

Assessment of water intake and urine volume in cats fed a new high-protein high-sodium dry diet

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Introduction

Environmental enrichment and stress reduction are common recommendations to help manage clinical cases of feline idiopathic cystitis (FIC). Dietary manipulation is also commonly recommended, typically aiming to increase water intake, resulting in production of an increased volume of more diluted urine.

The objective of this study was to evaluate water intake and urine volume in cats fed a new dry diet designed to help management of FIC, in comparison with a control dry diet.



Animals, materials and methods

Eight healthy European adult neutered cats (4 males and 4 females, mean age 4.4 ± 0.3 years, mean body weight 4.8 ± 1.2 kg) normally fed dry diets were included in the study. The study used a cross-over design with a test diet and a control (commercial urinary) diet, each being fed for 3 weeks. The 2 diets had different formulas in terms of ingredients and analytical constituents.

The study focused on 2 main nutrients known to increase water intake in cats: protein and sodium, with the test diet having higher protein and sodium contents compared with the control diet (Table 1). Daily rations were calculated to maintain the cats' body weights. After a 1-week diet transition, the cats were housed in single metabolism cages, and daily food consumption, water intake and urine volume were measured for each cat. Wilcoxon signed rank tests were performed to compare the different parameters between the 2 groups, with a 5 % significance level.

Table 1: Protein and sodium contents in the 2 diets

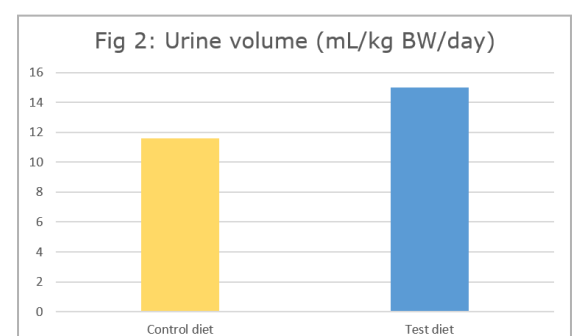
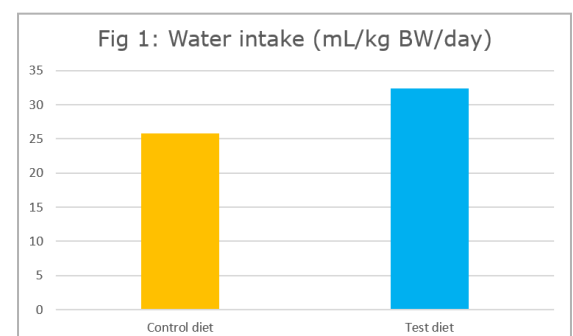
Nutrient	Control diet	Test diet
Protein (g/Mcal)	84	117
Sodium (g/Mcal)	0.92	2.88

Results

Palatability and digestive tolerance were good with both diets and the cats' body weights remained stable. The test diet resulted in significantly higher values for all the assessed parameters, in comparison with the control diet (Table 2, Figure 1 and Figure 2).

Table 2: Mean \pm SD of each parameter in the 2 groups and p-values

Parameter	Control diet	Test diet	P
Protein intake (g/kg BW/day)	4.07 ± 0.05	5.22 ± 0.49	0.0078
Sodium intake (g/kg BW/day)	0.045 ± 0.001	0.128 ± 0.012	0.0078
Water intake (mL/kg BW/day)	25.80 ± 7.89	32.34 ± 11.04	0.0325
Urine volume (mL/kg BW/day)	11.59 ± 3.84	15.01 ± 4.51	0.0144



Conclusion

These preliminary results showed that this new diet, with high protein and high sodium contents, was effective in stimulating water intake and increasing urine volume in healthy cats. The next step will consist in testing the diet in cats with idiopathic cystitis.