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Original article**Aging Gracefully: Dietary Strategies For Geriatric Dogs**¹Ganesh, ¹Jayant Kumar Kakwani, ¹Prasad Shinde, ¹Manish Srivastava, ¹Pallavi Maurya²Nidhi Verma, ³V.K. Singh, ⁴D. Tewari, ⁴S. Gautam, ⁵Sonu Jaiswal*College of Veterinary Science and Animal Husbandry Acharya Narendra Deva University of Agriculture and Technology Kumarganj, Ayodhya-224229***Corresponding Author: ganeshid021@gmail.com**Received: 06/11/2024**Published: 10/11/2024***INTRODUCTION**

A dog's senior status varies by breed and size. Generally, dogs are considered senior at around seven years old. Smaller breeds may not be classified as senior until 10 or 11, while larger breeds often reach this status between 5 and 8 years. Dogs exceeding their breed's average lifespan are termed "geriatric. Senior dogs have unique nutritional needs due to aging. They typically require fewer calories but more protein to maintain muscle mass. Senior dog foods are often formulated with higher protein levels and easily digestible ingredients.

Key Nutritional Components

- **Protein:** Increased intake is essential for muscle maintenance, ideally around 25% of their calories.
- **Joint Health:** Diets often include glucosamine and omega-3 fatty acids to support mobility.
- **Digestive Health:** Fiber sources like flaxseed and beet pulp aid gastrointestinal function.
- **Cognitive Function:** Nutrients such as vitamin E and Carnitine help combat cognitive decline.
- **Skin and Coat:** Linoleic acid and vitamin A are included to maintain skin and coat health.
- **Immune Support:** Ingredients like omega-3 and omega-6 fatty acids, vitamins, and probiotics bolster the immune system.

Metabolism and Energy Requirements

As dogs age, their energy needs decrease due to the loss of lean body mass. Senior dogs typically require 20% fewer calories than younger dogs to maintain their weight. This reduction is linked to decreased muscle mass and changes in fat and protein metabolism. While older dogs need more protein to compensate for reduced synthesis, their fat requirements decline due to lower overall energy needs.

Digestive System Changes

Aging affects digestion and nutrient absorption, leading to reduced hydrochloric acid and bile output, slower transit times, and altered enzyme activity. While most senior dogs maintain digestibility for fat and protein, there is a trend toward lower digestibility, particularly for fat. Interestingly, some studies suggest that older dogs may have improved or preserved digestibility of fiber and calcium.

Dental Health

Dental issues, such as periodontal disease, are common in older dogs and can hinder food intake. To accommodate these problems, feeding smaller kibble or canned food is recommended. Regular dental care, including chews and brushing, can help maintain oral health.

Nutritional Needs for Senior Dogs

- **Protein:** Essential for maintaining lean muscle mass, senior dogs need about 50% more protein than younger adults. Protein should make up 25–32% of their diet from high-quality sources.
- **Calories:** Older dogs require fewer calories; fat should be controlled at 7–15% on a dry matter basis to prevent weight gain while providing essential omega-3 and omega-6 fatty acids for skin health and inflammation reduction.
- **Carbohydrates:** Complex carbohydrates provide energy, with fiber being crucial for digestive health—at least 2% of the diet should come from easily digestible sources like flaxseed and beet pulp.
- **Antioxidants:** Nutrients like vitamins C and E, along with selenium, help combat oxidative damage from aging. Joint health may benefit from chondroitin and glucosamine.
- **Hydration:** Adequate water intake is vital, especially for dogs on medications that may cause dehydration. Wet foods can help increase hydration levels.

Key Nutritional Components in Dogs

Protein

Essential for muscle growth, repair, and overall bodily functions. Dogs need at least 20 grams of protein daily, varying by size, age, and activity level.

Animal Proteins: Chicken, beef, lamb, turkey, and fish provide complete proteins with all essential amino acids.

Plant-Based Proteins: Options like soy, quinoa, and chickpeas can supplement protein intake, especially in vegetarian diets.

Fats

Role: Provide energy, support healthy skin and coat, enhance cellular function, and aid in fat-soluble vitamin absorption. Omega-3 and omega-6 fatty acids reduce inflammation and are found in fish oil and certain plant oils.

Carbohydrates

Function: Serve as a quick energy source and support digestive health through dietary fiber. A fiber intake of 2–5% is beneficial, found in whole grains, sweet potatoes, and peas.

