

The Raw Truth - Separating Fact from Fiction

*A comment by Ian Billingham
Veterinary Surgeon - Australia*

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To the Editor(s) of "Dogs in Canada"

Dear Madam/Sir,

I read with interest an article by Hilary Watson (HW), which appeared in a recent edition of "Dogs in Canada".

In this article, HW discusses three rationales she sees as inappropriate reasons to validate the decision to feed companion animals a raw food diet. The first rationale is the premise that dogs are wolves. The second rationale is based on the presence of enzymes in meat. The third rationale is the contention that raw foods contain nutrients more bioavailable compared to commercial pet foods. I entirely agree that choosing to feed raw on the basis of those propositions is highly unlikely. HW concluded the article with the observation that there are many sound reasons for choosing to feed a raw food diet, but failed to mention them. The body of the article presented some 'factual' material, which did not appear to support her argument. If you will permit, I would like to share with your readers my further thoughts on this topic from the perspective of an Australian companion animal veterinarian.

I would first like to mention what I believe would be the only sound reason one could possibly have to make the decision to follow a particular feeding paradigm. I feel confident HW would agree that such a decision would have to be based on the improved health of dogs fed that way. The gold standard basis for such decision-making requires the results of appropriate studies. This would be the only way to truly separate fact from fiction. Unfortunately, there have been no scientific studies comparing the lifetime health of raw fed dogs Vs dogs fed processed pet food.

Because no such studies exist, potential raw feeders need some other basis on which to make an informed decision. Which brings me to my next point and it is this. There have been very few people who make the choice to feed their dogs a raw diet on the basis of the three rationales discussed in the article. I find that most people base their feeding choices on the words and experience of a trusted counselor, usually following a health crisis with their dog(s). This counselor could be a veterinarian, the breeder of their dog, a dog trainer, the local pet-store owner or maybe even their neighbour who has long practical experience of feeding a raw diet

When people make the decision to feed raw, the next question then becomes, "what exactly is the evolutionary diet of the dog?" And of course, the evolutionary diet of the dog is not the wolf diet, as dogs have evolved beyond such a diet. For example, where the wolf was and is predominantly a hunter and very much less of a scavenger, the modern dog, evolving on the 'rubbish heaps of human habitation for the last fifteen thousand years, has become predominantly a scavenger and very much less a hunter. Without going into details (that requires a book!), the only point I will make at this juncture is that such a diet is still predominantly raw!

Having made the decision to feed raw, pet owners will only continue to feed this way if the diet fulfills its promise. I am pleased to report that most people so persuaded rarely return to kibble feeding. Additionally, most happily accept the evidence before their eyes that raw diets work in producing superior health, without having to understand why! And this is good news, because the answers to that question can be difficult to pin down.

However, there are some people who need to understand exactly how and why raw foods produce their spectacular results. These people belong to a small and highly exclusive group of dedicated raw feeders who will use the dog as wolf theory or the enzyme theory or the bioavailability theory (or some other theory) in their attempt to understand why their dogs are so healthy. Having found what they believe to be rational arguments, which they believe explain the obvious improvement in health seen in their raw fed dogs, these people will often use such hypotheses in an endeavour to 'spread the word.' They believe such hypotheses will be highly persuasive to the unconverted.

Which brings us back to those hypotheses.

Can we say that dogs are raw feeders on the basis that they are actually wolves, do the enzymes in raw foods confer some sort of health advantage and what exactly is the story of bioavailability in relation to raw foods? Can we separate fact from fiction in these areas?

1) The claim that dogs are wolves

There is not one reputable scientist alive today, with expertise in the area of canine evolution, who would dispute that dogs have evolved from wolves and that is a fact. Most would also agree that the separation of dog and wolf occurred in the very recent past - probably in the last 15000 years or so. However, having said that, it is equally clear that dogs are not wolves - that also is a fact. Dogs are dogs and wolves are wolves and we may add that dingoes are dingoes - somewhere in between. Yet again, we need to qualify that statement by pointing out another fact. That is, all three canids will freely interbreed - this is an undisputable fact. So clearly, all three canids share more than 99% of their DNA - a fact. Equally, it is also a

scientific fact, that this is a much higher percentage of DNA than is shared between humans and chimps, which is the comparison made by HW.

In relation to that comparison, it is also worthwhile pointing out the fact that humans and chimps have never been reported as producing viable offspring, so clearly the chimp/human comparison is not valid in terms of comparing the genomic or genetic similarity or dissimilarity between dogs and wolves.

However, when it comes to nutrition, the above discussion is actually irrelevant. What requires discussion is not the genetic similarity or otherwise of dogs and wolves. Rather, what we need to discuss is the question, "do dogs and wolves share similar digestive physiologies?"

