

EQUINE REPRODUCTION SVC

*** CLICK HERE ***

Current Articles &
Research

Reproduction
Foal Disorders
Lameness

Check back often for
new additions

Regenerative Medicine Hastens Healing of Stifle Injuries

The news post-lameness exam from the veterinarian isn't good: Your sport horse has injured his stifle. Not only do these injuries tend to have long recovery times, they often don't respond well to traditional treatment modalities.



Stifle radiograph showing an osteophyte (bone spur) that has formed on the medial tibial condyle.

Photo: Courtesy Dr. Ross Rich

Veterinarians are evaluating a new cutting-edge treatment, however, to solve the stifle problem: regenerative medicine. At the 2015 American Association of Equine Practitioners' Convention, held Dec. 5-9 in Las Vegas, F. Ross Rich, DVM, PA-C, who owns Cave Creek Equine Surgical and Diagnostic Imaging Center, in Phoenix, Arizona, presented the results of his study on the topic.

This is the first study evaluating the effects of adipose-derive regenerative cells (ADRC) and interleuken-1 receptor antagonist protein (IRAP) on stifle joint injuries, he said.

The team examined the medical records of 98 horses (for a total of 189 stifles) diagnosed with stifle injuries or abnormalities, the most common of which was abnormal articular cartilage in 97% of horses. The horses received the following treatments:

- **Group 1**—21 horses received intra-articular (in the joint) ADRC and IRAP injections;
- **Group 2**—38 horses underwent stifle arthroscopy in addition to ADRC and IRAP injections; and
- **Group 3**—39 horses only had stifle arthroscopy performed.

Following treatment, all horses followed a standardized six-month rehabilitation program, which included hand-walking, swimming, and more. Horses that returned to full work, and remained in normal competition for at least one year at their previous or higher level, without recurrence were considered successes, Rich said.

The researchers also characterized the horses' articular cartilage lesions as mild, moderate, or severe.

The team found that:

- Horses ranged in age from 1 to 17 years and included a variety of breeds and disciplines;
- In Group 1, no horses had mild lesions, 20 had moderate lesions, and one had severe lesions;
- One horse in Group 2 had mild lesions, 20 had moderate lesions, and 17 had severe lesions;
- None of the Group 3 horses had mild lesions, 14 had moderate ones, and 25 had severe lesions;
- 57% of horses had multiple abnormalities of their stifles;
- Success rates were similar between the groups: 67%, 68%, and 59% for Groups 1, 2, and 3, respectively; and

Horses in Group 1 and Group 2 healed significantly faster than those in Group 3; "Many of the Group 3 horses were still in rehab and hand walking when the Group 1 and 2 horses had already been back to full work and competition for at least a year," Rich said.

The team identified several factors that negatively impacted success and healing time, he added. A lack of compliance for rehabilitation, more severe lameness on presentation, more severe cartilage damage, and previous intra-articular corticosteroid treatment affected a horse's chances for success, as did being a barrel racer. Factors that impacted healing time included abnormal radiographs and more severe abnormalities identified on MRI.

The team determined that treatment with regenerative therapy and arthroscopy or regenerative therapy alone accelerated the horses' healing time—eight-and-a-half months faster, on average, in this study—as compared with arthroscopy alone.

The researchers also kept tabs on how their patients fared in the long run, a step that's important in determining treatment efficacy, Rich said.

"When evaluating studies like this, it is important to evaluate the study findings using long-term follow-up, instead of short-term follow-up," he explained. "Many horses with many types of orthopedic problems can become sound short-term following a specific treatment, but then become lame again very quickly because of the original injury. If the study only follows the horses for a short time period after returning to regular work and competition, incorrect assumptions may be made regarding the success rates of the treatment being evaluated. We used a very stringent long-term follow-up for every one of the horses in this study; some were followed for more than nine years following treatment, with no recurrent stifle problems."

When it comes to selecting which option to use on your horse, Rich noted that regenerative therapy costs about the same as surgery. If you elect to use both surgery and regenerative therapy, the cost will approximately double. But it might worth it in the long run, he said.

"A big advantage to using both treatments is that the horse athlete can return to competition so much faster than they would otherwise and has the potential to remain in competition years longer than they otherwise would have, without requiring ongoing joint treatments such as corticosteroids," he explained. "If we can get them back to work eight-and-a-half months faster than normal without jeopardizing their long-term athletic careers, that is a huge benefit to the owner, rider, trainer, and the animal. The cost of board, maintenance of the horse, and the loss of show or race winnings during those eight-and-a-half months of extra rehab time without regenerative therapy, is often far more than the cost of the regenerative therapy; and there is a much earlier return to their normal athletic endeavors."

Rich noted that, while there aren't necessarily any instances in which veterinarians should avoid using regenerative medicine, it might not help treat badly damaged joints.

"Once you have a joint that has severe osteoarthritis, and the joint is now 'bone-on-bone' (i.e., most of the joint cartilage has completely deteriorated), it is unlikely that regenerative therapy would be able to repair that much damage," he explained. "Regenerative therapies can provide some sustained pain relief in joints like this though."

Ultimately, Rich encouraged attendees to recommend ADRCs and IRAP to clients with horses dealing with stifle lamenesses. "I would discourage repeat intra-articular corticosteroid injections of the stifle," he added, "since corticosteroids demonstrated a significant negative effect on long-term success rates and athletic longevity in this study."