

**BIOMEDICAL & VETERINARY SCIENCES  
GRADUATE PROGRAM**



**ANNOUNCES**

The Doctor of Philosophy Seminar and Examination of

**Melissa A. Mercer**  
**“The Clinical Pharmacology of Acetaminophen in  
Adult Horses”**

**Friday, July 15th, 2022**  
**1:00PM**  
**Vet Med 102**



## **Bio**

Dr. Melissa Mercer is a native of Sherwood, Oregon and graduated with a BA in Biology from Willamette University in 2010. She then pursued her Doctorate of Veterinary Medicine at Oregon State University, graduating in 2014. Following graduation, Dr. Mercer completed an internship in equine medicine and surgery in private practice, prior to joining Virginia Maryland College of Veterinary Medicine as a resident in Large Animal Internal Medicine in 2015. Dr. Mercer completed her Masters of Science in Biomedical and Veterinary Sciences at VMCVM in 2018, researching the pharmacokinetics of acetaminophen in healthy adult horses. Dr. Mercer became a diplomate of the American College of Veterinary Internal Medicine in Large Animal Internal Medicine in 2019. Following completion of her Masters, Dr. Mercer began her Doctoral Research in the clinical pharmacology of acetaminophen in adult horses, as well as pursuing a second residency in Veterinary Clinical Pharmacology at Virginia Maryland College of Veterinary Medicine in 2018. During her doctoral work, Dr. Mercer also worked as a case responder at the US Food Animal Residue Avoidance Databank (FARAD). When not at work, Dr. Mercer enjoys running, gardening, and hiking with her dog, Winnie.

## **Funded by**

USDA-NIFA and FARAD

Virginia Maryland College of Veterinary Medicine Veterinary Memorial Fund

Virginia Maryland College of Veterinary Medicine Equine Research Competition

Virginia Horse Industry Board

VMCVM Office of Research and Graduate Studies

## **Lay Language Abstract**

There is a need for a safe, inexpensive oral anti-inflammatories and fever-reducers in horses since the currently available options have an increased risk of side effects in critically ill animals. Acetaminophen (brand name: Tylenol) has been shown to be safer than other options in healthy horses, so the efficacy and safety of acetaminophen for pain management and as a fever reducer in horses was studied. The results of these studies validate the safety and clinical use of acetaminophen for the treatment of fever and pain associated with musculoskeletal disorders in adult horses.

## Publications

1. **Mercer MA**, Davis JL, McKenzie HC, Messenger KM, Werre SR. Pharmacokinetics and Efficacy of Acetaminophen (paracetamol) in Adult Horses with Experimentally Induced Endotoxemia. *Under Review*
2. **Mercer MA**, Davis JL, McKenzie HC, Byron CR, Kelleher ME, Trager L, Wilson KE, Cecere TE, Council-Troche RM, Werre SR. (2022). Pharmacokinetics, Efficacy, and Safety of Acetaminophen (Paracetamol) in Adult Horses with Naturally Occurring Chronic Lameness. *Under Review*
3. **Mercer MA**, McKenzie HC, Byron CR, Pleasant RS, Bogers SH, Council-Troche RM, Werre SR, Burns T, Davis JL. (2022). Pharmacokinetics and Clinical Efficacy of Acetaminophen (Paracetamol) in Adult Horses with Mechanically Induced Lameness. *Equine Veterinary Journal. Accepted Author Manuscript.* <https://doi.org/10.1111/evj.13601>
4. **Mercer MA**, Davis JL, Riviere JE, Baynes RE, Tell LA, Jaber-Douraki M, Maunsell FP, Lin Z. (2022). Residue Concerns Following Exposure of Food Animals to Rodenticide Products- A FARAD Perspective. *Journal of the American Veterinary Association* 260(5): 514-523.
5. **Mercer MA**, Davis JL. (2021). Cannabinoids in veterinary medicine: Is there evidence to support the trend? *Equine Veterinary Education* 33(4):177-179.
6. **Mercer MA**, McKenzie HC, Davis JL, Wilson KE, Hodgson DR, Cecere TE, McIntosh BJ. (2020) Pharmacokinetics and Safety of Repeated Oral Dosing of Acetaminophen in Adult Horses. *Equine Veterinary Journal* 52(1):120-125.
7. **Mercer MA**, Davis JL. Clinical Insights: Antimicrobials in an age of resistance. (2019). *Equine Veterinary Journal* 51:711-713.

