

# Age is not a disease: Keeping senior pets healthy with nutrition



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What is a senior pet? Senior pets come in a variety of sizes, ages, and physical health. The criteria for “senior” status differ for dogs and cats and for each individual pet. Pet food companies have traditionally used 7 years as a guideline for senior status. The *2019 AAHA Canine Life Stage Guidelines* define senior as “the last 25% of estimated lifespan through end of life.” There is individual variation, with large and giant breeds showing aging changes faster than small breed dogs. In contrast, the *2021 AAHA/AAFP Feline Life Stage Guidelines* and the *2021 AAFP Feline Senior Care Guidelines* define senior as cats greater than 10 years of age. Senior pets are estimated to represent 44% of the US pet population.

The aging process is common in all living organisms, resulting in a progressive decline in the ability to handle demands of the environment, or respond to challenges of illness. Physiological changes do occur with aging. Some of these are included in the following list. Some changes are minor, but others may have a major impact on the pet’s quality of life as they progress. This list is not comprehensive, but describes only some of the common changes seen in older pets. All organ systems are affected by aging.

## SKIN AND COAT CHANGES

With advanced aging several changes occur in the skin and haircoat. Cellular atrophy occurs and there may be fewer follicles. The skin loses elasticity and there may be hyperkeratosis of the skin and hair follicles. White hairs may appear with the loss of melanocytes in the hair follicle. The haircoat may become dry and dull. Older dogs are more likely to have cutaneous neoplasia. Feeding a diet high in omega-3 fatty acids may benefit skin and coat quality as well as address other age-related issues.

## CHANGES IN BODY WEIGHT AND CONDITION

Weight can go up or down as the pet ages. Basal metabolic rate naturally slows with aging. Some pets are at an increased risk for gaining weight as their metabolic rate goes down and their activity slows down. However, many geriatric dogs and cats are underweight, compared to younger age groups. This may be due to sarcopenia, the age-related loss of lean body mass without evidence of disease. Weight and body and muscle condition scores should be evaluated at every visit and compared to previous recorded numbers. This is especially important because sarcopenia is associated with increased morbidity and mortality and thus should be avoided or addressed as soon as possible. Ensuring adequate amino acid and protein intake, as well as providing highly digestible diets rich in

antioxidants and omega-3 fatty acids, can help slow the development of sarcopenia.

## CHANGES IN THE SPECIAL SENSES

Hearing, vision, and olfaction may all decline as the pet ages. Older dogs may develop nuclear sclerosis, which owners may confuse with cataracts. These changes aren’t usually related to vision loss but can in severe cases. Night vision loss is gradual and may not be noticed until the hearing declines. Clinical changes to the sense of smell have not been identified in dogs but olfactory loss may be associated with cognitive dysfunction in aging dogs as it is in people. Feeding a diet enriched in antioxidants may help maintain sensory and cognitive function, and adapting the environment may be beneficial to make pets with sensory loss more comfortable.

## KIDNEY CHANGES

A gradual decline in renal function occurs over time but a substantial loss of functioning nephrons must occur before there is evidence by routine assessment. Although not all are known, some risk factors for development to chronic kidney disease (CKD) have been identified. Some breeds may be predisposed to CKD, which include breeds with familial renal dysplasia. Acute glomerular injury from primary or secondary diseases may initiate the development of CKD. Although chronic kidney disease is seen in both older dogs and cats, the age-related decline in function should not be considered as an indication that disease development is inevitable. Ensuring adequate water intake, avoiding excess phosphorus intake, and feeding a diet enriched in



omega-3 fatty acids may help slow the development of CKD.

## DECREASE IN IMMUNE FUNCTION

Several processes have been considered to explain the many changes that occur as animals age. One hallmark of aging is a declining immune system. Senior dogs and cats often have a reduction in blood CD4<sup>+</sup> T cells, an elevation in the CD8<sup>+</sup> subset and a reduction in the CD4:CD8 ratio. Cutaneous delayed-type hypersensitivity and the ability of blood lymphocytes to respond to stimulation by mitogens decreases. This immune system dysfunction, along with progressive genome damage, contributes to accumulation of injured cells and chronic inflammation. The body is thus not able to ward off pathogens as well and is at an increased risk of age-related disease as well as neoplasia. Dietary antioxidant supplementation may help protect aging cells and the immune system in dogs and cats.

