

PLATELET RICH PLASMA

Advanced Care for Your Orthopedic Patients

A promising
treatment for
keeping canines
active...longer.



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ORTHOBIOLOGICS, such as platelet rich plasma (PRP), are being used more frequently in veterinary medicine to treat pets suffering from certain orthopedic conditions.

If you have considered this therapy for your patients, read on to learn more about the process, and the conditions that benefit from PRP.

What is platelet rich plasma?

PRP is blood, typically derived from the patient, that has been processed, most commonly using centrifugation, to contain a higher platelet concentration than the whole blood. PRPs vary in their cellular composition but, in general, the objective is to create a plasma solution that contains a supraphysiologic platelet concentration, minimal to no erythrocytes, and a variable leukocyte concentration that can range from greatly reduced to greatly increased to the amount in whole blood. The goal of PRP regenerative therapy is to deliver anabolic growth factors to injured tissues to stimulate healing and decrease inflammation, which may help address challenging orthopedic conditions in small animal veterinary medicine.

Dr. Kurt Schultz explains, “We collect a blood sample from a patient, usually between 10 and 60 mls, and use special centrifugation methods and additives to produce a specific concentration of certain blood cells. PRP is the resulting platelet concentrate.”

How does PRP work?

When trauma occurs, platelets are among the first responders that migrate to the injury site and provide a critical hemostatic function. Platelets also release growth factors, including platelet-derived growth factor, that transforms growth factor beta and vascular endothelial growth factor to stimulate the healing process. These growth factors stimulate new blood vessel formation, trigger mitosis and macrophage activation, and increase collagen production from fibroblasts. Delivering PRP directly can help the tissue heal better and faster, with no risk of disease transmission or immune reaction because the patient’s blood is used.

Based on Dr. Nina Kieves’ experience in this promising treatment, “The idea behind PRP is to condense the anti-inflammatory growth factors found inside platelets so that when we put them in an injured tendon or an arthritic joint, they can help by decreasing the inflammation present and supporting healing.”

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Dr. Samuel Franklin adds, “When platelets are activated, they release growth factors that stimulate cells to proliferate and multiply, potentially leading to more robust tissue healing.”

When do you use PRP?

PRP applications in small animal veterinary medicine are ever expanding, but the current most common uses include:

- Osteoarthritis management — Articular cartilage possesses poor healing qualities, and the structure’s avascular nature severely limits the efficacy of systemic treatments. Delivering growth factors via PRP directly to the joint surface is advantageous in promoting repair.
- Tendon and ligament repair — The vascular supply to tendons and ligaments is typically deficient, limiting their intrinsic healing capacity. Administering PRP locally to injured tendons and ligaments may help facilitate tissue vascularization and/or fibrosis and repair.

“We use PRP quite frequently in our clinical practice. We commonly use it for osteoarthritis coupled with other tools in our arsenal, such as anti-inflammatory oral medications, weight

management, and physical therapy, to help strengthen muscles. The PRP works at the joint level, rather than systemically, to help address the problem. The other big area where we use PRP is for tendon injuries to help stimulate healing locally.” - Dr. Nina Kieves

“PRP could be used in almost any large tendon or major joint of the limbs.”

- Dr. Franklin

“The two primary times we use PRP are when current treatments for osteoarthritis are inappropriate or inadequate for the animal to maintain function and quality of life, and in certain situations for tendon or ligament repair.” - Dr. Kurt Schulz

What are the indications for PRP?

Most pets suffering from osteoarthritis are PRP candidates, and most research has been focused in this area. Tendon conditions, such as shoulder tendinopathies and Achilles tendon injury, are the second-most common area of concentration and may benefit from PRP, often in conjunction with surgery. Limited investigation to determine if PRP could be helpful has also been performed in other areas:

- Corneal ulcers — A 2021 study¹ demonstrated that PRP injected subconjunctivally can effectively treat corneal ulcers in dogs and cats.
- Wound healing — A small 2020 study² suggests that PRP may enhance wound healing in dogs.
- Bone healing — A 2019 study³ demonstrated that PRP injection can accelerate bone healing in dogs with acute bone fractures.
- Prostatic cyst treatment — In a 2018 study,⁴ PRP was injected into 10 dogs who had prostatic cysts, and all resolved. However, the study didn’t compare the results with other treatments or no treatments, so the significance is unclear.

The PRP studies data are promising but extremely limited. More research is needed before these applications can be recommended.



Hang the poster on the reverse side in your treatment area for quick reference.

Where can PRP be used?

PRP can be used throughout the body but should be applied according to published research results to ensure your patients' best outcomes.

"For tendon injuries, we most commonly use the treatment for shoulder and Achilles tendon injuries, and any joint that has arthritis can be amenable to PRP," states Dr. Kieves.

What is the process for PRP treatment?

The PRP treatment process for a pet takes about 15 to 60 minutes, depending on the system used, and includes:

- Sedation — The pet may be sedated or anesthetized, depending on their temperament and treatment area.
- Blood draw — Blood is aseptically drawn from the pet.
- Processing — The blood is processed, typically by centrifugation.
- Injection — The PRP is aseptically injected into the affected tendon or joint.
- Exercise restriction — The pet's activity is restricted for one to two days, per most veterinarians' recommendations. Some patients can experience mild discomfort with joint injections for ~24–72 hours. Pain management such as an oral NSAID (if appropriate for that patient) can be prescribed.

Most pet owners report their pet has improved two to three days after treatment. Some report a relapse two weeks after PRP treatment but then seeing a sustained benefit. Some pets may need a second PRP treatment to see clinical results.

Therapeutic effects can last up to five months, or as long as 12 months, depending on the application and assessment method.⁵

What is the best PRP type?

"PRP is a general term, and many systems are available that produce disparate PRP products," notes Dr. Franklin. "Efficacy may vary depending on which PRP is used. More research is needed to determine which PRP type is the best for each application, but leuko-reduced PRP may be best for intra-articular treatments, and leukocyte-neutral or leukocyte-rich PRP may be best for chronic tendinopathies."

Success with PRP

Dr. Kieves, has an older agility patient who needed two TPLO surgeries for cruciate injuries. "After three or so years, he started to have arthritis in those knees, which isn't uncommon. We injected PRP in his knees, and the treatment has helped him continue to compete."

On of Dr. Schultz's patients, Molly, is a four-and-a-half-year-old golden retriever with elbow dysplasia who enjoys hiking up 4,000 foot peaks with her owner. "She had been managing anti-inflammatory medication well but recently struggled on the hikes. We repeated our arthroscopy on her elbow joints and administered two PRP treatments. We haven't cured Molly, but she seems to feel more comfortable on the hikes and is doing much better," he states.



Snap this code to access "Clinical Concepts in Platelet Rich Plasma" or visit bit.ly/3dYSdTm

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Sources:

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