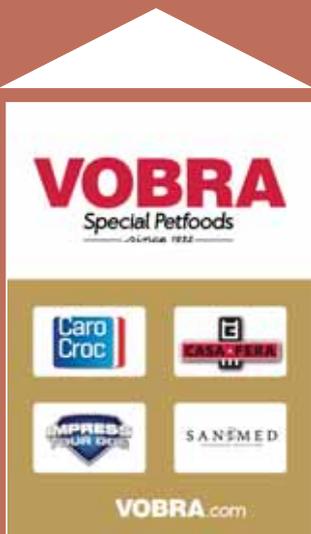




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# Instinctual Foods for Dogs and Cats

*Instinctive nutrition relates to the philosophy that animals in their natural environment are capable of self-selecting food items to optimally meet their nutritional needs. As many dog and cat owners have high interest in natural feeding, manufacturers created a niche market for instinctual food. The products purport to match the pet's instinctive diet and its optimal macronutrient profile that is instinctively preferred. For some foods the word "instinct(ive)" is part of the product name.*

*Wild foods claim to mirror what dogs or cats would eat in nature. The philosophical basis is not restricted to instinctual, but also includes evolutionary, biologically appropriate, ancestral or palaeolithic. The foods are grain-free and come in kibbled, canned, frozen and freeze-dried formats. Kibbles typically contain more protein and fat and less carbohydrate than other extruded dry foods in the market. There are no regulatory definitions of wild pet foods and their nutritional concepts.*

*There is no evidence that pets are able to regulate and balance their intake of protein, fat and carbohydrate by adjusting their choice of foods and the amounts consumed. When superfluous amounts of different complete foods were offered simultaneously, the diet put together by dogs can be explained by their "simple" liking for fat, whereas the cats' menu matched random selection of the foods dished up. Thus, the instinctual nutritional theory lacks substantiation.*

*As instinctual foods are excessive in protein and fat they might compromise canine and feline health. Dietary fat surplus worsens obesity development. Model studies using dogs suggest that high consumption of protein, at the expense of carbohydrate, accelerates kidney damage, while high fat aggravates the severity of pancreatic inflammation.*

## Nutrient balancing

The theory of nutrient balancing proposes that animals have evolved a set of behavioural and physiological mechanisms to reach their nutritional target, an optimal blend of nutrients. In this sense, animals balance multiple and changing nutrient needs in a variable nutritional environment. In geometrical terms, animals live within a multidimensional nutrient space with axes for nutrients. The intake target, which can be measured empirically, exceeds the nutritional target because ingested nutrients are not fully available.

Kittens consumed below their protein requirement when they were simultaneously offered a protein-free and protein-adequate semi-purified diet (1). It is unknown whether dogs and cats deficient in a nutrient can reliably pick a sufficient diet out of several insufficient diets. Food selection is affected by dietary moisture content, ingredient type, texture, flavour, aroma and temperature (2-4). The basic ingredient mixture can dominate certain palatants (5, 6).



If macronutrient balancing occurs in dogs and cats, it is difficult to demonstrate. The process may be overridden by organoleptic factors. Using foods containing regular, complex ingredients, the influences of non-nutrient chemicals and macronutrients cannot be disentangled. Presenting complete foods excludes selection driven by nutrient shortage.



## Experimental testing

A report states that dogs regulate macronutrient intake to a protein:fat:carbohydrate ratio of 30:63:7, by percentages of dietary metabolisable calories (7). This ratio was self-selected by dogs with prior experience of the experimental food combination consisting of three commercially available, complete and balanced wet foods offered in excess. The foods' macronutrient ratios were 22:22:56, 45:53:2 and 22:71:7. The self-selected diet composition points at preference for fatty wet food, which was also seen for dry food (7), corroborating the general view that fat contributes to palatability. In contrast, cats' aversion to a very-high-fat diet (8) could explain that experienced animals compiled a macronutrient ratio of 51:49:0 from wet diets with percentages of 10:90:0, 40:60:0 and 70:30:0 (5).

Experienced cats were used in four experiments (9, 10): a 3-way diet choice (three wet foods), two 4-way choices (one wet, three dry; one dry, three wet) and one 6-way choice (three wet, three dry). The complete diets were purpose-made, containing different amounts of regular ingredients. The average, selected macronutrient ratio for the four experiments was 47:38:15. Within each experiment, the ratio for random intake of the foods provided was calculated assuming equal intakes of dietary dry matter in grams; the average outcome was

44:38:18. Thus, the four experiments (9, 10) do not show that cats actively target a specific mixture of available foods.

The calculation can be justified. The final macronutrient energy ratio is determined by the intakes of dry matter for the foods presented rather than by the intakes of product. Upon dilution of dry food with water (11) or with a solid, zero-calorie compound (12), cats maintained the intake of dry matter. In the choice experiments with both dry and wet food, the amounts consumed of each food format represented similar quantities of dry matter (10).

## Pet health

Canine chronic kidney disease and pancreatitis are common conditions. In dogs with induced renal insufficiency, higher protein intake (30:40:30 versus 16:39:45) exacerbated kidney lesions (13). In dogs with induced pancreatitis a very-high-fat diet (21:62:17) specifically caused deterioration in symptoms (14). It seems prudent to avoid dog foods with excessive protein and/or fat levels.

High-fat food may lead to canine and feline obesity. Dogs with unrestricted access to a high-fat diet (20:51:29 versus 18:23:59) ate more calories and gained more body fat (15). Likewise, cats fed ad libitum on a fat-rich food (30:41:29 versus 35:25:40) became fatter (16).

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

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