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SYSTEMATIC REVIEW

Efficacy of Platelet-Rich Plasma Compared to Corticosteroid Injection for Pain and Functional Outcomes in Knee Osteoarthritis: A Systematic Review

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ABSTRACT

Background: Knee osteoarthritis is a common joint disorder causing ongoing pain, stiffness, and reduced mobility. Intra-articular corticosteroid is widely used for brief symptomatic relief, while platelet-rich plasma (PRP) has emerged as a possible alternative with longer-lasting benefit. **Objective:** To compare the effectiveness of intra-articular PRP versus corticosteroid administration on pain and joint function in adults with knee osteoarthritis. **Methods:** A search of PubMed and the Cochrane Central Register of Controlled Trials was performed in May 2026. Eligible reports compared PRP directly with corticosteroid injection in adults with knee osteoarthritis and reported validated pain or functional instruments. Full journal publications were used whenever available, and publication status was re-verified during revision. **Results:** The search yielded 163 records, 16 eligible reports after screening and publication-status verification. The comparator-inclusive update search identified 15 additional eligible full-text direct-comparator studies after deduplication against the original library, giving 31 studies in the updated qualitative synthesis. Corticosteroid tended to deliver quicker pain relief during the early window of roughly 2 to 6 weeks, while PRP sustained pain and functional benefit at 3 to 12 months. No serious adverse events were reported. **Conclusion:** Corticosteroid tended to provide earlier symptom relief, whereas several studies reported more sustained improvement with PRP at later follow-up; however, substantial heterogeneity precludes definitive conclusions regarding overall superiority.

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Highlights

1. Corticosteroid injection provides faster short-term pain relief, particularly within the first 2 to 6 weeks after treatment;
2. Platelet-rich plasma provides more sustained improvement in pain and knee function at medium- to longer-term follow-up, particularly from 3 to 12 months.

BACKGROUND

Knee osteoarthritis represents a progressive disease of the synovial joint characterized by gradual breakdown of articular cartilage, remodeling of the underlying subchondral bone, and inflammation of the synovial membrane — together producing chronic discomfort and reduced lower-limb function. The condition is now recognized as one of the most important contributors to disability worldwide, especially in older populations, and its incidence continues to grow alongside the global expansion of the elderly demographic and the increasing prevalence of overweight individuals. People living with the disease typically face persistent joint discomfort, morning stiffness, and restricted range of motion, all of which considerably diminish daily functioning and overall well-being (Hunter & Bierma-Zeinstra, 2019; Katz et al., 2021).

Management options for knee osteoarthritis are broadly divided into conservative and surgical strategies, with conservative care generally attempted first and operative care reserved for refractory cases. Conservative treatment commonly involves intra-articular corticosteroid injection, oral COX-2 inhibitors or other NSAIDs, weight reduction, and bracing of the knee joint (Afzali et al., 2018). Among injectable options, corticosteroid administration directly into the joint is one of the most frequently employed for fast symptom control. Its rationale lies in the powerful localized anti-inflammatory action it produces, with minimal systemic exposure compared with oral corticosteroid use. Despite this, the clinical effect tends to be transient — peaking around the second week and largely subsiding by the sixth week (Haider et al., 2025). More worryingly, accumulating evidence indicates that repeated corticosteroid injections may be associated with dose-related cartilage volume loss and a higher long-term likelihood of requiring total knee replacement (Du et al., 2026; Wijn et al., 2020). For these reasons, current expert opinion advocates limited and judicious use of this therapy.

Platelet-rich plasma (PRP) is an autologous biologic preparation derived from centrifuged whole blood and characterized by an elevated platelet load alongside growth factors including transforming growth factor-beta (TGF-β), platelet-derived growth factor (PDGF), and insulin-like growth factor-1 (IGF-1). These bioactive mediators are thought to promote local tissue regeneration and modulate inflammatory pathways within the joint cavity. Because PRP may offer a more sustained therapeutic effect than conventional injectables, it has attracted growing attention in the management of knee osteoarthritis. Earlier systematic reviews have noted improved pain control and joint function with PRP at intermediate to longer follow-up windows of 6 to 12 months. Nevertheless, head-to-head comparisons with corticosteroid injection remain inconclusive. This review was therefore undertaken to evaluate and compare the effectiveness of intra-articular PRP against corticosteroid injection on pain and functional outcomes in adults with knee osteoarthritis.

