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POSTNATAL ONTOGENESIS OF MACROATOMICAL INDICATORS OF TARSOMETATARSUS OF BROILER CHICKENS RECEIVING PROBIOTICS

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Summary: The absolute indicators of the weight and length of the tarsometatarsus in the postnatal ontogenesis of broiler chickens of the ROSS 308 cross, which received and did not receive probiotics, were studied. It has been established that the macroanatomical indicators of the tarsometatarsus have specific growth dynamics during the postnatal development of chickens. It was established that the macroanatomical parameters of the tarsometatarsus in broiler chickens of the experimental group receiving probiotics were higher than in the control group.
Key words:poultry, cling, cross, broiler, ROSS 308, tarsometatarsus, postnatal ontogeny, weight (mass), length, probiotic, coefficient of growth, linear measurement, absolute indicators, absolute weight.

Introduction. Poultry meat — is one of the main products of poultry farming and has high nutritional properties. Their meat productivity is estimated by the rapid growth of muscle tissue at a young age, rapid maturation, weight gain due to rapid digestion of food, fertility, preservation of chicks.

In our country, ROSS-308 (UK), Cobb-500 (USA) breeds are popular in the meat direction (broilers). When they are brought to Uzbekistan, they are carefully taken care of. However, since chickens are a very sensitive creature, minor improper feeding, adverse weather conditions or violation of veterinary hygiene can lead to their death and infection. There are more than 400 different climatic, food and hygienic risks for chickens. To protect them from these risks, their food should be rich in vitamins, enriched with probiotics and prebiotic supplements.

A comprehensive study of morphology, blood supply, venous outflow and changes in bones and muscles of the shoulder girdle by animal species is of great theoretical and practical importance, and these data are important not only for environmental protection, biomechanics and bioengineering. It is emphasized that it can be widely used in the identification of taxonomic groups, as well as in the development of separate sections of functional morphology of vertebrates and in ornithology [3, 4, 5, 6, 7].

The evolution of birds is considered a process of adaptation, during which they acquired the ability to fly and thus differ from other groups of vertebrates. Adaptation to flight is manifested in the peculiarity of the structure of the shoulder girdle, bones and wing muscles and is an important part of the bird's flight apparatus, and various injuries associated with its anatomical structure in most cases require long-term surgical intervention. undergoes inflammatory processes [1, 2].

The morphology of bones and muscles of the shoulder girdle was studied in Highsex Brown cross breed chickens and observed that the organometric indicators of the skeleton and muscles increased from the 1st day to the 525th day of postnatal development, that is, at the end of the experiments, the largest absolute mass of the beak-shaped process in the coracoid (2,89 g), then in the furcula (2,31 g), then in the scapula (2,29 g), the maximum mass during the experiment was on the large pectoral muscle (77,7 g), followed by the large pectoral muscle (25,6 g) and small pectoral muscle (3.34 g), and the lowest value was found in the trapezoid muscle (1,11 g) [8].

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The morphological characteristics of the skeletal bones have been studied in various animals, in particular, the morphological structure of the cervical vertebrae of fur animals, along with the presence of common morphological features in animals of similar species, some differences have been identified. According to the author, the foxes have the amplitude of movement of the first cervical vertebra and head to the side slightly higher, as a result of which the wing of the first cervical vertebra of foxes is expanded in the caudal-lateral direction. direction [10].

Adaptation of birds to flight is a vivid example of adaptive adaptation, which is formed in the process of historical and individual development of their body. The fact that the body of birds constantly adapts to the effects of the external and internal environment changing during its life, changes in the morphological structure of the shoulder girdle and pectoral bones, different from those in other vertebrates, are just a consequence of adapted to flight, this anatomical structure differs from other birds. It is scientifically substantiated that a number is subject to certain laws [9].

Materials and methods. Research work was carried out on the bones of broiler chickens of the one-day cross "ROSS 308", imported from LLC "Dargom Parranda Fayz" of the Samarkand region. They were divided into 4 groups of 40 chicks each. Chickens of all groups were fed the same diet and vaccinated in farm conditions. Chickens of the first group were given only feed and water, chickens of the second group were given feed, water and a preventive antibiotic - enrofloksatsin (1ml/1l of water), the third and fourth groups were given 1 ml in addition to the feed. (1,0 x 10^9 CFU) per 1 liter of drinking water chickens of the 3rd experimental group were injected with a probiotic prepared from the suspension Bacillus subtilis, isolated by SamSUVMLB specialists, for 7 days from 1 day to 7 days. During this period, chickens of the 4th experimental group were added 2 ml (1,0 x 10^9 CFU) per 1 liter of drinking water. Macro anatomical measurements were carried out on the 1st, 7th, 14th, 21st, 28th and 35th day of the experiment. Bones of broiler chickens of the appropriate age were taken for the object of study.

From the general morphological methods used by N.P.Chirvinsky to determine the linear size and mass of bones and improved and implemented by scientists of the Samarkand State University of Veterinary Medicine, Livestock and Biotechnology (D.Kh.Narziev, M.Kh.Allamurodov, A.S.Daminov, R.M.Tashtemirov, N.B.Dilmurodov).

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

Mathematical and statistical analysis was carried out using Student and Fisher criteria in a Microsoft Excel computer table.

