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Anti-hairball cat food

Vomiting of hairballs is common in cats. The regurgitated hair was ingested earlier during grooming, which makes up significant part of feline behavioral activity. The barbs on the cat's tongue encourage ingestion of loose hairs. Fur is indigestible so that swallowed hairs are eliminated with feces. Almost two-thirds of the hairs discharged by cats pass in feces (1). Shedding the winter coat raises total hair loss. Cats with longer coat have more hair mixed in with the stools (2).

Once in a while, a hair clump blocks the intestine and poses a deadly threat. Hairs clotted together in the stomach may be ejected by vomiting. Despite their name, hairballs are somewhat cigar-shaped. About 10% of short-haired and 20% of long-haired cats periodically bring up hairballs (3). Many owners dislike the signs of vomiting, retching and coughing. Thus, petfood manufacturers brought anti-hairball cat foods to the market.

Anti-hairball foods are commonly purported to move hair through the digestive tract for fecal voiding. This assertion is theoretically defensible. When more ingested hair is expelled in the stools, less is available for regurgitation. Research data indicate that cat food with cellulose fiber may increase the amount of hair in feces and diminish the manifestation of hairballs. One study showed that a kibbled cat food with 4% added cellulose reduced the average, weekly number of total signs from 2.5 to 0.5 per cat.

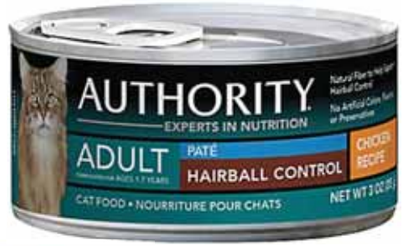
Cellulose is an indigestible and insoluble substance that is derived from plant cell walls. A detailed ingredient list on the petfood label mentions cellulose when included in the food. Current data suggest that cellulose in dry and wet cat food has anti-hairball activity at contents of about 4 and 0.8%, respectively. The percentage is mostly not declared on the label, but can be obtained from the manufacturer.

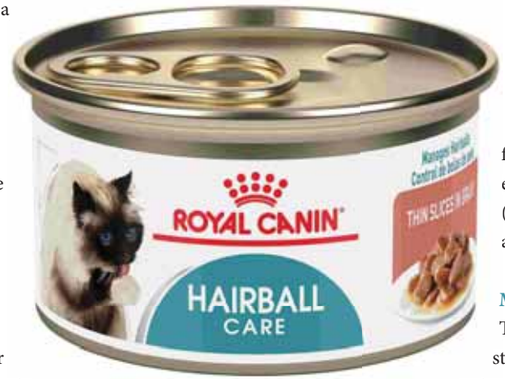
Fibers tested

Petfood labels declare the food's content of crude fiber, which mainly comprises cellulose, hemicelluloses and lignin. Research on diet and feline hairballs has concerned three fiber sources, purified cellulose, dried sugar-beet pulp and psyllium husk. These ingredients contain about 65, 19 and 3% crude fiber, respectively.

Gastric hairballs

In a double-blinded, cross-over study, a chew containing psyllium husk and slippery elm bark reduced vomiting, retching and coughing (4). Total symptoms fell from 2.3 to 1.7 times/week/cat. The 16 long- and 8 short-haired cats affected with hairballs were fed the 2-g placebo or test chew twice daily in addition to their normal diet for two weeks.





Cats (n = 102, 47 households) were fed a dry maintenance diet or a similar diet with added fiber in a cross-over study with periods of 60 days (5). Details on coat length distribution and diets are not given. The number of hairballs and vomiting frequency reported per household were each reduced by 22% while cats were on the fiber-enriched diet.

In a double-blind, parallel study lasting 28 days, cats consumed a dry food with 4% powdered cellulose or the control diet (1.8% crude fiber) containing corn in place of cellulose (6). Cats (n = 12/group) were stratified according to hairball episodes and hair length. Owners recorded vomiting, retching and coughing. Dietary cellulose decreased group-mean total signs from 2.5 to 0.5 times/week/cat.

Fecal hair excretion

Cats excrete trichobezoars, compact masses of hairs (7). Hairs can be separated from feces by sieving and washing steps. Compared with 2.0% crude fiber in dry food, levels of 4.5 and 7.8% raised fecal hair loss by 26 and 72% (8). Diet compositions are undisclosed. Adding 0.5% psyllium husk and 5.2 or 9.7% cellulose to a dry diet (1.2% crude fiber) induced a 1.8- and 2.2-fold increase in fecal hair excretion by long-haired cats, but was effectless in shorthairs (2).

Replacing wheat meal (1.75%) or beet pulp (2%) in dry food by cellulose increased group-mean fecal hair by 62 (9) and 15% (10). Cats on a dry diet containing 13% cellulose excreted 2.7 times more hair than did cats fed a diet with 12% beet pulp (11). Replacing 10% corn in dry food by sugar-cane fiber lowered group-mean fecal hair excretion by 9%, whereas cellulose as substitute raised it by 29% (7). Beet pulp (8 or 16% in dry food) versus corn reduced fecal hair excretion by 18% in short-haired cats (12). Dietary Miscanthus grass did not affect fecal hair loss (13).

Mechanism

The data indicate that dietary cellulose stimulates fecal hair excretion and reduces hairball symptoms in cats. At unchanged fur ingestion, increased fecal hair loss infers decreased formation and vomiting of gastric hairballs. Thus, cellulose would push or pull gastric hair into the duodenum. There is no convincing evidence that dietary crude fiber accelerates gastric emptying in cats (14-16).

Cellulose fibers might prevent agglomeration of single hairs in the stomach, thereby propelling loose hairs into the duodenum (17). Untangled and lengthy cellulose fibers would then be most effective. Cellulose is neither digested (18, 19) nor fermented (20, 21) in the feline digestive tract. The fiber may increase bulk and passage rate of digesta, thereby lowering the risk of clinical intestinal hairballs.

Commercial diets

Dry anti-hairball foods of 12 different brands declare crude fiber levels of 3 to 11%. The ingredient statements of five foods list cellulose. Six wet, cellulose-containing foods have 6 to 14% crude fiber in the dry matter.

List of references is available on request from the author (beynen@freeler.nl)

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