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Efficacy and Tolerance of Two Low-Carbohydrate Diets in Large Adult Dogs with Digestive Sensitivity: A Randomized, Cross-Over, Blinded Evaluation

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Abstract

Objective: The objective of this study was to assess the efficacy and gastrointestinal tolerance of a new dry low carbohydrate diet, Sensitive Digest Adult Dog (SENSI) formulated for adult dogs with sensitive digestive systems in comparison with the Adult Dog Large and Medium (ADULT) diet from the same VeterinaryTM HPM range.

Methods: Dogs with digestive sensitivity were included in a two-period, two-sequence crossover study. They were randomly divided into two groups being fed, after a 4-day diet transition, exclusively and successively with each of the two tested diets over a 28-day period. Digestive parameters were evaluated by owners, through online multiple-choice questionnaires, on D0, D7, D28 and D56. Sign and Mc Nemar's tests were used to perform intra- and inter-group comparisons ($\alpha=0.05$).

Results: One hundred and twenty-one client-owned adult dogs completed the study. Both diets improved daily defecation frequency, faecal score, odour and volume, and flatulence frequency in comparison with the normal diet of the dog. Significant differences ($p<0.01$) were observed as soon as 7 days after the change of diet. SENSI continued to upgrade digestive parameters after a 28-day feeding period with ADULT, with significant differences for faecal volume ($p<0.05$). When ADULT was administered after SENSI, the digestive parameters, except defecation frequency, were degraded, and this was significant for faecal consistency ($p<0.001$). No side effect was reported by the owners. Both diets were rated as highly palatable by owners, and preferred to the usual diets by about 50% of the dogs. Over 79% of owners were satisfied by the test diets, the satisfaction rate and mean score being however significantly higher with SENSI.

Conclusion: ADULT and SENSI were both well tolerated and improved digestive parameters in dogs with digestive sensitivity. On few parameters, the improvement was significantly higher with SENSI compared to ADULT. It was concluded that SENSI represents a valuable alternative to ADULT in dogs with sensitive digestive systems.

Keywords: Digestive sensitivity; Faecal score; Faeces odour; Flatulence; Petfood; Nutrition

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Introduction

Veterinary HPMTM range (Virbac SA, France) is based on the nutritional concept of High Protein and Low Carbohydrate (HP-

LC) diets that have been shown to bring substantial benefits to adult dogs' health such as weight stabilization, maintenance of muscle mass, and regulation of blood sugar [1-10]. High gastrointestinal tolerance of Veterinary HPM foods has been

proven in both growing and adult dogs in field conditions [11,12]. However, large dogs, and more specifically certain sensitive breeds such as German Shepherd, Labrador Retrievers, Great Danes or Giant Schnauzers, are known to have particularly sensitive digestive systems that are manifested by exacerbated colonic fermentations and lower faecal consistency [13-18], and whatever the breed, some individual dogs may also have digestive sensitivity without there being a specific cause. While a diet formulated with highly digestible proteins improves faecal quality in dogs, especially in large sensitive ones [15,17,18], increased dietary protein concentrations are suspected to lead to a greater faecal score by affecting the quantity of substrate available for colonic fermentation [15,18].

Thus, to address the specific concern of those dogs with digestive sensitivity, Virbac Company has developed a new dry diet (Sensitive Digest Adult Dog Large and Medium (SENSI)) with adjusted protein content (32% DM (dry matter)) compared to the other diets from the same Veterinary™ HPM range (mean protein content: 38% DM), and specific ingredients and supplementations.

In SENSI formula, rice has been chosen as the only source of starch to achieve a better control of the cooking-extrusion process, and to make easier the enzymatic attack of starch in the small intestine. Moreover, rice starch is often described as the most digestible starch in dogs versus other starch sources [19,20]. SENSI diet has been supplemented with Sepiolite (0.8% of the formula) which acts as clay: thanks to its high capacity to absorb excessive water and gas in the intestinal lumen, Sepiolite is aimed to normalize faeces consistency and flatulence [21,22]. Because of its demonstrated effectiveness in reducing faecal odour in a high protein diet as well as faecal ammonia and production of intestinal gases independently of protein content in the diet, *Yucca schidigera* extract has been incorporated to SENSI (representing 42 ppm of saponins in the diet) [23-25].

The aim of this study was to compare the digestive tolerance of the new SENSI diet to that of the Adult Dog Large and Medium (ADULT) diet from the same Veterinary™ HPM range in client-owned adult dogs of various breeds with established digestive sensitivity in a two-period, two-sequence crossover study.

Materials and Methods

Animals

Client-owned adult dogs with sensitive digestive systems were selected from a pre-existing database by an independent company specialised in customer satisfaction research. Dogs experiencing at least two of the three following criteria were eligible for participation in the study: flatulence (at least several times a week), loose or even watery stools (at least once a week) and foul-smelling stools, without deterioration of their general health status.

Test diets

Two complete, balanced and dry diets for adult dogs were tested in this study: SENSI (Veterinary™ HPM, Virbac SA, France), a diet dedicated to adult dogs with digestive sensitivity, and ADULT (VETERINARY™ HPM, Virbac SA, France), a diet for adult

normal dogs. The two diets were formulated to meet FEDIAF requirements for adult dogs [26]; their nutritional characteristics are presented in **Table 1**. The test diets were provided in neutral bags only labelled with the appropriate feeding table indicating the recommended daily quantity of kibbles depending on the dog's bodyweight and level of physical activity.