OBJECTIVE

This systematic review aimed to compare the effectiveness of intraarticular platelet-rich plasma and corticosteroid injections for pain relief and functional outcomes in adult with knee osteoarthritis.

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MATERIAL AND METHODS

Study Design

The present work was structured and reported as a systematic review of the literature, adhering to the reporting framework set out in the PRISMA 2020 statement for systematic reviews.

Eligibility Criteria

A study qualified for inclusion if it was a randomised controlled trial or other comparative clinical investigation enrolling adults with a confirmed diagnosis of knee osteoarthritis, directly comparing intra-articular PRP with an intra-articular corticosteroid-containing regimen, and reporting at least one validated pain or functional outcome such as VAS, WOMAC, KOOS, IKDC, KSS, or the lequesne index. Full journal publication were used whenever a complete report could be identified. Conference or abstract records were retained only when no corresponding full publication could be verified.

Search Strategy

A systematic literature search was conducted in PubMed and the Cochrane Central Register of Controlled Trials (CENTRAL) in May 2026 and was rerun on 21 September 2026 during revision. The updated PubMed strategy explicitly incorporated condition, intervention, and comparator concepts: (("knee osteoarthritis" OR gonarthrosis) AND ("platelet-rich plasma" OR PRP) AND (corticosteroid* OR glucocorticoid* OR steroid* OR triamcinolone OR methylprednisolone OR betamethasone)). CENTRAL was searched using analogous terms. The update search was deduplicated against the original Rayyan library, and backward citation checking of eligible trials and recent direct-comparator reviews was performed to identify potentially missed reports. Full journal publications were used whenever available.

Study Selection

All records from the original search and the revision update were screened against the same predefined PICO eligibility criteria. The original citations were managed in Rayyan for duplicate removal and screening. For the revision update, newly retrieved records were deduplicated against the original Rayyan library before title/abstract and full-text assessment. Two members of the research team evaluated eligibility, and disagreements were resolved by discussion, with senior review when required.

Outcome Measures

The principal endpoint was reduction of joint pain, quantified using validated patient-reported instruments — namely VAS, VNS, and NPRS. Secondary endpoints comprised joint function and patient-reported quality of life, captured through WOMAC, KOOS, IKDC, KSS, or the Lequesne functional severity index, depending on what each trial reported.

Data Extraction

A predesigned extraction sheet was used to capture first author and publication year, country, study design, sample size, baseline characteristics, radiographic severity, PRP protocol, corticosteroid comparator, follow-up duration, outcome instruments, and reported results. During revision, publication status was re-verified and the update search was screened for additional direct-comparator studies. Full journal reports were used in preference to conference abstracts or limited summaries.

Risk of Bias

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Methodological quality of randomized studies was assessed using the Cochrane Risk of Bias 2 (RoB 2) tool (Sterne et al., 2019), covering five domains: bias arising from the randomization process, deviations from intended interventions, missing outcome data, measurement of the outcome, and selection of the reported result. Domain-level and overall judgments were categorized as Low risk, Some concerns, or High risk according to RoB 2 guidance. Non-randomized comparative studies were not assessed using RoB 2 and were interpreted separately. The final risk-of-bias assessments are presented in Table 3.

RESULTS

Study Selection

The original May 2026 database search identified 163 records (82 PubMed and 81 CENTRAL). Removal of 8 duplicates left 155 unique citations; 139 were excluded at title-and-abstract screening and 16 reports were retained after eligibility assessment and publication-status verification. During revision, the comparator-inclusive search was rerun on 21 September 2026 and supplemented by backward citation checking. After deduplication against the original Rayyan library and eligibility screening, 15 additional full-text direct-comparator studies were identified. The updated qualitative synthesis therefore included 31 studies. The update-search arm of Figure 1 reports newly eligible studies rather than reconstructing a second raw database-export count, because the revision search was deduplicated directly against the pre-existing screened library.

