

# INPLASY

## Systematic Review Investigating the Prevalence of Anterior Knee Pain Post Total Knee Arthroplasty

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**ADMINISTRATIVE INFORMATION****Support** - Internal.**Review Stage at time of this submission** - The review has not yet started.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202570097**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 July 2025 and was last updated on 24 July 2025.**INTRODUCTION**

**Review question / Objective** What is the prevalence of anterior knee pain in patients post total knee arthroplasty.

**Rationale** Knee osteoarthritis is a considerable and growing problem worldwide due to our aging population, with many patients requiring joint replacement surgery, or total knee arthroplasty (TKA). Total knee replacements are a common procedure, according to the Australian National Joint Replacement Registry, 68 466 TKAs were performed in 2021 (1). This figure is rapidly rising, with knee replacements expected to increase by 276% by 2030 (2). TKR has a high success rate when performed on the right patient at the right time. With patients reporting 72–86% satisfaction with pain relief and 70–84% satisfaction with functional outcomes (3). However, persistent pain, particularly anterior knee pain (AKP), is a significant concern following TKA, affecting 15–21% of patients within 6–12 months postoperatively (4). This review aims to systematically summarise the

available evidence to determine the exact prevalence of this issue, and any risk factors that have been associated.

1. Australian Institute of Health and Welfare. Chronic musculoskeletal conditions: Osteoarthritis. AIHW 2024 <https://www.aihw.gov.au/reports/chronic-musculoskeletal-conditions/osteoarthritis>.
2. Ackerman, I.N., Bohensky, M.A., Zomer, E. et al. The projected burden of primary total knee and hip replacement for osteoarthritis in Australia to the year 2030. BMC Musculoskelet Disord 20, 90 (2019). <https://doi.org/10.1186/s12891-019-2411-9>
3. Bourne RB, Chesworth BM, Davis AM, Mahomed NN, Charron KD. Patient satisfaction after total knee arthroplasty: who is satisfied and who is not?. Clinical Orthopaedics and Related Research. 2010 Jan; 468(1): 57–63. <https://www.doi.org/10.1007/s11999-009-1119-9>
4. de Oliveira Silva, D., et al., Anterior Knee Pain Following Primary Unilateral Total Knee Arthroplasty with Posterior Stabilized Prosthesis and Patellar Resurfacing: Prevalence and Clinical Implications. Journal of Arthroplasty, 2022. <https://doi.org/10.1016/j.arth.2022.08.042>.

**Condition being studied** Persistent knee pain after total knee arthroplasty.

## METHODS

**Search strategy** I will search for relevant articles on Google Scholar, PubMed/MEDLINE, EBSCO, CINAHL, Scopus, Cochrane Library, Web of Science, Science Direct

Terms that will be included:

Anterior Knee Pain, Knee Pain, Persistent Knee Pain, Total Knee Replacement, Total Knee Arthroplasty

I will search for relevant articles on Google Scholar, Pubmed/MEDLINE, EBSCO, CINAHL, Scopus, Cochrane Library, Web of Science, Science Direct

Pain outcome terms:

Patellofemoral Knee Pain Syndrome

Knee Pain

Procedure Pain / Procedural Pain Pain

Anterior Knee Pain Syndrome

Pain Syndrome, Patellofemoral

Pain, Patellofemoral

Patellofemoral Pain

Patellofemoral Pain Syndrome

Patellofemoral Pains

Patellofemoral Syndrome

Musculoskeletal Pain

Knee Osteoarthritis

Knee Osteoarthritis

Osteoarthritis of Knee

Osteoarthritis of the Knee

Osteoarthritis, Knee

Surgical Intervention Terms:

Arthroplasties, Replacement, Knee

Arthroplasties, Knee Replacement

Arthroplasty, Knee

Arthroplasty, Knee Replacement

Arthroplasty, Total Knee

Arthroplasty, Replacement, Knee

Knee Arthroplasty

Knee Arthroplasty, Total

Knee Replacement Arthroplasties

Knee Replacement Arthroplasty

Knee Replacement, Total

Replacement Arthroplasties, Knee

Replacement Arthroplasty, Knee

Replacement, Total Knee

Total Knee Arthroplasty

Total Knee Replacement

Anterior Knee Pain, Knee Pain, Persistent Knee

Pain, Total Knee Replacement, Total Knee

Arthroplasty.

**Participant or population** Participants will be adults who have undergone primary Total Knee

Arthroplasty (TKA) in both public and or private healthcare settings.

