Multimodal pain management of the physical rehabilitation patient, whether postoperative, post injury, because of a disease state or because of the aging process is necessary to ensure a comfortable and cooperative patient. Several veterinary specialty groups have pain management as a primary focus. They include:

- International Veterinary Academy of Pain Management
- American College of Veterinary Anesthesia and Analgesia
- American College of Veterinary Sports Medicine and Rehabilitation
- American Association of Rehabilitation Veterinarians
- Academy of Veterinary Technician Anesthetists
- Academy of Physical Rehabilitation Veterinary Technicians (currently in the formation process)

**What Are the Benefits of Physical Rehabilitation? (Sharp 2008; Riviere 2007):**

- Reduce pain
- Increase and maintain muscle strength and flexibility
- Joint mobility
- Promote and restore normal movement patterns
- Increase cardiovascular fitness
- Combat acute and chronic inflammatory processes
- Improve blood perfusion and consequently tissue growth
- Prevent adhesions, fibrosis and tissue retraction
- Stimulate the nervous system and prevent neurapraxia
- Promote the healing process

Topping off the list of benefits of physical rehabilitation is “reduce pain.” Reviewing some of the human literature in evidence-based medicine for pain reduction and physical (rehabilitation) therapy:

1. “There is platinum level evidence that land-based therapeutic exercise has at least short term benefit in terms of reduced knee pain and improved physical function for people with knee Osteoarthritis” (Fransen and McConnell 2008).
2. “Extended exercises in water and swimming have been shown to reduce edema, inflammation, and peripheral neuropathic pain in a research model” (Akyuz and Kenis 2014).
3. “The most effective and strongly supported treatment modality for patients with PFPS (Patellofemoral pain syndrome) is a combined physiotherapy program, including strength training of the quadriceps and hip abductors and stretching of the quadriceps muscle group” (Rixe et al. 2013).

The World Health Organization’s (1992) definitions for impairment and disability are pertinent to veterinary patients. Impairment is defined as “Any loss or abnormality of psychological, physiological, or anatomic structure or function.” Disability is defined as “Any restriction (resulting from impairment) of ability to perform an activity in the manner or within the range considered normal for the species” (Davies 2014a). If modified function was just a response to nociception (a painful, injurious stimulus), then analgesic medications would be enough, however, this is often not the case (Davies 2014a). Musculoskeletal pain can be a part of any of the rehabilitation conditions stated above. The causes of musculoskeletal pain are not fully understood but likely involve inflammation, fibrosis, tissue degradation, and neurotransmitter and neurosensory disturbances, and may include central and peripheral hypersensitivity and impairment of descending inhibition of incoming nociceptive impulses (Arendt-Nielsen et al. 2009).

“Remember that the credentialed physical rehabilitation veterinary technician is not to diagnose, prescribe, or perform procedures that are considered to be the practice of veterinary medicine; and will obey all individual state
and regional laws and regulations pertaining to the field of veterinary physical rehabilitation” (National Association of Veterinary Technicians in America 2009).

Veterinary physical rehabilitation is a discipline that encompasses the application of physical therapeutic and rehabilitation techniques (developed in humans) to animals whose comfort and function have been compromised in some way (Fox and Downing 2014). Generally, patients that present for rehabilitation therapy are reluctant to move. One of the major factors contributing to this reluctance is pain. “It is absolutely necessary that pain be controlled prior to initiation of physical rehabilitation” (Downing 2013). The credentialed rehabilitation veterinarian (CCRT/CCRP/CVMRT) will be gathering information that will influence the veterinarian’s treatment choices for individual patients. Patients experiencing acute pain following orthopedic surgery have different needs than the elderly dog experiencing the chronic maladaptive pain associated with long-standing osteoarthritis (Fox and Downing 2014). Additionally, patients may present already being administered various pain medications that the rehabilitation veterinarian may consider changing. If it is at all possible the rehabilitation veterinarian should be in contact with the surgeon before a surgical patient is referred for rehabilitation so that they are aware of the perioperative pain management plan. An excellent review of multimodal pharmaceutical management of pain can be found in Canine Sports Medicine and Rehabilitation (Epstein 2013).

While it is important for the credentialed rehabilitation veterinary technician/nurse to know and understand pain neurophysiology, neuropharmacology, and most drug doses, what is the main job that they will have as far as pain management is concerned? As quoted from the NAVTA Journal article in December/January 2014 (White 2014), “Pain plays a role in any patient’s willingness and motivation. A patient’s pain score should be assessed and documented in the medical record during each visit (American Association of Rehabilitation Veterinarians n.d.). A detailed history should indicate the degree of pain and the disability (Davies 2014a). How does the patient cope with the disability? If changes in a patient’s pain level are noted, the supervising veterinarian should be notified immediately. It is very important for the rehabilitation veterinary technician to remain in open communication with their supervisor about anything abnormal or any changes in progress” (White 2014).

