

## CHAPTER 1

# Introduction

All professions develop and evolve as new research is conducted; pioneering techniques become everyday techniques and in veterinary medicine, the use of physiotherapy to complement current treatments is becoming more widely recognised and utilised. Many owners are becoming more aware of physiotherapy through magazines, dog training clubs, social media and word of mouth that often they seek out physiotherapists and are asking whether it could be beneficial for their pets. Physiotherapy must always be carried out after a veterinary consultation and with veterinary consent. It is important to seek out appropriately qualified practitioners to carry out physiotherapy in order to ensure that no harm will come to animals during treatment. This textbook aims to introduce physiotherapy, discussing and outlining its basic principles.

Physiotherapy is defined as the therapeutic use of physical agents or means, such as massage or exercises, to treat disease or injury. It is an extremely useful adjunct to medicine, human and veterinary. The aim is to restore mobility/function and quality of life to patients. This is done by stimulating the healing process to restore injured tissues, improve the balance/strength of the injured tissues and stabilising the cardiorespiratory, neurological and musculoskeletal systems. Physiotherapy also has an important role in optimising performance and injury prevention in sporting and working animals. It can be performed on any animal, but the majority of cases seen in small animal practice are dogs.

Physiotherapy is often used to correct complications that may have occurred as a result of surgery; however, if introduced early and appropriately, these complications can be avoided. The rehabilitation must be of the highest standard to fulfill the expectations of owners and veterinarians alike. For example, following TTA surgery, physiotherapy will aid correct gait re-education-whereas without physiotherapy, the animal may adopt an adaptive gait pattern.

Physiotherapy can be beneficial for animals in a wide range of conditions. Traditionally, physiotherapy is divided into a wide variety of specialties. In veterinary medicine, we could see the following divisions:

- Musculoskeletal.
- Respiratory.
- Orthopaedics.
- Neurological.
- Sports medicine.

---

*Practical Physiotherapy for Small Animal Practice*, First Edition.

Edited by David Prydie and Isobel Hewitt.

© 2015 John Wiley & Sons, Ltd. Published 2015 by John Wiley & Sons, Ltd.

Companion Website: [www.wiley.com/go/practical-physiotherapy-for-small-animals](http://www.wiley.com/go/practical-physiotherapy-for-small-animals)

## 2 Chapter 1

- Elderly care/geriatrics.
- Developmental problems.

*Musculoskeletal:* Most people consider this as ‘traditional physiotherapy’. The conditions seen can be split into soft-tissue injuries, such as sprains/strains or ruptures of ligament, tendon or muscle; bursitis and bone or joint injuries, such as fractures (Figure 1.1) or joint disease, such as OCD. The injuries may be a result of either a traumatic event or overuse, where the owner cannot recall the specific onset of symptoms.

*Respiratory:* This is the acute care of animals in hospital; it could be post-anaesthetic recovery or ventilated animals. Physiotherapy is aimed to manage secretions, prevent pressure sores, prevent atelectasis, reduce the work of breathing and optimise the ventilation/perfusion ratio to ensure high oxygen saturation levels. These aims are achieved using positioning (for pressure relief, postural drainage or to influence ventilation/perfusion ratio within the lungs), manual techniques such as percussion (Figure 1.2) or vibrations to remove secretions, neuromuscular techniques such as rib springing to increase lung capacity and manual hyperinflation or bagging to improve ventilation and aid secretion removal.

*Orthopaedics:* Physiotherapy following surgery is used to maximise the success of surgery. By working with the surgeon, the recovery can be optimised. Orthopaedic surgeons may have their own protocols for rehabilitation following surgery and knowledge of these protocols is needed by the owner and therapist before embarking on a rehabilitation programme. These protocols guide the therapist on how much weight can be put through the leg and when different exercises can be introduced.



**Figure 1.1** *Post fracture.* This picture shows an Alaskan Malamute following a femoral fracture after being kicked by a horse. The main aims of physiotherapy for this dog are to improve its weight bearing on the leg and increase its muscle mass/strength.



