

The equine athlete – when to compete, treat, rehab or rest

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Management of the equine athlete is often fraught with anxiety as the horse either decreases in performance or when an acute lameness manifests. We are beginning to learn that, much like racehorses injuries, most injuries in all equine athletes are “fatigue” type injuries that occur over a time period before clinical manifestation of signs begin. The hope in the future is that we can take advantage of these early tissue changes in order to avoid clinical manifestation of injury. With this type of approach, active rest and rehabilitation will be important factors to avoiding further injury.

Rehabilitation in horses is often difficult because of the size and behavior of the horse, and the lack of objective data for guiding protocols. Consequently, owners are often faced with 2-6 months of hand walking and subsequent increase in exercise of a horse that has been confined to a stall and/or run during that time. The objectives of this presentation are to present information on the importance of exercise during the post-operative period, the importance of pain control and disease monitoring during this time, and information on practical methods of rehabilitating a horse from a musculoskeletal injury.

All musculoskeletal tissues respond in multiple ways to exercise. Lack of exercise or limb immobilization causes significant atrophy of all musculoskeletal tissues. This is the concern with stall confinement and restriction of exercise, which is a double-edged sword since restriction of exercise is needed to prevent further injury and allow damaged tissues to heal, yet normal tissues suffer from the confinement. Information is lacking on when tissues are healed to a point that exercise can be established, and veterinarians must rely on experience and subjective interpretation of clinical parameters to establish protocols.

Exercise is anabolic to all musculoskeletal tissues up to a certain point of strain and strain rate. Although cartilage, bone and soft tissues respond differently to various levels of mechanical stress, a particular threshold of stress can be reached at which exercise can be damaging to tissues either in the form of one-time strain or fatigue damage that accumulates over time, ultimately leading to gross damage.

Protocols for rehabilitation are often based on the nature of the injury and the clinical and imaging findings after surgery. Initial characterization of the injury by both imaging and surgical examinations allows the clinician to put the horse into a specific category of rehabilitation protocol. Combined with medical therapy, subsequent examinations are critical to success.

Acute Joint Lesions

Injuries that cause intraarticular damage are usually the end-stage of chronic fatigue damage, however, injuries from acute trauma do occur. Osteochondral fragmentation is common in racing breeds and the prognosis and rehabilitation protocols for these are well established. Relatively large retrospective studies have been performed, giving the industry good evidence of prognosis for various severity of lesions. Prognosis in most instances is related to the severity of articular cartilage damage. For those cases with small lesions and minimal damage, 2 weeks of stall rest followed by 4 weeks stall rest and hand walking are usually enough rest before the horse goes back in some kind of low level work, depending on the use of the horse. This can consist of small turnout, equiciser or riding. At this stage most performance horses go back under tack and trail ride or begin jogging. Cantering is not needed at this stage since the impulsive loading of jogging can begin to stimulate the healing of affected tissues and the nonaffected tissues. Recheck examinations typically occur at 2 and 6 weeks, and then at key times when increased exercise will occur. The goal here is to assure that no lingering lameness remains so the trainer can safely increase exercise. Intraarticular therapy may be needed at recheck points in order to reduce any transient synovitis that may occur. If the horse does well, but then begins to experience lameness, it is important to objectively characterize the source of pain. Equine athletes typically have soreness in several locations, and resumption of exercise after a layup will typically induce pain in other areas. As an example, if a horse has a history of sore hocks, then increased work after a long layoff will likely induce stress and pain in those hocks. This can often be a good sign during the rehabilitation phase, as the horse, in this example, has attained a level of conditioning that is typical of his work.

More severe lesions often require some form of biologic or nonbiologic therapy to reduce inflammation and pain in order to enhance the ability to perform rehabilitation exercises. Corticosteroids, hyaluronan, polysulfated glycosaminoglycans, IRAP, PRP or mesenchymal stem cells may be needed depending on the severity of damage. Regional venous perfusion with corticosteroids can also be used to try and reduce joint capsule inflammation and reduce pain. Joint capsule thickening is often involved with these cases, and immediate postoperative passive range of motion (60-90 flexions and extensions, asking for more flexion with time, twice daily are recommended) can be beneficial. However, medical augmentation with Surpass therapy is sometimes needed. In these cases, a dose of Surpass is applied to the site 30 minutes prior to exercise. At 2 weeks, this can be augmented with handwalking for 4-6 weeks, followed by riding.

