

Assessment of a new high protein – high essential fatty acid diet in cats with chronic skin and coat disorders

I. Leriche^a, C. Navarro^b, S. Fournel^c, C. Nicolas^b, G. Chaix^b, M-O. Gely^a

DERMATO



^a Virbac Nutrition, Vauvert, France
^b Virbac Medical Department, Carros, France
^c Virbac Statistical Department, Carros, France

Introduction

In general practice, dermatological cases constitute around 15% of the caseload in cats and are the most common reasons for consultation¹.

It is well known that nutrition plays an important role in controlling skin and coat condition, especially some nutrients such as protein and essential fatty acids (EFAs)^{2,3}.

The objective of this open study was to assess the efficiency of a new dry dietetic pet food intended for the "support of skin function in the case of dermatosis or excessive loss of hair" in cats.

1. Hill PB et al. Vet Rec 2006; 158(16): 533. 2. Watson TDG. J Nutr 1998; 128: 2783S. 3. Roudebush P and Schoenherr WD. Skin and hair disorders. In: Small Animal Clinical Nutrition 2010; Chapter 32: 637-643.

Materials and Method

Animals:

- 44 client-owned adult cats with chronic skin disorders of nonspecific causes
- Average (SD) age: 4.5 (2.4) years old; body weight: 4.3 (1.3) kg; body condition score: 5.5 (1.1)
- Flea treatment before the start of the study
- No medical management allowed during the study

Diet:

- Metabolisable energy share: protein 41%, fat 38%, carbohydrate 21%
- Proteins (mainly from animal origin): 94%. Different fat sources: poultry fat, fish oil, linseed, sunflower oil, borage seed
- High and balanced level of EFAs: EPA+DHA=0.8% and LA+GLA=3.9% on a dry matter basis
- 8 weeks of feeding (test diet exclusively)

Assessments:

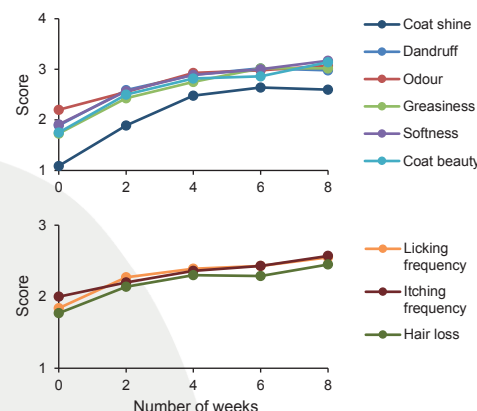
- 9 criteria evaluated:
 - 6 rated from 0 (severe alteration) to 4 (normal): coat shine, presence of dandruff, skin/coat odour, coat greasiness, coat softness and coat beauty
 - 3 rated from 0 (severe/frequent) to 3 (normal): licking frequency, itching frequency and hair loss
- Assessments on Day 0 (D0, baseline) and every 2 weeks (W2, W4, W6 and W8)
- Body weight (BW) and body condition score (BCS) recorded at D0 and W8
- Other assessments: kibble quality, palatability, preference, digestive tolerance and owners' satisfaction

Statistics

Analysis were done using repeated measures ANOVA and the adjustment procedure of Dunnett for pairwise comparison in case of significance. The time effect was considered significant at a 0.05 level.

Results

Parameter	D0 (n = 44)	W2 (n = 44)	W4 (n = 44)	W6 (n = 42)	W8 (n = 42)
On a 4-point scale:					
Coat shine	1.09 ± 0.47	1.89 ± 0.65***	2.48 ± 0.73***	2.64 ± 0.82***	2.60 ± 0.80***
Dandruff	1.89 ± 1.04	2.59 ± 0.87***	2.89 ± 0.84***	3.02 ± 0.95***	2.98 ± 0.92***
Odour	2.20 ± 0.73	2.55 ± 0.82*	2.93 ± 0.82***	2.98 ± 0.87***	3.07 ± 0.71***
Greasiness	1.73 ± 0.85	2.43 ± 0.90***	2.75 ± 0.84***	3.02 ± 0.95***	3.02 ± 0.98***
Softness	1.91 ± 0.94	2.57 ± 0.73***	2.89 ± 0.92***	3.00 ± 0.91***	3.17 ± 0.82***
Coat beauty	1.75 ± 0.75	2.50 ± 0.66***	2.82 ± 0.84***	2.86 ± 0.84***	3.14 ± 0.78***
On a 3-point scale:					
Licking frequency	1.84 ± 0.89	2.27 ± 0.85**	2.39 ± 0.75***	2.43 ± 0.77***	2.55 ± 0.67***
Itching frequency	2.00 ± 0.81	2.20 ± 0.70	2.36 ± 0.78*	2.43 ± 0.80**	2.57 ± 0.67***
Hair loss	1.77 ± 0.94	2.14 ± 0.73*	2.30 ± 0.73***	2.29 ± 0.71***	2.45 ± 0.71***



Evolution of the scores attributed to different skin and coat parameters.

