

The Importance of Disorders in Protein Metabolism for the Growth and Development of Carp Fish

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Abstract: The article describes the role of protein metabolism disorders in the growth and development of carp, analyzes the scientific literature on clinical manifestations, pathogenesis, treatment and prevention of diseases characterized by protein metabolism.

Key words: fish, protein metabolism, amino acid, methionine, tryptophan, lordosis, scoliosis

Introduction: from the first years of independence until 2009, the country produced an average of 6-9 thousand tons of fish per year. Since 2009, as a result of the increased attention to the industry and the adoption of relevant decisions by our government, a number of positive changes have been observed, and in 2019 the fish production in our country exceeded 70 thousand tons. Currently, the average annual demand for fish and fish products in the country is 350-450 thousand tons. The Decree of the President of the Republic of Uzbekistan dated May 1, 2018 "On measures to improve the management system of the fishing industry" is extremely important. The fishery has been granted a number of benefits by the presidential decree. A free economic zone "Fishing" is being created.

The goal is to further develop fisheries, organize a modern hatchery for breeding fish larvae, increase fish production, modernize reservoirs, strengthen the fodder base, widely introduce innovative and modern intensive technologies, and organize the production of fish products. Implementation of measures such as export of surplus. In recent years, a number of program measures have been taken in the country to ensure food security, including an increase in the production of high-quality fish products. At present, due to a sharp increase in demand for fish and fish products, much attention is paid to the development of fishing in the republic. The priority of fish farming in our country is to provide the population with high-quality fish protein while strengthening food security. Fish products play an important role in improving the functioning of the human brain, normalizing metabolic processes in the body. Fish meat contains proteins, fats, carbohydrates, minerals and vitamins, which are similar to those of other farm animals, but the absorption of protein in fresh fish meat by the human body is high.

Relevance of the topic: Currently, among the fish farms of the republic, there is a large violation of protein metabolism, including carp grown in artificial reservoirs, but this type of non-infectious diseases is not taken into account in fishing and has a negative effect on the growth and development of fish. Disorders of protein metabolism are caused by a lack of various proteins in the body, characterized by various physiological disorders and pathological changes.

This is due to insufficient nutrient intake or insufficient synthesis of nutrients in the body, because their diets contain no natural nutrients at all or are insufficient to meet the daily needs of the fish. No effective methods for the diagnosis and prevention of these diseases have been developed. This, in turn, causes economic damage to fisheries. Taking into account the country's climate and local conditions, as well as the ecological situation, it is important to prevent disease by adding fish in artificial reservoirs to the diet, rich in natural vitamins, organic, inorganic and mineral nutrients.

Disorders of protein metabolism: Proteins are the main component of living matter and constitute the bulk of the organic matter in fish. Protein is the most important material for the growth of fish organs and tissues. They are essential at all stages of the life cycle. Proteins are also important as a source of enzymes and hormones. Fish need more protein than other farm animals. The total protein requirement depends on the species and age of the fish. For example, proteins should make up 31-38% of the diet of carp, 35-40% of trout, 38-40% of trout, 40-42% of African trout and local river trout, and up to 50% of juvenile fish.

Influence of protein metabolism disorders on the growth and development of carp: if protein metabolism is disturbed, the amount of proteins in fish may decrease or increase. Lack of amino acids (methionine, tryptophan, etc.) in carp often leads to loss of appetite, cataracts, growth retardation. 3 weeks after the depletion of the amino acid reserves of lysine and valine, a high mortality rate of fish is observed. As a result of the deficiency of amino acids

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tryptophan, the development of bone and connective tissue is disrupted, which leads to the development of differentiation of the spine (lordosis, scoliosis), atrophy of lymphoid tissues. Violation of the ratio of the amino acid lysine and lysine isolates in the body leads to toxicosis and focal necrosis of the liver. An excess of histidine causes various abnormalities in the stomach (thickening of the stomach wall, ulcers and necrosis) and leads to stunted fish growth. An excess or violation of the ratio of essential amino acids in the body leads to fatty degeneration of the liver. A universal means of preventing protein metabolism disorders is the addition of live natural organic, inorganic, mineral and vitamin-rich foods to the fish diet.

Conclusion: Violations of protein metabolism in carp not only negatively affect the growth and development of fish, but also cause significant economic damage to fisheries and high mortality of juveniles. Proteins are essential for the normal growth and development of fish. It is advisable to use carp feed that contains 31-38% protein.

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