

Companion Animals Symposium: Impact of Anthropomorphism on Companion and Captive Animal Husbandry

476 Capitalizing on human health trends to improve feline health and wellbeing. M. R. Lappin,* *Department of Clinical Sciences, Colorado State University, Fort Collins.*

For some pet owners, their cat(s) is(are) treated like other 2-legged family members. In these situations, the veterinarian can be as vital a member of the family as the pediatrician or family practitioner who guide human health decisions. These owners tend to be well read and are easily influenced by electronic and other media. In my opinion, human health trends generally improve feline health and wellbeing. However, information derived from the human health care system can also hamper feline health care. In this lecture, a case-based approach will be used to provide examples of both potential outcomes. For example, in an attempt to provide cats the safest possible environment, many owners restrict the cat's access to the outdoors. This housing trend combined with over-feeding has led to an epidemic of feline obesity and related problems such as diabetes mellitus. Increased recognition of the human obesity problem by pet owners in North America has led to an increase in recognition of the problem in cats and makes directing the cat owner toward providing a more positive lifestyle for their cat much easier. The widespread use of supplements such as glycosaminoglycans to enhance the wellbeing of humans has also led to improvement in feline health. For example, degenerative joint disease is more common in cats than is commonly believed. The resultant discomfort decreases activity levels and can potentiate the feline obesity problem. The increased recognition of the benefits of glycosaminoglycans in humans has made it much easier to convince owners to complete diagnostic evaluations of cats exhibiting inactivity and to appropriately manage degenerative joint disease. Last, due to a perceived increased risk of autism in vaccinated children and injection site sarcoma in cats, some cat owners are now fearful of vaccines of all types for cats. This problem dramatically lessens numbers of feline veterinary visits, which provide many benefits other than just vaccination.

477 Effect of anthropomorphism on companion and captive animal husbandry. T. M. Edling,* *Petco Animal Supplies Inc., San Diego, CA.*

The objective of this presentation is to demonstrate how anthropomorphism affects companion and captive animals, specifically those within the pet industry. Anthropomorphism is a double-edged sword. From the point of view of the veterinarian, the pet product manufacturer, service providers and retailers, we all embrace the fact that pet owners actively anthropomorphize their animals. We love that most people in the United States consider their pets to be part of their families and consider themselves to be "pet parents." In fact, we promote that pet owners place human attributes on their animals and we play to the emotions that relationship elicits to encourage owners to purchase products and services. The other edge of the sword cuts backward as we consider animals that are treated like human children. Those animals are fed inadequate diets of "people food," kept in habitats that are designed to fit fashionably into a home but are dysfunctional and inappropriate for the animal and placed in social situations where a human would be comfortable but are not ideal for an animal. It is vitally important that those of us who understand the husbandry needs of companion and captive animals educate the public as well as the marketing and merchandising leaders in the pet industry. With the proper influence, we can help ensure the

products and services available to pet owners will provide the best possible outcome and anthropomorphism is kept in check.

Key Words: anthropomorphism, animal husbandry, companion and captive animals

478 Companion animal and captive animal husbandry: The balance between what animals need and what people think they need. M. S. Edwards,* *California Polytechnic State University, San Luis Obispo.*

Air, food, water, and shelter are described as fundamental animal needs. Species-specific adaptations enable animals to satisfy their unique needs. Those unable to meet their needs are removed, along with their genetics, from populations through natural selection. Animals maintained in human managed environments are dependent upon their caregivers for these needs, in appropriate type, quantity and quality. Selections made by human caregivers are not always consistent with species, or individual, requirements and may result in clinical or subclinical disease, reduced longevity and/or productivity. When considering appropriate nutrition (i.e., food, water), requirements are defined as the lowest nutrient intake that maintains a defined level of nourishment for a specific adequacy indicator (Jones and Varady, 2007). It is the exception that species are offered the identical complement of foods consumed by their native range counterparts. Regardless of environment, species require nutrients contained within consumed foods, not the foods themselves. Nutrients, including those catabolized for energy, may be effectively delivered using multiple methods. Polar bears feed primarily on ringed and bearded seals, but seasonally shift to alternative nutrient sources, including caribou, arctic charr, several berry species, and human garbage (Dyck and Kebreab, 2009). In managed environments, nutrients supporting polar bears are effectively delivered using available ingredients, nearly all of which are not consumed by the species in its native range. The apparent disconnect between animal requirements and what human caregivers perceive as needed is best demonstrated by the current incidence of companion animal obesity. In the United States, 53% of adult dogs, 55% of cats, and 32% of horses are overweight or obese (APOP, 2012; Thatcher et al., 2008). These are animals whose needs are dependent on a human population, 68% of which are overweight or obese (Flegal et al., 2010). Wildlife species maintained in human managed environments are also susceptible to these trends, although objective population data has not been compiled. An effort to educate animal caregivers regarding species needs, and how they distinctly differ from their own, should be an objective of responsible animal management.

