GI21 ASSESSMENT OF SERUM LIPOPROTEIN PROFILES IN DOGS WITH CHRONIC ENTEROPATHY AND HEALTHY CONTROL DOGS. Tomomi Minamot1, Rosemary Walzem2, Suchodolski Jan3, Steiner Jorg4, Guilmot, University of California, Texas A&M University, College Station, USA, 3Department of Nutrition and Food Science, Texas A&M University, College Station, USA

The main function of lipoproteins is to transport lipids in the blood stream. Lipoproteins are classified into 5 major classes based on their densities: chylomicrons, very low density lipoproteins (VLDL), intermediate density lipoproteins (IDL), low density lipoproteins (LDL), and high density lipoproteins (HDL). Based on the human literature, altered proportions of lipoprotein classes have been described in certain disease states, such as cardiovascular disease, metabolic disease, and inflammatory diseases, including inflammatory bowel disease and systemic lupus erythematosus (SLE). It is known that infection and chronic inflammation impair lipoprotein metabolism and cause a variety of changes in plasma concentration of lipids and lipoproteins in healthy patients with SLE. However, little is known about lipoprotein profiles of dogs with chronic enteropathy (CE). The aim of this study was to investigate serum lipoprotein profiles, cholesterol, and triglyceride concentrations in dogs with CE and healthy control dogs.

Analysis of serum lipoprotein profiles was performed in 31 healthy control dogs and 43 dogs with CE using a density gradient ultracentrifugation. The image of each tube following ultracentrifugation was converted to a density profile using a commercially available software program (OriginPro 7.5). The area under the curve (AUC) of triglyceride-rich lipoproteins, LDL, HDL, and total lipoproteins were calculated for analysis. In addition, serum cholesterol and triglyceride concentrations were measured using a commercially available clinical chemistry analyzer (SIRRUS, STANBIO, Boerne, TX, USA). Data were analyzed using a Wilcoxon rank sum test or t-test where appropriate. Significance was set at P < 0.05. Total lipoproteins, LDL, and HDL levels in healthy dogs were significantly higher than in dogs with CE (P < 0.0001, P = 0.0022, and P = 0.0001, respectively). Serum cholesterol concentrations in healthy control dogs (mean ±SD: 237 ± 59 mg/dL) were significantly lower than those in dogs with CE (mean ± sd: 180 ± 88 mg/dL, P = 0.002).

This study suggests that lipoprotein profiles are altered in dogs with CE. Investigating clinical importance of lipoprotein profiling in dogs with CE is warranted.

GI22 SERUM HOMOCYSTEINE CONCENTRATIONS IN GREYHOUNDS. Niels Gruetzner1,2, Christina M Iazbik1,3, Romy M Heilmann1, Rosana Lopes4, Seth C Bridges1, Jan S Suchodolski1, Guilmot, University of California, Texas A&M University, College Station, USA, 1Farm Animal Clinic, Bern, Switzerland, 2Department of Veterinary Clinical Sciences, Ohio, USA, 4Couto Veterinary Consultants, Hilliard, USA

In humans, hyperhomocysteinemia is a multifactorial and incompletely understood condition. Increased serum homocysteine (Hcy) concentrations have been associated with cardiovascular disease, peripheral arterial occlusive disease, and venous thrombosis. Recently, cardiovascular/thrombotic disease and hypercobalaminemia have been described in Greyhounds. It was also suggested that hyperhomocysteinemia in Greyhounds with suspected gastrointestinal disease is due to hypocobalaminemia and hypofolateremia. Both conditions have also been linked to hyperhomocysteinemia, which may affect Hcy levels, as shown previously in dogs. However, it is unknown if low levels of both micronutrients (cobalamin and/or folate) are present only in Greyhounds with gastrointestinal disease or also in healthy Greyhounds. Therefore, the aim of this study was to evaluate serum HCY, cobalamin, and folate concentrations in Greyhounds with diarrhea or thrombotic disease as well as in healthy Greyhounds. Serum samples from healthy Greyhounds (n = 16), Greyhounds with diarrhea (n = 30), or a history of thrombotic events (n = 8) were collected at the Ohio State University and Texas A&M University. Serum Hcy concentrations (reference interval [RI]: 5.0-22.1 µmol/L) were measured by gas chromatography-mass spectrometry. Concentrations of cobalamin (RI: 251-908 ng/L) and folate (RI: 7.7-24.4 µg/L) were measured using an automated chemiluminescence assay. Concentration of serum Hcy, cobalamin, and folate were compared among the three groups of Greyhounds using a non-parametric Kruskal-Wallis test, as applicable. Correlation analysis was performed to test for any possible correlation between HCY and the two B vitamins.

