

Strength, Stability, and Motion – Winning the Performance Trifecta!

Speakers, Lecture Titles, and Synopsis



**2022 Yearly Conference
National University of Health Sciences
Lombard, IL**

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2022 Healing Oasis Conference
Strength, Stability, and Motion – Winning the Performance Trifecta!

Dates: Nov 11th – 13th, 2022

Location: National University of Health Sciences, 200 E. Roosevelt Rd., Lombard, IL

Hotel of choice: Crowne Plaza Lombard-Downers Grove. 1250 Roosevelt Rd., Lombard, IL. (630-629-6000)

List of speakers:

[Table of Contents](#)

Carrie Adrian, PT, PhD, FIAVRPT. Director, Rehabilitation Services VCA	3
Hilary Clayton, BVMS, PhD., DACVSMR, FRCVS.....	4
Douglas Gould, PhD., Professor and Chair of the Dept. of Foundational Medical Studies, Neurology Dept., Oakland University William Beaumont School of Medicine	5
Andrea Henderson, DVM, MS, DACVSMR; MAJ-USAR and Chief of Sports Medicine and Rehabilitation in San Antonio, TX.	6
Cynthia M. Otto, DVM, PhD, DACVECC, DACVSMR; Director, Penn Vet Working Dog Center, Univ. of Pennsylvania School of Vet. Med.....	7
Mike Powell, DC, DACNB. Assistant Professor of Clinical Neurology, Carrick Institute.....	8
Meghan Ramos, VMD, MS., ACVSMR Resident, Univ. of Penn School of Veterinary Medicine	9
Roland Thaler, VMD, DACVSMR, ISELP-C., Director of Veterinary Services at Metamora Equine Services.....	10
Joseph Wakshlag, DVM, PhD, DACVN, DACVSMR. Professor of Clinical Nutrition & Sports Medicine and Rehabilitation, Cornell University College of Veterinary Medicine...	11
Pedro Luis Rivera, DVM, FACFN, DACVSMR, FCoAC.....	12

Carrie Adrian, PT, PhD, FIAVRPT. Director, Rehabilitation Services VCA



Titles:

1. Neuromuscular control of the canine stifle and its role in canine cranial cruciate ligament disease

Synopsis: Although not reported as a specific contributing factor to CCL disease within the veterinary literature, aberrant motor control is thought to adversely affect joint stability, stifle kinematics and joint loading. The identification and modification of specific muscle activation or motor control mechanisms that predispose dogs to CCL disease or OA progression after CCL rupture could provide novel insights into the etiopathogenesis and effective management of affected dogs. This lecture will discuss the motor control strategies and neuromuscular control of the canine stifle and its potential role in canine cranial cruciate ligament disease.

2. Brace Yourself: The Biomechanics Behind Stability and Mobility in Orthotic Interventions - Part I

Synopsis: The use of orthotics in veterinary medicine is a rapidly growing field. There are a handful of human orthotic companies that have transferred their skills to design and sell orthotics for various canine conditions. Neurologic dysfunction, carpal hyperextension, Achilles tendon injuries and cranial cruciate rupture are some of the more common indications for bracing in our canine patients. Additionally, bracing for spinal dysfunction is a relatively new concept in veterinary physical therapy and rehabilitation that will be discussed. This series of lectures will explore the biomechanical designs and selection behind these various orthoses as well as an overview of implementing bracing in the clinic. Direct clinical application is covered, such as casting and fitting techniques, donning schedules, and potential complications.

3. Brace Yourself: The Biomechanics Behind Stability and Mobility in Orthotic Interventions - Part 2

Synopsis: Continuation (See description above).

Hilary Clayton, BVMS, PhD., DACVSMR, FRCVS



Titles:

1. Musculoskeletal strength – more than just the muscles

Synopsis: A key concept of total body strength training is that different musculoskeletal tissues adapt optimally at different ages and in response to different training stimuli. This talk looks at the ‘what’ and ‘why’ of strength training for bone, muscle, tendons and ligaments in horses.

2. Strength training is important but how do you do it?

Synopsis: Given that horses are not inclined to lift free weights or work resistance machines, how can we stimulate a beneficial response to strengthen the tissues, especially muscle, in a beneficial manner? The pros and cons of a variety of strength training methods for horses will be evaluated in the context of preparing the horse for different types of work.

