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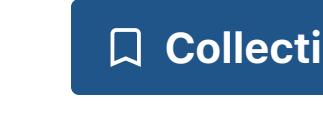
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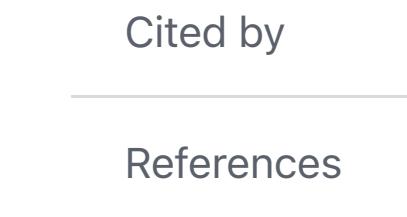


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## Hyaluronic acid and platelet-rich plasma for the management of knee osteoarthritis

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### Abstract

**Purpose:** Symptomatic knee osteoarthritis (OA) remains a substantial cause of pain and disability worldwide and effective management in young patients without indications for total knee arthroplasty remains challenging. Intra-articular injections represent a viable option in the non-operative treatment of knee OA. Hyaluronic acid (HA) and platelet-rich plasma (PRP) are two commonly utilized intra-articular treatment modalities that are of particular clinical interest in the current literature. The purpose of this manuscript is to provide a concise review of the current literature on the use of HA, PRP, and HA-PRP conjugates for the treatment of symptomatic knee OA.

**Methods:** A review of the literature utilizing PubMed, OVID/Medline, and Cochrane databases on basic science and clinical literature pertaining to preparation, composition, and outcomes of HA, PRP, and HA-PRP conjugates in patients with symptomatic knee OA.

**Results:** Both HA and PRP have been shown to be efficacious for the treatment of symptomatic knee OA, with HA injections providing limited short-term improvement, while PRP may provide greater therapeutic relief, particularly with the use of leukocyte-poor (LP-PRP) formulations. Despite limited data, the combination of different formulations of HA-PRP conjugates may provide a synergistic effect, resulting in a clinically significant improvement in both pain and function.

**Conclusion:** In patients with symptomatic knee OA, intra-articular HA and PRP provide short-term improvement in pain and function, while the efficacy of HA-PRP conjugates warrants further study.

**Keywords:** Hyaluronate; Hyaluronic acid; Knee; LP-PRP; Osteoarthritis; PRP; Platelet-rich plasma.

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[Hyaluronic Acid Versus Platelet-Rich Plasma: A Prospective, Double-Blind Randomized Controlled Trial Comparing Clinical Outcomes and Effects on Intra-articular Biology for the Treatment of Knee Osteoarthritis.](#)

Cole BJ, Karas V, Hussey K, Pilz K, Fortier LA.

Am J Sports Med. 2017 Feb;45(2):339-346. doi: 10.1177/0363546516665809. Epub 2016 Oct 21.

PMID: 28146403 Clinical Trial.

[Comparison of the short-term results of single-dose intra-articular peptide with hyaluronic acid and platelet-rich plasma injections in knee osteoarthritis: a randomized study.](#)

Kesiktas FN, Dernek B, Sen El, Albayrak HN, Aydin T, Yildiz M.

Clin Rheumatol. 2020 Oct;39(10):3057-3064. doi: 10.1007/s10067-020-05121-4. Epub 2020 May 1.

PMID: 32358661 Free PMC article. Clinical Trial.

[Platelet-rich plasma versus hyaluronic acid in knee osteoarthritis: A meta-analysis with the consistent ratio of injection.](#)

Wu Q, Luo X, Xiong Y, Liu G, Wang J, Chen X, Mi B.

J Orthop Surg (Hong Kong). 2020 Jan-Apr;28(1):2309499019887660. doi: 10.1177/2309499019887660.

PMID: 31895000 Review.

[Platelet-rich plasma versus hyaluronic acid in the treatment of knee osteoarthritis: a meta-analysis.](#)

Tang JZ, Nie MJ, Zhao JZ, Zhang GC, Zhang Q, Wang B.

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Anesth Pain Med. 2022 Oct 1;12(4):e127121. doi: 10.5812/aapm-127121. eCollection 2022 Aug.

PMID: 36937082 Free PMC article. Review.

[Research trends of platelet-rich plasma therapy on knee osteoarthritis from 2011 to 2021: A review.](#)

Cui Y, Lin L, Wang Z, Wang K, Xiao L, Lin W, Zhang Y.

Medicine (Baltimore). 2023 Jan 13;102(2):e32434. doi: 10.1097/MD.00000000000032434.

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BMC Musculoskelet Disord. 2022 Sep 12;23(1):856. doi: 10.1186/s12891-022-05787-8.

PMID: 36096771 Free PMC article. Clinical Trial.

[Platelet Rich Plasma in the Repair of Articular Cartilage Injury: A Narrative Review.](#)

Liang Y, Li J, Wang Y, He J, Chen L, Chu J, Wu H.

Cartilage. 2022 Jul-Sep;13(3):1947603522118419. doi: 10.1177/1947603522118419.

PMID: 36086807 Free PMC article. Review.

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### References

- Zhao J, Huang H, Liang G et al (2020) Effects and safety of the combination of platelet-rich plasma (PRP) and hyaluronic acid (HA) in the treatment of knee osteoarthritis: a systematic review and meta-analysis. BMC Musculoskelet Disord 21:212-224. [https://doi.org/10.1186/s12891-020-03262-w - DOI](https://doi.org/10.1186/s12891-020-03262-w)
- Lawrence RC, Felson DT, Helmick CG et al (2008) Estimates of the prevalence of arthritis and other rheumatic conditions in the United States: part II. Arthritis Rheum 58:26-35. <https://doi.org/10.1002/art.23176 - DOI - PubMed - PMC>
- Mather RC, Koenig L, Kocher MS et al (2013) Societal and economic impact of anterior cruciate ligament tears. J Bone Joint Surg (Am Vol) 95:1751-1759. <https://doi.org/10.2106/jbjs.l.01705 - DOI>
- Chahla J, Mandelbaum BR (2018) Biological treatment for osteoarthritis of the knee: moving from bench to bedside—current practical concepts. Arthroscopy 34:1719-1729. <https://doi.org/10.1016/j.arthro.2018.01.048 - DOI - PubMed>
- Lane NE, Brandt K, Hawker G et al (2011) OARSI-FDA initiative: defining the disease state of osteoarthritis. Osteoarthr Cartil 19:478-482. <https://doi.org/10.1016/j.joca.2010.09.013 - DOI>

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The comparison effects of intra-articular injection of Platelet Rich Plasma (PRP), Plasma Rich in Growth Factor (PRGF), Hyaluronic Acid (HA), and ozone in knee osteoarthritis; a one year randomized clinical trial.

Raeissadat SA, et al. BMC Musculoskelet Disord. 2021. PMID: 32935198

Free PMC article. Clinical Trial.

The use of PRP injections in the management of knee osteoarthritis.

O'Connell B, et al. Cell Tissue Res. 2019. PMID: 32935198 Review.

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