Table: mean ± SD and statistics (ANOVA + adjustment procedure of Dunnett): *p<0.05; **p<0.01, ***p<0.001. Figure: mean scores

Most improved parameters at W8:

- coat softness: 94% cats recovered normal parameters
- coat beauty: 95% cats recovered normal parameters

Proportion of cats improved at W8:

- Full recovery (all parameters normal): 57 %
- General improvement (all parameters improved): 17%
- Partial improvement: 21%
- No improvement: 5%

No change in BW and BCS throughout the study

Palatability:

- Considered normal to very good by 88% owners.
- Test diet preferred by 57% cats compared to their usual diet

Digestive tolerance:

- 93% cats had stools with normal consistency
- 93% cats had stools in normal or fewer quantity than usual
- 95% cats had no flatulence (5% had flatulence but less than usual)
- 97% owners reported stools odour unchanged or decreased compared with usual food

Satisfaction:

- 91% owners satisfied at W8. Mean (SD) satisfaction score of 7.9 (2) on a 0-10 scale
- Main reasons for satisfaction: palatability, clinical efficiency

Conclusion

The test diet rapidly improved skin and coat condition of a great majority of cats. These improvements are likely linked to the composition of the diet: rich in animal protein as a source of sulphur-containing amino acids and balanced in omega-6 and omega-3 fatty acids.

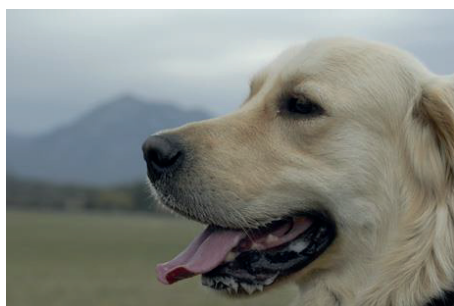
Palatability, digestive tolerance and owners' satisfaction were good, which should allow a good compliance with the diet and maximize the chance of success for the management of chronic skin disorders.

Clinical controlled trials with validated scales could now be carried out to assess the benefits of this diet in the management of specific skin diseases.

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Introduction

Management of dermatological conditions is the main primary reason for consultation after vaccination¹.

It is well known that nutrition plays an important role in controlling skin and coat condition, especially some nutrients such as protein and essential fatty acids (EFA)^{2,3}. In its recent updated guidelines, the International Committee on Allergic Diseases of Animals (ICADA) advises an increase of EFA intake to help in the management of dermatological disorders⁴.

The aim of this open study was to evaluate the effectiveness of a new dry dietetic pet food intended for the "support of skin function in the case of dermatosis or excessive loss of hair" in dogs.

1. Hill PB et al. Vet Rec 2006; 158(16): 533. 2. Roudebush P et al. In: Small Animal Clinical Nutrition 2010; Chapter 32: 637-643.
 3. Rees CA et al. Vet Dermatol 2001; 12(2): 111. 4. Olivry T et al. BMC Vet Res 2015; 11: 210

Materials and Method

Animals and treatments:

- 45 client-owned adult dogs with chronic skin and/or coat disorders of nonspecific cause (for at least 3 weeks)
- Average (SD) age: 5.5 (3) years old; body weight: 23 (16) kg; body condition score: 5.2 (0.7)
- Flea treatment before the start of the study
- No medical management allowed during the study

Diet:

- Metabolisable energy share: protein 35%, fat 41%, carbohydrate 24%.
- Proteins: 88% animal origin; fat sources: poultry fat, fish oil, linseed, sunflower oil, borage seed
- High and balanced level of EFAs: EPA+DHA = 0.4% and LA+GLA = 3.6% on a dry matter basis
- 8 weeks of feeding (test diet exclusively)

Assessments:

