

Updates on Neuromuscular Disorders
On-Demand Course

Agenda		
Session Duration	Topic	Presenter(s)
60 minutes	<p>Introduction and Recognition of Neuromuscular Clinical Phenotype and Currently Available Diagnostic Tests</p> <ul style="list-style-type: none"> Recognize typical clinical signs of neuromuscular disease and apply these findings towards localization. Compare the similarities and differences in clinical presentation of common myopathies, neuropathies and junctionopathies. Become familiar with available diagnostic testing modalities for veterinary neuromuscular diseases. 	<i>Dr. Vishal Murthy</i>
60 minutes	<p>Neuromuscular Cases: Myopathies and Neuropathies</p> <ul style="list-style-type: none"> Feel more comfortable utilizing clinical examination findings to differentiate between peripheral nerve, vs. muscle, vs. junctional diseases in small animals. Utilize cerebrospinal fluid, electrophysiology testing and muscle/nerve histopathology to diagnose various neuromuscular disease processes in small animals. Discuss treatment options and use patient follow-up information to explore disease outcome in neuromuscular patients. 	<i>Dr. Stephanie Thomovsky</i>
60 minutes	<p>Neuromuscular Cases: Myopathies and Neuropathies</p> <ul style="list-style-type: none"> Increasing awareness of the utility of electrodiagnostic testing for diagnosing a range of neuro-muscular conditions. Becoming familiar with electrodiagnostic testing to differentiate muscle <i>versus</i> peripheral nerve <i>versus</i> neuro-muscular junction diseases in companion animals. 	<i>Dr. Nicolas Granger</i>

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Session Duration	Topic	Presenter(s)
60 minutes	<p>Techniques for Muscle and Nerve Biopsy</p> <ul style="list-style-type: none"> • Understand basic factors that influence the choice of biopsy sampling sites. • Be comfortable with basic muscle and selected nerve biopsy techniques. • Be familiar with appropriate sample handling. • Develop a global perspective of the benefits and limitations of specific muscle and nerve biopsy interpretations. 	<i>Dr. Peter Dickinson</i>
60 minutes	<p>Interpretation of Muscle and Nerve Biopsies and Current Disease Classification</p> <ul style="list-style-type: none"> • Understand why collection and evaluation of muscle and nerve biopsies is an essential part of reaching a diagnosis of a neuromuscular disease • Understand what we learn from histological, histochemical stains and reactions, and immunostaining of muscle biopsies • Understand the current classification of neuromuscular diseases and how these classifications are changing based on current DNA sequencing 	<i>Dr. Diane Shelton</i>
60 minutes	<p>Advanced Imaging in the Diagnosis of Muscle and Peripheral Nerve Diseases</p> <ul style="list-style-type: none"> • Understand the advantages and limitations of current advanced imaging techniques including computed tomography (CT), magnetic resonance imaging (MRI) and positron emission spectroscopy (PET) for investigation of suspected neuromuscular diseases. • Be familiar with imaging patterns associated with common neuromuscular disorders and the major associated differentials. • Develop a clinical perspective for the cost/benefit aspects of decision making when considering advanced imaging and neuromuscular disorders. 	<i>Dr. Peter Dickinson</i>

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60 minutes	<p>Neuromuscular Diseases in Large Animals</p> <ul style="list-style-type: none"> To review the neuromuscular system through the discussion of cases To review diagnostic techniques for the investigation of neuromuscular disease <ul style="list-style-type: none"> Electrodiagnostics, muscle/nerve biopsy To review common drugs used in veterinary medicine that can affect neuromuscular function 	<i>Dr. Monica Aleman</i>
60 minutes	<p>Panel Discussion</p> <ul style="list-style-type: none"> Compare shared experiences related to myopathies, neuropathies, and disorders of neuromuscular transmission Analyze current diagnostic techniques in muscle and nerve biopsies and imaging Interpret current issues and treatment approaches in neuromuscular disorders 	<p><i>Dr. Monica Aleman Dr. Peter Dickinson Dr. Vishal Murthy Dr. Stephanie Thomovsky</i></p> <p><i>Moderator: Dr. Diane Shelton</i></p>

