

# PHYSIOLOGICAL BASIS OF SMALL ANIMAL FEEDING

Department of anatomy, normal and pathological physiology

Faculty of Veterinary Medicine

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Specialty: 211 Veterinary medicine,  
212 Veterinary hygiene, sanitation and expertise

Master's degree

Semester 3, 4

Number of ECTS credits 5

Classroom hours 44 (including 44 hours of practical classes)

Control form Credit

## **General description of the discipline**

The discipline "Physiological foundations of nutrition of small animals" studies the positive effect of proper feeding on the condition of healthy and sick animals.

The main goal of the discipline is to expand and deepen professional competences acquired during the study of regulatory disciplines, namely:

- Ability to apply the principles of preventive medicine and the correct use of dietary treatment;
- Ability to understand the prognostic value of proper nutrition;
- Mastering the technique of the correct composition of the diet of small animals and making a forecast of preventive actions;
- Peculiarities of feeding animals during the period of growth, reproduction and maturity;
- Ability to assess the state of the animal
- Insights into industrial feed for dogs and cats,
- Ability to develop nutrition and safety programs for various diets for domestic small animals

The main forms of education are lectures (training seminars, group work) and individual (preparation of presentations, development of projects) classes,

The evaluation methods are:

- assessment of the level of knowledge demonstrated in oral answers and activity during the discussion of the questions presented in class;
- use of express tests for self-assessment of knowledge,
- results of computer testing;
- written answers to test papers on the topics of independent work;
- assessment of the level of skills in a role-playing game for consideration of specific situations, providing instructions on how to improve activities
- use of situational exercises with subsequent assessment by the participants themselves,
- constant feedback with students, analysis of current successes

### **Topics**

1. Features of the structure and functions of the digestive system of cats and dogs
2. Peculiarities of nutrient metabolism. Classification of nutrients. Who determines the standards of nutrients that are necessary in the diet of dogs and cats. The role and sources of the main nutrients in the body of dogs and cats.
3. Protein. Function and structure of proteins. Essential and replaceable amino acids. Protein digestion and metabolism. Protein needs of carnivores, omnivores and herbivores. Methods of measuring protein in the body and food. Protein quality. Protein evaluation. Symptoms of protein deficiency
4. Carbohydrates. Determination of carbohydrates (CHO). Simple and complex carbohydrates. Mono- and disaccharides. Digestion, absorption, metabolism of carbohydrates. Digestion, absorption and excretion of carbohydrates in non-ruminant herbivores, omnivores and carnivores. Fiber and its general classification. Assessment of carbohydrates.

5. Lipids. Classes of lipids, their structure and nomenclature. Mechanisms of digestion and absorption of lipids. Transport of lipids in the body and metabolism. Essential fatty acids (EFA) and their functions. Clinical signs of NLC deficiency. Assessment of animal lipids.

6. Seminar.

7. Energy. Determination of energy and energy balance. Measurement of energy and energy units. Animal energy needs. Difference between BER, RER, MER and DER. Difference between GE, DE, ME and NE. Conditions for energy concentration in feed. Conditions of energy needs of animals. Comparison with other physiological states.

8. Nutrition during neonatal development. Factors that provoke the fading syndrome of kittens and puppies. Expected birth weight, growth rate, growth rate of newborns. Rules for feeding newborns and orphaned animals. Feeding, diet selection and recommendations for weaning newborns.

9. How animal nutrition affects their growth, development and reproduction. Changes in nutrient requirements from the growth period to the adult stage of animal life, including the reproductive stage. The influence of different stages of adult life on nutrition. Peculiarities of nutrition of carnivorous animals in comparison with omnivores. Nutritional problems that are associated with age. Feeding strategy and ration options for different stages of life.

10. Seminar.

11. Alternative diets - what you need to know. Rations based on raw meat (RMBD). The role of heat treatment of fodder for domestic animals. Assessing the safety of RMBD for pets and owners. Risks and benefits of RMBD and home diets. Nutritional imbalance associated with home nutrition. Selection of high-quality dietary supplements.

12. Everything you need to know to treat obesity. Three main risk factors for obesity in cats and dogs. Diagnosis of overweight and obesity. Key nutritional factors and calorie restriction strategy, including rationale for food choices for weight management. Assessment of the optimal weight of an overweight or obese cat or dog. A safe weight loss and maintenance plan for cats and dogs.

12. Seminar

13. Nutrition for diabetes. Contrasting differences in the approach to nutrition of cats and dogs with diabetes. Basic Dietary Goals and Feeding Strategies for Diabetic Cats and Dogs. Feeding plan for cats and dogs with diabetes.

14. Practical seminar. Nutrition in case of vomiting and diarrhea. Define and explain the mechanisms of diarrhea. Define dietary goals and formulate feeding strategies related to vomiting. Define dietary goals and formulate feeding strategies related to acute and chronic diarrhea. Conduct a medical and dietary test of a patient with chronic enteropathy.

15. Lymphangiectasia, constipation, liver disease. Clinical problems associated with malabsorption of fat. Dietary goals and related feeding strategies. Lymphangiectasia and protein-losing enteropathy. Constipation in cats and dogs. Liver diseases. Liver lipidosis.

#### 17 Seminar

18. Nutrition for disorders of the pancreas. Key nutritional factors for cats and dogs with pancreatic disease. Nutritional goals and nutrition strategy for exocrine pancreatic insufficiency (EPI) and pancreatitis.

19. Dietary nutrition for skin diseases. Top 3 allergic skin diseases. Diagnosis of food allergy. The most common food allergens are cats and dogs. Characteristics of new protein and hydrolyzed protein products. Elimination diet. Key features of dermatoses associated with vitamin A, zinc, and tyrosine deficiency.

20. Practical seminar. Dietary management of the lower urinary tract. Symptoms and urolithiasis. Get to know the most common types of uroliths in dogs and cats. To determine the relationship between urolithiasis and susceptibility/risk factors. Describe the conditions of formation of uroliths. To determine the pathogenesis of most common uroliths. Read recommendations for dietary treatment of common uroliths and FLUTD.

21. Dietary treatment for osteoarthritis. Key nutritional factors in osteoarthritis (OA). The relationship between OA and obesity. Dietary nutrition for cats and dogs with OA.

22. Final lesson.