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A Potential Nutritional Prophylactic for the Reduction of Feline Hairball Symptoms¹

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EXPANDED ABSTRACT

KEY WORDS: • hairball • cats • prophylactic • fiber

Hairball formation in cats is generally considered to arise as a result of the routine activity of grooming where cats ingest varying quantities of hair. Single strands of ingested hair cannot be moved by peristalsis, thus become enmeshed in the gastric mucosa, eventually conglomerating into solid masses in either the stomach or intestine (1). Cats can generally rid themselves of this problem by retching until the hairball is vomited. Occasionally the aggregated ball of hair can accumulate to such an extent that a potentially serious obstruction can occur. Clinical signs of hairballs include vomiting, anorexia, and abdominal pain (2–4).

Published literature on hairball prevalence and factors predisposing to hairball formation is relatively sparse, however, a number of risk factors have been associated with their formation in different species. In the rabbit these include a lack of dietary fiber, long hair, nutritional deficiencies, and boredom or stress (5). In the cat hairball formation is associated with a lack of intestinal motility during periods of fasting (6), long hair (3), and consumption of hair from grooming (3). Hair and wool balls are found in species such as cattle and sheep when given diets low in fiber. Skin diseases may also contribute to an increase in hair ingestion as a result of constant licking or chewing of the affected area, as in the case of flea-allergy dermatitis (3). Risk factors for the rat are less well defined, however, both the protein and fiber content of the diet may play a role in the formation of hairballs (2). The importance of fiber type (i.e., soluble/nonsoluble), as well as fiber length, on hairball formation was also raised (2).

Treatment strategies in severe cases of hairball intestinal obstruction generally involve surgery to remove the hairball (3,4,7,8). Prophylactic approaches included the use of

petroleum-based laxatives (3), milk to induce vomiting (3), vitamin supplements (2), enzyme therapy (2,9), and dietary fiber (2,10).

Several scientific publications have either recommended or tested the use of additional dietary fiber (roughage) in the diet of animals that suffer from hairballs (2,5,8,10).

Psyllium husks are commonly used for chronic constipation, as a secondary medication in the treatment of various kinds of diarrhea, and in the treatment of irritable bowel.

Slippery elm (*Ulmus fulva*) bark is commonly used as an emollient, expectorant, diuretic, and a nutritive in herbal practice (11).

A daily hairball preventative, and a placebo, in the form of a palatable 2-g chew (WALTHAM[®] Feline Hairball Control Tab[™], Masterfoods Australia New Zealand) were developed to reduce the frequency of the clinical signs of hairball in cats. The active ingredients in the hairball preventative chew are psyllium husks and slippery elm. The active and placebo chews were identical in appearance and dimensions (19 × 10 × 0.8 mm). Both the active and the placebo chews had a protein content of 15.5%, a fat content of 2.0%, and a crude fiber content of 2.0%. This trial was designed to assess the prophylactic effect of this chew in reducing the frequency of the clinical signs of hairball in cats in their home environment.

MATERIALS AND METHODS

A research database (Oakham Research, Wodonga, Vic 3689, Australia) was screened to identify a panel of cats perceived by their owners to be suffering from the clinical signs of hairballs (retching, vomiting, and coughing). Cats with a high frequency of owner-perceived hairballs (a minimum of several hairballs/wk, $n = 24$) were selected to trial the hairball preventative chew. Cats had a median age of 8.7 y and the majority had long hair (67%). A questionnaire was used to highlight commonly observed clinical signs of hairballs, the most predominant of which were later used to assess the effectiveness of the daily hairball preventative chew.

The trial protocol consisted of a blinded randomized placebo-controlled crossover study with each phase running for 2 wk. Cats were fed a 2-g chew twice daily in addition to their normal diet. Cat owners

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TABLE 1

Total number of clinical signs of hairballs (vomiting, retching, or coughing) recorded in cats ($n = 24$) receiving either a 2-g hairball prophylactic chew or 2-g placebo chew twice daily for 2 wk in a randomized crossover study¹

Clinical signs	Active	Placebo	P-value
Vomiting	37	49	0.198
Retching	20	31	0.189
Coughing	23	32	0.125
Total	80	112	0.041

¹ Statistical analysis by two-tailed t test of the data showed a significant difference ($P < 0.05$) between the active and the placebo periods.

were asked to record the occurrence of hairball symptoms (vomiting, retching, coughing) each day and the acceptance of the treats. Statistical analysis (two-tailed t test) was performed on the data using Microsoft Excel 97 (Redmond, WA).

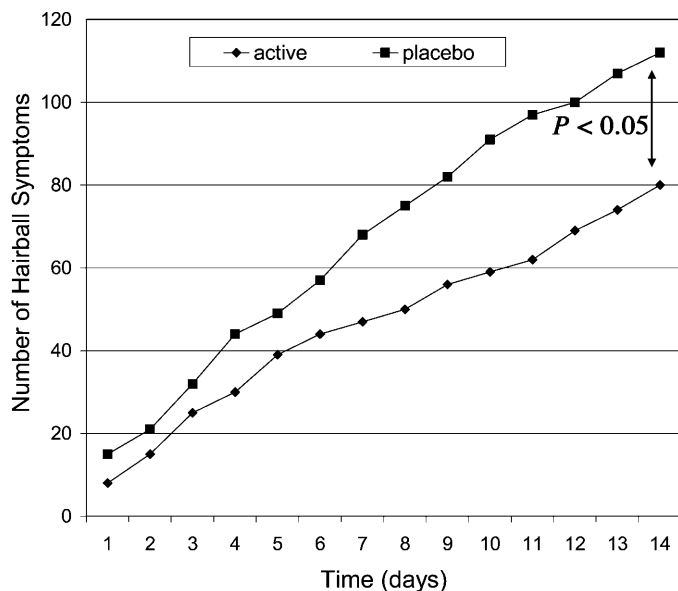


FIGURE 1 A cumulative plot of hairball symptoms (vomiting, retching, and coughing) in cats ($n = 24$) receiving a 2-g hairball prophylactic chew or a 2-g placebo chew twice daily for 2 wk in a randomized crossover study. Significantly fewer total symptoms were recorded ($P = 0.041$; indicated by the double-headed arrow) over the 2-wk period when the cats were receiving the active chews compared with the period when they received the placebo chews.

RESULTS AND DISCUSSION

A breakdown of the frequency of each clinical sign of a hairball, together with the sum of the clinical signs of hairball symptoms, during the active and control periods can be found in Table 1. The cats in the study exhibited fewer of each of the common clinical signs of hairballs during the 2 wk when the hairball preventative chew was administered, when compared with the 2-wk placebo period. Figure 1 represents a cumulative plot of the daily number of clinical signs of hairballs in the 24 cats, recorded by their owners for the duration of the active and placebo trial periods. By comparing the total number of clinical signs recorded in each period, 29% fewer clinical signs of hairballs ($P < 0.05$) were observed during the 14 d of feeding the active chew compared to the 14-d period when the placebo chew was fed.

The results of this study indicate that the nutritional hairball preventative chew helps reduce the frequency of the clinical signs of hairballs when fed daily to cats prone to hairballs. Because the clinical effects of hairballs can be a chronic problem in some cats, a more extensive trial monitoring cats for a longer period would help determine if the hairball preventative chew is more effective when given as a long-term prophylactic against the clinical signs of hairballs.

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