Key Words: requirements, husbandry, obesity

479 Antimicrobial cathelicidin peptides: What are they and how do they help protect the dog? T. Melgarejo* and F. Blecha, *Kansas State University, Manhattan.*

Cathelicidins, a group of cationic peptides found mainly in leukocytes and epithelial cells, play a central role in the innate immune defense against infection. These host defense peptides (HDPs) have been reported in several animal species; however, our team was the first to identify a HDP in the neutrophil granules of the domestic dog. This finding recently led to the patent of a canine cathelicidin (K9CATH) peptide

and its functional analogs. The mature K9CATH peptide exhibits broad antimicrobial activity against gram-negative and gram-positive bacteria, fungi as well as certain intra-cellular parasites. Through computational optimization we have moreover succeeded in further enhancing the biological activity and stability of the synthetic K9CATH peptide. The potency and broad antimicrobial activity of K9CATH support that this peptide acts as a key player in the innate immune response of the dog. In light of increasing antibiotic resistance it is important to identify natural compounds that may serve as model molecules for the development of novel antimicrobials with application against clinically relevant infections in veterinary medicine. We are currently investigating the use of K9CATH analogs as potential therapeutic agents for common pathologies in dogs, such as urinary tract infections, yeast and bacterial dermatitis, and chronic otitis.

Key Words: dog, canine, antimicrobial

480 New findings in the obligate carnivore-omnivore debate: Regulation of macronutrient intake in cats and dogs. A. K. Hewson-Hughes^{*1}, V. L. Hewson-Hughes¹, A. Colyer¹, A. T. Miller¹, S. M. McGrane¹, S. R. Hall¹, R. F. Butterwick¹, S. J. Simpson², and D. Raubenheimer³, ¹*Waltham Centre for Pet Nutrition, Waltham-on-the-Wolds, Leicestershire, UK*, ²*University of Sydney, Sydney, Australia*, ³*Massey University, Auckland, New Zealand*.

Animals in the wild are faced with a variety of food sources that differ in nutritional content (quality) and availability from which they must compose a diet to meet their nutrient requirements. While many herbivores and omnivores have been shown to balance their intake of macronutrients [protein (P), fat (F) and carbohydrate (C)] when faced with nutritionally variable foods, study of this ability has been

relatively neglected in predators, largely on the assumption that prey are less variable in nutrient composition than the foods of herbivores and omnivores and such mechanisms therefore unnecessary. The mammalian order Carnivora is of particular interest for the study of macronutrient regulation since it includes our major companion animals, cats and dogs which have predator heritage but today are largely provided with food by their owners. We carried out studies in adult domestic cats and adult dogs representing 5 breeds from toy to giant to determine whether these 'domestic predators' regulate macronutrient intake. Cats and dogs were provided with a choice of 3 different foods (each in a separate bowl and each food containing different amounts of P, F and C) from which they could self-select the amount of each food they consumed to compose a diet. Each of the foods was offered in excess of energy requirements and if any animal consumed all of one or more foods the amount offered was increased to ensure that the diet composed was not influenced by food availability. From the amount of each food consumed we calculated the overall amount of energy consumed from each macronutrient and expressed this as a proportion of the total energy intake. Cats composed a diet from the 3 foods offered of ~52% of energy from protein (95% confidence interval (CI) 47.7, 56.1%), 36% from fat (33.0, 37.6%) and 12% from carbohydrate (7.5, 18.2%). The different breeds of dogs regulated intake to a remarkably similar %P:F:C balance of ~30% (CI 27.3, 30.9):63% (62.0, 64.6%):7% (6.4, 7.9) suggesting that the mechanisms regulating food intake have been strongly conserved in these dogs despite rapid (artificially selected) changes in other phenotypic traits such as size. These studies indicate that domesticated mammalian carnivores are able to regulate food selection and intake and so balance their macronutrient intake to specific intake targets.

Key Words: macronutrient regulation, companion animals, carnivore nutrition