Vitamins and Minerals

Function: Vital for immune support, bone health, and muscle function. Vitamins C and E combat oxidative stress. Glucosamine and chondroitin are crucial for joint health.

Joint Health

Supplements: Glucosamine and chondroitin promote cartilage regeneration and reduce inflammation. Diets high in omega-3 fatty acids also support joint health.

Hydration

Importance: Essential for all biological processes. Adequate hydration is crucial for health and energy levels.

Special Dietary Needs

- **Kidney Disease:** Dogs with kidney issues often require low-protein (14–20%) and low-phosphorus diets (0.2%–0.5%) to reduce kidney strain. Hydration is critical; wet food can help.
- **Heart Disease:** A low-sodium diet helps manage blood pressure and fluid retention, reducing heart strain.
- **Portion Control:** Crucial for preventing obesity. A nutrient-balanced diet lower in calories but higher in fiber can promote satiety. Regular exercise and weight monitoring are also important for effective weight management.

Commercial vs. Homemade Diets for Dogs

Overview of Specialized Senior Dog Foods

Commercial senior dog foods are formulated to meet the specific dietary needs of older dogs, typically containing 28–32% protein to help preserve muscle mass. They often include ingredients like glucosamine and omega-3 fatty acids for joint health and cognitive support.

Pros and Cons of Commercial Diets

Pros:

- **Convenience:** Ready-to-feed with no preparation needed.
- **Nutritional Adequacy:** Many meet AAFCO standards for complete nutrition.
- **Variety:** Options tailored for specific health issues like kidney or heart disease.

Cons:

- **Quality Variation:** Not all brands maintain high-quality standards; some may contain fillers.
- **Cost:** High-quality diets can be expensive.

- **Lack of Customization:** May not meet the specific needs of dogs with health issues or allergies.

Homemade Diets

Homemade diets allow pet owners to use fresh ingredients tailored to their dog's health needs, avoiding additives common in commercial foods. However, improperly prepared homemade meals can lead to nutritional imbalances and deficiencies.

Consultation with a Veterinary Nutritionist

Consulting a veterinary nutritionist is crucial for ensuring that homemade diets are balanced and suitable, especially for dogs with chronic health conditions.

Feeding Practices for Senior Dogs

Meal Frequency

As dogs age, their metabolism slows, so more frequent, smaller meals are recommended. This helps manage energy levels, prevent obesity, and reduce digestive issues.

Portion Sizes

Portion sizes should be based on weight, age, exercise level, and health status. Generally, adult dogs should receive about 23% of their body weight in food daily, but this may need adjustment for senior dogs with health concerns

In summary, both commercial and homemade diets have their benefits and drawbacks. It's essential to choose a feeding method that meets your dog's individual nutritional needs while considering convenience, quality, and health requirements.

Adaptations for Dogs with Dental Issues

Feeding Modifications

For dogs with dental problems or missing teeth, adjusting feeding methods can enhance comfort:

- Hydrated Kibble: Soften dry kibble with warm water or broth for easier chewing.
- Canned Soft Dog Food: Switch to canned food, which is often softer and easier to eat. Ensure its nutritionally balanced.
- Homemade Soft Food: Prepare soft meals using lean meats and safe vegetables, tailored to the dog's needs.
- Dental Chews and Toys: Provide dental chews for a pleasant chewing experience while promoting dental health.
- Regular veterinary check-ups are essential to monitor dental health and adjust feeding methods as needed.

Importance of Routine Veterinary Exams

Regular veterinary visits are crucial for monitoring a dog's health, especially as they age or have existing health issues. These exams help assess weight, overall health, and identify early signs of dietary problems.

Signs of Dietary Issues

- Pet owners should watch for signs of malnutrition or allergies
- Change in Feces: Unusual frequency or consistency may indicate dietary issues.
- Skin and Coat Problems: Dry skin or a brittle coat can signal nutrient deficiencies.
- Lethargy: Lack of energy may suggest nutritional inadequacies.
- Gastrointestinal Symptoms: Vomiting or diarrhea could indicate food allergies.
- Behavioral Changes: Nutritional deficiencies can affect mood and behavior.

Adjusting Diet

- Dietary changes may be necessary due to aging, weight fluctuations, or health conditions:
- Weight Management: Reduce portion sizes and consider a lower-calorie diet after consulting a veterinarian.
- Health Conditions: Adjust diets for specific medical issues, such as renal or heart disease, often requiring prescription foods.
- Age-Related Needs: Senior dogs may need higher protein and fiber diets based on their health and activity levels.