3. Applying strength training principles in sport and rehabilitation

Synopsis: Building on the information presented in the first two talks, the principles of strength training will be discussed in the context of the athletic requirements of specific sports and in restoring strength during rehabilitation of injuries.

Douglas Gould, PhD., Professor and Chair of the Dept. of Foundational Medical Studies, Neurology Dept., Oakland University William Beaumont School of Medicine



Titles:

Motor Learning, I, II, and III

Synopsis: During the first hour, I will provide an overview of the anatomy of the nervous system with a focus on the motor system. We will differentiate the ANS and SNS and identify the various spinal cord and brainstem nuclei involved in the motor system, as well as the involvement of the reticular formation as it relates to motor function. We will trace (typical) motor pathways from their origin to effector and discuss the concept of disinhibition.

The second hour will involve a focus on the pyramidal vs. extrapyramidal motor systems and we will delve into the structure and dysfunction of the basal ganglia.

The third and final hour, will examine the cerebellar system, cerebellar circuits, and the relationship of the vestibular system as related to the motor system.



Andrea Henderson, DVM, MS, DACVSMR; MAJ-USAR and Chief of Sports Medicine and Rehabilitation in San Antonio, TX.



Titles:

1. Neuromuscular and Balance Training in Performance & Working Dogs: An Injury Prevention Tool

Synopsis: This lecture will cover the benefits of neuromuscular and balance training from the injury prevention perspective, highlighting the evidence supporting the addition of such components into human athletics training programs and extrapolating their use in working and sporting dog fitness programs. The topic will include a discussion of neuromuscular training in puppy development.

2. The criticality of cross-training in the performance athlete

Synopsis: Specificity is a critical component of sports training; however its exclusive incorporation can miss the mark in the preparing canine athletes for comprehensive performance capability. This presentation will focus on the benefits of cross-training in developing the well-rounded working and sporting dog.

3. Canine Strength Training: Pro Tips and Pitfalls

Synopsis: Strength and resistance training can be a challenge in dogs. There is limited information on this topic in the literature, and the rehabilitation practitioner may encounter difficulties in maximizing voluntary contractile activity, identifying fatigue and delayed-onset muscle soreness, and applying eccentric and plyometric training. This lecture offers strategies for incorporating strength training in canine rehabilitation and conditioning programs, based on the presenter's experience and developing research.

Cynthia M. Otto, DVM, PhD, DACVECC, DACVSMR; Director, Penn Vet Working Dog Center, Univ. of Pennsylvania School of Vet. Med.



Titles:

1. Exercising the Brain – Strength

Synopsis: This lecture will explore how exercise impacts cognition and mental stamina in both patients and providers! We will explore the literature and the practical implications. Wear your gym clothes!

2. Behavioral modification through learning – Stability

Synopsis: This lecture will review how exercise of the brain and body impact behavior. We will discuss aspects of behavioral performance and physical performance. We will explore how learned behaviors can improve performance, focusing on the examples in working dogs. We will discuss and provide case examples of how implementing training of new physical and mental exercises can reduce unwanted behaviors.

3. Turn off the GPS to learn the route to behavioral change - Motion

Synopsis: This lecture will cover the topics essential to eliciting new behaviors. The methods of training including luring, shaping, capturing and positioning will be explored in theory and real time (be prepared to participate!). Reinforcement strategies and understanding how the brain responds to rewards will be applied to enhance the effectiveness of training. Scenarios will be used to provide practical application.

Saturday Lab: Two 1hr Clinical Hands-On Practicum

Title: Train your brain!

Synopsis: This one-hour hands on lab will be jam packed with tools and tips to train your brain! We will be implementing strategies of positive reinforcement training and marker training. After we orient the humans to the concepts, we will move to the easier subjects (the dogs) and provide the tools to teach the dogs basic and essential exercises applying the concepts discussed in the morning sessions.

Mike Powell, DC, DACNB. Assistant Professor of Clinical Neurology, Carrick Institute



Titles:

1. Functional Anatomy of the Cerebellum – More than a Little Brain

Synopsis: Dr. Powell will help you understand how the cerebellum works. This is an interactive, functional neurology presentation. You will be able to explain how cerebellar function (and dysfunction) affects both you and your patients.

2. Importance of Vestibular Rehabilitation to Improve on Athletic Performance-Part I

Synopsis: Rehabilitation is about changing or strengthening patterns. We will harness an understanding of the vestibular system and its cerebellar circuitry to take rehab methods you are already familiar with and supercharge them. This is functional neurology at its best and Dr. Powell will give you tools you can apply on Monday.