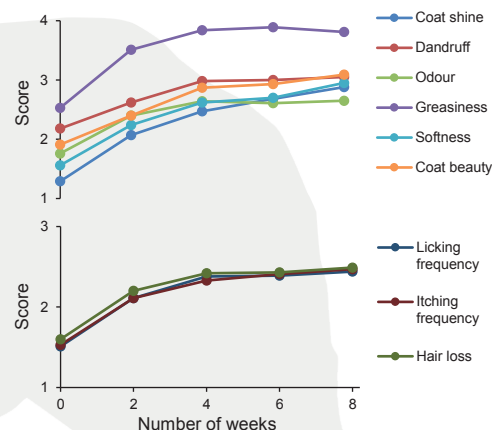
- 9 criteria evaluated:
- 6 rated from 0 (severe alteration) to 4 (normal): coat shine, presence of dandruff, skin/coat odour, coat greasiness, coat softness and coat beauty
- 3 rated from 0 (severe/frequent) to 3 (normal): licking frequency, itching frequency and hair loss
- Assessments on Day 0 (baseline) and every 2 weeks (W2, W4, W6 and W8)
- Body weight (BW) and body condition score (BCS) recorded at Day 0 and W8
- Other assessments: kibbles quality, palatability, preference, digestive tolerance and owners' satisfaction

Statistics

Analysis were done using repeated measures ANOVA and the adjustment procedure of Dunnett for pairwise comparison in case of significance. The time effect was considered significant at a 0.05 level.

Results

Parameter	Day 0 (n = 45)	W2 (n = 45)	W4 (n = 45)	W6 (n = 44)	W8 (n = 43)
On a 4-point scale:					
Coat shine	1.29 ± 0.66	2.07 ± 0.86**	2.47 ± 0.76**	2.68 ± 0.74**	2.88 ± 0.59**
Dandruff	2.18 ± 1.05	2.62 ± 1.01*	2.98 ± 0.81**	3.00 ± 0.81**	3.05 ± 0.79**
Odour	1.76 ± 0.96	2.40 ± 0.91**	2.64 ± 0.83**	2.61 ± 0.92**	2.65 ± 0.78**
Greasiness	2.53 ± 1.41	3.51 ± 1.01**	3.84 ± 0.82**	3.89 ± 1.02**	3.81 ± 0.76**
Softness	1.56 ± 0.92	2.24 ± 0.77**	2.62 ± 0.72**	2.70 ± 0.82**	2.95 ± 0.75**
Coat beauty	1.91 ± 0.73	2.40 ± 0.96*	2.87 ± 0.69**	2.93 ± 0.73**	3.09 ± 0.65**
On a 3-point scale:					
Licking frequency	1.51 ± 0.97	2.11 ± 0.88*	2.38 ± 0.72**	2.39 ± 0.81**	2.44 ± 0.77**
Itching frequency	1.53 ± 0.92	2.11 ± 0.83**	2.33 ± 0.74**	2.41 ± 0.82**	2.47 ± 0.77**
Hair loss	1.60 ± 0.96	2.20 ± 0.89**	2.42 ± 0.81**	2.43 ± 0.73**	2.49 ± 0.74**



Evolution of the scores attributed to different skin and coat parameters.

Table: mean ± SD and statistics (ANOVA + adjustment procedure of Dunnett): *p<0.01; **p<0.001. Figure: mean scores.

Most improved parameters at W8:

- coat shine: 83% dogs recovered normal parameters
- coat beauty: 88% dogs recovered normal parameters

Proportion of dogs improved at W8:

- Full recovery (all parameters normal): 21 %
- General improvement (all parameters improved): 51%
- Partial improvement: 21%
- No improvement: 7%

No change in BCS and BW throughout the study

Palatability:

- Considered normal to very good by 96% owners.
- Tested diet preferred by 61% dogs compared to usual diet

Digestive tolerance:

- 98% dogs had stools with normal consistency
- 93% dogs had stools in normal or fewer quantity than usual
- 86% dogs had no flatulence or less than usual

Satisfaction:

- 91% owners satisfied at W8. Mean (SD) satisfaction score of 8.1 (2) on a 0-10 scale
- Main reasons for satisfaction: clinical efficiency, palatability and kibbles characteristics

Conclusion

The test diet rapidly improved skin and coat condition of a great majority of dogs. These improvements are likely linked to the composition of the diet: rich in animal protein as a source of sulphur-containing amino acids and balanced in omega-6 and omega-3 fatty acids.

Palatability, digestive tolerance and owners' satisfaction were good, which should allow a good compliance with the diet and maximize the chance of success for the management of chronic skin disorders

Clinical controlled trials with validated scales could now be carried out to assess the benefits of this diet in the management of specific skin diseases, like atopic dermatitis.