Serum Hcy concentrations differed among the three groups of Greyhounds (P = 0.0012). Healthy Greyhounds had significantly higher serum Hcy concentrations (mean ±SD: 65.2 ± 24.2 µmol/L) than Greyhounds with diarrhea (39.7 ± 21.7 µmol/L, P < 0.01) or thrombosis (36.7 ± 22.1 µmol/L, P = 0.005). All healthy Greyhounds had serum Hcy concentrations above the upper limit of the RI. Serum cobalamin and folate concentrations did not differ among the groups of Greyhounds (both: P > 0.05). A negative correlation was observed between serum Hcy and serum cobalamin (P: -0.61; 95%CI: -0.76 to -0.39; P < 0.0001) or serum folate concentrations (P: -0.28; 95%CI: -0.52 to -0.01; P = 0.0386) when analyzing all samples together. However, no correlation was observed when analyzing the three groups of Greyhounds separately (for all: P > 0.05).

Healthy Greyhounds had higher serum Hcy concentrations than Greyhounds with diarrhea or thrombotic disease. All healthy Greyhounds were hyperhomocysteinemic, which suggests that Greyhounds could serve as a novel canine model to further investigate hyperhomocysteinemia in humans. However, further studies are warranted to characterize this model.

GI23 EFFECT OF THE PROBIOTIC ENTEROCOCCUS FAECIUM SF 68 ON PRESENCE OF DIARRHEA IN WEANING KITTENS. Stanley Marks1, Samantha McDonnell1, Carol Smith3, Lisa Fowler4, Valerie Goetting5, Christine Chavest6, Courtney Cook7, Kelly Keating8, Philip Kass1, University of California, Davis, School of Veterinary Medicine, Davis, CA, USA

Diarrhea in kittens is a frequent malady facing veterinarians and managers of feline shelters and catteries; however, there is scant literature providing specific information on causes and management of this problem.

The objectives of this study were to determine the prevalence of fecal enteropathogens in weanling kittens and assess whether administration of Enterococcus faecium SF 68 affected fecal quality.

135 kittens 1-2 weeks of age were entered into the 6-week trial. Kittens were maintained on PetAg KMR milk replacer for a 1 week acclimation period prior to randomization into groups of 2 or 3 for probiotic or placebo administration. Kittens were maintained on KMR and treated for 2 weeks prior to weaning onto a commercial canned diet at week 4. Fresh feces from all kittens were scored daily for consistency (score 1 = liquid diarrhea, 2 = soft, unformed; 3 = soft, formed; 4 = normal). Feces were evaluated for enteropathogens via centrifugation flotation, bacterial culture, toxin immunocassays, and PCR.

81 kittens completed the trial (placebo n = 36, probiotic n = 45). Enteropathogens detected included: Isospora felis (16.2%), Cryptosporidium spp. (8.2%), Clostridium difficile toxin A/B (27.3%), C. perfringens enterotoxin (2.6%), Salmonella (2.7%), Panleukopenia (1.4%), and Coronavirus (6.8%). Median fecal consistency scores during weeks 4 and 5 were ≥ 3 in both groups, but were associated with significantly improved scores in the placebo versus probiotic group (P = 0.013).

Administration of the probiotic Enterococcus faecium SF 68 to weanling kittens did not result in improved fecal scores prior to or during weaning.