Study design

This was a **crossover** trial. The overall 56-day follow-up period was divided into two 28-day periods. The dogs were randomly allocated to one of the two following groups: Group 1 (n=66) where the dogs were fed with ADULT for 28 days and then switched to SENSI for a new 28-day period; Group 2 (n=63) where the dogs were first fed with SENSI and then with ADULT for the same period of time (**Figure 1**). In each of the 28-day period, the dogs were fed exclusively the test diet after a 4-day diet transition. No medical management was allowed during the study period. Online multiple-choice questionnaires were administered to the pet owners on D0 (basal assessment when dogs fed with usual diets), D7 and D28 of the first period and on D28 of the second period.

The five following digestive parameters were assessed by the dog owners during the course of the survey: daily defecation frequency (from <1 to ≥ 3 stools/day), faecal score (using a specific five-point scoring system where 1=hard dry and crumbly and 5=watery, presented in **Figure 2** [27]), faeces volume (from very small to very large), faeces odour (from very slightly odorous/very acceptable to very odorous/unbearable), and flatulence frequency (graded into 4 levels from never to very often / several times a day) (**Table 2**). **Table 2** also presents what was considered as "normal" or "abnormal" for each digestive parameter.

Some other parameters were evaluated during the course of the study. Indeed, owners answered also questions about kibbles palatability, diet preference compared to the dog's usual diet, changes in water intake or coat quality. At the end of each 28-day period, they were asked if they were satisfied with the tested diet (yes or no) and to give a satisfaction score on a 0-to-10 scale (with 0: not satisfied at all and 10: totally satisfied). At the end of the survey, the owners had to choose their favourite diet.

Data analysis

Animal characteristics were compared between groups (Group 1 versus Group 2) by using a Kendall's Tau-b. For the purpose of analysis, the owner assessments of the five digestive parameters previously defined were divided into two categories: "normal" or "abnormal". The "normal" and "abnormal" dog's clinical status are defined in **Table 2**.

The number and percentage of dogs considered as "normal" with respect to each digestive parameter as well as the mean faecal score by averaging all the corresponding individual figures were calculated at each time point. Data were recorded using computer software Excel and all statistical analyses were conducted by use of computer software Statgraphics Centurion version XVI.II. Data were analysed by considering the two groups 1 and 2 and the chronological order of administration of the two diets in the cross-over study design. Sign and Mc Nemar's tests were used to

Table 1 Comparative nutritional characteristics of ADULT and SENSI (DM: dry matter).

	Adult	Sensi
Ingredients	Poultry and pork dehydrated proteins, rice, animal fats, whole pea, potato starch, hydrolyzed animal proteins, lignocelullose, beet pulp, fava bean hull, mineral salts, linseed, fish oil, fructo-oligosaccharides, psyllium fiber, chitosan, pasteurised Lactobacillus acidophilus, chondroitin sulfate.	Poultry and pork dehydrated proteins, rice, animal fats, lignocelullose, beet pulp, mineral salts, linseed, fish oil, Yucca schidigera extract, fructo-oligosaccharides, psyllium fiber, chitosan, pasteurised Lactobacillus acidophilus, chondroitin sulfate.
Added active ingredients/additives		
Sepiolite (%)	0.5	0.8
Killed lactobacilli (mg/kg)	7.2	7.2
<i>Yucca schidigera</i> extract (%)	0	0.04
Nutritional profile		
Metabolisable Energy (ME) (measured <i>in vivo</i>) (kcal/100g)	382	388
Protein (% ME)	34	28
Fat (% ME)	41	42
Carbohydrate (% ME)	25	30
Starch (% DM)	24	27.5
Crude cellulose (% DM)	5.5	5
Soluble fibre (% DM)	1.6	1.6
Insoluble fibre (% DM)	8.8	8.8
Total omega-6 fatty acids (% DM)	2.2	2.7
Total omega-3 fatty acids (% DM)	0.9	0.9
Apparent digestibility coefficient of protein (%) (<i>in vivo</i>)	82	84.5
Apparent digestibility coefficient of fat (%) (<i>in vivo</i>)	96	96.5