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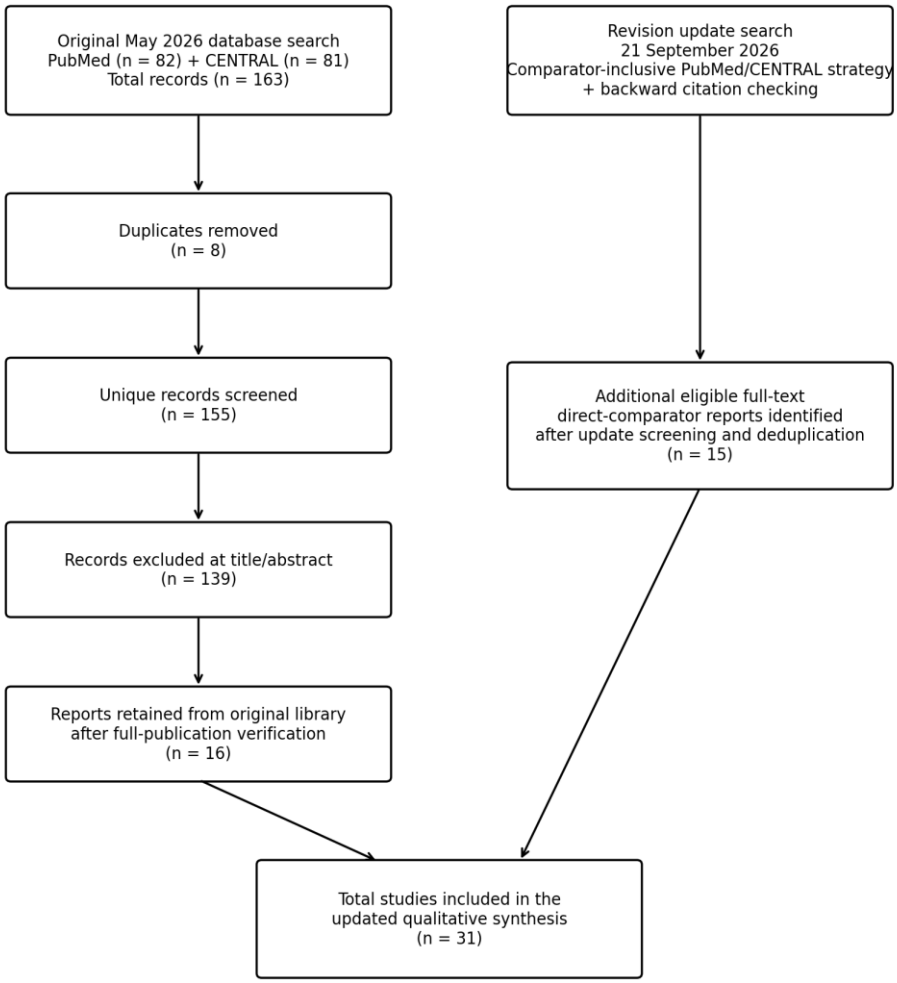


Figure 1. PRISMA 2020 Flow diagram of study selection

Characteristics of Included Studies

The characteristics of the 31 included studies are presented in Table 1. The evidence base consisted predominantly of randomized comparative trials, with several prospective or non-randomized comparative designs. Sample size, radiographic severity, PRP preparation, injection schedules, corticosteroid regimens, and follow-up duration varied substantially. Fifteen additional eligible full-text direct-comparator reports were incorporated after the comparator-inclusive revision search.

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Table 1. Characteristic of Included Studies

