

**MORPHOGENESIS OF THE HEART IN BROILER CHICKENS
BELONGING TO THE ROSS-308 CROSS (LITERATURE REVIEW)**

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Introduction. The poultry industry, particularly broiler production, plays a significant role in the food industry. Recent reforms, technologies, and breeding efforts in this field are helping to improve economic efficiency. Broiler chickens of the ROSS-308 cross are not only highly productive, but research into the morphogenesis (development) and physiological characteristics of their cardiovascular system is also essential to ensure their healthy growth. Such studies are especially important for understanding the development of the cardiovascular system and for ensuring stable and healthy production in poultry farms.

The heart is a vital organ that regulates the circulatory system and is responsible for delivering oxygen and nutrients to the organism. Chicks, especially broiler types, are highly sensitive to various physiological processes aimed at developing fat and muscle tissues. Heart morphogenesis, i.e., the embryonic and post-embryonic development of the heart, is regulated by various biological and molecular mechanisms. In broiler chicks, the heart forms during the embryonic stage and becomes functional during the post-embryonic stage. This article aims to analyze the formation of the heart in broiler chicks of the ROSS-308 cross and the factors influencing this process.

The development of the heart in broiler chicks corresponds to various changes during different age stages (from the deep embryonic phase onward). For instance, Yu. V. Goncharov (2013) noted in his study that the heart of broiler chicks begins its functional activity during the first week and develops step by step.

Studies by Petrova (2015) and L. N. Tikhomirov (2017) discussed the importance of general biomechanical parameters and circulatory system function in heart formation. Their analyses indicated that optimal heart performance is crucial for high productivity.

The heart structure and anatomy of broiler chicks belonging to the ROSS-308 cross are healthy and capable of sustaining high-intensity demands. This cross is distinguished by a more complex and rapidly developing heart. V. Ya. Ivanov (2018) highlighted in his research the favorable morphological characteristics of the heart in this cross.

High-intensity workloads, such as physical or environmental stress, elicit specific

responses from the heart, as reflected in the studies by Yu. K. Gavrilova and V. I. Berezin (2020).

In broilers, heart diseases may arise, especially in cases of impaired cardiac function. L. N. Bondarenko (2016) investigated the effects of cardiac diseases on broiler hearts and their development. Additionally, dysfunctions in heart activity may lead to poor or inadequate physiological responses.

Two main conditions are typically observed: disruption in heart rhythm and impaired cardiac function, particularly under conditions requiring high-intensity parallel workload.

Environmental factors also significantly affect the cardiovascular system, including nutrition, air quality, and stress levels. For example, I. I. Skvortsov (2014) discussed the impact of environmental factors on heart development in his research.

Enriched nutrition, high-quality genetic material, and optimal climate conditions contribute to the robust development of the heart.

New research is needed to study the heart of ROSS-308 broiler chicks more precisely and comprehensively. Currently, new biomechanical models and biological techniques are being developed to better understand heart morphogenesis. For example, Yu. V. Chekanov (2019) proposed practical applications and computational models for studying microscopic and macroscopic changes in the hearts of broilers.

Conclusion

Studying the morphogenesis of the heart in broiler chicks, particularly those belonging to the ROSS-308 cross, provides researchers with specialized insights into the efficiency of the cardiovascular system during the developmental stages. Such investigations are crucial for identifying potential health issues, preventing diseases, and evaluating the influence of genetic and environmental factors. Research in this area may serve as a foundation for future studies aimed at discovering new directions in the development of the broiler heart.

Literature review

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