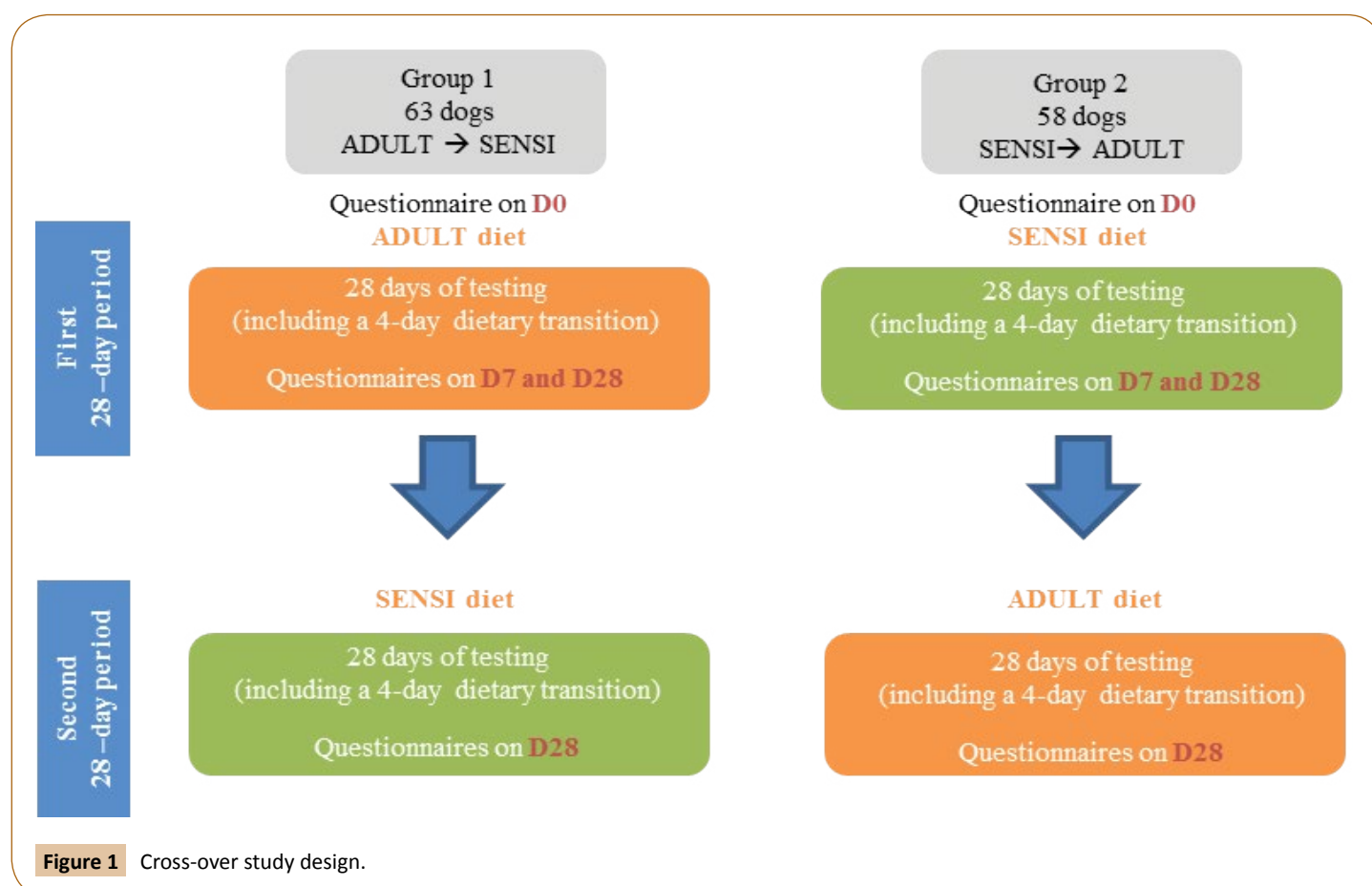




Figure 2 Faeces consistency scoring (faecal score) [27].

Table 2 Daily defecation frequency, faeces volume, faeces odour, and flatulence frequency scoring.

Digestive parameter	Scoring	“Normal”/“Abnormal”
Daily defecation frequency	Less than 1 stool per day	Normal
	1 stool per day	
	2 stools per day	
Faeces volume	3 or more stools per day	Abnormal
	Very small	
	Small	Normal
	Medium	
	Large	
Very Large	Abnormal	
Faeces odour		Very slightly odorous (very acceptable)
	Slightly odorous (acceptable)	
	Mildly odorous (slightly acceptable)	
	Odorous (slightly bearable)	Abnormal
	Very odorous (unbearable)	
Flatulence frequency	Never	Normal
	Sometimes	
	Often (several times a week)	Abnormal
	Very often (several times a day)	

perform intra- and inter-group comparisons. A threshold value of $\alpha=0.05$ was used to define significance.

Results

Characteristics of the study population

Initially, 129 dogs were recruited in the study. Eight dogs did not complete the study. Three dogs were removed because of diarrhoea during the diet transition (1 dog from usual diet to ADULT and 2 dogs from SENSI to ADULT), 2 developed a disease unrelated to the current study, and 3 owners did not answer all

questionnaires. So, 121 dogs were analyzed (63 dogs in Group 1 and 58 in Group 2). Thirty one different breeds of various sizes (Labrador retriever (14), Boxer (10), German shepherd (9), Beauceron (7), Golden Retriever (7), American Staffordshire (4), Rottweiler (4), Australian shepherd (3), Basset Hound (3), Doberman (3), and other breeds represented by one or two dogs), and 29 crossbreeds participated in the study. Their mean age was 5.9 ± 3.3 years (minimum: 1.0 and maximum: 14.0 years), their mean body weight and body condition score (on a nine-point system) averaged 34.3 ± 8.2 kg (minimum: 20.0 and maximum: 60.0 kg) and 5.2 ± 0.7 (from 4 to 8), respectively. The study population consisted of 39% entire males, 22% neutered

males, 19% entire females and 20% spayed females. Animal characteristics did not differ between groups except for the sex ($p=0.04$) with a higher number of entire males in Group 2 compared to Group 1.