Monitoring Response

After dietary changes, monitor the dog's progress over several weeks. Consult a veterinarian if there are no improvements or if new symptoms arise. Look for changes in energy levels, coat condition, and overall health.

Special Considerations for Allergies and Sensitivities

Identifying Food Allergies

Food allergies occur when a dog's immune system reacts negatively to certain ingredients, commonly proteins like dairy, soy, wheat, chicken, and beef. Symptoms can include skin infections and gastrointestinal distress.

Managing Allergies

Veterinarians often recommend an elimination diet trial lasting 8 to 12 weeks to identify sensitivities. This involves feeding the dog novel protein and carbohydrate sources while avoiding all other foods. If symptoms improve during the trial but return upon reintroducing the original food, an allergy is likely confirmed.

Identifying and Managing Food Allergies

Dogs can develop food allergies when their immune systems react negatively to specific proteins, such as dairy, soy, wheat, chicken, and beef. Symptoms may include skin infections, stomach distress, or itching. Veterinarians often recommend an elimination diet trial lasting 8 to 12 weeks, where dogs are fed novel protein and carbohydrate sources. To ensure accuracy, all other foods and treats must be avoided. If symptoms improve during the trial but return upon reintroduction of the original food, an allergy is likely confirmed.

Management Strategies:

- **Avoidance:** The primary strategy is to eliminate identified allergens from the diet.
- **Medications:** Veterinarians may prescribe corticosteroids or antihistamines for severe reactions.
- **Supplements:** Omega fatty acids and probiotics can enhance skin and digestive health.
- **As dogs age,** they may exhibit behavioral changes that affect their eating habits, such as reduced activity and appetite changes. Here are some adaptations:
- **Meal Frequency:** Smaller, more frequent meals can prevent gastrointestinal distress and help manage energy levels.
- **Portion Sizes:** Adjust portions based on weight and health; senior dogs often require fewer calories.
- **Feeding Techniques:** Soften kibble with water or switch to canned food to make eating easier for dogs with dental issues.
- **Regular veterinary check-ups** are crucial for detecting behavioral or health changes, allowing timely adjustments to feeding schedules and nutrition.

Recent Research in Senior Dog Nutrition

New Formulations and Supplements

Recent advancements emphasize personalized diets tailored to the unique health needs of senior dogs:

- **High-Quality Ingredients:** Many senior diets now include premium proteins, vitamins, antioxidants, and omega-3 fatty acids for overall health.
- **MCT Oils:** Medium chain triglyceride oils are added to support cognitive function by providing an alternative energy source for aging brains.
- **Joint Supplements:** Ingredients like glucosamine and chondroitin help maintain joint health and alleviate osteoarthritis symptoms.
- **NAD+ Precursors:** New supplements like nicotinamide riboside aim to enhance cognitive performance and metabolic health in senior dogs.

Emerging Trends

There is a growing focus on personalized nutrition, which considers each dog's unique health needs. Pet owners are increasingly adopting innovative feeding techniques to optimize their older pets' health while addressing conditions like obesity or heart disease.

HOLISTIC APPROACHES TO CANINE HEALTH

Integrated Health Solutions

Many companies are adopting a holistic approach by combining products that support various aspects of canine health, such as metabolic and physiological needs, including mitochondrial, joint, and skin health.

Functional Foods

Functional foods provide additional health benefits beyond basic nutrition. These may include probiotics for digestion, antioxidants for cognitive support, and fibers for gut health.

Veterinary Collaboration

The importance of veterinary guidance in formulating senior dog diets is increasingly recognized. Collaborating with veterinarians ensures the safety and effectiveness of nutritional changes, especially for dogs with specific health issues.

Conclusion: Best Practices for Feeding Senior Dogs

- Provide meals rich in protein (28–32% on a dry matter basis) to maintain muscle mass, along with healthy fats and carbohydrates tailored to senior dogs' nutritional needs.
- Schedule routine veterinary exams to monitor weight and health, adjusting feeding practices as necessary.
- Adjust portion sizes to prevent obesity, which is common in less active older dogs. Smaller, more frequent meals can aid in weight management and digestion.
- Ensure senior dogs have constant access to fresh water, as they may struggle to stay hydrated.
- Consider adding vitamins like probiotics, glucosamine, and omega-3 fatty acids to enhance joint health and overall wellness. Always consult a veterinarian before introducing new supplements.

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