

PROFESSIONAL POINT OF VIEW*

Feeding vs Nutrition: Have We Lost the Plot in Small Animal Dietetics?

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ABSTRACT

Undue emphasis on inadequate scientific methodology has resulted in our failure to see the obvious. Our small domestic companion animals still retain their essential carnivore features. Evolution has shaped them to fit a particular ecological niche and to depend on their food supply for specific physical and chemical needs. Raw flesh and bones were the staple diet but now are replaced mainly by the pulverised offal of the pet food manufacturer. Dire consequences follow for the 85% of companion animals whose immune systems are permanently compromised by their efforts to heal a diseased mouth. Our profession has an obligation to review the way it conducts its "science" and how it seeks to serve its public. (Lonsdale, T. (1993) *Aust. Vet. Practit.* 23:16)

WE HAVE ERRED

We have followed the reductionist paradigm to absurdity; such that we are all specialists in a specialist world knowing more and more about less and less until we know everything about nothing. Narcissists every one, we are dazzled by our own "brilliance" and ultimately blinded by the so-called "science" which appears to open up the innermost secrets of the natural world. We worship at the holy shrines of "scientific" excellence. We honour and serve the high priests, each one having an awe-inspiring grasp of some demanding inaccessible truth concerning orthodox wisdom. But *en masse*, we suffer one immense fatal flaw: bereft of humility, we forget the subject; we lose the plot.

**Professional Point of View* is an unreviewed column which allows members to express their views and provide a forum for discussion on open topics relevant to the profession.

Never is this more so than in the area of small animal dietetics. Boffins in innumerable laboratories, separated by great distance and time, work on hypotheses, generate theories and derive "unquestioned fact". The measurers and recorders produce miles of tables confirming their point of view on esoteric topics and readily justify the vast array of assumptions they care to make on other parameters known and unknown.

Despite the inherent assumptions and absurdities, the mistakes and the downright falsifications characteristic of any reductionist enquiry, technocrats reassemble the original diet from the vast body of information on the component parts. This giant blunder is summarised and enshrined in two volumes: *The Nutrient Requirements of Dogs* (1985); and, *The Nutrient Requirements of Cats* (1986).

Each volume contains the statement of unmitigated folly: "Cats/dogs require specific nutrients, not specific

foodstuffs." Let's turn away from the establishment folly and look at what ought to have been said instead.

From aardvark to zebra, all animals require specific nutrients and each species has a characteristic means of obtaining its specific feedstuffs.

It is behaviour, including feeding behaviour, which serves to define a species just as much as morphology.

SPECIES-SPECIFIC CHEMICAL AND PHYSICAL NEEDS

The order *Carnivora* are defined *a.priori* by their dentition and food source. Evolution produced a low rate of survival to maturity, and anything less than a perfect mouth assisted non-survival of the individual.

At a distance, the carnivore uses its mouth for display, to impress a mate, threaten a foe or intimidate its prey. At closer quarters, it is used in play, defence and attack, or to admonish a junior pack member. Prey species are held, carried, killed, and devoured utilising the same immaculate equipment. Finally as the main source of bodily hygiene, the oral cavity is used to clean and groom the coat and orifices of the animal and other members of the pack or family. Assuming that mating, fighting and admonishing the cubs did not have a regulatory effect on the life-dependent health and well-being of the oral

cavity, we must then make the further assumption that the quality, quantity and frequency of feeding are the prime determinants.

On closer examination, that is exactly what we find, for it is these three parameters that govern the appropriate uptake of food, oral hygiene (i.e., pristine, odour free) and other physiological needs (Hungerford, 1992).

Quality — chemical and physical

- a) Chemical — Carbohydrates, proteins etc including the trendy taurines, arachidonic acid, Ca:P ratio etc suited to physiological needs of the animal.
- b) Physical — Texture/temperature to ensure correct masticatory to defaecatory process; perhaps equally important to physiological needs.

Our principle concern here is for the amount of cleaning that takes place in the oral cavity. Clearly one mouthful will not be sufficient quantity of chewy, tough food to ensure a clean mouth. In dogs, experience shows that if raw meaty bones approximate to half the diet, then other sticky foodstuffs will be adequately compensated. In the case of cats, the obligate carnivores, our experience indicates that almost every meal must consist of chewy, raw meaty bones. Naturally the quantity of chemicals,

absolute and relative, should occupy that zone between too much and too little.

Frequency of chemical uptake and physical stimulation

Clearly there is trade-off again in this area between frequency, quantity, and quality. Most carnivores can survive if fed once a week in large quantity and good quality. This is not an optimum, and frequency of feeding probably differs between cats and dogs. Certainly, frequency of gum massage and teeth cleaning needs to be at least once per day. (Dental Health Foundation). This corresponds with the mineralisation of plaque beginning within 24 to 48 hours of deposition.

THE IMMUNE SYSTEM

Our evolving carnivore depended on the first line physical wash, scrub and polish of the oral cavity. The second line immune system evolved to be on permanent standby. In the event of oral injury, the immune system would be used infrequently, temporarily and on a narrow front. The opportunity for immune adaptation for chronic periodontal disease would never occur. We can speculate that evolving humans, less dependent on their mouths and protected within co-operative groups, could develop some tolerance for chronic periodontal disease.

A fully functioning immune system maintaining homeostasis is synonymous with the hard-to-define term "good health". A permanently stressed immune system vainly seeking to compensate for absence of first-line defence is consistent with chronic disease.

We need to bear in mind the pathogens on the other side of the immune equation. They adapted to survive in the mouth, cleaned on a regular basis. Conditions suitable for the growth of anaerobes exist in plaque after three to four days of undisturbed maturation. The mature plaque flora is extra-ordinarily complex and may contain up to 325 different species (Addy *et al.*, 1992). At times of host vulnerability (e.g., teething), pathogens can gain easy advantage. Even a slight bout of periodontal disease would be nirvana for them and anathema to the host.