## Presentations

1. Davis JL, Guynn S, Pelzer K, Richards E, **Mercer M**, Wetzlich S, Clapham M, Tell LA. Detection times of florfenicol/florfenicol amine in lactating meat and dairy goats, and milk fed kids. American College of Veterinary Internal Medicine Annual Forum, June 23-25, Houston, Texas.
2. **Mercer MA**, McKenzie HC, Byron CR, Pleasant RS, Bogers SH, Council-Troche RM, Werre SR, Burns T, Davis JL. (2022). Pharmacokinetics and Clinical Efficacy of Acetaminophen (Paracetamol) in Adult Horses with Mechanically Induced Lameness. American Academy of Veterinary Pharmacology and Therapeutics Special Online Student Research Symposium. May 2022.
3. **Mercer MA**, Davis JL, McKenzie HC, Byron CR, Trager LR, Kelleher ME, Wilson KE, Cecere TE, Werre SR. "Pharmacokinetics, Pharmacodynamic Efficacy, and Safety of Acetaminophen in Adult Horses with Naturally Occurring Chronic Lameness." American Association of Equine Practitioners Annual Convention, Nashville TN, December 2021.
4. **Mercer MA**, Davis JL, McKenzie HC, Schaefer EA, Messenger KM, Werre SR. "Pharmacokinetics and Antipyretic Efficacy of Acetaminophen in Adult Horses with Experimentally Induced Endotoxemia" American College of Veterinary Internal Medicine Annual Forum, Online, June, 2021.
5. **Mercer MA**. Contributor. "Cannabinoids in veterinary medicine: Is there evidence to support the trend?" Equine Veterinary Education Podcast No. 31. April 20, 2021.  
<https://www.podbean.com/ew/pb-8mv98-1013754>
6. **Mercer MA**, Davis JL, McKenzie HC, Schaefer EA, Messenger KM, Werre SR. Pharmacokinetics and Efficacy of Acetaminophen in Adult Horses with Experimentally Induced Endotoxemia. Virginia Maryland College of Veterinary Medicine Research Symposium, March 2021
7. **Mercer MA**, McKenzie HC, Davis JL, Byron CB, Pleasant SR, Burns T. The Dose-Responsive Effects of Acetaminophen on Equine Mechanical Nociceptive Threshold Testing. Virginia Maryland College of Veterinary Medicine Research Symposium, November 2019
8. **Mercer MA**. *Nutritional Considerations for the Management of Equine Gastrointestinal Disease*. Virginia State Feed Association and Livestock Nutrition Conference, February 2019.
9. **Mercer MA**, Davis JL, McIntosh BJ, Wilson KE, Hodgson DR, McKenzie HC. *Pharmacokinetics and Safety of Repeated Oral Dosing of Acetaminophen in Adult Horses*. American College of Veterinary Internal Medicine Annual Forum, June 12-16th 2018, Seattle, Washington.
10. **Mercer MA**, Davis JL, McIntosh BJ, Wilson KE, Hodgson DR, McKenzie HC. *Pharmacokinetics and Safety of Repeated Oral Dosing of Acetaminophen in Adult Horses*. Virginia Maryland College of Veterinary Medicine Research Symposium, March 2017

## **Awards and Academic Achievements**

### **2<sup>nd</sup> Place Presentation** (*May 2022*)

American Academy of Veterinary Pharmacology and Therapeutics  
Special Online Student Research Symposium  
Pharmacokinetics and Clinical Efficacy of Acetaminophen  
(Paracetamol) in Adult Horses with Mechanically Induced  
Lameness.

### **Top Cited Article:** 2020-2021, Equine Veterinary Journal

**Mercer MA**, McKenzie HC, Davis JL, Wilson KE, Hodgson DR,  
Cecere TE, McIntosh BJ. (2020) Pharmacokinetics and Safety of  
Repeated Oral Dosing of Acetaminophen in Adult Horses. *Equine  
Veterinary Journal* 52(1):120-125.

### **Outstanding PhD Poster Presentation** (*November 2019*)

*Virginia Maryland College of Veterinary Medicine 2019 Research  
Symposium*  
Pharmacokinetics and Clinical Efficacy of Acetaminophen  
(Paracetamol) in Adult Horses with Mechanically Induced  
Lameness. November 2019

### **Outstanding Master's Presentation** (*March 2018*)

*Virginia Maryland College of Veterinary Medicine 2018 Research  
Symposium Pharmacokinetics*

## Examination Graduate Committee

### **Major Advisor/Chair:**

Jennifer Davis, DVM, PhD, DACVIM-LAIM, DACVCP  
Associate Professor of Clinical Pharmacology  
Department of Biomedical Sciences and Pathobiology

### **Graduate Advising Committee Members:**

Harold McKenzie DVM, MS, MSc (VetEd), FHEA, DACVIM-LAIM  
Professor of Large Animal Internal Medicine  
Department of Large Animal Clinical Sciences

Christopher Byron DVM, MS, DACVS  
Associate Professor of Large Animal Surgery  
Department of Large Animal Clinical Sciences

William Huckle MS, PhD  
Associate Professor of Cell Biology/Pharmacology  
Department of Biomedical Sciences and Pathobiology

Kristen Messenger, DVM, PhD, DACVAA, DACVCP  
Associate Professor, Pharmacology  
Department of Molecular Biomedical Sciences  
North Carolina State University College of Veterinary Medicine



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