

**MORPHOMETRIC CHARACTERISTICS OF TIBI BONE IN POSTNATAL ONTOGENESIS OF RABBITS OF DIFFERENT BREEDS**

Yakubov Muzaffar Alimjonovich  
Samarkand State University of Veterinary Medicine,  
Animal Husbandry and Biotechnology

Mirzoev Zoyir Rajabovich  
Samarkand State University of Veterinary Medicine,  
Animal Husbandry and Biotechnology

Mukhtarov Elmurad Abdiglomovich  
Samarkand State University of Veterinary Medicine,  
Animal Husbandry and Biotechnology

**ABSTRACT**

The linear dimensions and absolute values of the weight of the leg bone in the postnatal ontogenesis of rabbits of the gray giant, white giant and flander breeds were studied. The specific dynamics of the growth of morphometric parameters of the tibia bone of rabbits in postnatal development was revealed. It was observed that the absolute values of the tibia bone mass, especially in rabbits of the 1st and 3rd groups after 21 days of postnatal ontogenesis, are greater than in the 2nd group.

**Keywords:** rabbit, gray giant, white giant and flander, leg bones, postnatal ontogenesis, length, weight, growth factor, linear parameter, absolute index, absolute weight.

**Enter.** In order to obtain high-quality and more products from agriculture and domestic animals, the study of their biological characteristics, the laws of development in postnatal ontogeny, and their rational use are of great scientific and practical importance. Including, taking into account the morpho-physiological changes that occur in the rabbit organism at various physiological stages of postnatal development during the production of high-quality products from the rabbit breeding network, makes it possible to properly establish this field on a scientific basis. In addition, rabbits are also important as laboratory animals for conducting experimental scientific research experiments.

Today, the demand for meat and meat products in our country is increasing. Therefore, special attention is paid to the field of rabbit breeding, especially to raising and breeding rabbits for meat. Rabbit farming is currently the most rapidly developing branch of animal husbandry, supplying the population with the largest percentage of products that are a source of high-value animal protein. Due to this, among the biological characteristics of modern gray giant rabbits, rapid growth and high productivity are distinguished by low resource consumption and cheapness of rabbit meat compared to other types of meat production.



Rabbit farming occupies one of the main places in the world economy and consumption. For example, although rabbit meat is rarely consumed in China, this country is the world's leading producer of rabbit meat. In Chinese rabbit breeding, special attention is paid to the care of fur and tweed breeds. The second place is occupied by Italy. The level of consumption of rabbit meat per capita (5.5-6 kg. per year) also belongs to Italians. This indicator is 2.5-3 kilograms in France, Germany and Hungary, and 65 percent of products in these countries are produced by the cluster method.

"According to the modern trend of healthy eating and the recommendations of the World Health Organization regarding the standard of dietary meat consumption, 5 percent of the meat products consumed by a person during the year, that is, 4.5 kilograms, should be rabbit meat," it is said. Based on this, we can say that currently there is a theoretical demand for 150,000 tons of rabbit meat per year in the market of our country.

According to data, 1 kilogram of rabbit meat is equivalent to 1.45 kilograms of the best beef. Also, its meat differs from that of sheep, cattle and other animals in terms of low cholesterol content. 90 percent of the protein content is fully absorbed by the human body. It is also rich in mineral salts, calcium and phosphorus, and has a good taste. Because of these positive properties, rabbit meat is recommended for people with liver, stomach, cardiovascular system diseases, diabetes, and allergies.

It has been proven in scientific studies that maintaining the physiological homeostasis of rabbits at the age of sexual maturity occurs with changes in the activity of enzymes of the blood antioxidant system.