## GASTROINTESTINAL TRACT CHANGES

As our pets age there are several structural and functional changes that occur in the GI tract. Among these is altered secretory activity with reduced salivary and gastric acid secretions. Reduced circulation and altered

enzymatic activity occur. The transit time slows. There is a decreased duodenal villus surface area, jejunal height, and greater colonic crypt depth. Although these changes may not indicate clinical digestive function decline in all pets, some may exhibit age-related digestive impairment. Feeding a highly digestible diet is especially important for these pets.

#### Nutritional Assessment Screening Evaluation (Every Pet, Every Visit)

- ☐ Main diet but also treats, table foods, training treats, pilling foods, etc.
- ☐ Body condition score (BCS)
- ☐ Muscle condition score (MCS)
- ☐ Weight (note loss or gain)
- ☐ Feeding management & environment



Figure 1. A nutritional assessment is an important part of a senior pet's exam.

#### EVALUATION OF SENIOR PETS

It may be difficult to determine when a pet is undergoing healthy aging changes or if they have subclinical disease. Recommended routine healthcare visits every 6 months should include a thorough physical examination. A minimum laboratory database should include CBC, urinalysis, fecal analysis, and serum biochemical panel. A complete nutritional assessment should be conducted with a body condition score noted (see fig 1 and fig 2). Older pets are at an increased risk for diseases such as chronic kidney disease, endocrine disorders, and neoplasia. By establishing

baseline values, diseases may be recognized earlier with greater chances for positive intervention.

#### NUTRITION FOR SENIOR PETS

Nutritional requirements have been established by the National Research Council and the Association of American Feed Control Officials for growth, reproduction, and adult maintenance, but there are NO specific nutrient recommendations for senior pets. Foods marketed for seniors meet the requirement for adult dogs and cats with enhancements based on manufacturer's preferences. However, there are some key nutritional considerations. Senior diets should have adequate high-quality protein as well as controlled levels of minerals including calcium, sodium, phosphorus, and potassium. Omega-3 fatty acids and antioxidants should be included as they are beneficial in many age-related diseases. The food should be highly digestible and have an energy density appropriate for the pet.

#### THERAPEUTIC FOODS FOR SENIOR PETS

Senior pets, even healthy ones, may benefit from eating a veterinary therapeutic diet (VTD). VTD can often be used to reduce the risk of development of clinical conditions in pets at risk due to advancing age. Most VTD provide complete and balanced nutrition and can be safely fed long-term. In addition, there may be more company support as well as access to complete nutrient profiles with VTD.

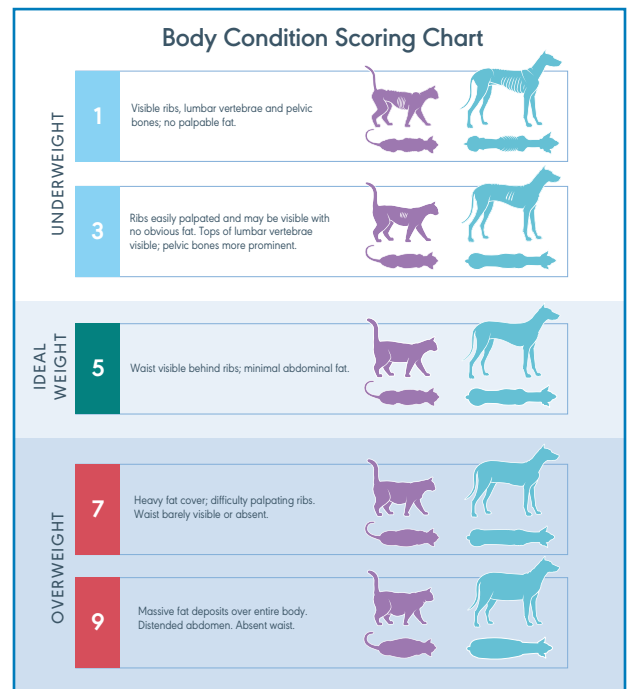


Figure 2. Body condition should be tracked in senior pets.

In general, there are tighter specifications on nutrient levels for product consistency. Some VTD require more frequent and extensive cleaning of equipment to prevent cross-contamination of protein sources. Additional testing such as for protein contamination, for urinary stone management, and clinical efficacy studies is also more common with VTD.

#### CONCLUSIONS

Dog and cats undergo considerable changes in their physiology as they age, and many of these changes respond favorably to nutritional management. Every senior pet is an individual, so when selecting a food performing a complete nutritional assessment is a critical step. Veterinary therapeutic diets may be appropriate even if there are no clinical signs of disease. Senior pets should be reevaluated frequently, and dietary recommendations or changes should be part of every visit.

#### Suggested Reading

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