PHYSICAL THERAPY and REHABILITATION of TENDO AND JOINT DISEASE

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Rehabilitation example for grade one cranial cruciate ligament injuries

- mild swelling detectable at the parapatellar tendon
- mild discomfort on stress testing (unanaesthetised)
- partial weight-bearing use of limb

➢ Keep the dog on a leash for 2–3 months without exception

➢ Modalities that may encourage circulation to the cruciate ligament (exp; laser)

Cross-leg/diagonal-leg standing exercise

- Joint proprioception techniques such as joint compressions and cross-leg standing
- Strengthening of the adjacent musculature: up-hill walking (steep going up and gradual coming down).
- Balancing/coordination: walking on different terrain (i.e. To cause high stepping or somewhere with uneven footing), rocker boards, mini-trampolines, obstacle course and cushions off the couch, etc.

- At 2–3 months (individually based): add some ‘destination jumping’ (i.e. onto a bed or couch or over a small jump) and/or tug-of-war exercises if the dog is safe doing so.
- Supplementation: glucosamine HCl and methylsulphonyl methane (MSM)
- Owners must be educated to avoid throwing balls or playing ‘Frisbee’ with their dog for 4–6 months.

Osteoarthritis

- Osteoarthritis is characterised by progressive loss of articular cartilage, reactive changes at the margins of the joints and bones, and chronic joint inflammation.
- Clinical manifestations include aching discomfort that worsens with activity and is relieved by rest, a restriction of activity level, a limitation in the ability to perform, poorer proprioception, pain and discomfort, joint stiffness, effusion and enlargement, and loss of strength and flexibility.

- The goals for the treatment of OA are to improve the joint and overall function and quality of life of the animal,
- relieve pain and associated muscle spasm, maintain and regain joint ROM,
- improve joint health, strengthen supporting muscles,
- address proprioceptive deficits and advise on lifestyle modifications.

- ❖ Relief of pain may be accomplished by use of modalities; ultrasound, laser, PEMF, shockwave therapy and NMES
- ❖ Massage has been shown to reduce pain, increase pain tolerance and stimulate a release of endorphins, so long as regular massage sessions are administered
- ❖ Thermal agents such as heat or cold are both reported to have pain-relieving effects and application of each should be taught to owners and/or utilised as part of a therapy session

✓ Manual physiotherapy techniques such as joint mobilisations, stretching and joint traction/distraction have been found to be effective in improving function, walking tolerance and quality of life in humans and ROM in dogs.

✓ Thus weight management should be an integral part of rehabilitation of the osteoarthritic dog.

Physiotherapy management of fractures

- Ultrasound (US); Low-intensity, pulsed US (0.03–0.05 W/cm2 with a 1.0 MHz or 1.5MHz or 3.3MHz sound head used for 10–20 min per session daily, beginning day 1 post operative fracture repair) has been shown to stimulate endochondral ossification due to stimulation of bone cell differentiation and calcified matrix production by intracellular calcium signalling and incorporation in chondrocytes

- Laser: The use of laser has been reported to increase osteoblastic proliferation,
- collagen deposition and new bone formation, and increase bone stiffness by forming a smaller, stronger callus, with an increased amount of well-organised bone trabeculae
- Pulsed electromagnetic field
- Electrical stimulation (NMES)
- Shockwave therapy

PHYSICAL THERAPY FOR THE EQUINE BACK

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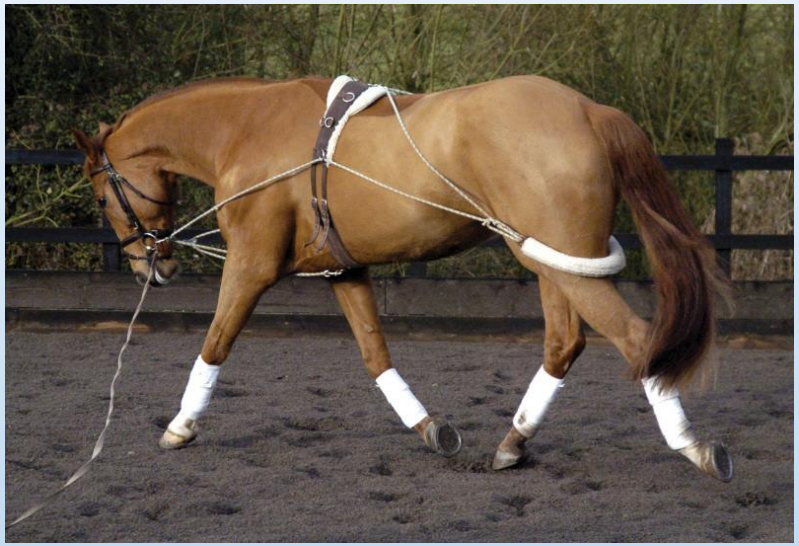
- Horses can suffer musculoskeletal pain and injuries anywhere along the axial skeleton that comprises the skull, vertebral column, sternum, and ribs.
- After a thorough clinical exam and movement evaluation, the first technique of rehabilitation of musculoskeletal disease is to obtain progressive movement and mobilization of the affected areas.
- Owners can perform various mobilization techniques when the horse is cold (before being exercised), warming up, and warmed up.

Before exercise

- Stretching exercises such as carrot stretches to engage the cervical (neck) and thoracic (mid-back) areas;
- Massage from a qualified physical therapist;
- Walking in-hand forward, backward, and on a figure-eight; and
- Keeping the horse’s back warm with a blanket or hot packs.

When the horse is warming up

- Electrical stimulation from a veterinarian;
- Applying weighted boots around the hind pasterns to improve proprioception (a horse’s awareness of where his feet are) and increase hip, stifle, hock, and ankle flexion;
- Working on a longe line with a training device such as side reins, a Chambon, a Gogue, or a Pessoa rig to encourage the horse to move and use his body properly.



once the horse is warmed-up

- Working on different footings and slopes: “Uphill work promotes engagement and abdominal wall contraction,” “Downhill work increases passive engagement and will be challenging for horses suffering from sacroiliac joint disease.
- Deep footing will make the horse elevate its hind limbs more. Firm footing increases vibration and is not indicated for horses with joint or bone diseases such as kissing spines and facet joint (between the vertebrae) disease.
- Trotting over poles to induce conscious proprioception and more hip and gluteal (hind end) muscle function.

- Massage can increase blood flow and identify muscle spasms. Many massage techniques are available, but this would be the first modality to offer to owners and grooms working on their own horses.

- Laser can be used to stimulate specific trigger (myofascial pain) points and aid healing.

- Electrotherapy uses various instruments such as transcutaneous electrical nerve stimulators (or TENS), interferential stimulators, neuromuscular and functional electrical stimulators, galvanic muscle stimulators, and microcurrent electrical stimulators to stimulate nerves and decrease pain.

- Kinesiotape applied to limit certain joints' movement can "relax or strengthen muscles, support ligaments, stimulate circulation, and decrease inflammation, depending upon how and where it's applied.

- Therapeutic ultrasound can increase blood flow, relax muscles, and stimulate trigger points.
- Shock wave therapy can help treat myofascial pain and muscle spasms.
- Magnetic therapy might enhance blood vessel formation.

- Cyrotherapy using anhydrous nitrogen can stimulate and relax sore muscles.

- Hydrotherapy, including water treadmill use and swimming, helps the horse strengthen his muscles without overloading the limbs.

- Saddle adjustment to ensure a proper fit can help avoid or eliminate muscle spasms.