

Nutritional Needs of Cats: Resources

What Does it Mean the Cat is an Obligate Carnivore? - Food Fur Life, LLC

An obligate carnivore is an animal that by its genetic makeup must eat the tissue of other animals in order to thrive. Everything about the cat is defined by its role as an apex hunter. Cats have evolved unique anatomic, physiologic, metabolic, and behavioral adaptations consistent with eating a strictly carnivorous diet. The evolutionary history of the cat indicates that it has eaten a purely carnivorous diet throughout its entire development. It is critical to their long term health that we understand *cats are a metabolically inflexible carnivore*.

Morris, JG 2007. *Idiosyncratic nutrient requirements of cats appear to be diet-induced evolutionary adaptations*, Nutrition Research Reviews / Volume 15 / Issue 01 / June 2002, pp 153-168. Full Report Available for free.

http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=607588&fulltextType=RA&fileId=S09 54422402000070

Abstract: "Cats have obligatory requirements for dietary nutrients that are not essential for other mammals. The present review relates these idiosyncratic nutritional requirements to activities of enzymes involved in the metabolic pathways of these nutrients. The high protein requirement of cats is a consequence of the lack of regulation of the aminotransferases of dispensable N metabolism and of the urea cycle enzymes. The dietary requirements for taurine and arginine are consequences of low activities of two enzymes in the pathways of synthesis that have a negative multiplicative effect on the rate of synthesis. Cats have obligatory dietary requirements for vitamin D and niacin which are the result of high activities of enzymes that catabolise precursors of these vitamins to other compounds. The dietary requirement for preformed vitamin A appears to result from deletion of enzymes required for cleavage and oxidation of carotenoids. The n-3 polyunsaturated fatty acids (PUFA) requirements have not been defined but low activities of desaturase enzymes indicate that cats may have a dietary need for pre-formed PUFA in addition to those needed by other animals to maintain normal plasma concentrations. The nutrient requirements of domestic cats support the thesis that

their idiosyncratic requirements arose from evolutionary pressures arising from a rigorous diet of animal tissue. These pressures may have favoured energy conservation through deletion of redundant enzymes and modification of enzyme activities to result in metabolites more suited to the cat's metabolism. However, this retrospective viewpoint allows only recognition of association rather than cause and effect."

C. Leigh Broadhurst, Ph.D. *Fats your cats need: The Essential PUFA Guide* - October 2001 issue of Nutrition Science News

http://www.chiro.org/nutrition/FULL/The Essential PUFA Guide.shtml

Excerpt: "Unlike domestic dogs, house cats have retained their hunting instincts and are not entirely dependent on humans for food. Kittens without human contact revert to feral behavior and cannot be socialized as adults. Cats are obligate carnivores, meaning they must eat meat, fish, reptiles, amphibians, and birds to live and reproduce. [15] As such, felines have specific metabolic differences from humans and dogs. [11]

- Cats cannot make vitamin A from beta-carotene and require preformed vitamin A from animal sources.
- Felines metabolize carbohydrates poorly and can neither tolerate nor thrive on a high-carbohydrate diet.
- Cats have high protein requirements but cannot easily replace protein in the diet with other energy sources to conserve body protein. In starvation conditions, cats waste their own muscles in a matter of days.
- The amino acids arginine and taurine are essential for cats. Lack of these in the diet rapidly causes blindness and death. Only animal protein provides arginine and taurine at the levels cats require.

Peterson, Dr. Mark E. "*Optimal Protein Requirements for Older Cats and Cats with Hyperthyroidism*," Insights into Veterinary Endocrinology, November 7, 2011.

http://endocrinevet.blogspot.com/2011/11/optimal-protein-requirements-for-older.html

Excerpt: "Cats, as obligate carnivores, are unique among companion animals in their need for large amounts of dietary protein (1-3). As I've discussed in my previous post on "<u>The Best Diet</u> to Feed Hyperthyroid Cats," we have abundant evidence that most cats, but especially those with hyperthyroidism, should be fed a high-protein diet."

The Natural Diet of the Cat – Food Fur Life, LLC

Excerpt: "Thanks to the efforts of Dr. Esther Plantinga and colleagues, we have a visual summary of cat predation research and we know exactly what the average nutritional make-up of that diet is. In the meta-study published in the British Journal of Nutrition in 2011, <u>The Estimation of the dietary nutrient profile of free-roaming feral cats: possible implications</u> for nutrition of domestic cats, the entire body of feral cat diet studies (of which there is a very large body) was parsed to eliminate studies of wildcats vs domestic feral cats; all studies with a small number of cats; and all studies where cats had access to more than 5% human provided food (even if garbage). This yielded 27 studies." Analysis of those studies is reviewed.

Further Reading:

Scientific Studies, reports, and related publications at Catcentric.org

<u>A collection of information on species-appropriate feeding</u> at the Feline Nutrition Foundation (formerly Feline Nutrition Education Society – FNES)