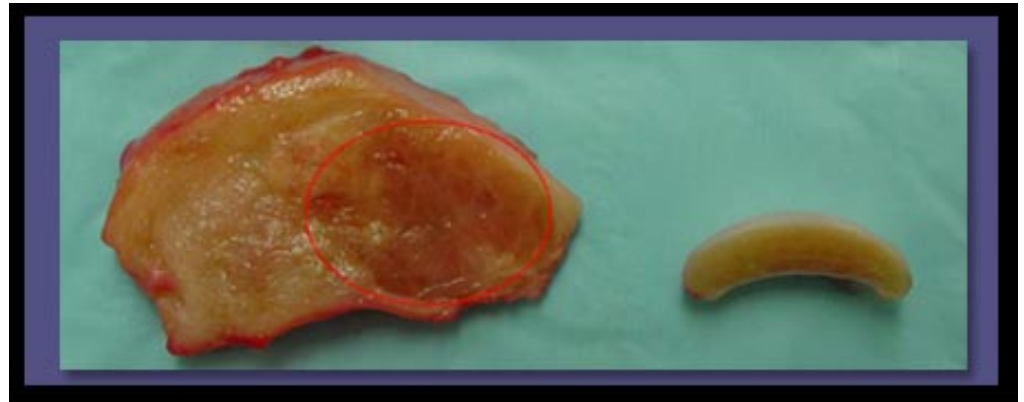




PLATELET RICH PLASMA FOR TENDON AND SUSPENSORY LIGAMENT REGENERATION:

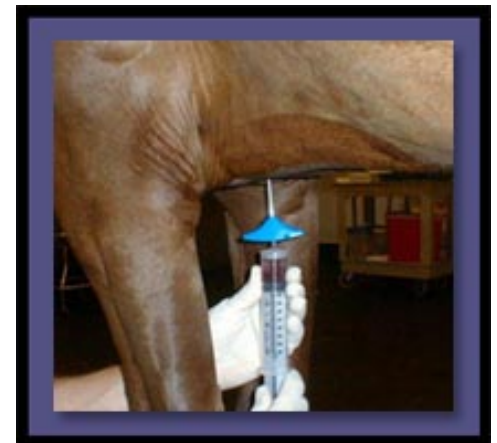
Tendonitis of the superficial digital flexor tendon (bowed tendon) and suspensory ligament desmitis are common injuries of athletic horses that can be recalcitrant to treatment, resulting in significant economic loss to the equine industry. In addition to loss of performance due to suspensory desmitis, suspensory ligament injuries are believed to predispose horses to catastrophic breakdown injury and condylar fractures.



A bowed tendon specimen (left) with a core lesion (red circle) compared to the normal tendon (right) from the opposite leg.

Traditional approaches to tendonitis/desmitis include therapy such as icing and bandaging. While such methods of treatment are valuable, they do not focus on improving the cellular response to injury. Enhancing the healing response on a cellular and molecular level may ultimately improve the quality of repair, improve the prognosis for return to performance, and decrease the incidence of re-injury.

Numerous growth factors have been investigated to enhance the synthesis, and diminish the loss of tendon/ligament tissue. The use of bone marrow aspirates to deliver a combination of growth factors has been used clinically for the last 10 years for treatment of equine suspensory ligament desmitis. Most recently, the use of platelet rich plasma (PRP) has been investigated for augmented tissue repair in human oral and maxillofacial surgery.



Aspiration of bone marrow from the sternum.

PRP is exactly what its name suggests. The substance is a by-product of blood (plasma is the straw-colored liquid in which the blood cells are suspended) that is rich in platelets. PRP is generated through a simple centrifugation of blood.



Injection of bone marrow into a bowed tendon.



Platelet rich plasma (PRP) isolated using a commercially available kit (Harvest Tech) and ready for injection.



Brain Miller, laboratory Research Support Specialist II, culturing tendon and suspensory ligament for testing the effects of platelet rich plasma on cell metabolism.

In the body, platelets perform many functions, including formation of a blood clot and release of growth factors into a wound. The rationale for the use of PRP in the treatment of tendonitis and desmitis arises from the combination of growth factors released from the platelets at the site of injury. Two additional incentives for using PRP in tendon and ligament repair include its availability (PRP is made patient-side by simple centrifugation) and that it will not be rejected by the patient's immune system since it is made from the patient's own blood.

We are performing studies to determine the effects of PRP compared to bone marrow on the metabolism of equine tendons and ligaments. The expectation is that these studies will provide clinically relevant information regarding the efficacy and potential safety of blood-derived products for tendonitis and desmitis.



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For more information,

[Read the proposal](#)