BALANCING FEEDING AND ECOLOGICAL NEEDS

On an immediately practical level, we see that bones of appropriate size need to be the staple of the carnivore's diet — certainly not an add-on extra. On an ecological plain, the carnivore occupies the niche between the herbivore and the soil, reducing bone to powder and maintaining nature's intricate cycles.

THE MODERN DISGRACE

In olden times, some cats and dogs were subjected to barbarous procedures. Now the majority of modern pet carnivores are the victims of a slower process as 85% plus develop insidious periodontal disease (Penman & Emily, 1991). These domestic, poor unfortunates have an

immune system constantly stressed and frequently overrun in the vain attempt to heal the septic mouth in order to protect the rest of the body against toxins and bacteria. Lymphocytic/plasmacytic enteritis, cardiomyopathy, nephritis, degenerative joints may be the result. Unthriftiness, pyrexias of unknown origin, dermatitis etc are possible intermediates.

The new reality arises simply because our community's pets are fed principally on commercial processed foods and the balance made up with human processed food. The quality, quantity and frequency of chemical uptake may meet the artificial formula. However, the physical needs are denied. Persistent old-time myths and the assiduous efforts of the pet food industry ensure that this situation steadily worsens.

WHERE IS THE EVIDENCE?

There are two distinct reasons why this theory confers such a positive heuristic.

- a) The innumerable cases that comply with the general conditions.

Examples of this are the raw meaty bone-fed dogs not suffering from fleas (Hungerford, 1992); the general absence of the painful "feline neck lesions" (also known as External Osteoclastic Resorbive Lesions, Cervical Line Lesions and Subgingival Resorbive Lesions) in cats fed a raw meaty bone diet. Only one apparent neck lesion was found in the skulls of cats dating from 1400BC to 1958 AD and yielding a total 2015 teeth (Johnston, 1992). The surveys of Tholen, Coles and Crossley all agree that the instance of the problem in the modern domestic cat lies between 52% and 65% (Johnston, 1992). In 1947, Sir Frank Colyer, the human dentist, was of the opinion that dogs affected with parodontal disease are those fed on soft, pappy food and observed that an irregular arrangement of the teeth is not, in itself, harmful as long as the diet is of a suitable character. He concluded that parodontal disease is always associated with an alteration in the physical or chemical character of the diet of the animal — in other words, with a departure from the natural diet and conditions.

We can attest that brachycephalic dogs and cats, although predisposed to problems, readily devour bones and keep their mouths fresh. Clients, once converted, accept the argument and become fierce defenders of the natural diet.

- b) More powerful than the former is the ability to explain the previously inexplicable.

An example of this is Einstein's theory that light waves have mass and would be bent when passing within the gravitational field of a large body. His famous star-shift experiment was confirmed during a total eclipse of the sun. A distant star's rays passed within the gravitational field and, to observers on the research boat in the South Seas, the star's position in the heavens was thereby altered. That sort of powerful support is provided in our

case when two cats with plasmacytic pododermatitis responded dramatically through resolution of the periodontal disease and a change of diet (Lonsdale, 1992).

We have a long line of elderly animals suffering severe periodontal disease with attendant diseases of other organ systems: the low leucocyte count of these animals improving from 50% to 120% with a correction of diet and simultaneous improvement of the periodontal disease (Lonsdale, 1992). These findings signal the likelihood that new blood parameter "normal" values may need to be derived from natural food-fed animals. There would seem to be a need for objective research to support such observations.

Armed for new understanding, we can detect the cultural straitjacket fabricated from a warp of psychological, sociological, economic and political textures, the web of public and professional naivety woven with the commercial goals of the manufacturers. It would appear that the manufacturers have traded on the gullibility of the people and performed linguistic acrobatics such that their cooked, pulverised offal becomes known as a "complete and balanced diet".

Our profession has acquiesced. Nutrition, not feeding, is taught to undergraduates, perhaps by guest lecturers from the pet-food companies; the universities and associations fail to debate the issues. Many practices have become vendors and some colleagues appear on television programs/commercials endorsing the "complete and balanced formula".

WE MUST ATONE

This huge problem represents the largest opportunity the veterinary profession will receive in the late Twentieth Century. Here is our chance not only to provide comfort for the odd individual animal but also to ensure the health and well-being of whole populations. Small changes can bring about dramatic outcomes; each of us has a part to play. Committees will need to be established to assess the situation, to make and implement recommendations. Some obdurate bureaucrats and others with a vested interest will require to see the standard columns of

figures before being convinced. The general public relate to the issues quite readily for it is all commonsense. As De Bono says, we must re-learn that which we already "know". A few experiments could readily be established to prove or otherwise the hypothesis. Existing laws prohibit manufacturers and suppliers of goods and services from recklessly or knowingly making false or misleading statements. Other clauses of the Trades Practices Act and the Cruelty to Animals Act may also apply.

The foregoing could be dismissed as fanciful ramblings. However, it is a statement on a diverse and important topic which demands examination and either refutation, modification or endorsement. If we are to preserve credibility with our public, we need to set about this important work as soon as possible.

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One of the world's great literary figures, Leon Tolstoy, counselled wisdom in dealing with our wishes and desires.

"There is a line of my grandfather's that I have never forgotten," said Tania Albertini Tolstoy, the favorite granddaughter of the author of *War and Peace* and *Anna Karenina*. "He was talking once to his friend, the poet Sologub, who told him: 'You are a truly lucky man. You have everything you ever wanted; everything you love.'

"My grandfather answered: 'I don't have everything I love. I love everything I have'."