

RAW MEATY BONES: WHY DO PEOPLE FEED THEM AND IS IT A PROBLEM?

What are raw meat diets?

Raw meat-based diets are those including un-cooked ingredients from domestic or wild caught food animals. These come in two categories: commercial and home-prepared. There are increasing numbers of commercial producers of raw diets which owners can buy, often frozen, and many of which are claimed to be nutritionally balanced. Some of the raw diets are only intended as supplementary feeds. The home-prepared raw diets often use highly publicized feeding regimes such as the BARF diets. We should also remember other raw foods fed to dogs such as dried pigs ears and raw hide chews as these can also harbour infections.

Why do people feed 'raw meaty bones'?

People generally want what is best for their pets. There has been a lot of negative press surrounding the pet food industry recently including some prominent food recalls (most recently with melamine) and conversely a lot of positive press on 'natural' diets for dogs and cats. A google search in Sept 2014 on 'raw diets for dogs' produced 1,810,000 hits, many of which were for manufacturers of raw meats and in favour of raw meat feeding. There are many mis-understandings about manufactured pet food – fuelled by issues in the USA and Australia which have not been replicated under strict EU food regulations. For example, there were documented examples in the 60's and 70's of road kill finding its way in to pet food and of dogs eating meat with pentobarbital residues. Owners are also very suspicious of 'additives' in pet foods.

The real driver to the raw meat debate was the book 'Give your dog a bone' published by Dr Ian Billinghurst in Australia in 1993. This largely scare-mongering, unreferenced book was based on the premise that dogs were essentially wolves and that "Natural wolf diets" must be best. The book claimed, amongst other things, that dogs must eat bones because wolves do; that manufactured foods shorten dogs' lives and cause disease; that dogs must eat faeces to provide probiotics for gut health; that dogs must eat pulverised vegetables (eg rumen contents); that most of the diet must be raw because enzymes in raw diets help digest food and are absorbed whole across the gut wall and that the food does not need to be "complete and balanced" at one sitting

What is the evidence?

A search on Pub med under 'raw meat and dog and veterinary' (23rd September 2014) came up with 58 hits: only one showed a positive effect of feeding raw meat diets (a reduction in calcium oxalate excretion in dogs compared with dried diets – although this study didn't allow

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for the different water and other content of the diets). Most of the others cited public health and other issues with raw meat feeding. The basic issue is that there are no published studies comparing the over-all health benefits of feeding raw meat diets compared with manufactured diets. Until such studies are undertaken, we can only focus on the negative. It is possible that feeding well balanced raw diets might have some health benefits. In fact, it is likely that some raw meat diets are better than some manufactured diets. For example, feeding high quality raw protein to cats may well be preferable to feeding a dried, high carbohydrate content food. However, currently there is no published evidence and any benefits are outweighed by the risks particularly of feeding unbalanced diets or diets with pathogen contamination. Of course, reading the internet, you would think that there IS plenty of evidence that raw diets improve the health and welfare of pets. This bias in internet evidence means owners only focus on the positive, 'common sense' reasons to feed raw diets and often don't realize the seriousness of the risks. It is up to us to educate them about these risks.

Are dogs wolves?

Aside from the public health issues, it is also worth considering the evidence for dogs being wolves and for wolves living 'long and happy lives'.

Dogs are not wolves: we have bred them over thousands of years to have different needs and anatomies and we have different demands: do we ask the same from a Yorkie; a racing greyhound and a husky? So if our demands are different, can we really feed them all the same diet? Will a growing Chihuahua require the same nutrition as a growing great Dane? And is a dog a wolf? A recent intriguing study published in Nature showed that dogs had undergone selection over thousands of years of domestication to adapt them to sharing an environment with their owners: including changes in genes associated with carbohydrate digestion and metabolism to adapt them to eating our table scraps (Axelsson et al. 2013).

Do wolves all live long and healthy lives? The evidence from the Yellowstone project suggests the opposite: the average life-span of wolves at Yellowstone was 6 years. Most wolf deaths were cause by being killed by their prey (usually large elks) or other wolves (in territorial disputes. Teeth wear is very common in wild wolves and broken and missing teeth are frequent. Wild wolves Do NOT eat rumen contents: they first eviscerate their prey and eat the major organs, then the major muscle mass and they leave the rumen (Stahler and Smith).

Risks of dietary imbalance

Dietary imbalance is a significant risk with home-made raw diets, unless a veterinary nutritionist is employed to advise on the content. This may be a good compromise in owners who are still determined to feed raw diets after discussion of the zoonotic and other risks

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described below. Alternatively, they could be encouraged to buy one of the manufactured, reportedly balanced raw diets, although not all of the latter have been critically assessed with feeding trials and not all are suitable for all life stages (for example, pregnancy or growth (particularly large breeds)).

