTS at four years

- Six studies (432 patients) demonstrated an overall pooled proportion of **48.1%** (95% CI, 36.3%- 60.2%) of patients who returned to sport at **3 months**

- Seven studies (443 patients) demonstrated an overall pooled proportion of **76.5%** (95% CI, 63.9%-87.1%) of patients who returned to sport at **6 months**

- Majority of patients who were able to RTS after UKA did so at a lower level of intensity than their preoperative level.

Results UKA

TABLE 3
Time to RTS at 1, 3, 5, 6, and 24 Months Postoperatively[a]

Time Interval	No. of Studies	Patients, RTS/Total, n	Pooled Proportion Rate of RTS % (95% CI)	I^2 % (95% CI)	Q Statistic (P Value)
1 mo	2	57/227	25.3 (19.9-31.2)	0	0.208 (.649)
3 mo	6	223/432	48.1 (36.3-60.2)	83.7 (60.8-90.7)	30.59 (<.001)
5 mo	1	31/36	87	–	–
6 mo	7	340/443	76.5 (63.9-87.1)	87.4 (75.4-92.1)	47.60 (<.001)
24 mo	1	16/17	94	–	–
End of follow-up	11	689/749	92.7 (85.8-97.4)	89.1 (82.-92.4)	92.14 (<.001)

[a]RTS, return to sports. Dashes indicate not recorded.

- Pooled proportion analysis showed more patients were able to RTS with time
- Almost half of patients included in the meta-analysis were able to RTS at 3 months post-UKA

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Conclusion

- The majority of patients undergoing TKA/UKA were able to successfully return to sports at short-term follow-up.
- **87.9%** of patients able to continue participating at mean of 14 months following TKA.
- Pooled proportion analysis showed that >90% of patients undergoing UKA were able to RTS after surgery.
- The findings of this study will enable more informed discussions and rehabilitation planning between patients and clinicians on participating sports following TKA/UKA.

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