What You Need to Know About Fresh Meat Kibble

A study showed adding fresh meat to a kibble formula results in higher concentrations of essential amino acids than dry food made with meat meal. Does that mean it's a healthy choice for your dog or cat? Here's what they're not telling you about these pet foods.

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STORY AT-A-GLANCE

- A recent study shows that fresh meat added to kibble results in a finished product containing higher concentrations of most essential amino acids than dry pet food made with meat meal
- The study results show that a formula containing fresh chicken meat had a higher content of soluble protein than meat meal and combination (fresh chicken + chicken meat meal) formulas, as well as higher levels of taurine, arginine, histidine, isoleucine, leucine, and valine
- Fresh meat added to kibble may be preferable to rendered meat meal, however, it must still undergo extrusion, a process that creates continuous chemical and physical alterations to the ingredient mixture, resulting in vitamin loss, protein denaturation, starch gelatinization, and inactivation of nutritionally active factors
- The goal should be to offer pets food they can truly thrive by mimicking their ancestral diet (unprocessed, with the bulk of calories coming from protein and healthy fat) as closely as possible
- The pet food I recommend is a variety of nutritionally balanced, unprocessed (living) or minimally processed (frozen, air dried or freeze dried), whole food diets

A recently published study by Italian researchers shows that fresh meat added to dry pet food results in formulas containing higher concentrations of most essential amino acids and branched-chain amino acids (leucine, isoleucine, and valine) than dry pet food made with meat meal.[1]

Dogs and cats require 22 amino acids to maintain health. Dogs' bodies can synthesize (make) 12 of the 22; cats can synthesize 11. The remaining amino acids must come from the food they eat — specifically protein. The quality and quantity of protein is also extremely important.

The study results aren't surprising, since unlike fresh unprocessed meat, meat meal (e.g., chicken meal, beef meal) is the result of the rendering process described below.

Rendered vs. Fresh Meat

Most ultraprocessed pet food contains rendered ingredients. Rendering plants create meat (and bone) meal from a variety of dubious sources, for example, parts of cows that can't be sold for human consumption, including bones, the digestive system, the brain, udders, hide and more.

Chicken meal is made from chicken muscle meat and/or bones and/or internal organs that have been ground or otherwise reduced in particle size. The quality of meat used in these meals can range from human-grade to diseased, and there's no way to know which is in your pet's food, which is why I recommend all meals be avoided.

In addition, chicken by-product meal can contain more pieces and parts than chicken meal, including necks, feet, undeveloped eggs, and intestines. Because "by-products" is a massive category and there's no way to assess the quality of raw ingredients used, it's best to avoid pet food containing by-product meal as well.

Fresh Chicken Meat Outperforms Chicken Meal

For their study, University of Perugia researchers used laboratory analysis to measure the differences in the amino acid levels, fats, and digestibility of three kibble formulas made by an Italian pet food manufacturer. The three foods were equivalent and processed and extruded the same way. The only difference was the protein source:

- One formula contained only fresh chicken meat
- The second contained chicken meal made from necks, wings, and legless carcasses
- The third contained a combination of the fresh chicken meat and the chicken meal

The results revealed that the kibble with only fresh chicken meat had the highest content of soluble protein.

> *"It also contains more essential amino acids, branched-chain amino acids and taurine, as well as a greater quantity of monounsaturated and polyunsaturated fatty acids," the study co-authors wrote.*

> *"In addition, its in vitro digestibility was the highest, exceeding 90% of its dry weight, in agreement with the soluble protein content. These findings thus make the fresh-meat-based formulation a preferable choice as dry pet food."*

Specifically, the fresh-chicken kibble had 20.6 grams of amino acids per 100 grams dry pet food. The blended formulation had 18.2 grams, and the chicken meal kibble had 17.9 grams of amino acids per 100 grams dry pet food. The fresh meat formula also contained taurine and arginine at higher levels than the other two.

> *Per the study co-authors, arginine "works with glycine and methionine to make creatine in pets' bodies, and eventually form energy-giving molecules that allow cells to function.*

> *Arginine also helps decrease systolic pressure, prevents platelet aggregation, has tumoricidal and bactericidal effects and neurotransmitter functions, promotes wound healing, and induces the release of dopamine, and its systemic administration increases the levels of some plasma molecules, such as insulin, glucagon and prolactin."*[2]

Along with taurine and arginine, levels of histidine, isoleucine, leucine, and valine were all significantly higher in fresh meat kibble.

