

## **A day in the life of a rehabilitation veterinarian**

As rehabilitation veterinarians, we see a great variety of cases, not just the post-surgical knee or patient with paresis. Below is a taste of a few cases at the rehabilitation and sports medicine clinic.

About half of our patients come to us with a firm diagnosis – our task is improving comfort and function. Some of the remaining cases are patients who have undefined soft tissue injury. Diagnostic ultrasound is used frequently to pinpoint soft tissue diagnosis. This is not just so that we can hone in on a tiny structure, it is so that we can correctly treat the tissue and monitor response to therapy. The density and fiber orientation of a tendon seen on the image correlates with the strength of the tendon. Choosing the right treatment is vital, reimaging can guide return to function, minimize recurrence and result in a more accurate prognosis. We can choose from shockwave therapy, therapeutic ultrasound, or regenerative therapies such as platelet rich plasma.

Generally, shock wave therapy is used to stimulate healing of tendons. A dog with supraspinatus and infraspinatus tendon tendinopathy is an excellent candidate for this. Shock waves are high-energy, high-amplitude sound waves - effects of shock wave therapy include modulating inflammation, short term pain relief, realignment of tendon fibers and improving local blood supply, which in turn should stimulate healing. Diagnostic ultrasound confirms the depth of the target tissue as shockwave is highly focused.

Therapeutic ultrasound is used more for muscle injuries, when used in thermal mode it helps to break down fibrous tissue and allows collagen to re-align while improving blood flow to ‘reset’ back to the proliferative stage of healing. Best case scenario, we get breakdown of scar and regeneration of muscle tissue. Second best, we get a stretchy, functional scar of fibrous tissue that moves with the muscle (confirmed with diagnostic ultrasound). At the clinic we have followed about 125 cases long-term (years) after this treatment and have an 86% success rate for this therapy.

A patient with confirmed or presumptive intervertebral disc disease will present with discomfort and possibly nerve dysfunction. We use a comprehensive approach of multimodal pain management, which can include TENS or pulsed electromagnetic field therapy for home care to supplement medications (these modalities block pain essentially by jamming nerve signals). The patient will likely benefit from laser therapy in the clinic. Low level laser therapy has been shown to reduce inflammation, modulate signaling of pain nerves and to aid recovery of injured nerves. Laser is not effective unless the correct dose (allowing for attenuation) and correct target area is selected. Once pain is well managed then balance and mobility are gently assisted using therapeutic exercises both at home and in-clinic. Strength is gradually improved. Hydrotherapy may or may not be used, it is only a small part of the tools in our arsenal.

A fitness evaluation for a young dog who is going to start the sport of agility. We take baseline measurements and assess the dogs’ fitness level by challenging core muscles, balance and fine motor control. A plan is formulated which changes as the puppy grows, there are detailed instructions age appropriate activities. Even young adult dogs should not be exercised the same as mature adults due to possibilities of overloading juvenile joints, tendons and bones. A training

program is a progressive loading of the tissues, while allowing time to strengthen in response to exercise.

Consultation for an orthosis for achilles tendon insufficiency. Orthotics are used to either correct or accommodate the affected limb after a traumatic event or surgery. This patient had achilles tendon surgery and so the orthosis was used to support and protect the tarsus and Achilles tendon. The tendon can be loaded progressively by modifying the device, strength builds in response to load provided that load is small enough. Most patients with achilles tendon tears or tendon damage will be highly prone to re-injury. Many cases end up using a 'sport brace' for running activities long term.



Laser Therapy



Shockwave Therapy



Therapeutic Ultrasound