The factual answer to that question is yes. So no, a Cocker Spaniel is not a wolf, but they do share a common digestive physiology. And this is borne out by practical experience (for example, most Australian dogs, until the mid 1980s were fed a predominantly raw food diet - another fact). So, from the standpoint of basic physiology, there is no reason not to feed raw. And we may add or perhaps conclude that the shared digestive physiology of the dog and wolf, could well be part of the explanation for the claimed health superiority that raw-feeders make for their dogs.

In relation to the question of human nutrition versus chimp nutrition, as cited by the author, I would like to make the point that her conclusion is not valid. There are many studies, which demonstrate the superior health of Seventh day Adventists when compared to the rest of western society - a definite fact. Here we may make the factual observation that the Adventist diet is more closely aligned to that of our primate cousins the Chimpanzees. As pointed out by HW, the chimps live predominantly on food such as vegetation and termites; I would add - in a similar manner to many primitive human tribes. The fact is that the Adventist diet is a very healthy diet for humans and is, unfortunately a long way from the diet 'enjoyed' by the vast majority of unhealthy humans in Western society. It is also worth noting that both the chimp diet and the Adventist diet are very closely aligned to diets espoused by and heavily promoted by health farms (for humans) around the world.

Unfortunately the comparison between cattle and sheep and their copper requirements, although doubtless factual, bears little relevance to the question of whether or not we should feed dogs a raw diet. Cattle and sheep share a similar digestive physiology and they both consume a raw rather than a cooked diet! On the other hand, the owners of some Bedlington Terriers may well feel uncomfortable for the safety of their dog's liver, when feeding their dogs on processed pet foods with their high copper content!

Finally, in an endeavour to separate fact from fiction, note the following. Firstly, it is true that for the time our dogs have been associated with 'mankind who cooks,' some of the food that dogs have eaten has been cooked. However, it is also true that in that period, the bulk of the food

which dogs have consumed, has continued to be raw - scraps - mostly derived from mankind's 'rubbish heaps.' Indeed, it has not been until the middle of the last century that the bulk of our dogs' diet has consisted of cooked grain. This period of time is an eye-blink in evolutionary terms, so that clearly, there has been no time for the dog to adapt its digestive physiology to modern processed foods. We may therefore conclude that the evolutionary diet of the modern dog is one that aligns with the extensive practical experience of Australian dog owners of the very recent past. That is, dogs not only tolerate raw, but, in accord with the clinical observations of a number of Australian vets (and many thousands of dog owners), actually require most if not all of their food to be raw, in order to become and remain truly healthy.

2) Do the enzymes in meat confer an advantage to raw fed dogs?

Unless one can demonstrate that raw meat contains digestive enzymes, there is no reason to conclude that their presence may confer a nutritional advantage. If by the presence of enzymes in raw meat, we are speaking of the enzymes involved in the general metabolism of the cell, the answer would have to be that such enzymes can not confer any particular advantage! These enzymes function at a pH close to neutral and have no function in digesting proteins, carbohydrates or fats, rather they are involved in the citric acid cycle, the urea cycle and so on. What scientists refer to as intermediary metabolism.

However, if we are speaking of the enzymes in lysosomes, then the answer is, most definitely yes. Lysosomes are organelles found in all cells and they contain digestive enzymes and that is a fact. Lysosomes have numerous cleaning up functions within cells (including the removal of potentially pathogenic bacteria) and they also have the responsibility of digesting/destroying the cell, which contains them, when that cell is no longer viable. Clearly, lysosomes are a concentrated source of digestive enzymes. They function at a pH of 5 - a pH which they also promote. The enzymes in lysosomes are the enzymes responsible for the autolysis (self digestion) of dead tissue. We see (and smell) the results of their activity in corpses left to 'rot' in the sun. That is a definite and definitely unpleasant, fact.

It is not unreasonable therefore to surmise or hypothesis (and in fact we know this to be true) that such enzymes are highly active at body temperature and in an anoxic/acidic environment. This is precisely the environment we find in a canid's stomach. In other words, yes, lysosomal enzymes, released by every cell in raw meat, (but destroyed by cooking) would play a significant role in the digestion of raw meat within the stomach of a wild carnivore such as a feral dog, a wolf, a dingo or a wild-cat.