No.	Author (Year)	Country	Study Design	Sample Size (PRP/CS)	Mean Age	KL Grade	Follow-up	Evidence Status
1	**Elksniņš-Finogejevs et al. (2020)**	Latvia	RCT	20 / 20	57.1 yrs	II–III	12 months	Full-text verified
2	**Nunes-Tamashiro et al. (2022)**	Brazil	3-arm RCT	30 / 31 / 31	62 yrs	II–IV	6 months	Full-text verified
3	**Huang et al. (2019)**	China	3-arm RCT	30 / 30 / 30	58 yrs	II–III	12 months	Full-text verified
4	**Forogh et al. (2016)**	Iran	Double-blind RCT	24 / 24	59.2 yrs	II–III	6 months	Full-text verified
5	**Bains et al. (2025)**	USA	Double-blind RCT	26 / 26	60 yrs	II–III	3 months	Full-text verified
6	**Pretorius et al. (2022)**	Ireland	DB RCT (intra-patient)	29 pts (58 knees)	63.8 yrs	II–III	6 months	Full-text verified
7	**Freire et al. (2020)**	Brazil	RCT	25 / 25	60 yrs	I–IV	6 months	Full-text verified
8	**Uslu Guvendi et al. (2018)**	Turkey	3-arm RCT	17 / 17 / 16	61.6 yrs	III	6 months	Full-text verified
9	**Phul et al. (2018)**	Pakistan	RCT	40 / 40	56 yrs	II–III	3 months	Full-text verified
10	**AF Khan et al. (2018)**	Pakistan	RCT	30 / 30	52 yrs	II	6 months	Full-text verified
11	**Shaji et al. (2025)**	India	RCT	20 / 20	54.7 yrs	I–III	6 months	Full-text verified
12	**Chandran et al. (2022)**	India	RCT	30 / 30	57 yrs	II–III	6 months	Full-text verified
13	**Singh & Choudhary (2024)**	India	RCT	30 / 30	56 yrs	II–III	6 months	Full-text verified
14	**Mehta et al. (2025)**	India	RCT	25 / 25	58 yrs	II–III	6 months	Full-text verified
15	**Arjun et al. (2020)**	India	Comparative study	30 / 30	55 yrs	II–III	6 months	Full-text verified
16	**Gupta & Kumar (2025)**	India	RCT	30 / 30	57 yrs	II–III	6 months	Full-text verified
17	**Joshi Jubert et al. (2017)**	Spain	Double-blind RCT	35 / 30	66.7 yrs	III–IV	6 months	Full-text verified
18	**Naderi Nabi et al. (2018)**	Iran	Randomized controlled trial	33 / 34	58.8 yrs	II–III	6 months	Full-text verified
19	**Camurcu et al. (2018)**	Turkey	Prospective comparative study	37 / 38 (+40 combination)	NR	II–III	12 months	Full-text verified
20	**Longjam et al. (2019)**	India	Randomized controlled trial	38 / 39	50.7 yrs	II–III	24 weeks	Full-text verified
21	**Ramesh et al. (2019)**	India	Randomized controlled trial	147 / 131	57.4 yrs	Early OA	12 months	Full-text verified
22	**Khurana et al. (2020)**	India	Comparative 4-arm study	NR / NR (96 total)	56.3 yrs PRP	Early OA	6 months	Full-text verified
23	**Uppin et al. (2021)**	India	Randomized controlled trial	35 / 35	NR	I–II	6 months	Full-text verified
24	**Kumar et al. (2021)**	India	Comparative trial	42 / 40	64.2 yrs	Mild–moderate	6 months	Full-text verified

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25	**Szwedowski et al. (2022)**	Poland	Randomized triple-parallel trial	25 / 25 (+25 HA)	58 / 57 yrs	Mild–moderate	26 weeks	Full-text verified
26	**Tschopp et al. (2023)**	Switzerland	Double-blind 4-arm RCT	30 / 30 (+HA/placebo)	62 / 59 yrs	I–III	24 months	Full-text verified
27	**Arora et al. (2023)**	India	Randomized comparative study	PRP vs CS (96 randomized)	NR	OA knee	9 months	Full-text verified
28	**Shaik et al. (2024)**	India	Randomized controlled trial	50 / 50	58.8 yrs	II–III	12 months	Full-text verified
29	**Irshad et al. (2024)**	Pakistan	Prospective comparative study	50 / 50	NR	II–III	3 months	Full-text verified
30	**Malhotra et al. (2025)**	India	Prospective randomized study	25 / 25	>50 yrs	OA knee	12 months	Full-text verified
31	**Lacko et al. (2026)**	Slovakia	3-arm randomized trial	30 / 30 (+30 NSAID)	40–80 yrs	III–IV	6 months	Full-text verified

