ACVIM American College of Veterinary Internal Medicine | Advanced Continuing Education

Brain Camp Online Part II–
Large Animal Neurology

Content Launch Date: **Wednesday, September 8, 2021**
Live Q&A with the Presenters: **Thursday, September 30, 2021**
(Session was recorded and is available for viewing in the learning platform)

This 7-hour course will cover large animal neurology, including equine and small ruminants, with a review of the neurological examination in large animal species. An overview of congenital, infectious, degenerative and toxic diseases will be covered. Clinical presentation, diagnostics including electrodiagnostics, therapy and prognosis will be included where indicated.

All topics will be presented in 50 – 60 minute pre-recorded sessions.

Large Animal Neurology	
Topic / Description and Learning Objectives	**Presenter**
Module 1: Neurologic Examination in Large Animals This session will provide an overview on how to perform and interpret the neurological examination in large animals. The session will be based on functional anatomy of the nervous system by providing examples of evolutionary species differences (prey versus predator). Upon completion of the course, participants should be able to: • Become familiar with performing a neurological examination in large animals. • Recognize normal variations in neurological function depending on the species. • Recognize neurological abnormalities in large animals.	Monica Aleman, MVZ Cert., PhD, DACVIM (LAIM, Neurology)
Module 2: Brain Disease This session will provide an overview of brain diseases that affect large animal species in a case-based manner. Cases will include examples of diagnostic tests such as laboratory tests, imaging and electrodiagnostics. This session will cover diseases of the major functional divisions of the brain: cerebrothalamus, brainstem and cerebellum. Upon completion of the course, participants should be able to: • Recognize common brain diseases of large animals (individual versus herd diseases). • Integrate the use of diagnostics tests for the investigation of brain disease.	Monica Aleman, MVZ Cert., PhD, DACVIM (LAIM, Neurology)

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Module 3: Spinal Cord Disease This session will provide an overview of spinal cord disease in large animals. This session will be a case-based presentation that will include examples of dysfunction of various spinal cord segments. Upon completion of the course, participants should be able to: • Recognize common diseases affecting the spinal cord in large animals. • Recognize pathology of the spinal cord and vertebral column through imaging. • Understand interpretation of common diagnostic modalities (e.g. ataxic horse).	Monica Aleman, MVZ Cert., PhD, DACVIM (LAIM, Neurology)
Module 4: Neuromuscular Disease This session will provide an overview of diseases that affect the neuromuscular system. A review of the neuromuscular system will be presented from its central to peripheral components (motor neurons, nerves, neuromuscular junction). This session will be a case-based presentation. Upon completion of the course, participants should be able to: • Recognize common diseases affecting the various components of the neuromuscular system in large animals. • Review drugs that could alter the function of the neuromuscular junction. • Recognize available diagnostic tests for the investigation of disease in large animals.	Monica Aleman, MVZ Cert., PhD, DACVIM (LAIM, Neurology)
Module 5: Electrodiagnostics in Large Animals This session will provide an overview of the use of electrodiagnostics such as EEG, BAER, VEP, ERG, EMG, RNS for the investigation of neurologic disease in large animals. This session will provide examples of various diseases. Upon completion of the course, participants should be able to: • Recognize challenges to perform electrodiagnostics in large animals (but it is doable!). • Recognize effects of using drugs to perform electrodiagnostics (awake vs sedation vs anesthesia). • Recognize normal variations in electrodiagnostics depending on species. • Review cases.	Monica Aleman, MVZ Cert., PhD, DACVIM (LAIM, Neurology)

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Module 6: Cerebrospinal Fluid Collection This session will review sites of collection of CSF in large animals, centesis for collection and performance of myelogram. Upon completion of the course, participants should be able to: • Be familiar with collection sites for cerebrospinal fluid in large animal species. • Be familiar with interpretation of CSF samples. • Be familiar with diagnostic tests that can be performed in CSF in large animals.	Monica Aleman, MVZ Cert., PhD, DACVIM (LAIM, Neurology)
Module 7: Muscle and Nerve Biopsy Interpretation This session will review how to perform a muscle/nerve biopsy interpret essential diagnostic tests for the investigation of neurologic, neuromuscular, and muscle disease in large animals. Upon completion of the course, participants should be able to: • Recognize sites for muscle and nerve collection, storage, and preparation. • Be familiar with different stains and reactions used for the investigation of muscle disease. • Be familiar with common disorders on which biopsy has been definitive, essential or useful for the diagnosis of disease.	Monica Aleman, MVZ Cert., PhD, DACVIM (LAIM, Neurology)

Brain Camp Online Part II – Neuropathology: Part II

Content Launch Date: **Monday, October 4, 2021**
Live Q&A with the Presenters: **Tuesday, October 26, 2021, 8:00 am PDT / 10:00 am CDT / 11:00 am EDT**

This 5-hour course will provide an overview of neuropathology, with a particular focus on spinal cord diseases. A general review of normal spinal cord histopathology will precede discussion of large and small animal spinal pathologies.

All topics will be presented in 50 – 60 minute pre-recorded sessions.

Neuropathology – Part II	
Topic / Description and Learning Objectives	**Presenter**
Module 1: An Introduction to Spinal Cord Embryology, Anatomy, and Malformations This session will provide an overview of embryologic development of the spinal cord, a review of basic anatomy and histology, and conclude with a discussion of common spinal malformations. Upon completion of the course, participants should be able to: • Be familiar with the embryologic development of the spinal cord and associated structures. • Recognize the basic anatomic regions of the spinal cord and their histologic correlates. • Define the common spinal malformations and how to recognize them.	Andrew Miller, DVM, DACVP (Anatomic)
Module 2: Degenerative Diseases of the Central Nervous System This session will provide an in-depth overview of important degenerative diseases of the central nervous system that effect domestic animals including large animals. Upon completion of the course, participants should be able to: • Be familiar with the basic neuropathologic terms commonly used in neurodegenerative diseases. • Identify the critical neuropathologic features of degenerative myelopathy and compare and contrast degenerative myelopathy in different species. • Recognize the differences between equine neuroaxonal dystrophy and equine motor neuron disease. • Be familiar with common degenerative disorders that can affect the spinal cord.	Andrew Miller, DVM, DACVP (Anatomic)

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Brain Camp Online Part II – Neuropathology: Part II

Neuropathology – Part II	
Topic / Description and Learning Objectives	**Presenter**
Module 3: Spinal Neoplasia This session will provide a thorough overview of how to localize neoplasia affecting the spinal cord and the primary differentials based on location. Upon completion of the course, participants should be able to: • Provide a list of differentials for tumors occurring extradural, intradural-extramedullary, and intradural-intramedullary. • Recognize the common pathologic features of each tumor. • Prioritize tumor differentials based on signalment, tumor location, and presentation.	Andrew Miller, DVM, DACVP (Anatomic)
Module 4: Inflammatory, Traumatic, and Circulatory Conditions of the Spinal Cord (2 hours) This session will provide a detailed overview of inflammatory (including infectious), circulatory and traumatic conditions that can affect the spinal cord of domestic animals, including large animals. Upon completion of the course, participants should be able to: • Be familiar with infectious conditions that can affect the spinal cord in domestic animals (including large animals). • List pathways of spread for disease process in the spinal cord and most common agents associated with different pathways. • List the most common circulatory conditions affecting the spinal cord in different domestic species. • Be familiar with the neuropathologic features of intervertebral disc disease.	Alina Demeter, DVM, PhD, DACVP (Anatomic)