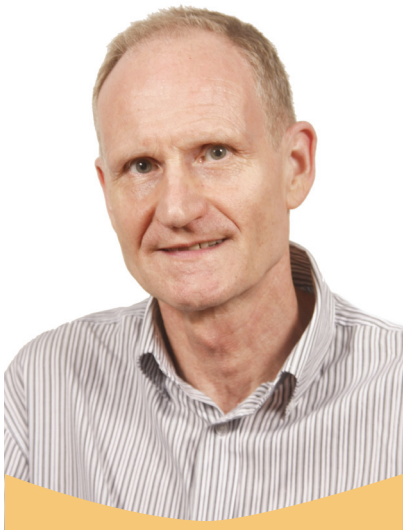

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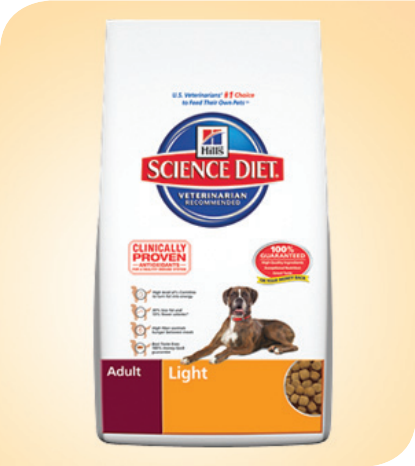
Dog Foods Bearing Satiety Claims

Free-choice feeding is effortless for dog owners, but it exposes their pets to risk for becoming overweight. Dog foods carrying satiety claims purport to promote prevention of overweight, increase the feeling of fullness and satisfy fussy appetites. Satiety is the state that inhibits further eating resulting from the signals elicited by food ingestion.

The satiating power of canine satiety foods is generally accredited to their high contents of fibres. These fibres represent various indigestible plant constituents and are poor in available calories. More fibre dilutes the caloric content of food. In other words, extra food volume can be supplied for a fixed number of calories.

Satiety claims are made by light foods and veterinary weight-reduction diets. Dogs fed on satiety foods would be satiated after consuming fewer calories than when they were given regular foods. For weight-reduction diets, which are typically fed in restricted quantities, the satiety claim of controlling hunger between meals is enticing. Less hunger may diminish begging and scavenging activity.

Research data question some of the satiety claims. Time-limited feeding of high-fibre in place of low-fibre foods increases food consumption, but nevertheless reduces calorie intake through distastefulness of high-fibre food rather than by satiety. Offering a calorie-restricted amount of high-fibre food for weight reduction does not suppress hunger between meals. The positive research message is that putting out high-fibre food once daily and taking it away after 45 minutes will curb canine obesity development or induce some weight loss.



Crude Fibre

For pet food labelling, fibre is quantified by the analysis of crude fibre. This analyte contains variable proportions of dietary cellulose, hemicelluloses and lignin, and may exclude other fibres. Regular dry dog foods have 2-4 percent crude fibre. Dry light foods contain 6-12 percent and veterinary weight-reduction diets up to 22 percent.

When comparing commercial foods, the impact of a high versus low crude fibre content in itself cannot be interpreted. This relates to the analytical method and the fact that incorporating more fibre into food not only replaces carbohydrates, proteins and/or fats, but also impairs their digestion.

Time-limited Wet Feeding

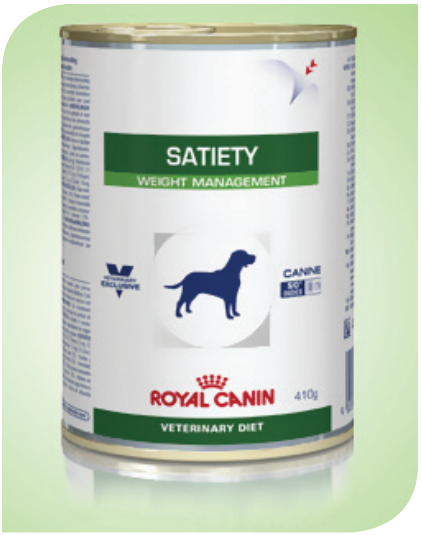
A 1949 paper deals with feeding dogs on a high-fibre, wet diet (1). Excess amounts of food were administered for 45 minutes per day. The dogs had stabilised food intake and body weight on a commercial wet food and were then were switched to a diet consisting of the commercial food mixed with cellulose and water. Moisture content remained unchanged at 70 percent and cellulose concentration was 12.5 percent (about 25 percent crude fibre in the dry matter). All six dogs responded by increasing the quantity of food eaten, but in four dogs it did not prevent 15 percent weight loss after 10 weeks.

Cumulative addition of cellulose to wet food every other day had induced an almost two-fold increase in the intake of dietary dry matter when its crude fibre level was 35 percent and dogs could no longer meet their maintenance energy requirements (2). At this point, cellulose-free wet food as subsequent meal raised dry matter intake by 50 percent. This indicates that low palatability of the high-fibre food rather than provoked satiety had impeded further eating.

Time-limited Dry Feeding

Free access for 15 minutes to dry food with higher versus lower fibre content once or daily over a 10-days period lowered calorie and dry matter intake (3, 4). When dogs were allowed one 45-minute, substantial meal daily for two or three weeks, crude fibre concentrations of about 20 versus 2 percent raised food intake by 17 percent, but lowered energy intake by 24 percent (5, 6). For the smaller fibre contrast of 12 versus 2 percent, food consumption rose by 30 percent and energy intake fell by 6 percent (5).

Dogs kept in a research facility were subjected to time-limited feeding (45-60 minutes/day) of commercial dry foods containing 22 or 2 percent crude fibre for six months (7). The high-fibre diet



High fiber controls hunger between meals

increased food intake by 17 percent and decreased energy consumption and body weight by 8 and 5 percent. In another study, two fibre-enhanced foods (presumably dry) were available for 45 minutes per day for four months (8). Both foods induced a 10 percent decrease in body weight while food intake increased. Body weight was lost during the first four weeks and then maintained.

Hunger between Amount-limited Meals

Different high-fibre foods were fed in restricted amounts corresponding to the energy allowance recommended for weight reduction (4, 9, 10) or for body weight maintenance (11). Challenge meals were offered for 15 or 20 minutes at three or six hours after introduction of the high-fibre food. The challenge meals consisted of unrestricted quantities of the preceding high-fibre food or a low-fibre food. Dogs generally consumed at least two-fold their daily energy allowance in the form of the challenge meal. Thus, the high-fibre foods lacked satiating impact.

Weight Loss and Amount-limited Feeding

In two studies (12, 13), obese dogs in home settings were fed standardised, restricted amounts of available energy for on average six months. The dogs lost more body weight when the diet was high instead of lower in crude fibre. This diet effect is as yet unexplained.

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

Dr Anton C Beynen writes this exclusive column on dog and cat nutrition every month. He is affiliated with Vobra Special Petfoods.