

## Animal rehabilitation: closing the gap by putting science into practice

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The College of Veterinary Medicine at the University of Tennessee is a recognized leader in evidence-based medicine for clinical translation of rehabilitation science for animals. Traditional paradigms included veterinary treatment followed by discharge instructions for owners to follow for home therapy during the convalescent period. This approach often resulted in poor outcomes or incomplete patient recovery because owners were not able to comply with the type, intensity, or frequency of at-home care. These gaps in animal rehabilitation services eventually resulted in nonveterinary interventions by people trying to help through extrapolating knowledge and skills learned from human rehabilitation strategies. These lay practices created challenges in animal health-care and rehabilitation and increased concerns for patient outcomes. Darryl Millis and Steve Adair, who are both faculty members at the University of Tennessee College of Veterinary Medicine (UTCVM) and Diplomates of the American College of Veterinary Surgeons, initiated animal rehabilitation services as an extension of patient care. Both faculty members also are charter diplomates of the American College of Veterinary Sports Medicine and Rehabilitation (ACVSMR) and were instrumental in its establishment as an AVMA-recognized specialty with 290 Diplomates from around the world.

Dr. Millis, Acree Endowed Chair of Small Animal Medicine, is extensively involved in musculoskeletal disorders affecting small animals, particularly dogs. His expertise is internationally recognized, and he has established training programs for certification in canine rehabilitation. Also, he established the Canine Arthritis Rehabilitation Exercise & Sports Medicine service (CARES) in the John and Ann Tickle Small Animal Hospital in the College of Veterinary Medicine's Veterinary Medical Center. In 1999, he established the Certified Canine Rehabilitation Practitioner certificate program and has trained veterinarians, veterinary nurses, physical therapists, and others in the art and science of canine rehabilitation throughout the world (utvetrehab.com). Rehabilitation services close the gap between veterinary specialty care for the treatment of injuries and diseases and the difficulty owners experience in

effectively rehabilitating their animals at home or through services not advised by veterinary clinicians. As the Acree Chair, Dr. Millis also performs clinical trials for dogs with a variety of ambulatory disorders. His research is especially focused on management of osteoarthritis. The Veterinary Orthopedic Laboratory includes a force plate, pressure-sensing mat system, electromyography, and video-kinematic system for the precise and accurate measurement of alterations in gait. These facilities enable detailed assessments of patients and precise monitoring of responses to therapy and progressions through the state of disease.

Dr. Steve Adair is internationally renowned for his expertise in equine surgery, lameness, and rehabilitation. In 2013, UTCVM established the Equine Performance and Rehabilitation Center (EPRC). The EPRC is located in the Charles and Julie Wharton Large Animal Hospital in the Veterinary Medical Center at UTCVM. This 30,000-square-foot facility includes a full-sized exercise arena and a dedicated lameness diagnostics facility equipped with telemetric and video-kinematic technologies for diagnosis and serial assessment of lameness. Additional state-of-the-art equipment includes an in-ground underwater treadmill, cold saltwater therapy spa, whole-body vibration platform, solarium, 4-horse free walker, and dedicated farrier facility for creating customized horseshoes and therapeutic appliances. In 2005, Dr. Adair established the Certified Equine Rehabilitation Practitioner certification program (utvetrehab.com), and he has trained veterinarians, veterinary nurses, and physical therapists throughout the world. In 2017, he started an ACVSMR residency program to train a new generation of Equine ACVSMR board-certified specialists.

Through state-of-the-art facilities, cutting-edge equipment, and advanced diagnostic and assessment tools, UTCVM's expert faculty and staff are leading the way forward in precision medicine approaches to animal rehabilitation. Through their tireless efforts, the college is nationally and internationally recognized as a leader in the art and science of rehabilitation of animals.