**Intervention** Not applicable.

**Comparator** Not applicable.

**Study designs to be included** RCTs and Observational studies (cohort studies, case-control and cross-sectional), of both prospective and retrospective designs. RCT, Cohort studies, cross-sectional study designs.

**Eligibility criteria** Adults  $\geq 18$  years who underwent total knee arthroplasty (TKA) for any indication (e.g., osteoarthritis, rheumatoid arthritis) Only primary TKA (not revision surgeries)

Studies that report prevalence or incidence of anterior knee pain (AKP) following TKA

Follow-up time clearly defined, minimum of 3 months post-op to distinguish from acute post-surgical pain

Observational studies (cohort, cross-sectional), registry analyses, and RCTs that report relevant prevalence data.

**Information sources** Electronic Databases will be the sole source of journal articles being summarised.

They will be taken from Google Scholar, MEDLINE, EBSCO, CINAHL.

**Main outcome(s)** This review aims to systematically summarise the available related studies to determine the exact prevalence of this issue, and any patterns that may become apparent. This review will add to existing knowledge by further guiding patient expectations and identifying future directions for research.

The main outcome to be investigated will be prevalence using the formula: All Cases/Population This review will be completed by then end of October 2025.

**Data management** I will be tabulating information about every journal article included. The first table will record characteristics about the journals, the second table will be record specifics about each study's participants and the outcomes they investigate which I intend to summarise. All journals.

**Quality assessment / Risk of bias analysis**

Quality assessment of articles will be conducted using the JBI Critical Appraisal Checklist for Studies Reporting Prevalence Data. It is a clear checklist which will best ensure best reliability of

appraisal, furthermore, it is relevant to systematic reviews investigating prevalence.

**Strategy of data synthesis** I will appraise each study and note its quality by using the relevant tool, for example: When appraising a cross-sectional study, the AXIS tool will be referenced. This will help determine risk of bias.

Data on study characteristics (e.g. author, year, study design), participant characteristics (e.g. age, sex), type of intervention, outcome measures (e.g. prevalence of anterior knee pain post-TKA), and follow-up duration will be noted.

Where included studies allow for comparison, meta-analysis of prevalence of anterior knee pain vs no pain will be conducted. Demographic and surgical characteristics will be synthesised, and subgroup analyses performed if appropriate.

**Subgroup analysis** Potential subgroup analysis will be conducted depending on why is observed when summarising each journals findings, including:

1. Patient Demographics

- Age Groups: Compare the prevalence of anterior knee pain in different age categories (e.g., age <65 vs. ≥65).
- Gender: Analyse whether males and females experience different rates of anterior knee pain.
- Body Mass Index (BMI): Stratify your data by BMI categories (e.g., normal, overweight, obese) to see if weight influences pain prevalence.

2. Clinical Variables

- Comorbidities: Group patients based on the presence or absence of conditions like diabetes, cardiovascular disease, or severity of osteoarthritis, which could affect recovery or pain.
- Preoperative Pain or Function: Compare pain prevalence between patients with mild, moderate, or severe preoperative symptoms such as limited mobility or prior knee pain.

3. Surgical Techniques

- Implant Type: Assess pain prevalence among patients who received different types of prostheses (such as patella resurfaced vs. non-resurfaced, or fixed-bearing vs. mobile-bearing designs).
- Surgical Approach: Examine different surgical techniques—e.g., medial parapatellar vs. subvastus approach—to determine if approach influences post-op pain.
- Surgeon/Hospital Volume: Subgroup data based on surgeon or hospital case volume (low vs. high). This may reflect experience, which can influence patient outcomes.

4. Postoperative Follow-Up Duration

- Examine how pain prevalence changes over time. Group patients based on how long it's been since

their surgery (e.g., 6 months, 1 year, 5 years) to identify any trends in pain persistence or reduction.

**Sensitivity analysis** If appropriate, a sensitivity analysis will be conducted.

**Language restriction** Yes, I will only be reviewing literature written in English.

**Country(ies) involved** Australia.

**Keywords** Pain Prevalence; Total Knee Arthroplasty; Total Knee Replacement; Pain Outcomes; Functional Outcomes.

**Dissemination plans** Findings will be published in peer-reviewed journals, a thesis and podium presentations.

**Contributions of each author**

Author 1 - Marisa Herden - Author 1 will screen, extract and analyse relevant journals before writing the systematic review.

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