

BIOMEDICAL & VETERINARY SCIENCES GRADUATE PROGRAM



ANNOUNCES

The Master of Science Seminar and Examination
of

Melissa Mercer

**“Pharmacokinetics and Safety of
Repeated Oral Dosing of
Acetaminophen in Adult Horses ”**

Monday, August 6, 2018

8:00 am

VMIA Classroom 220

Bio



Dr. Melissa Mercer hails from Sherwood, Oregon. She received her Bachelor's of Arts in Biology from Willamette University (Salem, Oregon) and her Doctorate of Veterinary Medicine from Oregon State University. She completed a one year rotating internship in equine medicine and surgery at Southwest Equine Hospital (Scottsdale, Arizona) prior to beginning her Residency in Large Animal Internal Medicine at Virginia Maryland College of Veterinary Medicine. Dr. Mercer's professional interests include non-steroidal anti-inflammatory drugs and large animal pharmacology. Following completion of her Residency in Large Animal Internal Medicine and Master's in Biomedical and Veterinary Sciences, Dr. Mercer will pursue a PhD and Residency in Veterinary Clinical Pharmacology.

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Lay Language Abstract

The use of non-steroidal anti-inflammatory drugs (NSAIDs) such as phenylbutazone in horses is widespread, and can be associated with detrimental side effects such as gastrointestinal ulceration and kidney damage. The clinical need for pain relief in horses with long-term lameness that minimizes gastrointestinal side effects has led to the development of cyclooxygenase-2 (COX-2) selective NSAIDs, such as firocoxib, but the expense of this therapy is often a major consideration limiting its use and few alternatives are available. Acetaminophen is one of the most commonly used analgesic drugs in humans, and is readily available as an inexpensive generic over-the-counter preparation. Despite the lower efficacy of acetaminophen in trials of human patients with chronic osteoarthritis, acetaminophen remains the preferred analgesic in humans due to its increased tolerance and improved cost-benefit analysis when compared to nonselective and COX2 selective NSAIDs. Acetaminophen has a number of mechanisms of action that differ from the current mainstays of equine analgesic therapy, which may provide greater efficacy against chronic or neuropathic pain in equine patients. In horses, acetaminophen has demonstrated efficacy as an adjunct treatment for laminitis in one pony, and was an effective analgesic agent when combined with NSAIDs in a model of inducible foot pain. This pharmacokinetics and safety study of acetaminophen in horses showed rapid absorption and achievement of levels reported to be therapeutic in humans, with no adverse side effects after two weeks of repeated dosing in horses. This study supported a shorter dosage interval in horses of 6-8 hours, compared to those used in previous clinical reports.

Presentations

MA Mercer, JL Davis, BJ McIntosh, KE Wilson, DR Hodgson, HC McKenzie. *Pharmacokinetics and Safety of Repeated Oral Dosing of Acetaminophen in Adult Horses*. Presented at the Virginia Maryland College of Veterinary Medicine Research Symposium, March 2017 and March 2018. Also presented at the American College of Veterinary Internal Medicine Annual Meeting, June 12-16th 2018, Seattle Washington.

Awards and Academic Achievements

Virginia Maryland College of Veterinary Medicine 2018 Research Symposium: March 2018

Examination Graduate Committee

Major Advisor/Chair

Harold McKenzie, DVM, MS, PGCert (VetEd), FHEA, DACVIM
Associate Professor of Large Animal Medicine
Large Animal Clinical Sciences

Graduate Advising Committee Members:

Jennifer Davis, PhD, DACVIM, DACVCP
Associate Professor
Clinical Pharmacology
Department of Biomedical Sciences & Pathobiology

Bridgett McIntosh MS, PhD
Equine Extension specialist, Middleburg Agricultural Research and Extension Center
Department of Animal and Poultry Sciences

Katherine Wilson, DVM, MS, Diplomate, ACVIM
Clinical Assistant Professor
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