What does physiotherapy involve when my dog is staying in hospital?

THE NEUROLOGICAL PATIENT

Many of our client’s dogs begin their physiotherapy journey without their owners, while they are staying in hospital after major surgery. This is an emotional and stressful time for owners and animals. We would like to reassure our veterinary colleagues that we pride ourselves on providing these acutely ill dogs physiotherapy care of a very high standard. We believe that in many cases, early physiotherapy, while the dog is very early in the post-operative or post injury phase, sets up the dog and owner for a successful and co-ordinated approach to the recovery phase.

There is a growing body of scientific literature in the human domain supporting early mobilisation and early rehabilitation after a critical illness. This literature demonstrates that early mobilisation reduces secondary complications of immobility, improves long term quality of life, reduces mortality and also hospital length of stay. We don’t have evidence of this yet in the animal domain, but there are certainly principles that can be extrapolated across species (Hachem, Ahuja & Fehlings, 2017, Hashem, Parker & Needham, 2016, Needham, 2008).

Most commonly, conditions that are seen by physiotherapy while they remain in hospital includes animals with spinal conditions such as IVDD (intervertebral disc disease), and FCE (fibrocartilaginous embolism), multi-traumas with fractures, pelvic traumas, and total hip replacement. This article will more specifically address the early post-operative or post injury period for neurological patients such as post-surgical IVDD, FCE, and low volume high velocity disc disease.

Early in the post-operative or post injury period, pain relief is paramount. Pain may be from the surgical site itself, surrounding muscle spasm, secondary compensations, fatigue, soft tissue injury, or recumbency. Most of these animals will be on pharmacological agents for pain relief, but physiotherapy modalities can also be successfully used to address pain. These may include heat, massage, gentle movement/exercise, manual therapy, low-level laser therapy, and acupuncture. In particular, in recent years’ low level laser therapy has evolved as an in demand and effective therapy for pain relief. Additionally, laser therapy has been demonstrated to enhance neuronal cell metabolism, reduce glial scarring as well as the secondary damage caused by acute inflammatory response. Draper et.al 2012 have also shown that low level laser therapy can reduce the time to ambulation in dogs after hemi laminectomy. These dogs were treated within 1.5 days of duration of clinical signs (Draper, Schubert, Clemmons & Miles, 2012).

The goal of physiotherapy after managing pain, is the restoration of function. This can be a long process in the neurological patient. This process is important to begin as early as possible in the post injury phase. We can prevent secondary problems such as pressure injuries and contractures, and establish a good foundation to build the recovery process.
Some symptoms of neurological dysfunction in spinal injured dogs that can be addressed by physiotherapy includes:

- Increased or decreased resting muscle tone. Reduced muscle tone will result in the dog being unable to move or protect their joints. They are at risk of muscle contracture due to poor positioning and also injury due to an inability to protect their joints. Increased muscle tone will appear as stiff or with spasticity, and unable to bend their joints. These animals are also at risk of contracture due to abnormal movement patterns and function can be severely limited due to increased tone/spasticity. Normalising the resting tone of the dog is an important part of restoring active movement. Stimulating dogs with low resting tone using electrical stimulation, reflexes, gravity and other sensory stimulation techniques (e.g. vibration using an electric toothbrush) will “wake up” the muscles so that movement and stability can occur. In dogs with increased tone, movement is difficult as they do not have the strength or control to overcome the high resting tone. Reducing this increased muscle tone through massage, stretches and combination movements can allow the animal to begin using voluntary movement to move the limb. (Drum, 2010, Smania et al., 2010)

- Reduced sensation in the limbs. This may be a reduction in light touch sensation, or light touch and pain (deep or superficial). The physiotherapy assessment will continuously assess these deficits and institute treatment to address this. In the initial phases the simple addition of vibration therapy to the limb can stimulate involuntary reflexes to encourage normal active movement patterns. This can also assist in reducing upper motor neuron tone (Drum, 2010).

- Loss of voluntary movement. Physiotherapy assessment will look for and identify loss of voluntary movement. This will usually be assessed in both weight bearing (standing and walking), and gravity eliminated positions (lying down/recumbent). Physiotherapy techniques that may be used to encourage movement may include the use of NMES (neuromuscular electrical stimulation). Reflex stimulation may be utilised to encourage active movement of the limb and postural reflexes (including antigravity reflexes) are utilised to provide stimulation to the neurological system (Drum, 2010).

Retraining the neurological patient focuses on functional tasks. Can the dog sit up from lying down, can the dog sit independently, can the dog stand? Neurological rehabilitation in humans overwhelmingly supports task specific exercise and repetition. This means that basic functional tasks and movement patterns are broken down and their components are practiced repeatedly. The dog may require assistance to move into a position (e.g. sit) and then the components of standing will be practiced – shifting weight forward, extending the hind limbs etc. All these functional tasks are broken down into components that the dog is able to do, and these are trained until the components are put back together to achieve a functional task e.g. side lying to sit. Exercises and home programs are targeted towards these functional tasks (Drum, 2010, Hashem, Parker & Needham, 2016).

Long term, restoring stability to the spinal column is also important. These exercises will focus on control of movement in many different planes (Boström et al., 2019). Even dogs with irreversible spinal cord lesions can benefit from physiotherapy. Gallucci et al., 2017 demonstrated that early physiotherapy in dogs with irreversible spinal cord lesions was positively associated with the time to achieve spinal walking.
Ideally a long consult between owner and physiotherapist will occur prior to discharge. This is our opportunity to provide them with all the information they need to set themselves up at home, including an extensive home physiotherapy program. Lots of advice and education is provided during this consult and it also gives the owner the chance to practice handling the dog and doing the exercises with the supervision of the physiotherapist, as there can be a lot of worry from owners about handling their injured dog.

Rehabilitation is best started early, and the intensity of rehabilitation should be, well, intense during the early post injury phase as this is when the most amount of recovery occurs. Ideally we like to see clients weekly initially (or more regularly if required), and this can be worked out with your physiotherapist at discharge. Physiotherapists working together with owners and the veterinary team is vital to provide the highest level of care to these complex patients. We are here for you, and please feel free to get in touch with us at any stage to discuss the needs of your dog or client.

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References


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