

Supplementary Material – S1: UHB Full Search Strategy

Kinematic alignment Vs Mechanical alignment in TKR- Systematic Review

Evidence search report

Completed: 10th October, 2025

If you would like to discuss the findings below or require an additional search, please contact: University Hospitals Birmingham (UHB) Library and Knowledge Service at semanti.chakraborty@uhb.nhs.uk

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Evidence search: Kinematic alignment Vs Mechanical alignment in TKR- Systematic Review. Semanti Chakraborty. 10th October, 2025. BIRMINGHAM, UK: University Hospitals Birmingham (UHB) Library and Knowledge Service.

A. Search terms and notes

Keywords, MESH terms used:

"Kinematic alignment", "Kinematically aligned", "Unrestricted Kinematic alignment", "Restricted Kinematic alignment", KA, "mechanical alignment", "mechanically aligned", MA, Arthroplasty, Replacement, Knee/ , total knee arthroplasty/, knee replacement/ , knee arthroplasty/, "total knee replacement", "knee replacement", "Knee Arthroplasty", TKA, TKR

For PRISMA 2020 flowchart:

Records Identified from:

Embase: 315

Medline: 200

Pubmed: 204

Total records before deduplication: 719

Records after duplicates removed:

Embase 257

Ovid MEDLINE 74

PubMed 31

Records Screened: 362

Population: Patients undergoing primary total knee replacement/arthroplasty (TKR/TKA)

Intervention: Kinematic Alignment (KA) Technique

Comparison: Mechanical Alignment (MA) Technique

Outcomes: Patient-Reported Outcome Measures (PROMs), Functional Outcomes, Patient Satisfaction, Clinical Outcomes, Radiological Outcomes, Surgical Outcomes, Complications and Safety

Limits: Human

For full search strategy see Section D below.

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D. Search strategy

Ovid MEDLINE(R) ALL <1946 to October 08, 2025>

- 1 "Kinematic alignment".ab. or "Kinematic alignment".ti. 417
- 2 "Kinematically aligned".ab. or "Kinematically aligned".ti. 210
- 3 KA.ab. or KA.ti. 30161
- 4 "Unrestricted Kinematic alignment".ab. or "Unrestricted Kinematic alignment".ti. 25
- 5 "Restricted Kinematic alignment".ab. or "Restricted Kinematic alignment".ti. 61
- 6 ((Kinematic adj3 alignment).ab. or Kinematic.mp.) adj3 alignment.ti. [mp=title, book title, abstract,

original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word] 286

7 ((Kinematic adj3 aligned).ab. or Kinematic.mp.) adj3 aligned.ti. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word] 36

8 1 or 2 or 3 or 4 or 5 or 6 or 7 30471

9 "mechanical alignment".ab. or "mechanical alignment".ti. 843

10 MA.ab. or MA.ti. 99835

11 "mechanically aligned".ab. or "mechanically aligned".ti. 225

12 ((mechanically adj3 aligned).ab. or mechanically.mp.) adj3 aligned.ti. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word] 83

13 ((mechanically adj3 alignment).ab. or mechanically.mp.) adj3 alignment.ti. [mp=title, book title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms, population supplementary concept word, anatomy supplementary concept word] 14

14 9 or 10 or 11 or 12 or 13 100629

15 exp Arthroplasty, Replacement, Knee/ 36497

16 "total knee replacement".ab. or "total knee replacement".ti. 6667

17 "knee replacement".ab. or "knee replacement".ti. 10704

18 "Knee Arthroplasty".ab. or "Knee Arthroplasty".ti. 37430

19 TKA.ab. or TKA.ti. 20332

20 TKR.ab. or TKR.ti. 2778

21 15 or 16 or 17 or 18 or 19 or 20 53193

22 8 and 14 and 21 298

23 limit 22 to humans 200

Embase <1974 to 2025 October 07>

1 "Kinematic alignment".ab. or "Kinematic alignment".ti. 443

2 KA.ab. or KA.ti. 20182

3 "Unrestricted Kinematic alignment".ab. or "Unrestricted Kinematic alignment".ti. 27

4 "Restricted Kinematic alignment".ab. or "Restricted Kinematic alignment".ti. 60

5 "Kinematically aligned".ab. or "Kinematically aligned".ti. 222

6 ((Kinematic adj3 alignment).ab. or Kinematic.mp.) adj3 alignment.ti. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 314

7 ((Kinematic adj3 aligned).ab. or Kinematic.mp.) adj3 aligned.ti. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 41

8 1 or 2 or 3 or 4 or 5 or 6 or 7 20527

9 "mechanical alignment".ab. or "mechanical alignment".ti. 939

10 MA.ab. or MA.ti. 121848

11 "mechanically aligned".ab. or "mechanically aligned".ti. 255

12 ((mechanically adj3 aligned).ab. or mechanically.mp.) adj3 aligned.ti. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word] 91

13 ((mechanically adj3 alignment).ab. or mechanically.mp.) adj3 alignment.ti. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name,

keyword heading word, floating subheading word, candidate term word] 13

14 9 or 10 or 11 or 12 or 13 122728

15 exp knee replacement/ 53866

16 exp total knee arthroplasty/ 45311

17 exp knee arthroplasty/ 70791

18 TKA.ab. or TKA.ti. 23759

19 TKR.ab. or TKR.ti. 4605

20 15 or 16 or 17 or 18 or 19 72700

21 8 and 14 and 20 322

22 limit 21 to human 315

PUBMED:

("Kinematic alignment"[All Fields] OR "Kinematically aligned"[All Fields]) AND ("mechanical alignment"[All Fields] OR "mechanically aligned"[All Fields]) AND ("total knee replacement"[All Fields] OR ("arthroplasty, replacement, knee"[MeSH Terms] OR ("arthroplasty"[All Fields] AND "replacement"[All Fields] AND "knee"[All Fields]) OR "knee replacement arthroplasty"[All Fields] OR ("total"[All Fields] AND "knee"[All Fields] AND "arthroplasty"[All Fields]) OR "total knee arthroplasty"[All Fields]) OR "TKA"[All Fields] OR "TKR"[All Fields]) Limits Applied: Human 204

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