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Veterinary Motion Analysis Lab Could Lead to Better Treatments for Small Animals, Orthopedic Procedures in Humans

March 15, 2017

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Closed caption video also is available. For more information, contact Nathan Hurst: hurstn@missouri.edu.

COLUMBIA, Mo. – Diagnosing and treating service dogs and companion animals with orthopedic injuries can be challenging for clinicians and owners. Often, observable limps or the occasional whine may be the only clues for veterinarians when assessing arthritis or soft tissue injuries in pets. Now, using cutting-edge technologies, veterinarians at the **University of Missouri** are revolutionizing the diagnosis and treatment of small animals with musculoskeletal injuries. The [Motion Analysis Laboratory](#) (MAL), which opened earlier this year at the [MU Veterinary Health Center](#), is one of the most technologically advanced veterinary gait labs in the Midwest. Techniques and practices learned in the MAL also will help inform scientists and clinicians engaged in human studies.

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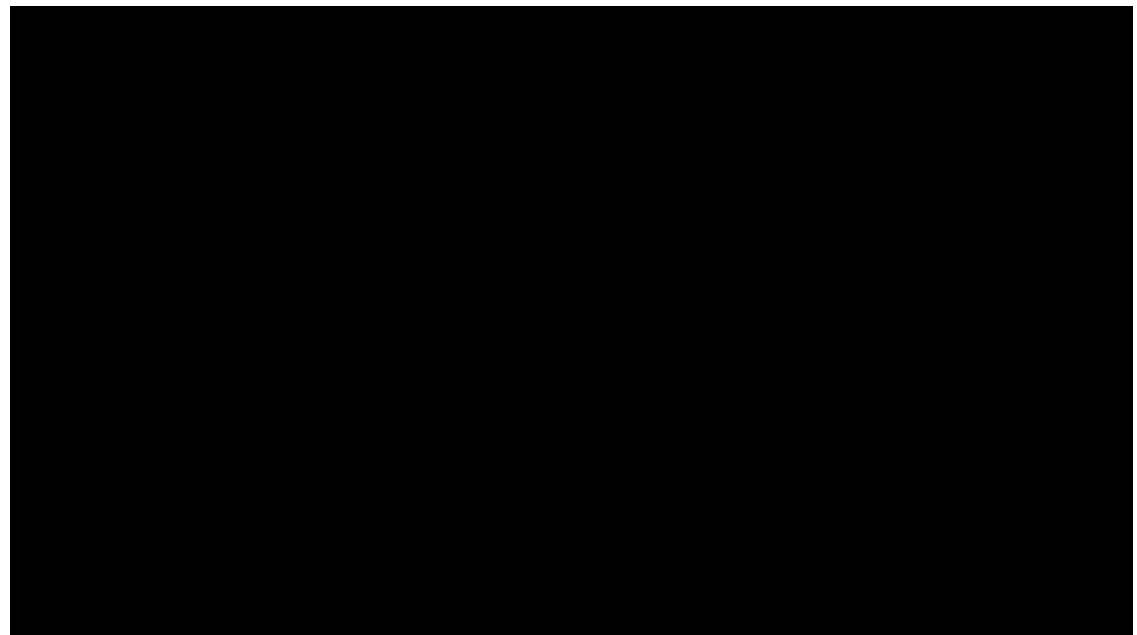
Bryan Torres, an assistant professor of small animal orthopedic surgery, is the director of the Motion Analysis Laboratory at the MU College of Veterinary Medicine. Using pressure-sensitive plates and specialized cameras that photograph “markers” placed in strategic areas on the patient, he is able to analyze how dogs move in real time.

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Bryan Torres, an assistant professor of small animal orthopedic surgery, is the director of the Motion Analysis

Lab at the MU College of Veterinary Medicine (CVM). Using pressure-sensitive plates and specialized cameras that photograph “markers” placed in strategic areas on the patient, clinicians are able to analyze how dogs move in real time.

“The equipment we’ve assembled in the MAL is the same as what is located in many advanced human labs throughout the world. The camera system that we have is very similar to what filmmakers use to make blockbuster special effects on film—except this equipment is helping improve the quality of life for our pets,” Torres said. “The force plates and camera equipment allow us to see how much weight the dog is putting on each limb and to track the movement of their joints. We can perform gait analysis on all animals with osteoarthritis and soft-tissue injuries, and monitor pain management strategies all in the same lab.”

Transferring these techniques to the rehabilitation arena is another way the Motion Analysis Laboratory is breaking new ground at the CVM. Current patients include not only companion animals, such as sporting dogs and canine agility athletes, but also working, service and military dogs injured on the job. Here, rehabilitation not only helps to ease the dogs’ suffering—it also protects the valuable investment made in the years of training that professional dogs undergo.

“Our patients can’t tell us where it hurts, so it is vital that we use every technique at our disposal to pinpoint where the problem is,” Torres said. “Radiographs are static images that might show a bone fracture or signs of a chronic disease, but some injuries are less obvious and analysis from the lab can help diagnose and guide treatment to ensure successful rehabilitation. Using information gleaned from advanced diagnostics, clinicians are able to prescribe and track rehabilitation methods, including the underwater treadmill. The MAL can help lead us to the correct diagnosis as well as the proper rehabilitation methods to get the patient treated and in some cases, fully recovered from injury.”

A veterinary orthopedic surgeon, Torres also notes that research cases in his lab can help inform scientists who study human gait and orthopedic injuries worldwide, including the Mizzou Motion Analysis Center, a joint venture between the department of physical therapy and the Missouri Orthopedic Institute.

“The canine model is well-suited for translation to human diagnostics and procedures,” Torres said. “Information we gather from the Motion Analysis Lab will help inform our work. The minimally invasive orthopedic techniques and advanced rehabilitation and pain management methods we develop in dogs may very well be translatable to humans.”

For more information on the Motion Analysis Laboratory, including how to set an appointment, please see: <http://vhc.missouri.edu/small-animal-hospital/motion-analysis-laboratory>. Potential clients may call (573) 882-7821, referring veterinarians may call (573) 884-6414, or write vetmotion@missouri.edu.

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