

# BIOMEDICAL & VETERINARY SCIENCES GRADUATE PROGRAM



## ANNOUNCES

The Master of Science Seminar and Examination  
of

**Susan Carr, DVM**

**“Measurement of Pre and Postprandial  
Urine Calcium to Creatinine Ratio to  
Identify Calcium Oxalate Urolithiasis in  
Miniature Schnauzers”**

**Monday, May 7, 2018  
9:00 am  
VMIA Classroom 220**

## Bio



Dr. Susan Carr received her veterinary degree from the University of Sydney, Australia. She practiced in Queensland for several years before returning to Sydney to completing a rotating and medicine internship. She is currently completing the third year of her internal medicine residency at Virginia Tech.

## Funded by

Virginia–Maryland College of Veterinary Medicine  
VMCVM Office of Research and Graduate Studies  
Morris Animal Foundation

## Lay Language Abstract

Calcium oxalate urinary stones are a frequently encountered problem in Veterinary Medicine, and they have particularly high incidence amongst several popular dog breeds; the Miniature Schnauzer, Yorkshire Terrier, Bichon Frise, Toy Poodle and Dachshund. These stones are a significant source of pain for affected dogs and financial strain for pet owners. The causes of calcium oxalate urinary stone formation are not fully known, but increased urinary calcium has been identified in affected dogs. This work quantifies calcium excretion by performing a measurement called the urine calcium to creatinine ratio (UCa:Cr). The hypothesis was that the UCa:Cr was significantly greater in stone-forming dogs than non-stone forming dogs (controls). The second hypothesis was that the difference between the two groups was even greater in the hours after feeding.

The findings of this study show Miniature Schnauzers that form calcium oxalate urinary stones have significantly higher mean UCa:Cr than control dogs at multiple points throughout the day. The change in UCa:Cr over the day was not significant. The UCa:Cr proved to be a simple cost-effective biomarker to identify Miniature Schnauzers who may be at risk for CaOx urinary stone formation.

## Publications

**Carr SV**, Martin PA, Keyes SL, et al. Nasofacial infection in a cat due to a novel bacterium in *Neisseriaceae*. *JFMS open reports*. 2015;1(2):2055116915597240. doi:10.1177/2055116915597240.

## Presentations

Congenital Esophageal Stricture. ACVIM Endoscopy SIG. June 2017.

Canine Hypothyroidism: can we diagnose it in the sick pet? Virginia-Maryland College of Veterinary Medicine. Intern-Resident Seminar, April, 2017

Calcium Measurement by Spectroscopy. Virginia-Maryland College of Veterinary Medicine. Biomedical and Veterinary Graduate Seminar. February, 2017.

Identifying Calcium Oxalate Urolithiasis and the Urine Calcium to Creatinine Ratio. Virginia-Maryland College of Veterinary Medicine. Intern-Resident Seminar, March, 2016

Nasofacial infection in a cat due to a novel bacterium. Virginia-Maryland College of Veterinary Medicine. Intern-Resident Seminar, October, 2015

### **Awards and Academic Achievements**

Morris Animal Foundation Grant. Awarded Pilot Study Grant for \$10,000. Principle Investigator for pilot study "Measurement of Pre and Postprandial Urine Calcium to Creatinine Ratio to Identify Calcium Oxalate Urolithiasis in Miniature Schnauzers".

IRIS Renal Week scholarship. Awarded travel costs and conference fees to attend Renal Week at UC Davis March 2018.

Royal Canin Travel Grant. Awarded travel costs to attend ECVIM-CA congress in Malta in 2017.

Member of the Australian and New Zealand College of Veterinary Scientists, Small Animal Medicine Chapter. Admitted 2014 by examination.

### **Examination Graduate Committee**

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

David Grant, DVM, MS, DACVIM  
Associate Professor  
Department of Small Animal Clinical Sciences

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

Stefanie DeMonaco, DVM, MS, DACVIM  
Assistant Professor  
Department of Small Animal Clinical Sciences

Megan Shepherd, DVM, PhD, DACVN  
Assistant Professor  
Department of Small Animal Clinical Sciences