Pain Outcomes and Functional Outcomes

Pain was usually measured with tools like VAS, VNS, or NPRS. When looking at all the evidence together, corticosteroids often led to better or faster results in the early stages, but several studies showed that PRP gave better or longer-lasting improvements when checked at mid-term or later times. The update search showed that the results were different in each case: Joshi Jubert et al.found that the treatments worked similarly for advanced osteoarthritis; Szwedowski et al.saw the most pain relief early on with corticosteroids, but better results later with PRP; Tschopp et al.didn't find clear benefits for any of the injection groups; and Malhotra et al.found corticosteroids helped more with early pain and WOMAC scores, but PRP gave better results later on in a clinical sense. Results were therefore interpreted by follow-up interval rather than as uniform evidence of treatment superiority.

The joint function was evaluated using WOMAC, KOOS, IKDC, KSS, Lequesne, and other validated scales. Several original and update-search studies found that PRP led to better intermediate or longer-term results, with examples including Longjam et al., Uppin et al., Szwedowski et al., and Lacko et al.However, other randomized trials showed similar outcomes between groups or smaller differences between them. The different tools used to measure outcomes, the ways injections were given, how serious the disease was, and how results were reported made it hard to combine the data clearly.Because of this, we used a detailed review of all the information instead of trying to calculate an average.

Table 2. Primary Synthesis — Interventions and Findings (Full-Text Verified Studies, n=31)

No.	Author (Year)	PRP Intervention	Corticosteroid Intervention	Outcome Measures & Reported Findings
1	**Elksniņš-Finogejevs (2020)**	Single PRP injection (8 mL)	Triamcinolone acetonide 40 mg + lidocaine	VAS, IKDC, KSS — PRP showed significantly greater improvement vs CS at 15 wks, 30 wks and 1 year. VAS change at 1 yr: PRP −3.1±2.0 (52%) vs CS −0.8±1.8 (14%), $p<0.05$.
2	**Nunes-Tamashiro (2022)**	Single PRP injection	Triamcinolone hexacetonide	VAS, WOMAC, KOOS — Both groups improved; PRP showed more sustained benefit at 6 months while CS appeared more effective in early follow-up.
3	**Huang (2019)**	Single PRP injection	Single corticosteroid injection	VAS, WOMAC — PRP showed significantly greater WOMAC improvement vs both CS and HA groups at 6, 9 and 12 months.
4	**Forogh (2016)**	Single PRP injection	Single methylprednisolone injection	VAS, WOMAC — CS appeared more effective at 2 months; PRP showed significantly greater improvement at 6 months for VAS, quality of life and daily activities.

