The time point for the first peak of DOB before TL administration was highly variable, ranging from 45 to 720 min after test meal administration (median 90.0 min; %CV: 124.0%). A clear second peak was detectable in seven dogs, ranging from 240 to 780 min after test meal administration (median 540.0 min). The time point for the first peak of DOB four weeks after TL administration was less variable ranging from 90 to 165 min after test meal administration (median 142.5 min; %CV: 20.1%). However, a significant difference of the median time point of the peak before or after TL administration could not be identified ($p = 0.4316$). Also, a clear second peak was only detectable in two dogs after TL administration (660 and 780 min after test meal administration).

In conclusion, determination of a first peak after administration of ^{13}C-octanoic acid and ^{13}C-lactose ureide, putatively reflecting gastric emptying, is feasible. Administration of TL for four weeks led to less variability of the time of the first peak. A second peak, putatively reflecting oro-cecal transit time, could not be determined consistently within the first 840 minutes of the test, especially after four weeks of TL therapy. These findings would suggest that a ^{13}C-lactose ureide test would not be feasible for estimation of oro-cecal transit time in dogs using the current protocol.

ABSTRACT #276

PERCUTANEOUS ULTRASOUND-GUIDED TRANS-SPLENIC PORTAL VEIN CATHETERIZATION IN DOGS SUSPECTED FOR CONGENITAL PORTOSYSTEMIC SHUNT. M. Schneider, M. Plassmann, S. Scheidt; Small Animal Clinic (Internal Medicine), Justus-Liebig-University, Giessen, Germany.

Interventional therapy of congenital portosystemic shunts is of increasing interest. In the diagnostic and therapeutic procedure portal vein catheterization is needed. The aim of the prospective study was to describe the technique and results of percutaneous trans-splenic portal vein catheterization in dogs suspected for a congenital portosystemic shunt.

Between April 1999 and March 2003 we performed 40 percutaneous portal vein catheterizations in 31 dogs suspected for a congenital portosystemic shunt. Indications for the procedure were diagnosis (n = 14), therapy (n = 9) or re-examination after treatment (n = 17). Dogs with a body weight less than 3.0 kg body weight were not included. Anesthesia was induced with acepromazin and levomethadon and maintained with inhalation of isoflurane. The patients were placed in dorsal recumbency and a biopsy-adapter was connected to a 7 MHz sector probe. Under ultrasound guidance a needle with mandarin (0.9 mm diameter and 10 cm length) was introduced into a splenic vein. After removing the mandarin and aspiration of blood a 0.018 inches soft tip guide-wire was placed through the splenic vein into the portal vein under fluoroscopic guidance. Either a 3F catheter lonely or a 4F catheter in combination with a 4F introducer sheet was used for portal vein catheterization. After the diagnostic or therapeutic intervention a bandage was wrapped around the abdominal cavity. After 12 hours an abdominal ultrasound examination was done to detect potential complications.

The median body weight was 9.0 kg (range 3.3–60.0). The access to the splenic vein was unsuccessful in four dogs. In four additionally dogs the catheter could only be placed into the splenic vein but not into the portal vein. The 3F catheter was used in 19 cases for angiography. The 4F catheter was used in 17 cases for coil-implantation and/or angiography. One dog developed an abdominal hemorrhage which needed a blood transfusion and recovered completely. Three other dogs showed a mild abdominal effusion. One dog developed a subcapsular splenic hematoma without clinical symptoms. Splenic vein thrombosis without clinically signs was found as a temporary or permanent complication in one case each.

Percutaneous ultrasound-guided portal catheterization is possible in most dogs with a congenital portosystemic shunt. Diagnostic and therapeutic intervention in the portal vein system can be done by this approach.

ABSTRACT #277

EFFECTS OF FEEDING FREQUENCY ON WATER INTAKE IN CATS. Kirschvink N.[1], Lhoest E.[2], Leemans J.[1], Delvaux F.[1], Istasse L.[2], Gustin P.[1], Diez M.[2] [1]Department for Functional Sciences, [2]Unit of Small Animal Nutrition, Department of Animal Production, Faculty of Veterinary Medicine, University of Liège, Belgium.

The objective was to determine the effects of variations in energy intakes and frequency of meals on spontaneous water intakes in healthy cats.

A colony of 24 adult cats (10 neutered males and 14 neutered females) aged between one and three years, body score ranging from 2 to 4, mean body weight (BW) 4.0 ± 0.6 kg, was given ad libitum access to water. All cats were sequentially fed the diet (% dry matter [DM], crude protein 35, crude fat 12, crude fiber 3, ash 9, Na 0.7, 4890 kcal metabolizable energy/kg DM) during three weeks and drinking water was measured during the last week. The diet was given at two energy (E) levels (Low E: 71 and High E: 91 kcal/kg BW/day), the total daily energy being provided by 1, 2 or 3 meals. Water intake was determined twice daily.

