

Sulphur Dioxide in fresh pet meats – the whole story.

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By :Dr Bruce Syme, veterinarian specialising in natural nutrition for dogs and cats.

The recent Today Tonight story on the use of sulphur dioxide (SO₂) in fresh pet meats has created an unnecessary wave of concern amongst pet owners choosing to feed their pets fresh meat diets. Unfortunately the story is typical of ill-informed, sensationalist journalism, purely designed to create a “dramatic effect” on the viewer, and it fails to give the whole story.

Whilst it is true that SO₂, and its derivatives, are commonly used to preserve fresh pet meats, and that SO₂ does in fact degrade thiamine (vitamin B1) in food, the actual incidence of thiamine deficiency in dogs and cats today is incredibly rare. Most vets are well aware of the clinical signs of thiamine deficiency in pets (particularly in cats, as they are 5 times more sensitive to deficiency than dogs), and this awareness is the result of a much earlier wave of thiamine destruction in pet food. The simple truth is that cooking pet meat (a common practice for many pet owners for hundreds of years) is far more effective at destroying thiamine than addition of sulphur dioxide is. In fact, late last century, when the first cooked, processed pet foods were introduced to the market, there was a significant wave of thiamine deficiency in cats. It was quickly recognized by pet food manufacturers that the cooking process used to make tinned and dry pet foods was actually destroying the thiamine content of the food, and causing significant cases of B1 deficiency - and as a result, they began adding high levels of synthetic thiamine to pet foods, to counter-balance the thermal damage.

The information used in the story came from a paper written by a specialist vet who cites 3 cases of thiamine deficiency diagnosed in dogs. The paper was written and published nearly 12 months ago, and is certainly not a ground breaking discovery. Fresh pet meats have contained sulphur dioxide for over 20 yrs, and reports of the links to the destruction of thiamine have been published in veterinary journals since 1991 (Studdert et al, Aust Vet Journal 1991), as have the damaging effects of cooking pet meat on thiamine levels been equally reported in scientific literature.

Sulphur dioxide is a naturally occurring and commonly used preservative, and is found in significant levels in many human foods, particularly in sausages and preserved meats (eg salami etc). Its inclusion in foods is not merely aimed at extending shelf life, but more importantly, it controls and prevents the overgrowth of potential pathogenic bacteria, like salmonella and clostridia, and as such, it plays an important role in food safety and hygiene. Whilst it is never desirable to have any preservatives included in fresh foods, including pet meats, the use of SO₂ must be assessed in light of the potential protection it offers against the overgrowth of harmful bacteria and potential cases of food poisoning.

One of the very poignant comments made in the article by Dr Malik, which received no attention in the media report, is the fact that despite the evidence presented that suggests many fresh pet meats have significant levels of SO₂ that could lead to

thiamine deficiency, the actual incidence of thiamine deficiency in dogs and cats is extremely rare in practice, even in pets that eat a total fresh meat based diet. Dr Malik does raise this point, and suggests it warrants “further investigation”.

The simple truth is that the presence of sulphur dioxide alone in fresh pet meat is not enough to cause widespread thiamine deficiency in pets that consume these meats. The vast majority of pet owners, who choose to feed fresh meat, do not feed just meat alone, but combine it in a balanced diet. It has long been recognized by the scientific and veterinary community that a diet of pure fresh meat is not balanced, and requires additional vitamins and minerals (particularly calcium). Veterinarians and animal nutritionists who recommend feeding fresh meat diets have always made sure that pet owners who follow this style of feeding regime are advised to include additional ingredients like vegetable matter, carbohydrates (rice, pasta etc), calcium supplements (including raw meaty bones) and various vitamin/mineral products like brewers yeast and kelp, eggs, and vegetable oils – many of which contain significant additional levels of vitamin B1, and certainly enough to counterbalance the presence of SO₂ in the meat. It should also be noted that fresh meat is by far the richest source of vitamin B1 in any diet, and provides significantly more dietary B1 than the basic nutritional requirement of dogs and cats (1mg/kg and 5mg/kg respectively). Perhaps the research into thiamine deficiency in dogs and cats would have been better served (or perhaps more scientific) if the authors had tested the products for their residual thiamine content, rather than for the actual sulphur dioxide levels; this way they could have avoided making the unsubstantiated “assumption” that high levels of SO₂ necessarily meant that the products were deficient in vitamin B1.

For a pet to develop thiamine deficiency purely from the inclusion of sulphur dioxide in pet meat, it would need to be fed a diet made up of 100% highly preserved meat, with no additional supplements – which would not only lead to B1 deficiency, but also severe calcium deficiency and associated skeletal deformation and joint disease. I strongly believe that the rare cases of thiamine deficiency diagnosed in veterinary practice today must have additional underlying causes that lead to deficiency, such as inflammatory bowel disease causing decreased absorption of vitamin B1 from the gut, or pancreatic insufficiency resulting in abnormal digestion. It is also possible that the negative effects of SO₂ on thiamine in pet meats has been overstated, or extrapolated from studies involving other animal species, and not dogs and cats, and does not take into account any additional B1 contained in the diets from non-meat sources.

I do however, believe that the story presented has brought to light an important issue, that being the lack of regulation and control in the pet food industry. I am not a supporter of uncontrolled use of preservatives in pet food, and I would encourage regulation of their use, and the setting of an industry standard, whereby the levels used are satisfactory to control bacterial contamination, but low enough not to interfere with thiamine levels. I support mandatory labeling laws to alert consumers to the presence of all preservatives used in all types of pet food (not just fresh pet meat). It should also be pointed out that many processors of fresh pet meat have traditionally been adding additional thiamine to their products (much the same as manufacturers of tinned and dry

foods do currently) to overcome the potential deficiencies caused by SO₂, which demonstrates that there has been awareness of the issue for some time now.

As a scientist and a practicing vet, who has been advocating the feeding of fresh pet meats for over 15 years, I feel it is very important to put some perspective on the recent “sensationalist” story put to air – to add some scientific facts that were clearly missing – and to ease the minds of the hundreds of thousands of Australian pet owners who are feeding diets based on fresh pet meat. The significant health benefits associated with feeding fresh pet foods far outweigh any “theoretical” negatives portrayed in the recent expose.

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- : 1991 Bachelor of Veterinary Science, Melbourne University. Graduated with first class honours.
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- : Director of Studies for the Australian College of Natural Animal Medicine.
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