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No.	Author (Year)	PRP Intervention	Corticosteroid Intervention	Outcome Measures & Reported Findings
5	**Bains (2025)**	Single PRP injection	Single corticosteroid injection	VAS, NPRS, WOMAC, KOOS — CS produced significantly greater pain reduction at 6 weeks (VAS −24.3 vs −7.4, p=0.033). No significant difference at 3 months. Only CS reached MCID at 6 weeks.
6	**Pretorius (2022)**	Single PRP injection (one knee)	Methylprednisolone + local anesthetic (other knee)	WOMAC, VNS — Both treatments effective with peak improvement at 6 wks–3 months. PRP slightly better at 6 months but difference was not statistically significant.
7	**Freire (2020)**	Single PRP injection	Single triamcinolone injection	KSS, WOMAC — PRP showed greater pain reduction and functional improvement vs CS at 3 and 6 months.
8	**Uslu Guvendi (2018)**	Single OR 3 PRP injections (1-wk interval)	Single corticosteroid injection	VNS, WOMAC, Lequesne — At 6 months, both single and triple PRP showed significantly lower WOMAC pain and VNS movement scores vs CS. No difference between single and triple PRP arms.
9	**Phul (2018)**	Single PRP injection	Single corticosteroid injection	VAS — Both groups improved; the full publication reported greater pain reduction with PRP than corticosteroid at 3-month follow-up.
10	**AF Khan (2018)**	Single PRP injection	Corticosteroid + xylocaine injection	VAS, WOMAC sub-scores — WOMAC pain and function equivalent in both groups at 6 months. CS group reported better stiffness improvement. VAS improved in both groups.
11	**Shaji (2025)**	Single PRP injection	Single corticosteroid injection	WOMAC, Lequesne — PRP group showed significantly better WOMAC scores at 1 month (p=0.011), 3 months (p=0.026) and 6 months (p=0.002). Lequesne also significantly favored PRP.
12	**Chandran et al. (2022)**	Single PRP injection	Single corticosteroid injection	VAS, WOMAC — The full publication reported greater improvement with PRP in VAS and WOMAC at 6 months.
13	**Singh & Choudhary (2024)**	Single PRP injection	Single corticosteroid injection	VAS, WOMAC — The study reported greater pain reduction and functional improvement with PRP at 3 and 6 months.
14	**Mehta (2025)**	USG-guided single PRP injection	USG-guided triamcinolone injection	VAS, WOMAC — Both treatments effective; the study reported more sustained analgesic effect with PRP at 6 months
15	**Arjun et al. (2020)**	Single autologous PRP injection	Single depot steroid injection	VAS, WOMAC — The full publication reported improvement in both groups, with larger 24-week VAS and WOMAC changes in the PRP group; the study was non-randomized and was interpreted cautiously.
16	**Gupta & Kumar (2025)**	Single PRP injection	Single corticosteroid injection	VAS, WOMAC — The study reported PRP improved symptoms of knee OA vs CS with sustained benefit at 6 months
17	**Joshi Jubert (2017)**	Single leukocyte-reduced PRP injection	Single corticosteroid + local anesthetic injection	VAS, KOOS, SF-36 — Most between-group outcomes were similar; some later quality-of-life changes were larger with PRP.
18	**Naderi Nabi (2018)**	3 PRP injections, monthly	3 US-guided triamcinolone injections, monthly	VAS, KOOS — Both groups improved; PRP was reported to provide more prolonged pain and functional improvement.
19	**Camurcu (2018)**	Single PRP injection	Single methylprednisolone injection	VAS, WOMAC — Direct PRP and steroid arms both improved; study also included a sequential steroid-plus-PRP arm.
20	**Longjam (2019)**	2 PRP injections, 2 weeks apart	2 methylprednisolone injections, 2 weeks apart	VAS, WOMAC — Steroid was more effective at 8 weeks; PRP was significantly more effective at 24 weeks.
21	**Ramesh (2019)**	2 PRP injections	Corticosteroid injection regimen	VAS, WOMAC — Authors reported greater longer-term pain/function improvement with PRP.
22	**Khurana (2020)**	PRP injection	Steroid injection	VAS, WOMAC — PRP outcomes at 6 months were better than the steroid control group; non-randomized Level 3b evidence.
23	**Uppin (2021)**	PRP injections	Triamcinolone injections	VAS, WOMAC — Both groups improved; authors reported better sustained outcomes with PRP.

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No.	Author (Year)	PRP Intervention	Corticosteroid Intervention	Outcome Measures & Reported Findings
24	**Kumar (2021)**	PRP injection	Corticosteroid injection	VAS, WOMAC — PRP was reported to have greater improvement in pain at 6 months.
25	**Szwedowski (2022)**	Single leukocyte-poor PRP injection	Single glucocorticosteroid injection	WOMAC — CS showed strongest early pain reduction; PRP showed greater functional improvement by 3–6 months.
26	**Tschopp (2023)**	Single PRP injection	Single glucocorticoid injection	NRS, WOMAC — No clear overall treatment advantage was demonstrated among injection groups over follow-up.
27	**Arora (2023)**	Intra-articular PRP	Intra-articular corticosteroid	Clinical scores and MMP-3 — Both treatments improved outcomes; later follow-up generally favored PRP in the report.
28	**Shaik (2024)**	3 PRP injections, 4 weeks apart	3 corticosteroid injections, 3 months apart	VAS, WOMAC — Both improved; authors reported larger sustained improvement with PRP over longer follow-up.
29	**Irshad (2024)**	Intra-articular PRP	Intra-articular corticosteroid	VAS, WOMAC — CS had lower scores at 1 month; PRP had lower scores at 2 and 3 months.
30	**Malhotra (2025)**	Single PRP injection (6 mL)	Bupivacaine + triamcinolone 40 mg	Pain, WOMAC — Corticosteroid regimen was better at 2 weeks–1 month; PRP was clinically better from 2 to 12 months.
31	**Lacko (2026)**	2 PRP injections, 1 week apart	Single betamethasone injection	VAS, WOMAC — PRP showed greater 3- and 6-month pain/function improvement than corticosteroid in this trial.

