

How PRP Is Prepared — and Why the Preparation Method Matters

Leukocyte-rich vs leukocyte-poor PRP explained for patients

Not all PRP is the same. The term covers a range of preparations that differ in platelet concentration and in how many white blood cells (leukocytes) are included in the final injection. This matters clinically: research increasingly shows that the specific formulation used can change how well PRP works for a given condition, which is why your specialist chooses a preparation method tailored to what is being treated rather than using a single generic recipe for every patient.

Leukocyte-rich vs leukocyte-poor PRP

PRP is generally classified as leukocyte-rich (LR-PRP) or leukocyte-poor (LP-PRP), depending on how much of the white blood cell layer is retained during processing. LR-PRP contains a higher concentration of white cells and is thought to carry a stronger initial inflammatory signal, which can be useful for stimulating a healing response in some tendon conditions but may be less desirable inside a joint.

For knee osteoarthritis, a 2025 narrative review synthesising 40 studies found that leukocyte-poor PRP tended to produce better pain relief and functional improvement than leukocyte-rich PRP, likely because the joint environment in osteoarthritis is already inflamed and benefits from a gentler biologic input.

For certain tendon conditions the picture differs: in gluteal tendinopathy, for example, a landmark two-year randomised trial used leukocyte-rich PRP and found it outperformed a single corticosteroid injection at every stage of follow-up, while for patellar tendinopathy, network meta-analysis data has favoured leukocyte-poor PRP combined with a high-volume image-guided injection technique.

Platelet concentration also matters

Separately from the leukocyte question, the raw platelet concentration of the preparation appears to influence how long the benefit lasts. In knee osteoarthritis trial data, higher-platelet preparations maintained clinically meaningful improvement through 12 months, while lower-platelet preparations lost that benefit earlier, around the six-month mark.

What this means for you

- There is no single 'best' PRP — the right formulation depends on the condition being treated.
- Ask your treating specialist what type of PRP (leukocyte-rich or -poor) is being used and why it suits your specific diagnosis.
- Platelet concentration, not just PRP presence, affects how long benefits last — quality and standardisation of preparation matter.

This article summarises published research for general information and does not replace individual medical advice. Outcomes vary between patients — talk to your treating specialist about whether PRP is appropriate for your specific condition.

References

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