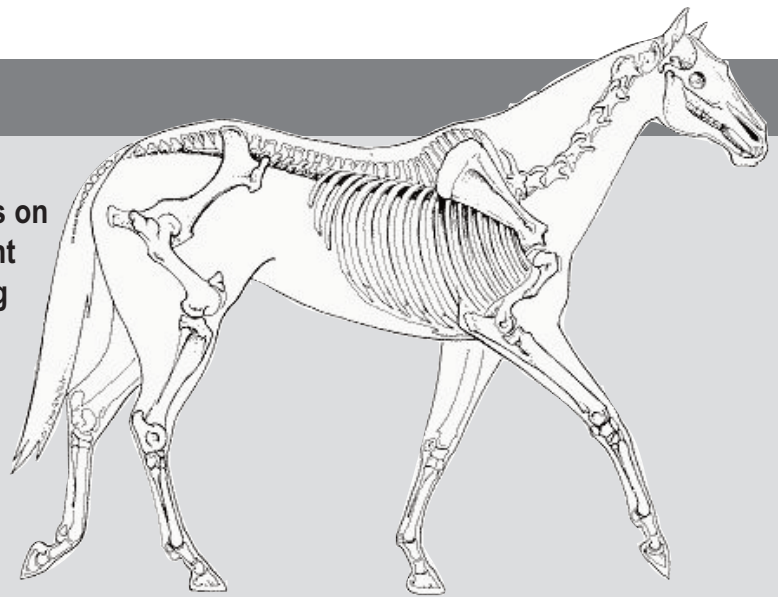


MUSCULOSKELETAL

Musculoskeletal research on equines in 2026 focuses on advanced diagnostic tools, objective pain assessment scales and regenerative therapies aimed at improving the long-term athletic health of performance horses. Horse health is crucial, as these elite athletes go through tremendous stressors. GJCRF protects all sport and racehorses so they can be competitive and transition to a second career.



Synthetic Proteoglycan Replacement for Osteoarthritis

Kyla Ortved, University of Pennsylvania

This proposal seeks to establish a new class of injectable, cartilage-penetrating compounds made from synthetic polyelectrolytes that replace proteoglycans that are critically lost in osteoarthritis.

Finite Element Analysis of Superficial Digital Flexor Tendon (SDFT) Microdamage

Ali Nassiri, The Ohio State University

This proposal will study the multi-scale finite element models (FEM) that predict equine superficial digital flexor tendon (SDFT) mechanical behavior that are essential to delineate microdamage mechanisms preceding clinical injury.

Effects of Inflammatory Cytokines on Mesenchymal Stem Cells Homing

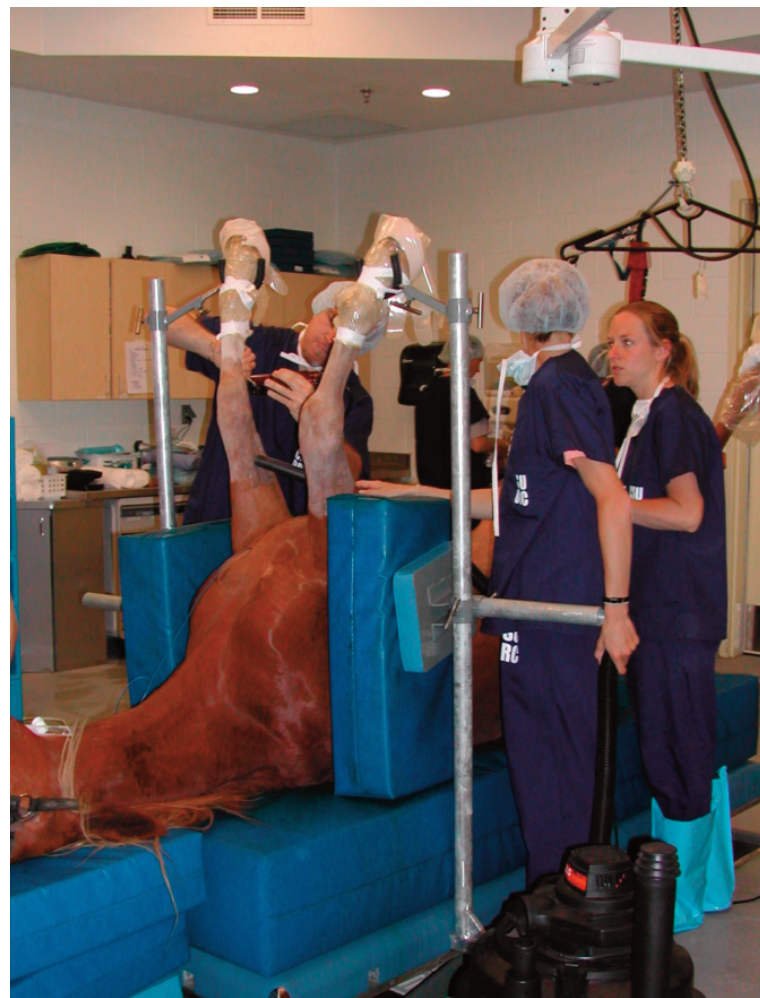
John Peroni, University of Georgia

This study will investigate how mesenchymal stem cells traffic to injuries after delivery to the bloodstream to inform the best time to deliver cells relative to initial injury in future animal models.

Racehorse Stride Changes and Workload During Training

Peta Hitchens, University of Melbourne

By determining whether the workload and changes in stride characteristics associated with injury during racing are also present during training, this project may identify injuries prior to race day.



The horse's musculoskeletal system consists of the bones, cartilage, muscles, ligaments and tendons. Its primary function is to support the body, provide motion and protect vital organs. There are 205 bones in the horse's skeleton. Twenty of these bones are in each foreleg and 20 in each hind limb, for a grand total of 80 bones in the four equine limbs. These studies focus on joint health, arthritis, bone regeneration and imaging advancements to make safe diagnoses and more accurate prognoses in the horse.

Tendon Elastin and Lubricin: Biology and Mechanics

Sushmitha Durgam, Texas A&M AgriLife Research
Elucidating the underlying biology and mechanical roles of tendon interfascicular matrix proteins, elastin and lubricin, is essential to identify overuse injury mechanisms and develop novel therapies.

Navigated Trigeminal Rhizotomy in Horses

Christoph Koch, University of Bern
ISME Equine Clinic - Switzerland
The project assesses safety and effectiveness of a novel surgical treatment for trigeminal-mediated headshaking, a debilitating condition in horses for which current treatments are often ineffective.