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60 minutes	<p>Electrodiagnostics: Techniques I</p> <ul style="list-style-type: none"> List the electrodiagnostic tests and methods used for examining patients with suspected neuromuscular disease. Understand the EDX findings associated with myopathies, axonopathies, myelin abnormalities and neuromuscular junction disorders. Recognize the importance of including SNCV in an EDX workup to test afferent pathways, in addition to the efferent ones covered by the other tests. 	<i>Dr. Colette Williams</i>
60 minutes	<p>Electrodiagnostics: Techniques II (case based)</p> <ul style="list-style-type: none"> Knowing indications to use EMG for neurological conditions of the head Understanding and applying electrodiagnostics to aid in neuro anatomical localization: <ul style="list-style-type: none"> Lower <i>versus</i> upper motor neuron disease Muscle <i>versus</i> peripheral nerve <i>versus</i> neuro-muscular junction disease Distal <i>versus</i> proximal peripheral nerve lesion Axonal <i>versus</i> myelin disease 	<i>Dr. Nicolas Granger</i>
60 minutes	<p>Electrodiagnostics: Techniques III (case based)</p> <ul style="list-style-type: none"> Knowing indications to use EMG for neurological conditions of the head Understanding and applying electrodiagnostics to aid in neuro anatomical localization: <ul style="list-style-type: none"> Lower <i>versus</i> upper motor neuron disease Muscle <i>versus</i> peripheral nerve <i>versus</i> neuro-muscular junction disease Distal <i>versus</i> proximal peripheral nerve lesion Axonal <i>versus</i> myelin disease 	<i>Dr. Nicolas Granger</i>

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60 minutes	<p>Basic Genetics for Neuromuscular Diseases</p> <ul style="list-style-type: none"> • Understand how the genome is organized and can be described using terms such as genes, exons, introns, and intergenic regions. • Describe modes of genetic inheritance that are common in the development of • inherited diseases, such as Mendelian traits, complex traits, and fixed disease predisposition. • Become familiar with research methods such as gene mapping, genome-wide association studies, and whole genome sequencing. 	<i>Dr. Steven Friedenberg</i>
60 minutes	<p>Genetic Testing for Myopathies, Congenital Myasthenic Syndromes, and Neuropathies in Small Animals</p> <ul style="list-style-type: none"> • Develop a comprehensive understanding of available genetic testing options to effectively counsel clients and make informed decisions regarding genetic screening and diagnosis/ • Differentiate between direct genetic mutation tests and screening genetic marker tests for common genetic neuropathies and myopathies in dogs and cats. • Evaluate the prevalence and pathophysiologic basis of specific examples of genetic neuropathies and myopathies to enhance diagnostic and treatment approaches. 	<i>Dr. Ned Patterson</i>
60 minutes	<p>Genetics in Myopathies in Large Animals and Overview of Muscle Diseases and their Histopathology in Horses</p> <ul style="list-style-type: none"> • Clinical signs associated with muscle disorders in horses. • Which diagnostic tests are appropriate. • Which muscle to select for biopsy • Characteristic muscle histopathology for the disorders. 	<i>Dr. Stephanie Valberg</i>

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60 minutes	Clinical Cases: Small and Large Animals <ul style="list-style-type: none"> To discuss cases with neuromuscular dysfunction (interactive) 	<i>Dr. Peter Dickinson</i> <i>Dr. Monica Aleman</i>
60 minutes	Panel Discussion <ul style="list-style-type: none"> Compare shared knowledge related to electrodiagnostic testing Evaluate and appraise current issues in genetics as it relates to neuromuscular disease, myopathies, and neuropathies. Argue and critique current issues in the application of genetics and electrodiagnostics in relation to neuromuscular disorders 	<i>Dr. Peter Dickinson</i> <i>Dr. Steven Friedenber</i> <i>Dr. Ned Patterson</i> <i>Dr. Stephanie Valberg</i> <i>Dr. Colette Williams</i> <i>Moderator: Dr. Monica Aleman</i>



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