

Rehabilitation of Equine Osteoarthritis

Osteoarthritis (OA) is a one of the most common performance limiting conditions in barrel horses, often resulting in poorer performance and early retirement. Most riders are well versed in the systemic joint supplements and joint injections utilized to keep their horses competing at a top level. These therapies are an important part of managing a horse with OA. Sometimes overlooked however are the rehabilitation options that are available to help prolong the functional use of the horse with joint disease.

What exactly are we rehabilitating in the horse with chronic OA? Compensatory lameness may result from the maladaptive use of the limbs due to overloading other joints and soft tissue structures. The adaptive muscle guarding results in delayed and decreased muscle activation and muscle weakness which further destabilizes the joint that the body is trying to protect. With altered limb biomechanics and restricted range of motion, the arthritic joint creates an environment that contributes to its progression and to pathology in other limbs. In this light, the goal of rehabilitation for the horse with OA should address not only the diseased joint but also the compensatory neuromuscular deficits as well.

Rehabilitation of the horse with OA needs to address the neurologic and muscular systems in a way that triggers the pathways to correct and strengthen muscle activation and enhance limb biomechanics over time. One of the most studied rehabilitation devices is the underwater treadmill.

A recent study performed at the Orthopaedic Research Center at Colorado State University suggests use of the underwater treadmill may be an effective tool for benefiting both the progression of OA in the joint and the associated com-

pensatory mechanisms. The water exercised horses showed less scarring and inflammation within the knee compared to the controls as well as increased range of motion and decreased offloading to other limbs. Underwater treadmill therapy should be considered for horses following arthroscopic surgery and as part of a maintenance program for horses with OA.

Swimming in a pool is another commonly utilized aquatic therapy for conditioning and rehabilitation. Horses are not natural swimmers. In order to swim the horse must maintain an elevated neck posture, a lordotic position of the spine, and utilize a violent kicking motion of the rear limbs. Pathologic conditions of the upper rear limbs (stifle and sacroiliac joints) and back may be exacerbated by swimming and should be avoided.

The functional taping technique has been widely used in human sports medicine as a way to improve neuromotor function. The tape works by applying tension along the kinesthetic fibers of a muscle which aids in neuromuscular control through proprioceptive feedback. The benefit of using functional taping techniques in the horse with OA is to target specific muscles or groups of muscles that have developed adaptive muscle guarding and delayed activation. The tape is sweat and water resistant and can be used while the horse is being ridden and in work.

Laser therapy which works through photochemical effects on cells has become a popular treatment in the horse industry over the last decade and has potential for improving function and decreasing inflammation and pain of the arthritic joint. Regular use of laser therapy on arthritic joints as well as use prior to competition in my experience has a positive effect in decreasing pain and increasing function.



There are numerous other treatments and therapies that can be utilized to improve compensatory proprioceptive and neuromuscular deficits including chiropractic, acupuncture, massage, muscle specific stretches, and postural conditioning exercises. Passive range of motion joint modulation can be beneficial in maintaining joint movement and periarticular soft tissue elasticity. Cold therapy can be beneficial to temporarily reduce inflammation and pain in the arthritic joint. Vibration therapy claims benefits for patients with OA but no substantial research exists to show the benefits. There are numerous other medical devices that are being utilized that make similar claims but again have little evidence to support their use. Hopefully over time these devices will be vetted and we can sort the wheat from the chafe.

Management of today's equine athlete with OA requires a comprehensive approach that utilizes appropriate systemic and intra articular medications, an exercise maintenance program that may include aquatic therapy, and numerous other rehabilitation modalities to treat compensatory and primary pathologies.

For questions regarding rehabilitation of equine osteoarthritis, please feel free to call one of Brazos Valley Equine Hospitals locations or visit bvvh.com.

References

¹King MR, Haussler KK, Kawcak CE, et al. Mechanisms of aquatic therapy and its potential use in managing equine osteoarthritis. *Equine Vet Educ* 2013; 25:204-209.