All dogs were used to eat dry commercial kibble diets, mainly originated from supermarkets (53%) but also from specialized shops (32%) (Including 3% from veterinary practices), the internet (10%) and other sources (5%).

Digestive parameters

Defecation frequency: Forty (63%) and 32 (55%) dogs in Groups 1 and 2, respectively, had a “normal” defecation frequency (as defined above, i.e., dogs defecating up to twice daily) at inclusion with their usual diet (**Figure 3**). These numbers increased to 46 (73%) and 41 (71%) dogs after 28 days under ADULT and SENSI, respectively, and continued to improve after the diet switch to 48 (76%) and 43 (74%) dogs, respectively, at the end of the 56-day follow-up. The reduction in defecation frequency was significant for ADULT in Group 2 and for SENSI in Groups 1 and 2 ($p<0.05$).

Faecal score: The mean faecal scores significantly improved from 3.13 ± 0.58 and 3.16 ± 0.60 at inclusion to 2.48 ± 0.50 and 2.35 ± 0.39 after the first 28-day period in Groups 1 and 2, respectively ($p<0.001$), and then continued to decrease to 2.41 ± 0.43 at the end of the second 28-day period in Group 1 ($p<0.001$) but was then degraded up to 2.57 ± 0.54 in Group 2 ($p>0.01$) (**Figure 4**). The mean faecal score was significantly lower in animals fed with SENSI compared to ADULT in Group 2 ($p<0.001$). Taking into consideration the mean faecal scores on D7, a highly significant enhancement was observed with both diets (2.67 ± 0.60 and 2.63 ± 0.51 for ADULT and SENSI, respectively) ($p<0.001$).

The number and percentage of dogs with a “normal” faecal score (≤ 3) significantly increased from 36 (57%) and 32 (55%) at enrollment to 56 (89%) and 58 (100%) after a 28-day feeding period with ADULT and SENSI, respectively. After the change of

diet, the figures continued to raise to 61 (97%) in Group 1 with SENSI while they significantly decreased to 53 (91%) in Group 2 with ADULT ($p<0.001$). At the end of the survey, the improvement of faecal score was however significant in both groups compared to the dogs’ usual diets ($p<0.001$) (**Figure 5**).

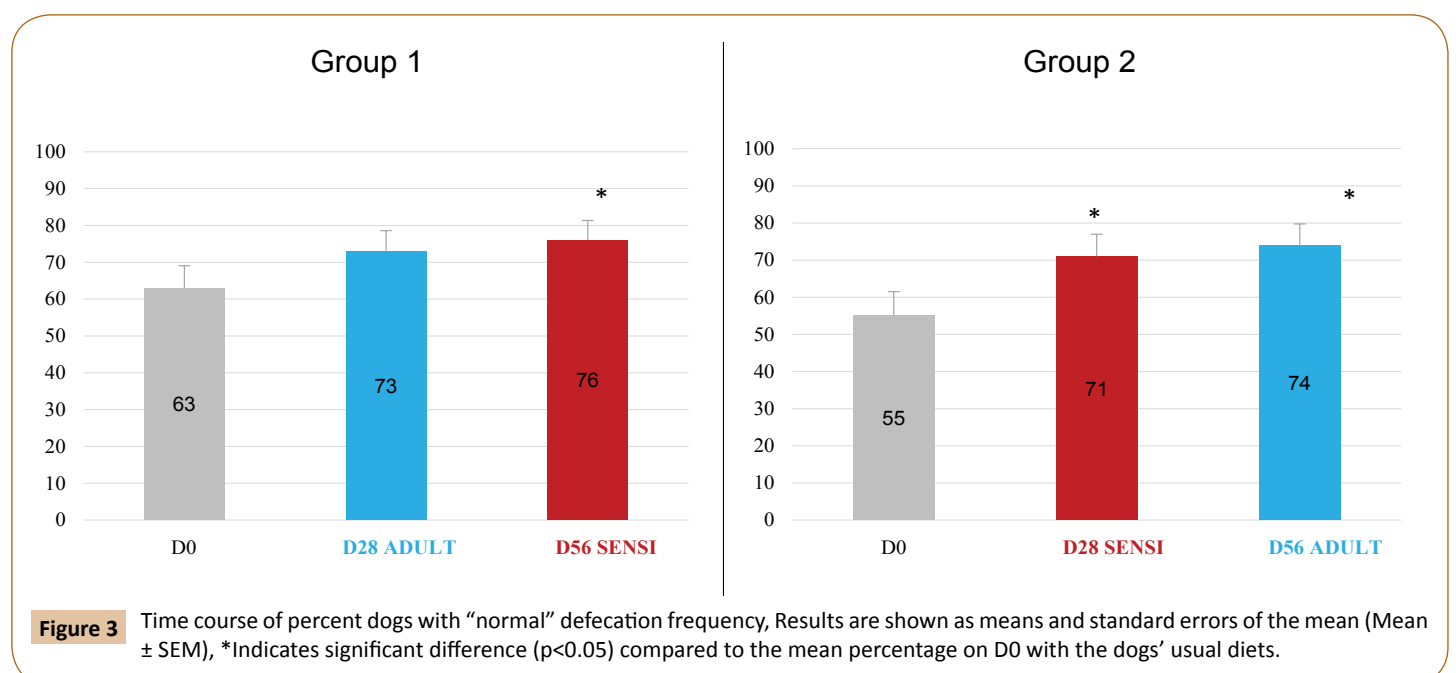
As soon as D7, percentage of “normal” dogs was significantly increased with both diets: 52 (83%) and 54 (93%) dogs for ADULT and SENSI, respectively ($p<0.01$).

