Veterinary health care teams understand that acceptance of, and adherence to, dietary recommendations by clients depends on effective, continuous communication. Despite decades of available research and training, and the availability of numerous balanced commercial, balanced homemade, and veterinary therapeutic diets, our collective ability across the profession to consistently help clients change behaviors and feeding practices to improve patient health remains difficult. Based on the long-standing, evidence-based approach of motivational interviewing, a paradigm shift is suggested for veterinary health care teams to empower clients to make their own arguments for change and take positive action for the health of their pet.

Commercial pet food in the United States includes a diverse range of products. There is a tremendous amount of variation among companies regarding the financial resources invested into producing their products, research, and marketing. Commercial pet food is a regulated industry at both the state and federal levels, and many of the same standards applied to the human food industry apply to pet food. Many foods that both pets and people consume are processed; however, the type and extent of processing do not correlate with the nutritional value. Commercial pet food does not meet the needs of every pet.

Veterinarians are faced with the challenge of understanding and discussing the wide array of commercial pet foods with their clients. To promote these discussions a pet food processing categorization system is applied to define familiar heat processed dry and can pet foods as ultra-processed commercial diets (UPCD) and other less processed diets as minimally processed commercial diets (MPCD). A review of the FDA pet food recalls and literature on commercial diets are used to discuss well-known health risks such as nutritional imbalances, bacterial pathogens, aflatoxin, and toxic contaminations. A less known concern of advanced glycations end products (AGES) found in UPCD is presented.
Sustainability and Pet Food: Is There a Role for Veterinarians? 563
Heather L. Acuff, Amanda N. Dainton, Janak Dhakal, Samuel Kiprotich, and Greg Aldrich

Sustainability has become a watchword for a wide array of resource-intensive goods and services. This is promulgated by an increasing global population and concerns that natural resources and a hospitable climate will not be preserved for future generations. Life-cycle analysis is a tool that provides a framework to determine the magnitude products contribute to carbon emissions and depletion of natural resources. In this review, published research has been summarized to provide an overview of the impacts that pet food production and pet ownership have on the environment and the prospective role of veterinary practitioners in advocating for sustainability.

Nutrition for Pocket Pets (Ferrets, Rabbits, and Rodents) 583
Lindsey E. Bullen

Although the companion animal population is predominantly canine and feline, the popularity of domesticated small mammals (or pocket pets) has been steadily increasing. As a result, ferrets, rabbits, and rodents can be expected to present for veterinary evaluation. Many common medical problems in pocket pets are often associated with poor husbandry and/or inappropriate nutrition and are thus responsive to nutritional therapies. Although this article touches on minor background information and husbandry, the primary foci are the basic nutritional needs of, and common nutrition-responsive diseases in, pocket pets. Detailed husbandry needs are beyond the scope of this article.

The Gut Microbiome of Dogs and Cats, and the Influence of Diet 605
Rachel Pilla and Jan S. Suchodolski

The gut microbiome is a functional organ, and responds metabolically to the nutrient composition within the diet. Fiber, starch, and protein content have strong effects on the microbiome composition, and changes in these nutrient profiles can induce rapid shifts. Due to functional redundancy of bacteria within microbial communities, important metabolites for health can be produced by different bacteria. Microbiome alterations associated with disease are of greater magnitude than those seen in healthy dogs on different diets. Dietary changes, addition of prebiotics, and probiotics, can be beneficial to improve microbial diversity and to normalize metabolite production in diseased dogs.

Calcium, Phosphorus, and Vitamin D in Dogs and Cats: Beyond the Bones 623
Jonathan Stockman, Cecilia Villaverde, and Ronald Jan Corbee

Calcium, phosphorus, and vitamin D are nutrients that play a key role in maintaining normal organ, cell, and tissue function. Much is known about their role in bone metabolism, but these nutrients are also important in renal health, urinary tract disease, and multiple other organ systems. It is nutritionally important to meet the physiologic requirements for each of these nutrients, but the interplay between them should also be considered.
Senior Pet Nutrition and Management

Julie A. Churchill and Laura Eirmann

Senior dogs and cats commonly present to veterinary clinics for wellness examinations and for illness. Nutritional needs change in healthy elder pets compared with the young adult life stage. Veterinary health care teams must provide nutritional assessments and individual recommendations, recognizing there is no defined nutrient profile for seniors. Individual variation prevents a one-size-fits-all approach. Advancing age places pets at risk for developing medical conditions. Early detection can lead to earlier nutritional intervention to support recovery, health, and quality of life. However, comorbidities may present a nutritional conundrum, requiring prioritization of problems and nutritional triage to balance needs.

Canine and Feline Obesity Management

Megan Shepherd

Obesity and overweight have an impact on more than half of pet cats and dogs. Effective and team-based communication is essential for creating an effective weight loss plan. The diet should meet all essential nutrient requirements during energy/calorie restriction. There are several ways to initiate a weight loss plan, and regular monitoring is essential for determining if a plan is working or needs to be adjusted.

Nutritional Management for Dogs and Cats with Gastrointestinal Diseases

Catherine E. Lenox

Gastrointestinal (GI) disease encompasses a wide variety of conditions, often with similar clinical signs. In order to optimize diet selection and nutritional management for dogs and cats with GI disease, it is important to consider a patient’s nutritional assessment, problem list, specific nutrients of concern, and other factors. This review summarizes the process of utilizing this information to select a diet for a patient with GI disease as well as target levels for nutrients of concern. Overall, it is important to make an individualized recommendation and reassess the patient to make additional adjustments to the nutritional plan as needed as well as establishing target levels for nutrients of concern.

Nutritional Management for Dogs and Cats with Chronic Kidney Disease

Valerie J. Parker

The nutritional management of canine and feline chronic kidney disease and protein-losing nephropathy is discussed. Special attention is paid to assessment of body composition (body weight, body condition score, and muscle condition score) and the dysrexia that often occurs with kidney disease. Various nutrients of concern are discussed and specific dietary options are provided.

Nutritional Management of Behavior and Brain Disorders in Dogs and Cats

Valarie V. Tynes and Gary Landsberg

There are several natural products and functional ingredients that, either alone or in combination with other ingredients, have shown evidence for
decreasing signs associated with cognitive dysfunction and anxiety in dogs and cats, and in management of seizures in dogs with epilepsy. The evidence supporting the role that a healthy gastrointestinal tract plays in behavior is also growing as more is learned about the gut-brain axis. Nutritional support may play an important role in therapy for certain brain disorders and behavioral problems, in conjunction with other aspects of management. A multimodal approach provides the greatest likelihood of success.

Nutritional Concerns for Cancer, Cachexia, Frailty, and Sarcopenia in Canine and Feline Pets

Korinn E. Saker

Cachexia and frailty can be described as independent entities yet are interrelated as constituents of malnutrition and the aging process. The unifying aspect is lean muscle loss, ultimately driven by inflammation and the adverse ramifications to pets with chronic, debilitating, or terminal disease states, including cancer. Modification to intake of dietary protein, fat, omega-3 fatty acids, and selected vitamins has shown benefit in management protocols as preventative and palliative care, but further investigation is imperative.