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# Platelet-rich Plasma Therapy: What You Should Know

Interest in platelet-rich plasma injections for OA has grown in recent years, but does the research support the claims?

## Jennifer Davis

Platelet-rich plasma or PRP is getting a lot of attention these days as a promising therapy for the pain and swelling that comes with osteoarthritis (OA). It's popular with professional athletes and is the subject of a flurry of new research. But how definitive is the science, and is it right for you?

### What It Is

PRP injections are made by taking a small amount of a patient's blood and putting it through a spinning process to separate platelets from red and white blood cells. The concentrated platelets are then injected into a damaged area, releasing growth factors to aid healing. The injections typically cost between \$500 and \$2,000 and aren't generally covered by insurance.

### What Studies Show

A growing body of research indicates PRP has promise for OA patients. A study by Slovakian researchers in the May 2012 issue of the *American Journal of Physical Medicine & Rehabilitation* compared a group given PRP injections to others who received hyaluronic acid – a more commonly used injectable to target OA pain and swelling. Among the study's 120 early knee OA patients, the PRP group had better results at three and six month check-ups.

Patients given PRP also had better results than a placebo group injected with saline in a double blinded, randomized, placebo controlled study of 78 patients published online January 2013 in the *American Journal of Sports Medicine*. Researchers found equal benefits from one higher concentration PRP dose or two doses of a lesser amount, but improvements in pain and function faded for both PRP groups after six months.

And a study of 22 patients with mild to moderate early knee OA by New York's Hospital for Special Surgery, published online in *Clinical Journal of Sports Medicine* in March 2013, showed that after one year, one injection of 6-mL of PRP reduced pain nearly 60 percent, improved overall scores by nearly 56 percent and showed no progression of osteoarthritis per joint in 73 percent of patients.

"I think the results are very positive. They are encouraging us to go further in the advancement of this science," explains lead author, Brian Halpern, MD, chief of the Primary Care Sports Medicine Service at New York's Hospital for Special Surgery.

Italian researchers had more mixed results from their double blind, randomized clinical trial published November 2012 in the journal *BMC Musculoskeletal Disorders*. When comparing one group of patients

given three weekly PRP injections to another that received three weekly injections of hyaluronic acid, researchers found that after one year PRP injections were more promising in patients with less degeneration. But they did not recommend them as a first line treatment, saying PRP was no better than hyaluronic acid for middle aged patients with moderate OA symptoms.

Brian Cole, MD, a professor of orthopaedics at Rush University Medical Center in Chicago currently conducting his own trial comparing PRP to hyaluronic acid in knee OA patients, says researchers are feverishly looking for more clear-cut answers.

"Like all these non surgical treatments, PRP injections are not a cure for arthritis," Dr. Cole explains. "But there have been continued efforts to do the best science possible to show they are effective definitively compared to other options."



### PRP Concerns

Questions about PRP's efficacy date back to a study published in 2010 in the *Journal of the American Medical Association* that found the injections were the same as a placebo shot of salt water in healing Achilles tendinopathy. The study's first author, Robert-Jan de Vos, MD, PhD, a sports medicine doctor in The Netherlands, did a follow up study one year later that again found no difference between PRP and placebo and he still believes research is mixed on PRP's benefits for OA.

"It might be an interesting treatment option in the future. However, more research in this field is required to evaluate the effects of PRP in cartilage pathology," Dr. de Vos explains.

University of Maryland researchers echoed that message in their review of new data on OA treatments for 2011-2012 in the May 2013 issue of *Current Opinion in Rheumatology*. Although they said primary care and sports practitioners are increasingly using PRP injections to treat OA, they found only 'limited evidence' of their efficacy and recommended more research.

And when the American Academy of Orthopaedic Surgeons held a forum about PRP in 2011, bringing together some of the top clinicians and researchers on the topic, the group's consensus was the injections are a possible treatment for OA patients, particularly those not finding relief from other treatments. But the forum stressed PRP's efficacy for OA remains unproven.

"Early data suggests there is likely to be a formulation that will help treat knee OA," says Allan Mishra MD, an adjunct clinical associate professor of orthopedic surgery at Stanford University Medical Center in Menlo Park, California who spoke at the forum. "But it's not quite ready for prime time in knee OA because we haven't had it replicated in studies."

Forum members also stressed that not all PRP is the same, since concentrations can include varying amounts of platelets and white blood cells. That prompted Dr. Mishra to create a classification system for researchers, published in the June 2012 issue of *Current Pharmaceutical Biotechnology*.

"This is crucial because people want to paint a broad brush - does it work or not - and you have to say what type of PRP and for what," Dr. Mishra explains.

He says the good news for patients is that a lot more research is underway. But for now he and many others believe the vast majority of OA patients should remain cautious about PRP.

"If you have tried everything else and you are considering something highly invasive, it appears the data for PRP is reasonable," Dr. Mishra says. "But you need to be specific about what kind of PRP you are getting, and I'm just not sure it is ready for wide patient use in knee OA."