The commonest clinical problem recognized is nutritional secondary hyperparathyroidism which causes severe skeletal deformities in young dogs and occasionally even cats (who are generally more resistant to calcium deficiency or calcium: phosphate imbalance than dogs). It is a sad fact that this disease, which used to be confined to the history books, has now made a recurrence. We are also recognizing vitamin A toxicosis in cats and vitamin D toxicosis in dogs. There have also been several recent cases of HYPERthyroidism reported in dogs fed on raw offal including thyroid glands and in one case, this caused anoestrus.

Risks of pathogen contamination: to dog and owner

The risks of pathogens infecting dog and owner are not insignificant. The majority of publications about raw food feed focus on this aspect; particularly infections with campylobacter; salmonella; toxoplasma gondii and echinococcus – all of which are of significant public health concern particularly in households with immunocompromised individuals. Such is the increase in risk of infection associated with raw meat feeding that the American Animal Hospital Association and Canadian Veterinary Medical Association have adopted statements discouraging the inclusion of raw or undercooked animal- source protein in dog and cat diets (Freeman et al. 2013) and it has also been suggested that dogs fed raw meat diets are not used in Animal Assisted Interventions (ie as therapy dogs) in the USA because of increased risk of salmonella and extended-spectrum cephalosporinase (ESC) Escherichia coli shedding in these dogs (Lefebvre et al 2008).

A recent study published in the medical press surveyed dog feeding and hygiene practices in 401 households in Canada (Stull et al. 2013). They found that 24% households reported their dog frequently licked their child's face. Raw meat or treat feeding was reported in 28% of dogs and 3% of cats and, concerningly, there was no association between 'high risk activities' such as raw meat feeding and hygiene practices such as hand washing, suggesting that pet owners were unaware of the risks.

Other potential health issues with raw diets

Raw meat diets with bones can and do cause oesophageal perforation and gastrointestinal obstruction. Raw meat diets are also not suitable for animals with certain health problems. In spite of what is said on the internet, dogs on raw diets CAN suffer from inflammatory bowel disease and these dogs may need a single protein source diet. Although raw meat diets can

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be single protein source, animals with IBD may be at increased risk of colonization by intestinal pathogens and raw meat diets also tend to be high in fat which are not helpful in these animals or those with pancreatitis. Moving the animal on to a manufactured diet is usually best in these cases, or reaching a compromise with a home-cooked nutritionally balanced single protein source diet. Dogs and cats with chronic renal failure will survive longer if fed a phosphate restricted diet – and because phosphate is carried in with protein, raw diets will not be suitable. Home prepared diets are also problematic in diabetic animals because they vary in calorie content day to day, even if the ingredients are weighed out.

Advising clients

Feeding is an important part of the companion animal-owner bond and it is important that the veterinary surgeon enters a discussion with owners in a sensitive way. For most owners, feeding a raw diet is a belief system and therefore you won't change their mind with facts! Going in hard and saying that what they are doing is wrong is not only likely to be ineffective, but may also lose you a client. You will simply be seen as someone who has been brain-washed by the system.

The best approach is to start with the assumption that the owner is genuinely trying to do the best for their animal (which by and large they are) and just addressing any significant health issues with their current regime: for example, if the diet is not balanced, discuss using a nutritionist or buying manufactured balanced raw food; if the diet is raw, discuss the zoonotic risks and suggest cooking; if the dog is a large breed about to have puppies, discuss the benefits of feeding a balanced diet for large breed growth. By focusing on the positive aspects, you will keep the owner on-side and you can work together to improve the health of their animal.

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SMALL ANIMAL CRITICAL CARE AND HOSPITALISED PATIENT NUTRITION

Introduction

Estimated undernutrition contributes to > 85% of deaths in human ICU

Nutritional support very important and often neglected addition to other treatments in animals with trauma, after major surgery, severe sepsis, organ failure and neoplasia.

Any animal which is ill and not eating should be fed ASAP unless specific contraindication

- 1) Patient selection - which animals need it?
- 2) How much food do they need? - requirements in stress. Calculating energy requirements
- 3) What food do they need? - metabolic changes occurring. Consistency of foods.
- 4) How to feed?- encouragement, force-feeding, tube feeding, TPN.
- 5) How long to feed?-feeding advice at discharge

1) Patient selection

General rules:

- The earlier nutritional support given the better ie try to anticipate need
- Correct fluid and electrolyte deficits first (acutely) then introduce nutritional support gradually over 2-3 days. Energy is the next important factor after fluids/electrolytes then protein.

Minerals and vitamins last!

Institute nutritional support if:

- 1) Recent weight loss > 10% not due to dehydration - even in obese animals - but note that fluid gains and losses interfere with assessment of weight changes.
- 2) Partial or complete anorexia for > 3 days.
- 3) Animal in very catabolic state e.g. severe burns; draining sepsis such as pyothorax; neoplasia; major surgery or severe trauma; malabsorption.