Platelet-Rich Plasma

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What are the indications for platelet-rich plasma (PRP) use?

The best present indications for PRP are in patients with chronic tendinopathies such as tennis elbow, patellar tendonitis, and Achilles tendonitis that have failed traditional treatments and are potentially considering surgery. It is important to emphasize that PRP should be reserved for those patients who do not get better with rest, activity modifications, and a directed exercise program.

How does PRP enhance the healing process?

Platelet-rich plasma enhances the healing process via a variety of mechanisms. The precise mechanisms are still being investigated. It is clear, however, that within platelets and white blood cells are growth factors that help initiate positive tissue healing responses such as promotion of collagen production and enhancement of vascularity. Importantly, not all PRP is the same. Some formulations contain both concentrated platelets and concentrated white blood cells. Others contain only concentrated platelets. And the concentration of these components varies widely by the device that is used to create the PRP. Further, some studies activate PRP with thrombin and or calcium. This creates a gel that cannot be injected. Other studies rely on in-vivo activation via the endogenous collagen within the tendon. These various formulations have different levels of bioactivity. As we move forward with PRP research, it will become clear to researchers, clinicians, and patients that formulation matters. We will likely see different formulations of PRP for different indications.

Why is PRP an attractive treatment option for athletes?

Athletes of all competition levels are early adopters of novel treatment methods. They are driven to find less invasive methods of injury management and faster means of returning to their sports. If they can find a safe and legal means of enhancing their recovery after an injury, they will use it.

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Is PRP a better solution than cortisone for treating tendon injuries? If so, why?

Platelet-rich plasma is clearly a better treatment for tendon injuries than cortisone. A recent double-blind randomized trial found significantly better outcomes in the treatment of tennis elbow in patients who received PRP when compared to cortisone. There is also a risk of dermal atrophy or even tendon rupture when using cortisone. For these reasons, I rarely, if ever, use cortisone in the treatment of a tendon problem in my practice.

What role does ultrasound play in the use of PRP?

Ultrasound has already emerged as a excellent way to precisely guide PRP injections. In the future, it will also be used to document tendon lesion size and changes it over time. It may be possible to use ultrasound as an objective measurement of whether and how PRP improves tendon structure and function.

Has PRP been shown to be more successful in contributing to the healing process of some injuries compared to others?

Yes, tennis elbow has the best data supporting the use of PRP presently. The use of PRP in mild to moderate Achilles tendinopathy patients that have not been treated with other means is not supported in the literature. We need to continue to develop better data to fully answer that question.

What complications and risks are associated with the use of PRP?

Platelet-rich plasma is an autologous product produced and then used immediately at the point of care. For these reasons, it is a very safe treatment. Platelet-rich plasma will have variable efficacy based on formulation and indication, but its safety profile is very high. I have noted transient pain, stiffness, and swelling but no significant complications in over 9 years of using PRP as a treatment for tendinopathy.

What does the future hold for PRP?

We are just beginning to understand the potential value of PRP. It may be useful for a variety of conditions, such as partial rotator cuff tears, partial tears of the ulnar collateral ligament of the elbow, and medial collateral ligament tears of the knee. The most exciting area of future research with PRP is likely to be in conjunction with cartilage restoration. We need, however, to base our PRP indications on high-level science, not anecdotal data in the lay literature. This will take time and money to conduct the proper studies.

Presently, many people think all PRP is the same. This is simply not true. As we better understand how PRP works, we will be able to design more specific formulations. Specifically, we need a better understanding of how platelets and white blood cells interact. Platelet-rich plasma also needs to be directly compared to surgery for chronic tendinopathy. It may emerge as a better and less expensive option.

REFERENCES