Faeces volume: When considering faeces volume, 37 (59%) and 39 (67%) dogs were considered as “normal” on D0 in Groups 1 and 2, respectively (**Figure 6**). At the end of the first 28-day period, these proportions had risen to 52 (83%) and 54 (93%) dogs, respectively, and at the end of the second 28-day period, they had achieved 59 (94%) and 51 (88%) dogs, respectively. All differences were significant compared to D0 ($p<0.05$). Furthermore, these results were significantly higher for SENSI compared to ADULT in Group 1 ($p<0.05$).

ADULT as well as SENSI significantly reduced faeces volume as soon as D7: 55 (87%) and 55 (95%) dogs with normal faeces volume after ADULT and SENSI, respectively ($p<0.001$).

Faeces odour: At inclusion, 17 (27%) and 14 (24%) of the owners in Groups 1 and 2, respectively, considered that their dogs had «normal» stool odour (**Figure 7**). These figures increased to 57 (90%) and 52 (90%) with ADULT and SENSI, respectively, and were 59 (94%) and 49 (84%) at the end of the survey. Both diets significantly enhanced faecal odour compared to D0 ($p<0.001$). The proportion of “normal” dogs was significantly increased on D7 with both diets: 54 (86%) and 52 (90%) dogs for ADULT and SENSI, respectively ($p<0.001$).

Flatulence frequency: Regarding flatulence parameter, 5 (8%) and 1 (2%) dogs in Groups 1 and 2, respectively, were considered as «normal» at inclusion because they never presented flatulence (**Figure 8**). When feeding dogs with each of the ADULT and SENSI



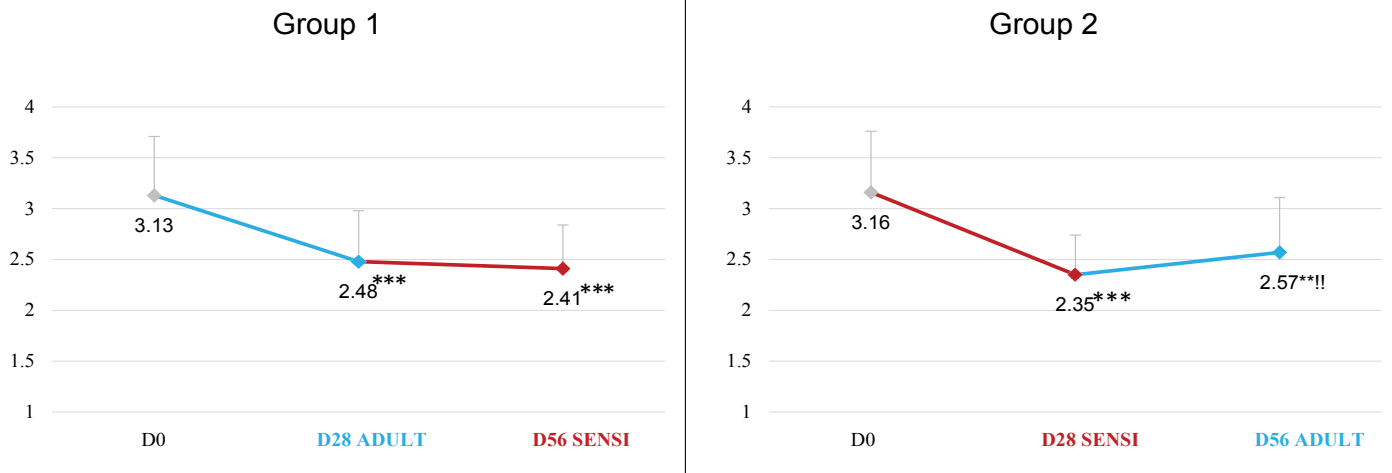


Figure 4 Time course of faecal score, results are shown as means and standard errors of the mean (Mean \pm SEM)** and *** indicate significant difference (*:p<0.001 and **: p<0.0001) compared to the mean score on D0 with the dogs' usual diets.!! Indicates significant difference (p<0.001) compared to the mean score with SENSI on D28.