**Recognition and Assessment of Pain**

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (IASP 2009). Pain motivates us to withdraw from potentially damaging situations, protect a damaged body part while it heals, and avoid those situations in the future (Lynn 1984). It is initiated by stimulation of nociceptors in the peripheral nervous system, or by damage to or malfunction of the peripheral or central nervous systems (Woolf and Mannion 1999). Most pain resolves promptly once the painful stimulus is removed and the body has healed, but sometimes pain persists despite removal of the stimulus and apparent healing of the body; and sometimes pain arises in the absence of any detectable stimulus, damage or pathology (Raj 2007).

Recognizing pain and assessing its intensity are both essential for its effective management. If pain is not recognized, then it is unlikely to be treated; failure to appreciate the intensity of pain will hamper the selection of an appropriately potent analgesic, raise doubts about the effectiveness of the administered dose, and result in less than optimal treatment (National Academy of Sciences 2009). A reliable method of pain assessment allows an appropriate analgesic regimen to be used and effectively evaluated.

The most common approach to pain assessment is the use of charts and scales. Are there limitations to Pain Scales (Fox 2014)?

1. Pain scales should be used in conjunction with a thorough physical exam and history to assess every patient
2. Recognize that all pain scales have limitations
3. Individual patient behavior may dictate prompt pain relief, regardless of the pain score
4. Caregivers should strive for low pain scores in a comfortable appearing patient

Pain Scales can be subjective such as visual analog scales (VAS); numerical rating scales (NRS) and simple descriptive scales (SDS) (Goldberg 2010).

**When Should Your Patient Be Assessed for Pain?**
New patients should have a detailed history to correctly identify the animal’s degree of pain and disability. Identifying how the patient copes with daily living activities creates a realistic picture of the patient’s disability. Information regarding the following should be gathered (Davies 2014a):

- Ability to ascend and descend stairs
- Ability to enter and exit vehicles
- Ability to cope with difficult surfaces such as wooden or tiled floors
- Ability to remain standing while eating
- Willingness to exercise and exercise tolerance
- Ability to remain squatting while defecating
- Ability to posture for urination
- Inappropriate elimination
- Willingness to play
- Change in demeanor
- Response to grooming
- Response or lack thereof to medication
- Effect of exercise on the lameness/pain
- Effect of rest on the lameness/pain
- Duration and intensity of the lameness/pain
- Changes in sleep patterns

**Feline Physical Rehabilitation**

Cats can benefit from appropriately planned rehabilitation techniques. Compliance with treatment is often less predictable than with dogs, and the success of therapy with cats demands a good understanding of feline behavior, coupled with excellent handling skills (Sharp 2012; Overall 1997).

**Points to Remember About Rehabilitation with Cats** (Sharp 2012):

- Physiotherapy and rehabilitation with cats requires a calm, confident approach. Treatment time should be kept to a minimum to prevent boredom and minimize handling. Competent and confident manual skills are essential to ensure effective treatment. Use a hands-off approach whenever possible.
- Treatment is best carried out in a quiet, calm environment with no distractions. Owner assistance can aid effectiveness of treatment and can ensure continuation of therapy between formal treatment sessions.
- Cats can be more cooperative with therapy than is often perceived. Do not disregard certain treatment modalities just because you think a cat would not accept the treatment—you may be surprised!
- Ensure that pain is not a restriction to the performance of a treatment or exercise. Adequate pain relief is essential for effective therapy. Repetitive attempts to perform a treatment on a cat that is in pain are doomed to failure, and may create resistance to any further attempts at the same treatment.
- Any physiotherapy and rehabilitation program should be tailored to the patient, based on the individual cat’s identified problems and needs.

**Equine Rehabilitation**

Equitation involves close contact between horse and rider. Most presenting horses are athletes of some form, thus the rider expects a full return of function. Because of this, the Certified Equine Rehabilitation Practitioner (CERP) must evaluate the horse, the farrier, the saddle fit, and the role of the rider in causing or magnifying the lameness (Davies 2014b). The rider may need to undergo their own rehabilitation program if problems are caused by the rider’s posture and balance.

**Conclusion**

The certified rehabilitation veterinarian, certified rehabilitation veterinary technician, physical therapist and owner must work as a team to have successful management of pain and restore the patient (no matter what species) to a functional life. Each animal should have its own tailored plan. Nothing should be “cookbook” in this process. The ultimate aim should be to restore the patient to an active and pain-free lifestyle, whether this is in the context of a slow leisurely walk or full athletic activity (Davies 2014a).

**References**

Riviere S. Physiotherapy for cats and dogs applied to locomotor disorders of arthritic origin. Veterinary Focus 2007;17(3): 32–36.


American Association of Rehabilitation Veterinarians (AARV) Model Standards for Veterinary Physical Rehabilitation Practice http://www.rehabvets.org/model_standards.lasso


