

BIOMEDICAL & VETERINARY SCIENCES

GRADUATE PROGRAM



ANNOUNCES

The Master of Science Seminar and Examination of

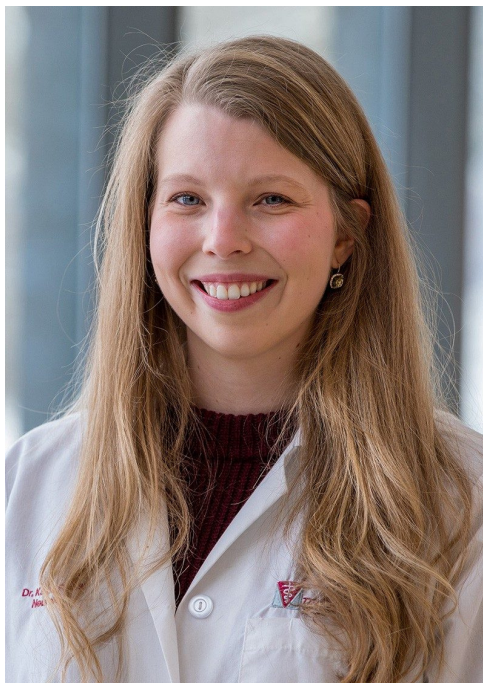
Dr. Kayla Fowler

**"Evaluation of neurofilament light chain as a biomarker in
dogs with structural and idiopathic epilepsy"**

Friday, April 21st, 2023

9:00AM

**220 Vet Med Instructional
Addition**



Bio

Kayla Fowler is a Doctor of Veterinary Medicine who graduated from the University of Tennessee. After graduating, she moved to Blacksburg, VA where she completed a rotating internship and then returned for a residency in neurology and neurosurgery. After residency, Kayla will be practicing veterinary neurology at a multi-specialty private practice in Glen Mills, Pennsylvania.

Funded by

The Clinical Applications Laboratory
VMCVM Office of Research and Graduate Studies

Awards and Academic Achievements

- The Bente Flatland Resident Award – 2023
- Merck Academic Excellence Award, UTCVM – Spring 2018
- Dr. James Brace Scholarship, UTCVM –Spring 2018

Lay Language Abstract

Generalized seizures secondary to epilepsy is the most frequent neurologic problem in dogs presenting to veterinary hospitals. Idiopathic epilepsy is the most common underlying cause for seizures to occur in young dogs while structural epilepsy, such as a dog with a brain tumor, encephalitis or stroke, is more common in dogs greater than six years of age. A diagnosis of structural epilepsy typically requires an identifiable structural abnormality on magnetic resonance imaging (MRI) and / or cerebrospinal fluid (CSF) analysis. A diagnosis of idiopathic epilepsy is confirmed when these tests are normal. Performing these diagnostics is not always feasible for a variety of reasons (accessibility, cost, anesthetic safety). Therefore, it is important to investigate alternative options for when the gold standard is unavailable. It can also be difficult for pet owners to witness and document every seizure for an accurate seizure frequency history. Investigating new methods for assessing seizure control is also warranted. This study was performed to gain knowledge about the measurement of a neuron specific biomarker that can be measured in both blood and CSF for the diagnosis of structural epilepsy and therapeutic monitoring of seizure control. It appears that the measurement of serum neurofilament light chain (NfL) can serve as a reliable alternative for the differentiation of idiopathic and structural epilepsy as NfL concentration was significantly increased in dogs with structural epilepsy. There was no difference in NfL concentration between dogs with recent seizures and dogs with well-controlled seizures. Additional research is needed to assess its use in differentiating true seizures from other neurologic or cardiac episodes that can appear similar.

Publications

Fowler KM, Bolton TA, Rossmeisl JH, Arendse AU, Vernau KM, Li RHL, Parker RL. Clinical, Diagnostic, and Imaging Findings in Three Juvenile Dogs with Paraspinal Hyperesthesia or Myelopathy as a Consequence of Hemophilia A: A Case Report. *Frontiers in Veterinary Science* 2022; 9 (871029)

Fowler KM, Pancotto TE, Werre SR, Beasley MJ, Kay W, Neary CP. Outcome of thoracolumbar surgical feline intervertebral disc disease. *Journal of Feline Medicine and Surgery* 2022; 24(6):473-483.

Fowler KM, Pancotto TE. What is Your Neurologic Diagnosis? Case report on caudal intervertebral disc extrusion and decompression in a Beagle. *Journal of the American Veterinary Medical Association* 2020; 256(3), 303-305

Fowler KM, Frank LA, Morandi F, Whittemore JC. Extended low dose dexamethasone suppression test for diagnosis of atypical Cushing's syndrome in dogs. *Domestic Animal Endocrinology* 2017; 60: 25-30.

Presentations

Clinical, Diagnostic, and Imaging Findings in Three Juvenile Dogs with Paraspinal Hyperesthesia or Myelopathy as a Consequence of Hemophilia A – 2022

Evaluation of Neurofilament light chain in dogs with structural and idiopathic epilepsy – 2021

Outcome of thoracolumbar surgical feline intervertebral disc disease – 2020

Examination Graduate Committee

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Associate Professor of Neurology and Neurosurgery
Small Animal Clinical Sciences

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