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Balancing the Calcium/Phosphorous ratio in a raw diet for dogs

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Most dog owners that feed their dogs a raw, natural diet will know about the Calcium/Phosphorous balance problem. It is tricky to manage for someone who does not have access to a chemical laboratory, and it becomes even trickier when you understand that many available food sources are depleted of fundamental nutrients. Worse yet: this depletion varies with location and industry standards for the farmers who produce the food.

The problem with chemical analyses...

The solution is *not* to resort to pre-manufactured kibble products that claim to have the right balance...

The reason is that a chemical analysis of the Calcium contents and the Phosphorous contents of the food will *not* necessarily tell you the entire truth about the balance between those two nutrients. What you can measure with standard chemical analysis and what truly matters for the body's metabolism is not exactly the same... What is analyzed chemically is *the total concentration of the chemical elements*, regardless what kind of compounds they occur in.

When your Calcium and Phosphorous sources are raw natural food, chances are that you will be supplying both of those two elements in chemical compounds that are digestible and accessible for the metabolism. If you use artificial ingredients as a supplement, you can easily have the chemical analysis show that the concentrations are "right" - but in reality, they do not represent accessible nutrients. Example: Limestone will contain significant amounts of Calcium, and will show up in a chemical analysis with its high Calcium content. But limestone is next to impossible to digest, so almost all of its Calcium will be discharged through the feces, exactly as it was ingested....

Using raw bones as the source

Being left now with only natural sources of Calcium of Phosphorous, our attention should turn to *bone* as our source of those two nutrients. Bones contain the right balance a dog needs. If we feed enough of it, the balance problem is solved.

But what about those other imbalances in the diet? Don't we need to compensate for those? For instance, if we have too little Calcium, don't we then need to add more Phosphorous than what we have in bones?

The answer is that it does not matter - if you feed *enough* bones.

Here is why: Let's say that the right ratio between Calcium and Phosphorous in 1:1 - 50% of each. Let's further say that the dog needs 100 milligrams (=0.1 grams) of each per day, and that bones contain 10% of each. This leads us to conclude that we should feed a total of 1,000 milligrams (=1 gram) of bone per day to cover the needs, assuming that all the Calcium and all the Phosphorous in bones is digestible.

However, in the food we feed, we might have a deficiency of Calcium. Let's say that the food contains only half the Calcium it should (50 milligrams instead of 100 milligrams), but is okay as far as Phosphorous goes. We are thus out of balance - our 1:1 ratio is only 0.5:1 - which is critical.

But, let's say that we now feed 10 grams of raw bone. This will give us a total supplement of 1,000 milligrams of Calcium and 1,000 milligrams of Phosphorous. Add to this what we feed through the other sources of food. This brings the Calcium intake up to a total of 1,050 milligrams, and the Phosphorous to a total of 1,100 milligrams. Our overall balance is now no longer 0.5:1, but (1050/1100):1 = 0.95:1. We are only 5% "off". But 5% is within the natural variation anyway, so it won't matter... (Also: most standard chemical analyses do not give a more precise result anyway: +/-5% is pretty accurate for such an analysis...)

If you feed 100 grams of bone instead, you will see the ratio go to 0.995:1 - less than 0.5% off the mark...

The good news in this is that dogs thrive very well on getting a lot of raw bones. (Mind you, in nature, a wolf will hardly leave anything of a kill, except for the hooves and the skull.)

And better yet: you don't need to know anything about the actual deficiencies of Calcium or Phosphorous in the food you feed. You don't even need to know which of the two is missing or insufficient. All you need to do is to give your dog *plenty of raw bones* that will make the imbalances in the food totally insignificant.

How much is "plenty"? A good guide would be to use a natural prey animal as standard - about 7-10% of its total weight will be bone, so anything in excess of 10% of the total diet would be "plenty". You should not exceed 25% - because you do need to leave room for other nutrients also...

Dogs love bones - so this will make you a popular pack leader!

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