Safety Outcomes

Serious treatment-related adverse events were uncommon across the included reports. Transient post-injection pain, local discomfort, or short-lived inflammatory symptomps were described in some PRP given patients, while individual corticosteroid-treated participants in some trials reported transient systemic or local symptomps. Because adverse-event definitions and ascertainment were not standardized, safety findings were summarized qualitaively.

Risk of Bias

RoB 2 judgments for randomized studies are summarized in Table 3. The most frequent concerns related to incomplete reporting of randomization procedures, deviations from intended interventions, blinding/outcome measurement, or selective reporting. Standard RoB 2 categories (Low risk, Some concerns, High risk) were used. Prospective or non-randomized comparative studies were marked N/A for RoB 2 and interpreted separately; no 'Unclear' RoB 2 category was used.

Table 3. Risk of Bias 2 Assessment

No.	Author (Year)	D1 Randomization	D2 Deviations	D3 Missing data	D4 Outcome measurement	D5 Reported-result selection	Overall RoB 2
1	**Elksniņš-Finogejevs (2020)**	Low	Low	Low	Some concerns	Low	Low
2	**Nunes-Tamashiro (2022)**	Low	Low	Low	Low	Low	Low
3	**Huang (2019)**	Some concerns	Some concerns	Low	High	Low	Some concerns
4	**Forogh (2016)**	Low	Low	Low	Low	Low	Low
5	**Bains (2025)**	Low	Low	Low	Low	Low	Low

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6	**Pretorius (2022)**	Low	Low	Low	Low	Low	Low
7	**Freire (2020)**	Some concerns	Low	Low	Some concerns	Low	Some concerns
8	**Uslu Guvendi (2018)**	Low	Some concerns	Low	Some concerns	Low	Some concerns
9	**Phul (2018)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
10	**AF Khan (2018)**	Low	Low	Low	Some concerns	Low	Some concerns
11	**Shaji (2025)**	Low	Low	Low	Some concerns	Low	Some concerns
12	**Chandran et al. (2022)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
13	**Singh & Choudhary (2024)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
14	**Mehta (2025)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
15	**Arjun et al. (2020)**	N/A	N/A	N/A	N/A	N/A	N/A
16	**Gupta & Kumar (2025)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
17	**Joshi Jubert et al. (2017)**	Low	Low	Low	Low	Low	Low
18	**Naderi Nabi et al. (2018)**	Some concerns	Low	Low	Some concerns	Low	Some concerns
19	**Camurcu et al. (2018)**	N/A	N/A	N/A	N/A	N/A	N/A
20	**Longjam et al. (2019)**	Some concerns	Low	Low	Some concerns	Low	Some concerns
21	**Ramesh et al. (2019)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
22	**Khurana et al. (2020)**	N/A	N/A	N/A	N/A	N/A	N/A
23	**Uppin et al. (2021)**	Some concerns	Low	Low	Some concerns	Low	Some concerns
24	**Kumar et al. (2021)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
25	**Szwedowski et al. (2022)**	Low	Low	Low	Some concerns	Low	Some concerns
26	**Tschopp et al. (2023)**	Low	Low	Low	Low	Low	Low
27	**Arora et al. (2023)**	Some concerns	Some concerns	Low	Some concerns	Low	Some concerns
28	**Shaik et al. (2024)**	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns	Some concerns
29	**Irshad et al. (2024)**	N/A	N/A	N/A	N/A	N/A	N/A
30	**Malhotra et al. (2025)**	Some concerns	Low	Low	Some concerns	Low	Some concerns

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31	**Lacko et al. (2026)**	Some concerns	Low	Low	Some concerns	Low	Some concerns

RoB 2 domain ratings follow standardized Cochrane terminology (Low risk / Some concerns / High risk).