**Figure 1.2** *Respiratory physiotherapy.* Following anaesthesia any animals requiring ventilation have the potential to develop retained secretions. Ventilated animals will also be sedated and therefore not move around, which can cause secretions to pool in the lungs and need removal.

*Neurological:* Neurological physiotherapy is the rehabilitation of the animal following neurological injury, which can involve single limb or whole body. Neurological damage can be managed conservatively or surgically and may completely resolve or can leave lasting damage. The amount of initial damage usually has a significant impact on the amount of recovery that can be achieved. Long-term solutions to permanent damage sometimes have to be sought, such as wheels, harnesses or splints, to support the animal's everyday activities (Figure 1.3).

*Sports medicine:* The preparation of an animal for athletic activity is extremely important requiring physical training, skill training and cardiovascular training. Physiotherapy can help guide owners on appropriate conditioning programmes for certain sports and specific to the animal being trained. Different sports will place very different demands on a dog, for example, the endurance capability of a sled dog opposed to the speed of a racing greyhound.

The rehabilitation of sports injuries is also extremely important as often these animals are not lame but subtle changes in muscle tightness can affect their performance.

*Elderly care/geriatrics:* As pets (and owners) are living longer now, there is a high population of arthritic animals seen in clinics; they can often have other



**Figure 1.3** *Neurological physiotherapy.* After a neurological event, physiotherapy can aid recovery by providing sensory input and re-education of normal movement.



## 4 Chapter 1

---

co-morbidities such as diabetes that can complicate the rehabilitation process. The provision of a holistic approach to managing these animals, using tools such as Aim OA (<http://aimoasys.com/why-aim-oa/>) will mean they can stay comfortable and functional for longer. The AIM OA website is available for veterinary practices to help provide holistic care for the elderly and arthritic animals. It uses a management strategy encompassing pain relief, exercises, diet and environmental factors.

*Developmental problems:* A large number of young animals are seen with genetic/developmental problems, and they benefit greatly from physiotherapy to support their joints. Conditions such as hip and elbow dysplasia are often seen. Physiotherapy can improve their quality of life and prevent further problems or surgeries such as total hip replacements.

### The benefits of physiotherapy

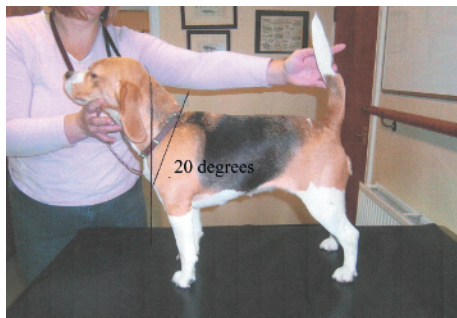
Physiotherapy can be of benefit to all animals; however, the choice of treatment can be limited by any concurrent disease or illness. The behaviour of an animal, the level of understanding of the owner and their emotions can all influence the success of physiotherapy. For example, a nervous owner will unsettle the animal causing it to become tense which can adversely affect the examination and subsequent treatment session. The objective of physiotherapy is for the animal and the owner to be part of the treatment and it therefore must be as least stressful experience for both of them as possible.

The objectives of a rehabilitation programme are to reduce pain, restore movement, improve gait, increase muscle strength and improve function. From these broad objectives, the formation of a rehabilitation programme will be tailored to suit an individual's situation and take into account the many factors that influence rehabilitation.

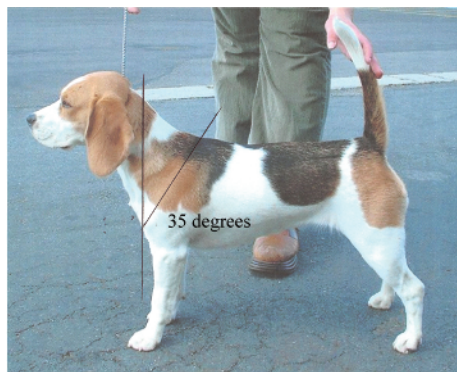
The knowledge of the healing process (which is outlined in Chapter 3) can help maximise strength of healing tissues following injury and prevent complications arising from the healing process. This is achieved by giving appropriate physiotherapeutic intervention at an appropriate time.