The specific characteristics of the morphometric indicators of the femur of rabbits were studied by the researchers, and according to the authors, according to the written data on the leg skeleton of domestic rabbits, no visual difference was detected in terms of the anatomical structure of the femur in the right and left legs. Rabbits are characterized by a high hump for the femur, and the semicircular head of the bone is located below its height. It was noted that the neck of the femur was slightly reduced from the back due to the attachment of the surface muscle of the sagiri, which had developed while walking on the hind leg and strongly developed on the third hump of the bone. It is observed that the upper part of the proximal epiphysis of the bone is larger than the distal epiphysis, forming the major tubercle, head, small and third tubercles .

Studies have shown that several factors affect the structure of the tibia of rabbits. One of the factors affecting bone structure is body weight, bending and bending movements of the hip joint .

The morphometrical peculiarities of tubular bones of autopodies of sheep in Karakul and Gissar breeds at postnatal ontogenesis were studied by using morphometrical methods. Proximal and distal joint cartilages of bones were thicker at new-born animals and till 60 months age it gradually became thinner. The terms of ossification of metaepifizar cartilage of tubular bones of autopodies at postnatal ontogenesis depended on their placement in the skeleton of extremities, habitat conditions and breed of animals were determined.



### Materials and Methods

Scientific inspection work: 1, 21, 51, 81, 120-day-old gray giant, white giant, flanders rabbits brought from "Agro velikan" of Pstdargom district of Samarkand region, "Orzunur" of Tailoq district and "San'at" of Okdarya district. carried on the bones of the legs. They were divided into 3 groups with 10 rabbits each. All groups of rabbits were fed the same diet. Morphometric measurements were taken on days 1, 21, 51, 81, and 120 of the experiment.

It was used by N.P. Chirvinsky and scientists of the Samarkand Institute of Veterinary Medicine (D.Kh. Narziev, M.Kh. Allamurodov, A.S. Daminov, R.M. Tashtemirov, N.B. Dilmurodov) to determine the linear dimensions and weight of bones. general morphological methods improved and introduced by

All numerical data obtained as a result of scientific investigations were subjected to mathematical processing according to the method of E.K. Merkureva.

Mathematical-statistical analysis was performed using Student's and Fisher's criteria in Microsoft Excel computer spreadsheet.

### Results and their Analysis

The absolute index of the length of the tibia of gray giant rabbits in the first group was  $2.26 \pm 0.075$  cm on the 1st day of postnatal ontogenesis, and it increased rapidly until the 21st day ( $4.63 \pm 0.076$  cm,  $r < 0.02$ ;  $K = 2.05$ ) and to continue this process step by step until the next studied 120 days, that is, at 51 days - by  $7.92 \pm 0.24$  cm ( $r < 0.04$ ;  $K = 1.7$ ), at 81 days - by  $11.46 \pm 0.29$  cm ( $K = 1.44$ ), and in 120 days -  $14.5 \pm 0.23$  cm ( $r < 0.03$ ;  $K = 1.26$ ). It was found that the coefficient of growth of this indicator of the shin bone is 6.41 times during the period from 1 day to 120 days of rabbits.

The absolute indicator of the weight of the tibia increased from  $1.02 \pm 0.05$  g to  $2.02 \pm 0.56$  g ( $K = 1.98$ ) from the first 1 day to 21 days of postnatal development of the first group of rabbits, and slightly increased from 21 days to 51 days. accelerated ( $4.36 \pm 0.13$  g,  $r < 0.04$ ;  $K = 2.15$ ) and continued periodically until the next 120 days, i.e. in 81 days -  $7.66 \pm 0.14$  g ( $r < 0, 02$ ;  $K = 1.74$ ), and in 120 days -  $12.44 \pm 0.16$  g ( $K = 1.63$ ). It was found that the coefficient of growth of the absolute index of bone weight is 12.19 times during the studied stages of postnatal ontogeny of rabbits.