DISCUSSION

Principal Findings

The new information shows that the effects of the treatments happen at different times, instead of one type of injection always working better than the other overall. Corticosteroids usually provide quicker relief from early symptoms, but some studies found that PRP led to better results that lasted longer over time. The update search included a comparator-inclusive approach that found several important direct-comparator studies that were not found in the original PubMed search.These studies include older randomized trials as well as a new randomized trial from 2026. It's important to note that the more information included still had some disagreement: some research found small or no difference between groups, while other studies showed that PRP was better when looked at later on.

Comparison With Previous Evidence

The trend seen in this review matches earlier findings that injections of corticosteroids into the joint can help reduce symptoms for a short time, but PRP has been studied as a possible treatment that might offer longer-lasting benefits (Haider et al., 2025). Earlier studies that compared PRP with other treatments injected into joints have found that VAS and WOMAC scores improved over time, but it's important to note that the types of treatments compared and the ways the studies were done varied a lot (Tang et al., 2020). This review looks closely at studies that compare corticosteroids, so it pays special attention to when the results were done, how consistent they are, and how certain we can be about them, instead of just assuming one treatment works better than another.

Clinical Implications

From a practical standpoint, the choice between PRP and corticosteroid should consider the desired timing of symptom relief, baseline characteristics and disease severity, treatment access and cost, contraindications, and patient preferences. Corticosteroid may be considered when short-term symptom control is a priority, whereas PRP may be considered when a longer duration of benefit is sought. Repeated corticosteroid exposure warrants caution because observational and structural-outcome studies have reported associations with cartilage loss or later arthroplasty, although these findings are not sufficient to establish a causal effect (Du et al., 2026; Wijn et al., 2020). PRP also has important limitations, including higher cost and substantial variability in preparation and injection protocols. The current evidence therefore supports individualized decision-making rather than a universal preference for either intervention.

Limitations

This review is supported by several strong methodological features, such as having a clear PICO question set before starting, focusing directly on head-to-head comparisons, checking if studies were published, and doing a new search for updates that include all possible comparators during the revision process. Important limitations remain. The ways of preparing PRP, the timing of injections, the types of corticosteroids used, the level of disease severity, how often patients were checked, and the tools

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used to measure results all differed a lot. The first search on PubMed wasn't specific enough when comparing treatments; this was fixed by running the search again with words related to corticosteroids and by checking citations from other papers, which increased the number of studies from 16 to 31. Complete numbers and data on differences were still not always available, which made it impossible to do a dependable meta-analysis. Risk-of-bias judgments should also be considered together with the mix of randomized and non-randomized study designs.

Future Research

Future trial work in this area should adopt standardized PRP preparation methodology, well-characterized corticosteroid comparators, sufficiently long observation periods, and a consistent battery of validated outcomes — most importantly VAS, WOMAC, KOOS, and IKDC. Investigations addressing structural endpoints, economic value, and identification of patient subgroups likeliest to derive benefit from one or the other intervention would also be valuable additions to the literature.

CONCLUSION

Taken together, the updated review suggests that both intra-articular PRP and corticosteroid injections can improve pain and function in knee osteoarthritis, but the timing and magnitude of response vary across studies. Corticosteroid tended to provide earlier symptom relief in several trials, whereas multiple studies reported more sustained pain or functional improvement with PRP at intermediate or longer follow-up. Other trials found comparable outcomes, and the findings were not consistent across all studies.

Because PRP preparation, corticosteroid regimens, study design, follow-up schedules, and outcome measures were heterogeneous, and because no meta-analysis was performed, the evidence does not establish definitive overall superiority of either intervention. Treatment selection should therefore be individualized according to clinical context, patient preferences, access, cost, and the desired timing of symptom relief.

Further adequately powered head-to-head randomized trials using standardized PRP protocols, clearly defined corticosteroid comparators, consistent outcome instruments, and prespecified clinically important thresholds are needed to clarify the comparative durability and clinical relevance of treatment effects.

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Conflict of Interest

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