The examination (which is outlined in Chapter 4) of an animal will help identify not only the injury that it has been referred to physiotherapy for, but also any compensations that have occurred as a result of that injury. The physiotherapist will also assess the animal's conformation and posture as this is the cornerstone for good movement. A poor conformation can tighten muscles, and chronically tight muscles can alter bone alignment, which in turn can complicate rehabilitation. Understanding movement, posture and conformation means the animal will be treated holistically and this can improve the long-term prognosis for an animal (Figures 1.4 and 1.5).

When treating animals, it is also very important to educate the owners on how they can help the rehabilitation process, through a home exercise programme and self-management strategies. It is important to understand the clients' expectations of physiotherapy and their goals/aims for the animal. The introduction of physiotherapy at the appropriate time will often promote the safe return to function or activity at the earliest time.



**Figure 1.4** *Poor conformation.* This shows poor conformation where the angle of the joints is not ideal leading to muscle imbalance that can cause dysfunction and pain.



**Figure 1.5** *Good conformation.* An animal with good conformation is less likely to have injuries and develop problems as its muscular and skeletal systems are in balance.

In elderly patients or those with a chronic problem, an ongoing physiotherapy programme will maintain the function of an animal for as long as possible. It is particularly useful in these cases to educate the owner on adaptations that can be made in the home environment to support their animal, such as the provision of rugs on slippery floors and placing the animal's bed out of drafts to ensure they do not get cold and stiffen up overnight (in arthritic animals).

Physiotherapists are trained to conduct specific and progressive rehabilitation programmes based on evidence-based treatments. By setting goals throughout the treatment process, the owner (and therapist) can monitor the progress of the animal towards the completion of treatment.

Physiotherapy is used to maintain soundness in competition animals by training owners to be able to recognise signs of reduced performance and educating them on warm ups or stretches for their animals. The provision of competition-specific conditioning programmes for athletic dogs and preseason checks will help to prevent injury. These checks will help to identify any areas of the dog that show subtle changes



## 6 Chapter 1

---

in range of movement that could be caused by trigger points in the muscle, which, if treated, will not cause loss of performance.

### Contraindications

There are numerous contraindications to specific physiotherapeutic techniques and they are addressed individually within the relevant chapters. There are certain conditions where caution should be taken, these include:

*Pregnancy* – Manual therapies and certain electrotherapies are contraindicated due to the increased mobility around joints during pregnancy and the affect of electrotherapy on growing tissues. It is also worth noting that pregnancy of the owner needs to be known if using pulsed electromagnetic energy.

*Cancer* – If the patient has known metastatic disease, electrotherapy is contraindicated in that area and is questionable whether it should be used at all. The patient is also likely to fatigue easily, and hence exercise therapy needs to be kept gentle.

*Circulation problems* – Many physiotherapeutic interventions are used to increase circulation to aid healing. If the circulatory system could not withstand an increase in the area to be treated, then caution should be taken when choosing the treatment method.

*Myopathies* – Such as myasthenia gravis and exertional rhabdomyolysis need to be recognised and diagnosed by a veterinary surgeon. Physiotherapy is not indicated or appropriate in these cases. If a patient is referred to physiotherapy and is suspected to have a myopathy, prompt referral back to the veterinary surgeon is required.

*Behaviour* – Aggressive animals need to be treated with extreme caution. The aggression can be a sign of pain, which will reduce as the treatment progresses, however the therapist must be careful to protect him/herself at all times by the use of a muzzle and the owner handling the patient where possible. Some animals can become aggressive when placed in a clinical situation and it is important to recognise this and work with the owner to minimise the stress levels of the animal and work on desensitising the animal to the situation.

It is important to state that when working in rehabilitation, a close relationship between the referring veterinary surgeon, physiotherapist and owner is required. If a case is not responding to physiotherapy, further investigations may be required. For example, a case referred to physiotherapy for stifle pain that is not responding to treatment could be referred lumbar pain from spondylosis of that region.