The UC Davis School of Veterinary Medicine will enhance clinical care and advance equine health studies through the most up-to-date performance center in veterinary medicine.

Equine clinicians and researchers learn from each other, but rarely work hand-in-hand on horses with lameness or other gait abnormalities. Researchers study movement, analyzing data from hundreds of past patients to determine injury patterns. Clinicians attempt to identify lameness issues through observation, local anesthetic nerve or joint blocks, and diagnostic imaging techniques.

This state-of-the-art Equine Performance Center (EPC) will blend clinical services and data collection for research. The facility will include an arena with high-speed motion cameras (utilized by researchers) to help detect subtle gait abnormalities. The ability to observe a horse under saddle, performing the complex movements associated with its discipline, before and after diagnostic nerve blocks, can greatly improve the accuracy of an examination and subsequent treatment plan. The cameras capture 1,000 frames per second, which will help to uncover potential injuries at an early stage or find the optimal movement pattern for a horse to perform at its highest potential.

The Gait Analysis Diagnostic Unit—which provides sophisticated kinematic analyses of a horse’s gait and the efficacy of treatment of a musculoskeletal injury or disease—will be integrated into the arena and adjacent trotting lane. A force plate embedded in the trotting lane will help determine the distribution of weight throughout all four limbs.

By bringing aspects of the J.D. Wheat Veterinary Orthopedic Research Laboratory (VORL) directly into the clinic, equine veterinarians will be able to utilize proven research results and sophisticated analytical equipment. With VORL focusing much of its attention on racehorse injuries, the integration of the lab’s expertise into the diagnostic arena will bring added benefit to sport horses brought to the EPC.

The majority of fatalities due to fracture of a long bone are caused by the transient weakening associated with attempted healing of a pre-existing stress fracture. Researchers have discovered that pre-existing injuries also play a role in fractures of the proximal sesamoid bone that result in fetlock breakdown, the most common cause of death in Thoroughbred and Quarter Horse racehorses. Knowing that catastrophic injuries represent a more chronic process, clinicians are studying the injury development to determine strategies for treatment, and more importantly, to help guide owners and trainers on steps to prevent injuries.

As the VORL continues to lead the way advancing knowledge of equine musculoskeletal problems, the use of its state-of-the-art equipment in the clinic will foster a creative environment for clinically-applied equine musculoskeletal research. This collaborative environment will continue to improve the understanding of equine musculoskeletal diseases and lay the foundation for the future of sport horse clinical care.

The proposed center will also include a new farrier station to perform and evaluate shoeing interventions.