Underwater treadmill therapy has gained popularity over the last several years, and objective data on its effectiveness is beginning to emerge. Various protocols exist, and the author typically begins therapy after suture removal at 2 weeks.

Acute joint injuries can be a challenge to manage since the severity of damage may not be fully characterized until weeks to months after the injury. Acute

osteochondral fragmentation typically occurs in unusual locations in the joint, and the unknown component of these injuries is the severity and extent of joint capsule damage. Enthesiophytes may not be visible for several weeks to months after injury, making an accurate prognosis difficult to give. In these cases, the author begins a course of regional venous perfusion with corticosteroids in anticipation of the problem. Postoperative movement is essential, and hand walking may begin soon after surgery along with passive range of motion exercises. Swimming can also begin at suture removal depending on the degree of articular cartilage damage.

Chronic Joint Lesions

Horses with chronic joint injuries are difficult to manage because they are often chronically lame with reduced range of motion. Therefore, the primary pain and disease process needs to be addressed, as well as the pain and physiologic changes at remote sites. This compensatory change in use can sometimes limit the successful return to exercise. However, it must be emphasized that with chronic lesions, a permanent change in limb use may result. Some horses are able to successfully perform with this in a humane manner. If articular cartilage lesions in these cases are severe, then exercise must be limited in the early phases so fibrocartilage can fill in the defect. However, passive range of motion, swimming and adjunct therapies such as chiropractic, acupuncture, etc may have some benefit at this stage. The author has recommended shockwave and laser therapies for these cases.

Adhesive tenosynovitis or bursitis

Horses with significant adhesive tenosynovitis or bursitis generally fall into 2 categories: those with associated tendon damage and those without. The former is difficult to manage, as the horse needs rest for the tendon, but requires motion for decreasing the chances of adhesion reformation. In these cases, the author uses intrathecal hyaluronan once weekly for 3 weeks starting at the time of suture removal and begins passive range of motion exercises days after surgery. For the latter cases, in which tendon damage is not present, the horse begins handwalking within days of surgery in order to load the limb and prevent adhesion formation. The medical therapy is also used, but an aggressive approach is used. Swimming, underwater treadmill therapy and early return to riding are used in these cases, and are guided by the horse's soundness. Combined therapies are also used, by alternating riding and water therapy.

Annular Ligament Desmitis

Horses that undergo transection of the digital annular ligament are aggressively put back into some form of work. However, care must be taken as some of these horses will get sore in the postoperative period. Intrathecal medication and followup ultrasound examinations may be needed in these cases.

Neurectomy and/or Fasciotomy for Proximal Suspensory Desmitis

The rehabilitation protocol for horses undergoing surgery for hind proximal suspensory desmitis depends on the severity of ligament damage. Those with chronically thickened ligaments are put back under saddle at suture removal and can be back into work in 4 weeks. The rehabilitation protocol for those with suspensory desmitis is dependent on the severity of damage.

Articular Fracture

Recent evidence has shown that most Thoroughbred racehorses with cumulative stress-induced injury in the third metacarpal condyles can return to work after 60-90 days of free-choice exercise. However, some require internal fixation if a fracture persists. Otherwise, most articular fractures require internal fixation to align the joint surface, then rest to allow for the formation of bone across the fracture. However, continued stall rest beyond a certain period can be detrimental to healing, therefore, so loading is required to stimulate full healing.

Fine Line Between Too Much and Not Enough

The most difficult part of instituting a rehabilitation program is determining when exercise can be increased. Diagnostic imaging and level of soundness can be used, but constant monitoring is needed to assure that too much, or not enough exercise are being used. In addition, the prognosis for a specific surgery can vary by breed and use, which must also be taken into account. With the advancement of inertial sensors for characterizing gait, more objective measures may be used in the future to guide these protocols.