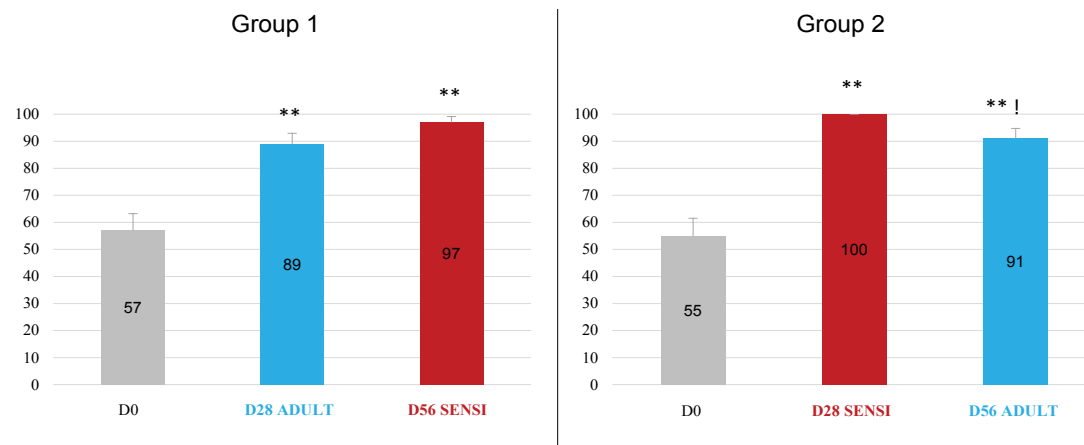


Figure 5 Time course of percent dogs with "normal" faecal score. Results are shown as means and standard errors of the mean (Mean \pm SEM)** indicates significant difference (p<0.001) compared to the mean percentage on D0 with the dogs' usual diets.! Indicates significant difference (p<0.05) compared to the mean percentage with SENSI on D28.

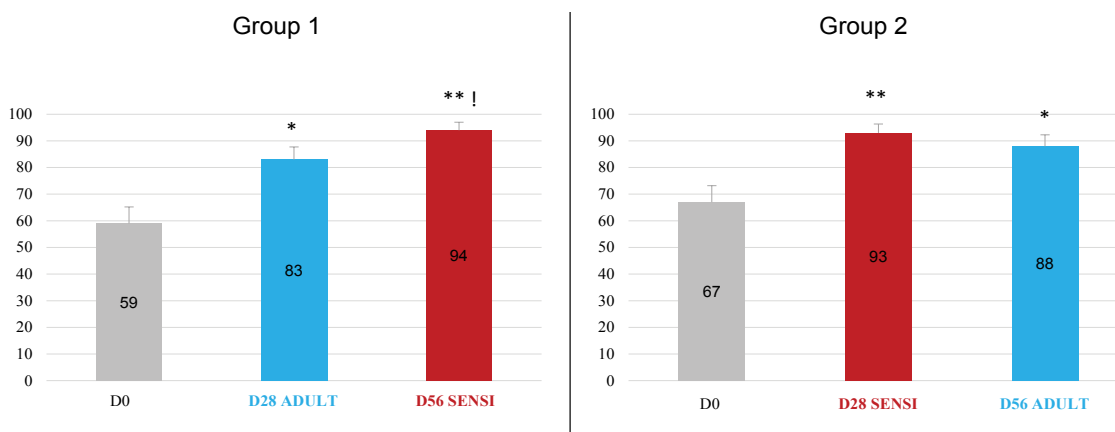


Figure 6 Time course of percent dogs with "normal" faecal volume. Results are shown as means and standard errors of the mean (Mean \pm SEM)* and ** indicate significant difference (*:p<0.05 and **: p<0.001) compared to the mean percentage on D0 with the dogs' usual diets! indicates significant difference (p<0.05) compared to the mean percentage with ADULT on D28.

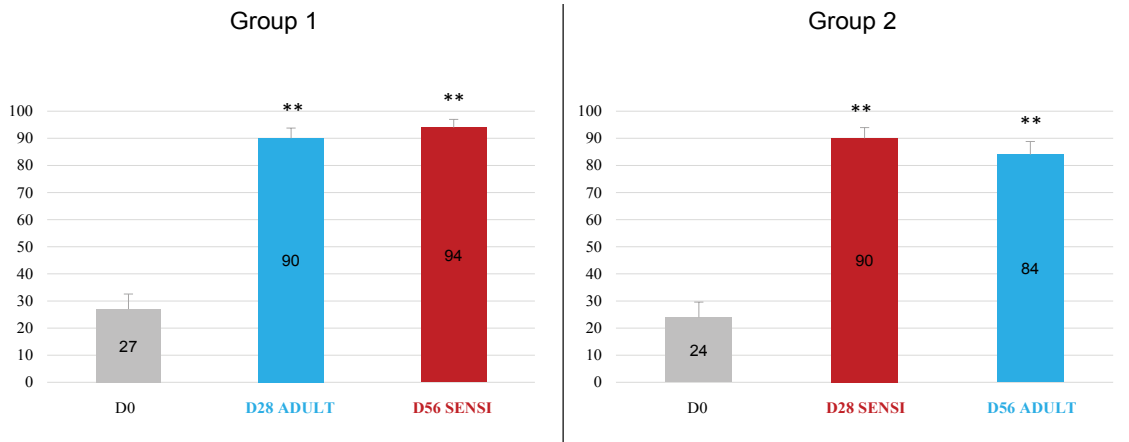


Figure 7 Time course of percent dogs with “normal” faecal odour. Results are shown as means and standard errors of the mean (Mean ± SEM)** indicates significant difference (p<0.001) compared to the mean percentage on D0 with the dogs’ usual diets.