The second group - the absolute index of the length of the tibia of giant white rabbits was  $2.11 \pm 0.037$  cm on the 1st day of postnatal ontogenesis, and its increase until the 21st day ( $4.3 \pm 0.012$  cm,  $r < 0.03$ ;  $K = 2.03$ ) and to continue this process step by step until the next studied 120 days, that is, at 51 days - by  $7.16 \pm 0.25$  cm ( $r < 0.04$ ;  $K = 1.66$ ), at 81 days - by  $10.52 \pm 0.21$  cm ( $r < 0.03$ ;  $K = 1.46$ ), and in 120 days -  $13.24 \pm 0.22$  cm ( $r < 0.02$ ;  $K = 1.25$ ). It was noted that the coefficient of growth of this indicator of the calf bone is 6.27 times during the period from 1 day to 120 days of rabbits.

The absolute indicator of the weight of the tibia increased from  $0.99 \pm 0.02$  g to  $1.96 \pm 0.027$  g ( $r < 0.02$ ;  $K = 1.96$ ) from the first 1 day to the 21st day of postnatal development of the second group of rabbits. Up to 51 days, this process is somewhat accelerated ( $4.18 \pm 0.074$  g,  $r < 0.04$ ;  $K = 2.13$ ) and continues periodically until the next 120 days, i.e.  $7.16 \pm 0.16$  g at 81 days ( $r < 0.03$ ;  $K = 1.71$ ), in 120 days -  $11.64 \pm 0.19$  g;  $r < 0.02$ ; It was noted that  $K = 1.62$ . It was found



that the coefficient of growth of the absolute index of bone weight is 11.66 times during the studied stages of postnatal ontogeny of rabbits.

The absolute index of the length of the tibia in the third group - Flemish rabbits was equal to  $2.45 \pm 0.08$  cm on the 1st day of postnatal ontogenesis, and its increase until the 21st day ( $5.14 \pm 0.21$  cm,  $r < 0.05$ ;  $K = 2.1$ ) and to continue this process step by step until the next studied 120 days, that is, at 51 days - by  $8.74 \pm 0.15$  cm ( $r < 0.02$ ;  $K = 1.7$ ), at 81 days - by  $12.68 \pm 0.37$  cm ( $r < 0.04$ ;  $K = 1.45$ ), in 120 days -  $16.02 \pm 0.19$  cm ( $K = 1.26$ ). It was observed that the coefficient of growth of this indicator of the shin bone was 6.53 times during the period from 1 day to 120 days of rabbits.

The absolute indicator of the weight of the tibia increased from  $1.1 \pm 0.05$  g to  $2.22 \pm 0.65$  g ( $r < 0.03$ ;  $K = 2.01$ ) from the first 1 day to the 21st day of postnatal development of rabbits of the third group. Rapid increase from 21 days to 51 days ( $4.87 \pm 0.096$  g;  $K = 2.19$ ) and continued periodically until the next 120 days, i.e. at 81 days – by  $8.56 \pm 0.19$  g ( $K = 1.75$ ), reaching  $14.42 \pm 0.37$  g ( $r < 0.03$ ;  $K = 1.68$ ) in 120 days. It was found that the coefficient of growth of the absolute index of bone weight is 13.1 times during the studied stages of postnatal ontogeny of rabbits.

Therefore, the absolute index of the linear size and weight of the frontal bone of rabbits shows specific dynamics of change at different physiological stages of postnatal ontogenesis, and these indicators have certain differences among the breeds of rabbits.

### Summary

- It was noted that the linear dimensions of the tibia of rabbits in the meat direction increased slightly during the period from the first day to the 21st day of postnatal ontogenesis, and this process continued without major deviations in the next studied stages;
- It was noted that the absolute indicators of the length and weight of the tibia of rabbits in the meat direction increase slightly during the period from the 21st to the 51st day of postnatal ontogenesis, and this process continues without major deviations in the next studied stages;
- The absolute indicators of the weight of the tibia were found to be higher in rabbits of the 1st and 3rd groups, especially at the stages of postnatal ontogenesis, after 21 days of age.

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