Given that the digestive physiology of the wolf and the domestic dog are essentially the same, we would have to conclude that lysosomal digestion would definitely occur in the stomach of domestic dogs (and cats), if allowed

by the carer. Do those lysosomal enzymes confer a health advantage? The answer to that is - we don't know, but since the digestive physiology of canids over millions of years has evolved in concert with the activity of lysosomes, our guess would have to be - probably yes. I should also add at this point, that dogs are gulpers rather than chewers. This means they will send their raw protein into the stomach in a form where the majority of the meat cells will be protected from the highly acidic conditions of the stomach. This will allow the lysosomal enzymes to continue their work at the desired pH - of 5, for a period of time which would allow autolysis or lysosomal digestion to play a more than token role in the digestive process of canids.

In relation to the question (raised by HW) of trypsin inhibitors, while it is true that raw soy beans contain trypsin inhibitors (and cooking will destroy those inhibitors), no person contemplating a raw diet for their dog would consider feeding it raw soy beans. On the other hand, phytate, another antinutrient present in grain, is not significantly affected by heat and will continue to interfere with the absorption of certain minerals even after processing.

The thiamine story relates to a solo diet of raw fish flesh. It is the case that some species (of fish) will contain a thiaminase. As no competent raw feeder would bother to feed their dogs a solo diet of raw fish flesh, the facts are, this is not a valid argument against feeding raw.

The invalid raw egg white story has been around a long time. The scientific fact is that there is sufficient biotin in the egg yolk to more than compensate for the presence of avidin in the white, so in practical terms, this is not a problem for the raw fed dog. Practical experience bears this out. To produce a biotin deficiency, the facts are, even by feeding pure egg whites and little else, it is almost impossible to produce a biotin deficiency without also destroying the gut flora with antibiotics. You see the fact is, healthy gut flora produce all the biotin a dog requires.

In relation to cooking Vs acid denaturation of proteins, it is not a fact that such processes are identical in outcome. While it is true that cooking will denature the protein in a similar fashion to acid in the stomach, the facts are, cooking will also destroy many other nutrients that are not destroyed by the acid, including vitamins and essential amino acids, so once again, this is not a valid argument for cooking as opposed to feeding raw. Another sad fact about cooking is that over-cooking (excessive heat applied to food for prolonged periods), results in indigestible complexes between starches and proteins - a common feature of cooked and processed pet foods, but factually (and thankfully) absent in raw foods.

3) The question of maximizing bioavailability?

Speaking from the standpoint of evolution, it would seem reasonable to hypothesize that the bioavailability of nutrients as allowed by the diet a species has eaten for millions of years, would by definition be optimal. Such bioavailability will vary enormously from food to food and from nutrient to

nutrient. As this has been well demonstrated by HW, it requires no further comment. Clearly, using maximal bioavailability as a rationale for feeding a raw diet would most definitely be invalid and therefore a poor reason for making the decision to feed a raw diet.

Equally, it is valid to speculate that evolutionary bioavailability may well explain and confer some of the health advantage that raw-feeders observe in their dogs.

In relation to bioavailability, it is interesting to note the slogan by KalkKan cat foods as quoted by the author: *"a multi-vitamin in every can"*. Let us separate fact from fiction by pointing out the following. The facts are that this is an unfortunate example in that the cat foods of the time were lacking in sufficient taurine to maintain optimal health. This lack of taurine not only reflected a failure to use animal tissue to feed cats (obligate carnivores - fact), but was in many cases a direct result of the cooking process. This was noted as particularly so when the cooked food was presented in cans. As a result, the widely advertised as perfect foods for cats, were responsible for retinal degeneration, cardiomyopathy and reproductive failure. Each of these problems is non-existent on a properly formulated raw-food or evolutionary diet - an easily demonstrable fact.

My experience as a long time raw feeder of my own dogs and as an advocate of raw feeding in my veterinary practice, validates the view that a properly formulated or evolutionary raw food diet -fulfills the promise of improved health. This point of view is also validated by evolutionary theory.

In conclusion, let me reiterate that I entirely agree with HW when she says that the decision to feed raw foods should be based on sound information, not on emotion or unsubstantiated (or fictional) claims. To make a decision to feed raw on the basis of the dog being a wolf, that there are enzymes in raw food or that raw food produces food with increased bioavailability are very simply invalid reasons for choosing to feed a raw diet. Attempting to understand why a raw food fulfills its promises is another issue, with the hypotheses discussed above, having varying degrees of validity in this respect.

The only valid or rational basis for choosing to feed a raw food diet to one's dog must be the superior performance of the diet in terms of reproduction, longevity and freedom from disease processes in the dog(s) that eat the diet. If this promise is fulfilled, we have separated fact from fiction.

Ian Billinghamurst
B.V.Sc.(Hons)(Syd),B.Sc.Agr(Syd).,Dip.Ed.(UNE), Veterinary Surgeon
Bathurst, NSW
Australia.

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