

Calcium and Phosphorus in ZIWI

Will it cause urinary or renal issues in cats?



For adult cats the minimum Calcium requirement is 0.6% DMB and Phosphorus is 0.5% DMB. However, as ZIWI is an “All Life Stages” product and thus formulated to the Growth and Development guidelines, the minimum is 1.0% Calcium DMB and 0.8% Phosphorus DMB.

There are recommended maximum allowances for calcium and phosphorus in a cat’s diet. The exact values can vary slightly depending on the source and guidelines, but generally, the maximum allowances for adult cats are as follows:

Calcium:

The maximum recommended calcium level in a cat’s diet is typically up to 2.5% DMB. It’s important not to exceed this range, as excessive calcium intake can potentially lead to issues such as urinary stones or skeletal abnormalities. If cats are predisposed to urinary issues, it is not recommended to exceed 1.5% Ca DMB. However, because a predisposition is a medical case, that is up to their vet to direct their diet wise.

Calcium levels in the diet do not directly correlate with the formation of struvite crystals. In fact, calcium is usually not a major contributing factor to struvite crystal formation in cats.

Phosphorus:

The recommended phosphorus level in a cat’s diet is generally between 0.5% to 1.5% on a DMB. Excessive phosphorus intake can have negative effects on kidney health in cats with pre-existing renal issues. However, meat is a very rich source of phosphorus, and because ZIWI contains very little carbs in their canned food, this means the phosphorus will be high due to what is naturally present in the meat. All diets that are predominantly meat protein and low in carbs will have naturally high levels of phosphorus.

Calcium-to-phosphorus ratio:

It’s worth noting that the ideal Ca:P ratio plays a huge role in the levels of calcium and phosphorus included in the food. The recommended ratio for “All Life Stages” diets is approximately 1.2:1 to 1.4:1 (Ca:P).

The Mackerel canned recipe, for example, doesn’t have a calcium isolate OR ground bone supplement used in their recipe because the whole mackerel fish includes the bone in. So, the calcium content of the food is naturally high because the ingredient used has high levels of calcium. Therefore, a phosphorus supplement has been used to balance the Ca:P ratio of the diet, as getting this correct is more important than keeping the phosphorus low. The Ca:P ratio of the Mackerel diet is 1.22:1, because the ratio recommended for Growth and Development diets is 1.2:1 to 1.4:1.

Urinary health:

Urine, being a waste product, naturally contains minerals and ammonia. In certain conditions within the bladder, the minerals and ammonia can bind together and form struvite crystal complex or calcium oxalate formations, which can then become lodged in the urethra and cause issues with urination.

Calcium oxalate formations in cats are caused by an accumulation of calcium oxalate crystals in the urinary tract. The exact cause of calcium oxalate formation is not fully understood, but several factors are believed to contribute to its development:

- Certain dietary factors can influence the formation of calcium oxalate crystals. Diets that are high in oxalate-rich foods, such as spinach, beet greens, and some fruits, may increase the urinary oxalate concentration and contribute to crystal formation.
- An acidic urine pH can promote the formation of calcium oxalate crystals. Cats with consistently low urinary pH levels may have an increased risk of developing calcium oxalate formations.
- There may be a genetic predisposition for some cats to develop calcium oxalate crystals. Certain breeds, such as the Himalayan and Persian, have been reported to have a higher risk of developing these formations.
- Cats with certain medical conditions, such as hypercalcemia (high blood calcium levels) or hypercalciuria (excessive urinary calcium excretion), may be more prone to developing calcium oxalate formations.
- Inadequate water intake and insufficient urine volume can contribute to the concentration of substances in the urine, including calcium and oxalate, increasing the risk of stone/crystal formation.
- All of the ZIWI peak recipes fall under the maximum allowances for Ca % and have appropriate Ca:P ratios. Because it falls within AAFCO guidelines, it is highly unlikely to cause hypercalcemia or hypercalciuria in a healthy cat.

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In cats, struvite crystals are primarily composed of magnesium ammonium phosphate. This condition is caused by risk factors such as urine that is too alkaline, dehydration, stress, and obesity. The conditions required for crystal formation is highly concentrated alkaline urine. High levels of magnesium in the diet can contribute to the formation of struvite crystals. However, calcium levels in the diet do not directly correlate with the formation of struvite crystals. It is important to manage magnesium levels in the diet, rather than calcium, to minimize the risk of struvite crystal formation.

Urinary pH is directly related to diet. Dogs and cats eating a diet rich in sulphur-containing amino acids (i.e., a diet high in meat protein) will have more acidic urine. The development of commercial pet foods, particularly kibble, led to a significant rise in carbohydrates included in the diets of dogs and cats. The change from a carnivorous diet to commercial carbohydrate heavy foods has resulted in an increased consumption of base-forming elements, causing more alkaline urine in our domestic cats.

Domestic cats are descended from a small African wildcat and have a low thirst drive. Wild cats typically source the majority of their moisture requirements from their food, as meat consists of approximately 75% water. Cats have the ability to produce urine that is very concentrated in order to avoid dehydration, which was important for survival in the arid climates of their origin. However, when our domestic cats are consuming carbohydrate heavy kibble that does not provide moisture for hydration, and if they're not drinking enough water to compensate, this may produce extremely concentrated and alkaline urine, which is the perfect environment for struvite crystals to grow.

A canned food diet is moisture rich, which can help reduce the concentration of the urine through optimal hydration. ZIWI Peak canned food recipes are moisture rich, highly bioavailable in nutrients, and contains anti-inflammatory antioxidants and Omega fatty acids. ZIWI Peak recipes are rich in glucosamine and biotin, which help to support the protective mucosal Glycosaminoglycan (GAG) lining of the bladder.

All of the ZIWI Peak products are absolutely fine to be fed to a healthy cat long term, and because they adhere to AAFCO guidelines, they do not exceed any maximum nutrient allowance limits that have been set. ZIWI are not prescription diets, and don't claim to be, so if the cat is predisposed to urinary or renal complications, their vet will make specific recommendations about diet.