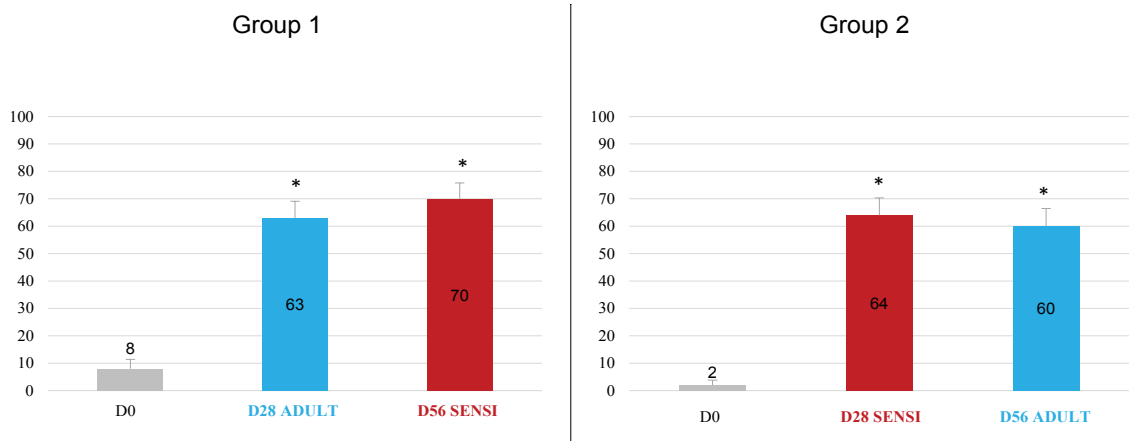


Figure 8 Time course of percent dogs with no flatulence. Results are shown as means and standard errors of the mean (Mean ± SEM). * indicates significant difference (p<0.05) compared to the mean percentage on D0 with the dogs’ usual diets.

Table 3 Assessment of other parameters.

Parameter	Diet	Adult	Sensi
	Assessment	Number (%) of dogs	
Palatability	Poor	17 (14%)	10 (8%)
	Good	55 (45%)	52 (43%)
	Very good	49 (41%)	59 (49%)
Diet preference compared to usual food	No	19 (16%)	13 (11%)
	Equivalent	43 (36%)	39 (32%)
	Yes	59 (49%)	69 (57%)
Water intake	Decreased	16 (13%)	13 (11%)
	Unchanged	63 (52%)	70 (58%)
	Increased	42 (35%)	38 (31%)
Coat quality	Deteriorated	9 (7%)	5 (4%)
	Unchanged	67 (55%)	72 (60%)
	Improved	45 (37%)	44 (36%)

diets, a significant improvement was observed compared to D0 since 40 (63%) and 37 (64%) dogs, respectively, and 44 (70%) and 35 (60%) dogs, respectively, had no flatulence at the end of the first and the second 28-day follow-up period, respectively

(p<0.001). As soon as D7, the great majority of the dogs had no flatulence: 41 (65%) and 58 (100%) dogs for ADULT and SENSI, respectively. This improvement was highly significant compared to D0 for both diets (p<0.001).

Other parameters: The assessment of 5 out of the 8 other parameters recorded during the course of the study is presented in **Table 3**. No significant differences were shown between the two diets in respect of palatability, preference compared to the dogs' usual diets, water intake and coat quality. Kibble palatability was considered as good or very good by 86% (ADULT) and 92% (SENSI) of the owners. Forty-nine percent (ADULT) and 57% (SENSI) of the dogs preferred the tested diet compared to their usual diet. The dogs' coat quality was improved in 37% (ADULT) and 36% (SENSI) of the dogs. Water intake was unchanged in 52% (ADULT) and 58% (SENSI) of the cases.

Combining all the assessed parameters, the owners' satisfaction rate was significantly higher in the dogs fed with SENSI with 88% of satisfied owners, compared to 79% with ADULT ($p < 0.05$). The mean satisfaction score was also significantly higher with SENSI vs ADULT: 7.8 ± 1.8 and 7.2 ± 2.3 , respectively ($p = 0.02$). Fifty-two percent of the owners declared at the end of the study that they preferred the SENSI diet, 25% preferred the ADULT diet and 23% had no preference vs their usual diets.

Discussion

A crossover design was used in the present study in order to remove dog variation, since not every subject responds to a diet in the same way. Consequently, crossover trials are potentially more efficient than similar sized, parallel group trials in which each subject is exposed to only one diet. In this crossover study, it was considered that each dog acted as its own control since fed successively with the two diets and that the usual diet was the control diet. The principal drawback of crossover trials is that the effects of one diet may "carry over" and alter the response to the subsequent diet. The usual approach to preventing this when crossover studies aim to compare treatments is to introduce a washout (no treatment) period between consecutive treatments which is long enough to allow the effects of a treatment to wear off. However, this is not possible when the purpose of the study is to compare diets. In this survey, the carry over effect was minimized by the duration of the second sequence (which was as long as the first sequence, i.e., 28 days) and the restriction of the outcome measurement to the end of the second 28-day feeding period.

The five digestive parameters were improved at the end of each first 28-day period with either ADULT or SENSI. Improvement was very quick with both diets since significant differences were observed compared with the dogs' usual diets as soon as 7 days after the change of diet, namely after only 3 days of exclusive administration of the new diet because of the 4-day diet transition. When dogs were fed with SENSI after ADULT in Group 1, the percent of dogs with normal digestive parameters continued to increase. This rise was significant for faecal volume. On the contrary, when SENSI was changed for ADULT in Group 2, the digestive parameters, except defecation frequency, were degraded and this was significant for faecal consistency.