3. Importance of Vestibular Rehabilitation to Improve on Athletic Performance-Part II

Synopsis: Continuation of Part I

Meghan Ramos, VMD, MS., ACVSMR Resident, Univ. of Penn School of Veterinary Medicine



Team teaching with Dr. Cynthia Otto

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**Roland Thaler, VMD, DACVSMR, ISELP-C., Director of Veterinary Services at
Metamora Equine Services**



Titles:

1. Current Understanding of Caudal Cervical Spine Variation: C6 asymmetry, facet enlargement, and nerve root foramen narrowing.

Synopsis: As indicated by prepurchase requirements or gait asymmetry, radiography often identifies bone variations of the caudal cervical spine. The most common are asymmetry of C6, enlargement of articular facets, and narrowing of the cervical nerve roots. This presentation aims to provide criteria to accurately identify the presence of anatomic variation(s) and then assess if a functional deficit is expressed. Literature review and protocols will be discussed throughout the presentation.

2. Consideration of the Equine Poll

Synopsis: As a relatively common source of discomfort, the poll region often presents diagnostic and treatment challenges. This presentation will provide an in-depth anatomic review with a discussion of the biomechanical implications of injury of specific structures. Case presentations will highlight with diagnostic and treatment protocols.

3. Kissing Spine: Current perspective regarding significance and treatment

Synopsis: Historically, impingement of the dorsal spinous processes has been a relatively frequent finding during radiography of the equine thoracolumbar spine. Most recently, there seems to be a resurgence in estimating the significance of these lesions. The purpose of this presentation is to provide an anatomic understanding of the origin of the radiographic changes while using appropriate diagnostics to determine the significance of the findings. The discussion will include the approach and efficacy of treatment options.

Joseph Wakshlag, DVM, PhD, DACVN, DACVSMR. Professor of Clinical Nutrition & Sports Medicine and Rehabilitation, Cornell University College of Veterinary Medicine



Titles:

1. CBD-Rich Hemp: How and why do I choose a product?

Synopsis: In an ever-growing product landscape for hemp nutraceuticals the choices are overwhelming. This session will cover the basic concepts surrounding the aspects of quality control that are essential to choosing a product for your patients. Many companies are selling products that are not particularly cannabinoid rich and may have inferior absorption kinetics underscoring the importance of pharmacokinetics of each and every product and an understanding of the cannabinoids that they are delivering. Current understanding of pharmacokinetics is showing that the native derived acid forms in the hemp plant are absorbed better than the heat extracted decarboxylated forms and that every species has different absorption and dosing recommendations based on these essential pharmacokinetic evaluations.

2. Using CBD rich hemp for pain management and more!

Synopsis: The use of hemp derived cannabinoids for chronic osteoarthritis is becoming mainstream due to more peer reviewed literature becoming available. Current literature and utility of CBD rich hemp will be discussed with nuances related to the studies and concurrent medication that can be used safely with cannabinoids will be discussed. Furthermore, data surrounding acute pain conditions is being generated and the potential utility will be examined and how dosing may differ from chronic neuropathic pain as a comparison. Brief mentions of other potential applications across neurology and dermatology will be touched on.

3. Feeding for sports motion: Depends on the Motion!

Synopsis: There are a mind-numbing selection of foods and methods of feeding for the canine athlete. To this day many of the sprinting athletes are being fed like hunting dogs due to misconceptions regarding dog metabolism during exercise. We will discuss the feeding of substrate, vitamins, and minerals specifically to the activity of the dog and understand caloric needs for various activities. There is also a range of potential supplements that can be used around exercise – some having more proof of improved performance than others. These supplement trends will be discussed.

Pedro Luis Rivera, DVM, FACFN, DACVSMR, FCoAC



Title:

1. When is enough, enough? Avoiding Transneuronal Degeneration (TND)

Synopsis: Although it is important to provide a purposeful therapy based on the information provided by a complete evaluation (including a thorough neurological examination); it is as important to understand when the treatment that is being provided becomes counterproductive. Receptor based therapies not only stimulate external receptors, afferent fibers, segmental spinal cord levels and suprasegmental levels. Commonly, we forget that the MAIN goal is to improve the cortex and modulation of ventral horn cells. Definition of TND and how to assess for said changes will be discussed.

