



# RAWBBLE®

## FOOD FOR DOGS

# Amino Acid Profiles

## What are Amino Acids?

Amino acids make up the basic building blocks of proteins and are considered essential nutrients for all humans and animals. Every dog has the natural ability to produce every amino acid with the exception of 10 essential amino acids, which must come from their diet.

RAWBBLE recipes are carefully formulated to provide a balanced amino acid profile for puppies, adults and senior dogs of all breeds.

## Taurine Deficiencies in Dogs

- Recently veterinary nutritionist and professor at Cummings School of Veterinary Medicine at Tufts University Dr. Lisa M. Freeman reported claims of canine dilated cardiomyopathy (DCM) in dogs.<sup>1</sup> The report suggests DCM may be linked to a deficiency in the amino acid taurine. Dogs have the ability to synthesize taurine from the dietary amino acids methionine and cysteine, which at low levels can result in a taurine deficiency.<sup>2</sup>
- Methionine, cysteine and taurine are found abundantly in poultry, fish, eggs, meat and organs, and rarely occur naturally in plant-

based proteins. Many meal-based dog foods synthetically supplement methionine and taurine to compensate for excessive plant-based protein inclusions and nutritionally inferior animal-based protein concentrations.

- RAWBBLE uses carefully selected animal-based proteins, such as poultry, eggs, meat and organs, which is why you won't find added synthetic amino acids in our recipes. Additionally, taurine itself is naturally present from fresh animal ingredients abundantly available in RAWBBLE.

Recipe	Methionine and cysteine (% as fed basis)	Percentage over minimum AAFCO limit (0.70%)
RAWBBLE Freeze-Dried Chicken Recipe	1.56	123
RAWBBLE Freeze-Dried Beef Recipe	1.80	157
RAWBBLE Freeze-Dried Duck Recipe	1.95	179
RAWBBLE Freeze-Dried Salmon & Chicken Recipe	1.64	134
RAWBBLE Dry Food Chicken Recipe	1.13	61
RAWBBLE Dry Food Duck Recipe	0.92	31
RAWBBLE Dry Food Lamb Recipe	0.99	41
RAWBBLE Dry Food Pork Recipe	1.16	66
RAWBBLE Canned Food Chicken Recipe	1.45	107
RAWBBLE Canned Food Duck Recipe	1.37	96
RAWBBLE Canned Food Lamb Recipe	1.88	168
RAWBBLE Canned Food Pork Recipe	1.65	136

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\*\*\* No authorized Amazon.com resellers. No Chewy.com.

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### Sources

1. L.M. Freeman. (2018) A broken heart: Risk of heart disease in boutique or grain-free diets and exotic ingredients. Vetnutrition.tufts.edu.
2. A.J. Fascetti, J.R. Reed, Q.R. Rogers, and R.C. Backus. (2003) Taurine deficiency in dogs with dilated cardiomyopathy: 12 cases (1997-2001). J. Am. Vet. Med. Assoc. Nutr. 223: 1137-1141.
3. A.R. Spitze, D.L. Wong, Q.R. Rogers and A.J. Fascetti. (2003) Taurine concentrations in animal feed ingredients; cooking includes taurine content. J. Anim. Physiol. A. Anim. Nutr.. 87: 251-262.
4. S.M. Murray et al. (1997) Raw and rendered animal by-products as ingredients in dogs diets. J. Anim. Sci. 75: 2497-2505.
5. K.S. Swanson, P.L. Utterback, C.M. Parsons. (2018) Chemical composition, nutrient digestibility and true metabolized energy of differentially processed chicken-based pet food ingredients using the precision-fed cecectomized rooster assay. J. Anim. Sci. 95: 112-113.

## Rendering, Meals and Digestibility

- A study performed by A.R. Spitze et al. concluded that the quality of the meat and the method of cooking has a significant effect on taurine loss.<sup>3</sup> RAWBBLE animal-based proteins do not include rendered meat meals or highly processed plant-based ingredients such as “pea protein” and “pea starch”. RAWBBLE only uses whole food ingredients that are rich in nutrients and highly digestible.
- A study at the University of Illinois found that the rendering process can have a substantial impact on nutritional quality.<sup>4</sup>
- The processing conditions of raw ingredients greatly affect the quality and digestibility of protein-based ingredients. Meals are rendered

at high temperatures, then dried at high temperatures, then cooked once more. Minimally cooked protein, processed only once, delivers a higher quality protein than rendered meal. In fact, fresh meat is proven to be more digestible, have better amino acid absorption and provide greater energy to the diet.<sup>5</sup>

- RAWBBLE Dry Food for dogs uses fresh chicken, lamb, duck and pork and no meat meals. Fresh meat is not only an excellent source of protein, but is rich in naturally occurring nutrients and amino acids that are not denatured through high heat treatments like rendering.

Recipe	Protein Digestibility (%)
RAWBBLE Dry Food Chicken Recipe	88
RAWBBLE Dry Food Duck Recipe	88
RAWBBLE Dry Food Lamb Recipe	86
RAWBBLE Dry Food Pork Recipe	84

## RAWBBLE® Food for Dogs

- Traditional pet food is often made with excessive amounts of grain and plant-based ingredients as their primary source of protein. As a result, there are insufficient amounts of essential amino acids in these foods and synthetic supplementation is required.
- Conventional pet foods with a large amount of animal meals often have to supplement taurine as a result of the high heat treatments that denature naturally occurring amino acids.
- RAWBBLE Dry Food, Freeze-Dried and Wet Food has a high inclusion of fresh animal-based ingredients. By using fresh animal-based ingredients rather than highly processed meat meals, amino acids are not damaged during the cooking process. This ensures no taurine or other amino acid supplementation is required to make our diets complete and balanced.

## Fresh Meat. No Meals.™

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