



BS Structured Summary



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Injectable Orthobiologics for Knee Osteoarthritis: A
Systematic Review of Randomized Trials and News Media



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INTRODUCTION / BACKGROUND

Knee osteoarthritis (OA) is a highly prevalent degenerative condition that drives chronic pain, loss of mobility and reduced quality of life. Injectable orthobiologics — platelet-rich plasma (PRP), mesenchymal stem cells (MSCs), autologous protein solution (APS) and related products derived from blood, bone marrow or adipose tissue — have gained popularity as regenerative options that aim to harness the body's own healing through growth factors, anti-inflammatory cytokines or regenerative cells.

The problem is a mismatch between enthusiasm and evidence. Randomised controlled trial (RCT) data remain heterogeneous, nomenclature is ambiguous, and major guidelines still recommend against routine intra-articular orthobiologics for knee OA. Meanwhile public interest — fuelled by news media that often serve as patients' first point of contact — has grown sharply, and the tone, framing and commercial influences of that coverage may not track the science, risking misinformation, inflated expectations and misallocated resources.

No prior review had simultaneously appraised the trial literature and its portrayal in the news media. This study set out to do both, hypothesising that the media depict these therapies

positively and without nuance. The aim was to synthesise current RCT evidence for injectable orthobiologics in knee OA and assess whether media portrayals align with the strength and quality of that evidence.

OBJECTIVE

To synthesise current RCT evidence on injectable orthobiologics (PRP, MSCs, APS and related products) for knee OA, and to evaluate whether news-media portrayals align with the strength and quality of that evidence — a dual evidence-versus-media appraisal.

METHODS

Dual-pronged systematic review (PRISMA), conducted on March 31, 2025; not prospectively registered, given the exploratory dual design. Evidence arm: MEDLINE, Embase and Web of Science were searched for RCTs comparing intra-articular orthobiologics (PRP, MSCs, APS, stromal vascular fraction [SVF], amniotic suspension allograft [ASA]) against placebo (saline or sham) in knee OA. Trials comparing biologics against viscosupplementation or corticosteroid were excluded, to isolate the biologic-versus-placebo effect. Risk of bias was assessed with the Cochrane RoB 2 tool.

Media arm: the Factiva database was searched for English-language news articles on injectable orthobiologics for knee OA. Press releases, financial statements, patent announcements and stock-market reports were excluded. Extracted variables included biologic type, benefits and drawbacks discussed, article type, mention of commercial entities, and overall tone (favourable, neutral or cautionary).

Both arms used independent paired reviewers (E.Z.J.X. and R.T.W.L.) with disagreements resolved by a senior author (B.W.L.T.). Categorical variables were summarised as frequencies and percentages; temporal trends in media coverage were plotted by year of publication.

MAIN RESULTS

Evidence arm: of 869 deduplicated records, 14 RCTs met inclusion — 5 on PRP, 3 on adipose-derived MSCs, 2 on bone-marrow-derived MSCs, 2 on APS, 1 on ASA and 1 on SVF (sample sizes 24–288; follow-up 6–36 months). Eight trials reported significant improvement in pain and 10 in function with the biologic, but heterogeneity and risk of bias were frequent: on RoB 2, only a minority were low risk overall, several raised ‘some concerns’, and one was high risk. Common adverse effects were injection-site pain (10 studies), swelling (9), stiffness (4) and harvest-site injury (2).

Media arm: of 3,482 records, 124 news articles were included. Benefits were highlighted in 79.0%, but only 29.8% mentioned any drawback. PRP was the most discussed biologic (60.5%), while 37.1% used the term ‘stem cell’ generically without specifying the product. A specific product, company or clinic was named in 35.5% of articles — with no corresponding commercial disclosure in any of them.

Overall tone: 66.1% of articles were favourable, 18.5% neutral and 15.3% cautionary. The benefits most cited were pain relief, functional improvement, and delaying or avoiding knee replacement; the drawbacks, when present, were cost, lack of high-quality evidence and

exaggeration of benefit. Media volume rose steadily over time, peaking in 2018 (then 2019 and 2022).

The central contrast: while the trial evidence is inconsistent and frequently at risk of bias, media coverage is predominantly optimistic and light on caveats — a disconnect the authors note may foster unrealistic expectations and premature adoption.

AUTHORS' CONCLUSION

RCT evidence for injectable orthobiologics in knee OA remains inconsistent, whereas media portrayals are predominantly positive and often lack nuance or acknowledgment of uncertainty. This disconnect may encourage unrealistic expectations and premature adoption. The findings underscore the need for balanced, evidence-based communication — and, the authors suggest, clearer public-facing position statements from professional bodies — to align public perception with scientific reality. Level of Evidence: I.

BS DISCUSSION

This is not our paper and not our knee subspecialty focus, but it earns a place in BS Papers precisely because it holds a mirror up to our own field. Orthobiologics for knee OA are among the most marketed interventions in sports medicine, and this dual review puts hard numbers on something every one of us senses in clinic: 66% of news coverage is favourable, 79% sells benefits, only 30% mentions a drawback — against a trial base where bias and heterogeneity are the rule, not the exception. For a teaching platform built around the knee, that gap is the lesson.

The methodological move worth teaching at the Summit is the design itself: appraising the RCTs and the news coverage in parallel, with the same rigour. We spend our journal clubs critiquing trials; we rarely critique how those trials reach patients. Borrowing this 'evidence-versus-media' lens — as Ekhtiari et al did for robotic TKA — is a transferable skill for our fellows, and a format BS could adopt for other hyped knee interventions.

The single most clinically useful finding for BS practice is the nomenclature problem: 37% of articles said 'stem cell' without specifying anything, and a third named a product or clinic with zero disclosure. That is the exact conversation we have with the patient who arrives asking for 'the stem-cell injection an athlete got'. The honest counsel — that PRP has the most (still heterogeneous) data, that MSC/SVF/APS evidence is thinner, that guidelines advise against routine use, and that 'stem cell' is a marketing word more than a defined product — is directly supported by this review.

Two caveats keep me from overreading it. First, the evidence arm deliberately restricted to biologic-versus-placebo (saline/sham), excluding comparisons with viscosupplementation or corticosteroid — a clean way to ask 'does it beat nothing?' but not 'is it better than what I already inject?', which is the question many of us actually face. Second, the media methodology has no established protocol (one database,

English only, subjective tone-coding), which the authors openly acknowledge limits reproducibility.

There is also a fair counterpoint the paper itself makes, and which is worth airing honestly at BS rather than just bashing the media: the optimistic coverage may partly reflect a genuine unmet need — patients stuck in the gray zone between failed conservatives and not-yet-surgical. That does not excuse undisclosed commercial promotion, but it reframes our job. For BS Labs and Summit, the actionable takeaways are concrete: standardise how we counsel on orthobiologics, name the specific product and its actual evidence tier, disclose any commercial interest, and treat ‘evidence-versus-media’ appraisal as a core critical-reading skill we teach.



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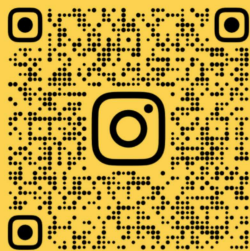
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