These results corroborated those published on other commercial diets from the same Veterinary™ HPM diet range. The assessment of these diets in two prior studies was based on an online multiple choice questionnaire very similar to that used in

our study. Moreover, the scales used for the evaluation of the digestive parameters (stool consistency, odour and volume) were identical as those used in the present study, except for stool volume that was classified into three categories (small, normal or large) in the previous studies instead of five in the present study. A high digestive tolerance was reported after feeding various-sized growing and adult dogs of different breeds with the current three diets dedicated to growing dogs (Baby Dog Small and Toy, Baby Dog Large and Medium and Junior Dog Special Large) and the four diets formulated for adult dogs (Adult Dog Small and Toy, Adult Dog Neutered Small and Toy, Adult Dog Large and Medium (ADULT in the present study), Adult Dog Neutered Large and Medium), respectively [11,12]. Furthermore, the two previous studies showed a safe diet transition from numerous kinds of canine foods with all the tested diets.

More precisely, in the previous survey conducted by Chaix et al. [11] in adult dogs, the registered digestive parameters did not show any significant differences when the dogs were fed with their usual diets or after a 28-day testing period with ADULT. After 28 days under ADULT, 98% of the dogs had well-formed stools (compared to 89 and 91% in Groups 1 and 2, respectively, in the present study), the mean faecal consistency score was 2.3 (compared to 2.5 and 2.6), and 77% of the owners reported globally acceptable stool odour (compared to 90 and 84%). Stool volume was reported as small or normal in 96% of the dogs on D28 (compared to 83 and 88%). Sixty-six percent of the dogs had no flatulence (compared to 63 and 60%). The percentages of dogs with normal digestive parameters after a 28-day feeding period with ADULT were higher in the present study regarding stool odour and lower with regard to the other digestive parameters. The significance reported in the time course of percent dogs with "normal" digestive parameters in the present study seemed to be due to lower basal values in comparison with those in the prior study. However, the satisfaction rates and scores at the end of both studies were comparable (83% (7.3/10) in the previous study and 79% (7.2/10) in our study). In summary, even if the results after a 28-day feeding period with ADULT in the previous study were globally better than those reported in our study, the percentage of dogs with normal digestive parameters on D28 remained similar to those obtained here with SENSI.

The high digestive tolerance, and even improvement in the digestive function of dogs with both formulas, SENSI and ADULT, may be explained by the supplementation in some functional ingredients, common to the 2 formulas. SENSI and ADULT are supplemented with fructo-oligosaccharides (FOS, 0.5% of the formula). FOS is soluble fibres that act as prebiotics and influence positively the composition of the intestinal microbiota [28]. In addition, bacterial fermentation of such fibres increases the concentration of short chain fatty acids, mainly butyrate, which have a trophic role and increase colonocyte growth and proliferation, favouring nutrient absorption [29,30]. FOS also help in reduction of the production of odorous components such as ammonia, phenol, indole, biogenic amines, coming from the putrefaction of proteins by bacteria other than the commensal flora, and as a consequence help reduce faecal odour and flatulence [28,30]. SENSI and ADULT are also supplemented with Psyllium fibre (0.5% of the formula). The Psyllium mucilaginous

fibre, with its high water-holding capacity, forms gel in water and helps normalize faecal consistency [31]. Several specificities in the composition of SENSI versus ADULT could explain its better results obtained in the present study. As observed by Nery et al. [17], the higher the protein content (from 22 to 39% DM), the greater was the faecal score and the higher was the faecal fermentation [15,17]. In our study, the reduction of the protein content in SENSI vs ADULT (32 vs 39% DM) may have resulted in the normalization of faecal moisture and consistency as well as the reduction of fetid odours. Supplementation in Sepiolite and *Yucca schidigera* extract has probably participated in the reduction of intestinal gas and faecal odour with SENSI diet. In Dos Reis' study, addition of 42 ppm saponins from *Yucca schidigera* in a diet with 34% DM protein, significantly decreased faecal odour in dogs [25].

With respect to the other parameters registered during the course of this study, palatability of both diets was perceived as good or very good by the great majority of the owners (about 90%) and the tested diets were preferred to the usual diets by about 50% of the dogs. In more than half of the dogs, the diets had no impact on water intake. Both diets improved the dogs' coat quality in more than 30% of the cases. Combining all the

assessed parameters, over 79% of owners declared to be satisfied by the test diets, the satisfaction rate being however significantly higher with SENSI. This was confirmed by mean satisfaction scores and the fact that SENSI was chosen as the preferred diet by more than 50% of the participants to the study.

Conclusion

The results of the present survey confirmed previous published data demonstrating the gastrointestinal safety of the existing ADULT diet from the Veterinary™ HPM range for medium and large dog breeds. They also showed that the new dry SENSI diet with a specific formulation more adapted to large dogs, and more specifically certain breeds, as well as individual dogs with digestive sensitivity was well tolerated over a 28-day period in various sized adult dogs of different breeds. In this study, both diets improved digestive parameters in dogs with digestive sensitivity. SENSI had an even higher digestive tolerance than ADULT. Therefore, ADULT could be recommended as the current-first-line diet, even in dogs most likely to have sensitive digestive systems, and replaced by SENSI when loose or watery faeces, flatulence and/or foul-smelling stools are observed during diet transition.

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