

Equine Research May Benefit Human Health

National Institutes of Health funds research to study equine osteoarthritis.

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The National Institutes of Health, an agency known for providing research grants to ultimately benefit human health, recently awarded Colorado State University equine veterinarians with a grant of \$678,000 over five years. The grant will help researchers develop a gene-therapy approach to help heal cartilage and prevent osteoarthritis in horses. The kicker is that the research may potentially lead to scientific methods that also help humans.

Cartilage injuries in equine athletes are often career-ending. Healing is limited because a specific kind of protein or growth factor, called insulin-like growth factor, is not as available in the joint and cartilage as they are in other areas of the body.

“The lack of healing leads to cartilage degeneration and progression of osteoarthritis. This prevents many horses from returning to athletic performance events,” says Dr. Laurie Goodrich, a veterinarian specializing in equine lameness and surgery at Colorado State University and a principal researcher on the grant.

Joint injury and subsequent osteoarthritis is the most common reason for ending careers in all equine athletes including racehorses, hunter and jumper horses and western performance athletes.

The insulin-like growth factor, or IGF-I, helps cartilage develop and, studies have shown, promotes healing of injured cartilage. However, researchers have not been able to develop a way to maintain enough IGF-I in an injured joint to help it heal. Goodrich and a team of researchers hope that using a viral vector to deliver DNA that increases production of IGF-I, a protein, will increase healing in damaged joint tissues.

The researchers will test the concept in a laboratory setting before beginning clinical trials on horses with joint injuries.

“Ultimately, our goal is to more effectively treat these types of injuries and return horses to their previous levels of performance, whether to the racetrack, show-ring or the trail,” Goodrich says. “While the study focuses on horses, the results may ultimately have the potential to help improve human cartilage health and reduce osteoarthritis that often follows a cartilage injury. This is good news for horses and humans alike as advances in joint research in horses will likely apply to humans.”

The Federal Drug Administration has recently recognized that the horse is an excellent representative study model for cartilage injury and osteoarthritis in people.