Table 1. Results.

	Daily energy intake kcal/kg BW	Na intake mg/kg BW	Water intake ml/cat/day	Water intake ml/g DM intake
Diets				
Low E- 1 meal	71	103	72 ± 10[a]	1.23 ± 0.19[a]
Low E – 2 meals	71	103	89 ± 4[b]	1.54 ± 0.05[b]
Low E – 3 meals	71	103	95 ± 6[c]	1.67 ± 0.10[c]
High E – 1 meal	91	128	91 ± 11[a]*	1.22 ± 0.15[a]
High E – 2 meals	91	128	109 ± 11[b]*	1.44 ± 0.15[b]

a, b, c = significantly different for within column and energy levels comparisons, * = significantly different from respective Low-E ($P < 0.05$).

For a given energy level, the water intake (ml/g DM) significantly increased by increasing meal frequency. With increasing energy intakes, absolute water intake (ml/day/cat) increased without influencing water intake expressed by g DM.

One dietary modification for the prevention and treatment of feline lower urinary tract disease might be the division of the daily diet in at least two or three meals, which seems efficient to increase drinking water consumption in healthy cats.

ABSTRACT #278

CREATINE DISPOSITION IN HEALTHY DOGS. ADJ Watson, E Jeunesse, V Laroute, G Costes, JP Braun, HP Lefebvre. Physiopathologie et Toxicologie Expérimentales INRA-ENVT, National Veterinary School of Toulouse, France.

Creatine is a popular dietary supplement used to increase exercise performance and fat-free mass in humans. This compound was recently shown to have beneficial effects in various human clinical conditions. Creatine is mainly found in skeletal muscle. It is obtained through the diet and is also synthetized in the liver, kidney and pancreas. There have been very few investigations of the pharmacokinetics of creatine in humans and animals. The aim of the present study was to investigate the pharmacokinetics of creatine in dogs after single iv and oral administration.

Five clinically healthy adult Beagle dogs were used. Animals were fasted overnight before dosing. Creatine was dissolved in sterile distilled water to obtain a solution at a final concentration of 12.5 µg/mL. The dose rate was 20 mg/kg. Blood was sampled just before administration of creatine. After bolus iv administration, blood was sampled at 2, 5, 10, 20 and 30 min, 1, 2, 4, 6, 8, 10 and 24 hours. After oral administration, bood was sampled at 15, 30, and 45 min, 1, 1.5, 2, 3, 4, 6, 8, 10 and 24 hours. Blood was collected in heparinized tubes and immediately centrifuged. Plasma creatine was frozen at −20°C until assayed by HPLC, the limit of quantitation being 5 µg/mL. Pharmacokinetic analysis was performed by a noncompartmental approach using WinNonLin software. Data are expressed as mean ± SD.

Basal levels of plasma creatine (from 5.6 to 16.1 µg/mL) was above LOQ in 3 dogs. Following single iv administration, plasma clearance, steady state volume of distribution, mean residence time, and elimination half-life were 5.1 ± 0.4 mL/kg/min, 207 ± 24 mL/kg, 41 ± 6 min and 32 ± 5 min. Following single oral administration, peak plasma concentration and time to peak plasma concentration were 33 ± 7 µg/mL and 33 ± 7 min. The oral bioavailability was 86 ± 10%.

These results indicate that the clearance of creatine is relatively close to the value of glomerular filtration rate in dogs, indicated that renal elimination of creatine may approximate GFR. The steady state volume of distribution corresponds to the extracellular fluid volume. Following oral dosing, which is the usual route of administration, the absorption occurs rapidly and the bioavailability is good. Further studies are however needed to assess pharmacokinetic variables following repeated oral administrations and in individuals with renal failure.

ABSTRACT #279

COMPUTER ANALYSIS OF NUTRIENT SUFFICIENCY OF PUBLISHED HOME-COOKED DIETS FOR DOGS AND CATS. SD Lauten, TM Smith, CA Kirk, JW Bartges, and AM Adams. Department of Small Animal Clinical Sciences, University of Tennessee College of Veterinary Medicine, Knoxville, TN.

Veterinarians frequently rely on published home-cooked diets when commercial foods are inappropriate or rejected by their clientele. Forty-nine maintenance and 36 growth diets were collected from six books[a]. The diets were analyzed using a human software package[b] that utilizes several reputable ingredient databases including USDA, on food composition. All efforts were made to review individual ingredients to assure completeness of nutrient analyses. Diet analyses