Fresh Meat Must Be Extruded for Use in Kibble

In my opinion, it doesn't make much sense to waste fresh, presumably human-grade animal meat by adding it to ultraprocessed kibble. On the one hand, in terms of boosting the nutritional quality of dry pet food, as the study shows, fresh meat is clearly preferable to meat meal and by-product meal.

Meat meals have been highly processed when they arrive at the manufacturing plant, so at least the protein going into a few kibble brands is unadulterated, upon arrival.

However, the meat is only fresh until it undergoes the extreme processing steps necessary to produce kibble. If the goal is to improve the nutritional quality and digestibility of your pet's food, doesn't it make more sense to just feed fresh or gently cooked meat as the main ingredient in nutritionally balanced meals and skip the extreme processing steps that turn it into kibble?

The fact is, about 95% of dry pet food is manufactured using the extrusion process, which turns ingredient mixes into kibble. It also causes significant damage to those ingredients.

Here's how the process generally works: Batches of dog or cat food ingredients are mixed, sheared and heated under high pressure, forced through a spiral shaped screw (either a single screw or a twin-screw) and then through the die of the extruder machine. The result is called extrudate, which is a ribbon-like product that is subsequently knife-cut and dried.

The extrusion process involves extremely high temperatures. Research shows that drying pet food at 160°C (320°F) to 180°C (356°F) can significantly reduce its nutritional value.[3] In small-sized kibble (4 mm or about .16 inch), a drying temperature of 200°C (392°F) lowered concentrations of the amino acids proline, total lysine, and reactive lysine.

It also markedly decreases concentrations of the linolenic (omega-3) and linoleic (omega-6) essential fatty acids, and increases the concentration of oleic acid (omega-9 monounsaturated). The increase in oleic acid may point to lipid oxidation of the smaller kibbles during the drying process. Lipid oxidation can create off-flavors and aromas, as well as potentially rancid, toxic compounds.

The high temperature used in extrusion and the short timeframe to process (under five minutes) creates continuous chemical and physical alterations to the ingredient mixture. These changes include vitamin loss, protein denaturation (i.e., changing the protein's molecular structure), starch gelatinization, and inactivation of nutritionally active factors.

Take-Home Message: Skip the Kibble and Go With a Fresh Diet

The take-home message here is that when kibble, regardless of the protein form used, exits the extruder, enough nutrients have been destroyed that manufacturers must add them back (using synthetic replacements) in to meet minimal nutritional requirements.

There's also the potential for cancer-causing chemicals in kibble, as well as the deleterious effects of the Maillard reaction, including advanced glycation end products (AGEs), which in humans have been shown to exacerbate diabetes and interfere with kidney function, and are linked to aging, Alzheimer's disease, neurologic disease, and cancer.

Of course, pet food companies producing kibble will never conduct research evaluating the levels of these compounds in their products, since the results would be catastrophic for sales. But the nonprofit organization **CANWI** is.

The results of the first study comparing AGEs in dry, canned, and fresh food are in. Just as you would expect there are significantly more of these damaging chemical compounds in canned and dry food, as compared to raw pet food. A lifetime of consuming only highly refined foods and no real, fresh food has the same consequences in all mammals — ill health.

If you've watched my pet food rankings video, you know I advocate feeding your dog or cat the highest quality diet you can afford. The top five types of pet food I recommend are a variety of nutritionally balanced, unprocessed (living) or minimally processed (frozen, air dried or freeze dried), whole food diets.

That's because the goal in feeding pets food they can truly thrive on is to mimic their ancestral diet (unprocessed, and the bulk of calories coming from protein and healthy fat) as closely as possible without breaking the bank.

My essential recommendation is to feed your pet (and your entire family) as much unprocessed, fresh food as you can afford. If you can't afford to feed an entirely fresh, living, raw or gently cooked diet, offer fresh food snacks instead. Research shows that providing any amount of healthy foods to dogs and cats is better than no healthy food at all.

Other options to consider: Feed, for example, two to four fresh food meals out of 14 in a week, or do a 50/50 split, meaning one meal a day is a processed pet food, and the other is a fresh food meal. Take small steps toward providing the best diet you can afford for your dog or cat, and keep in mind that any amount of specie-specific fresh food snacks and meals is better than none.

Every bite of food your pet swallows is either healing or harmful; all foods impact the body in some way. The more minimally processed foods your dog or cat consumes, the better.

Sources and References

[1] Montegiove, N. et al. Animals 2022, 12(12), 1538

[2] PetfoodIndustry.com, October 10, 2022

[3] PetfoodIndustry.com, April 14, 2011