Results and their analysis. The absolute indicator of the tarsometatarsus mass of chickens of the first group from the first 1st to the 7th day of postnatal development was from 0,4±0,008 g to 0,8±0,01 g ($p<0,02$; K=2,02), increasing to 14 days this process is slightly accelerated to 14 days (2,14 ± 0,06 g, $p < 0,03$; K = 2,7) and continues periodically until the next 35 days, i.e. on the 21st day - by 4,16 ± 0,06 g ($p < 0,02$; K = 1,9), on the 28th day - by 6,0 ± 0,09 g (K = 1,44), on the 35th day - by 7,74 ± 0,16 g was noted ($p < 0,03$; K = 1,29). The achievement of. It has been established that at the studied stages of postnatal ontogenesis of chickens, the coefficient of growth of the absolute bone mass index is 19,4 times.

The absolute tarsometatarsus mass in chickens of the second group increased rapidly from the first day of postnatal ontogeny to the 14th day, increasing from 0,4 ± 0.006 g on the 7th day to 0,75 ± 0,013 g ($p < 0,02$; K = 1,89), increasing to 2,43 ± 0,05 g ($p < 0,03$; K = 3,24) on the 14th day and periodically continuing this process in the following stages, that is, for 21 days - by 4,4 ± 0,098 g (K = 1,82), on day 28 - by 6,5 ± 0,07 g ($p<0,02$; K=1,5), on day 35 - by 8,3 ± 0,21 ($p<0,03$; K=1,27). It has been established that the growth rate of the absolute indicator of this bone mass reaches 20,8 times in the period from 1 to 35 days of postnatal development of chickens.

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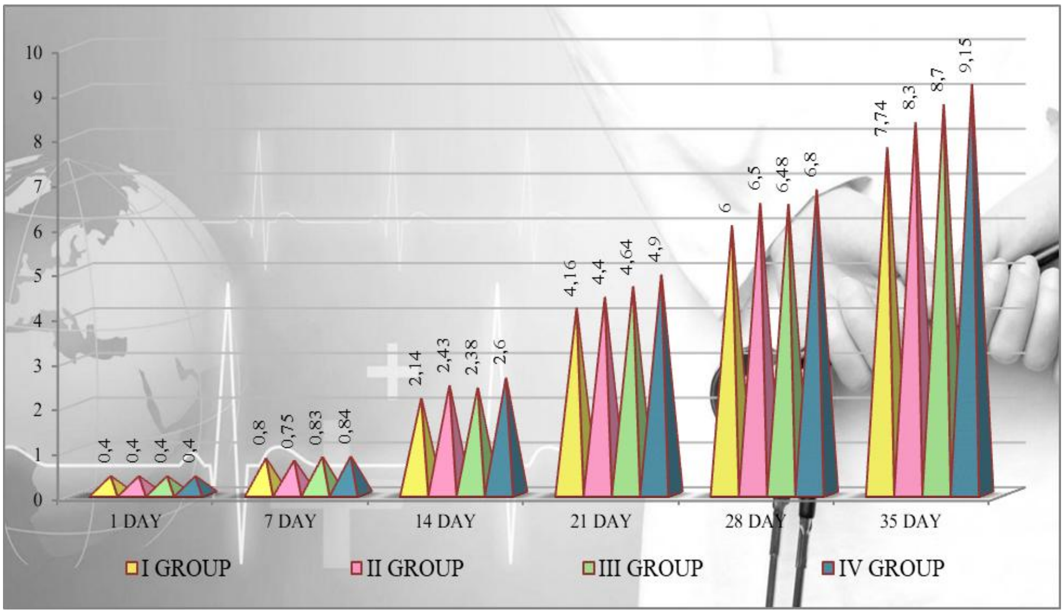
The absolute indicator of this bone mass increased from 0,4 ± 0,006 g to 0,83 ± 0,012 g (p<0,02; K=2,09) from the 1st to the 7th day of postnatal ontogenesis of chickens of the third group. to 14 days – 2,38±0,04 g, (p<0,02; K=2,86) and without significant deviations at a later date, for 21 days – 4,64±0,08 g (p<0,02; K=1,95), on the 28th day - to 6,48±0,07 g (K=1,4), after 35 days – 8,7 ± 0,15 g (p<0,02; K=1,34). The growth rate of this bone indicator was equal to 21,8 times from the first day of postnatal development of chicks to 35-day age.

The absolute tarsometatarsus mass of chickens of the fourth group increased slightly from the first to the 14th day of postnatal development - from 0,4 ± 0,006 g on the 7th day to 0,84 ± 0,01 g (p < 0,02; K = 2,1), reaching 2,6 ± 0,035 g (K = 3,09) after 14 days, periodically increasing it in the subsequent studied terms, 4,9 ± 0,06 g after 21 days (p < 0,02; K = 1,88), after 28 days - to 6,8 ± 0,1 g (K = 1,74), after 35 days – 9,15 ± 0,1 g (p < 0,02; K = 1,35). It is noted that the coefficient of growth of the absolute indicator of this bone mass reaches 22,9 times in the period from the first day of postnatal ontogenesis of chickens to the 35th day.



Absolute indicators of the weight of the tarsometatarsus of broiler chicks (gr.)

The absolute tarsometatarsus length of chickens of the first group increased from 2,0 ± 0,042 cm to 2,7 ± 0,035 cm from the first 1st to the 7th day of postnatal ontogenesis (p < 0,02; K = 1,38) increase of 3,8 ± 0,053 cm to the 14th day (p<0,02; K= 1,39) and gradual continuation of this process to the next 35 days studied, that is, on the 21st day – 4,7 by ±0,068 cm (p<0,02; K = 1,24), on day 28 - by 5,7 ± 0,074 cm (K = 1,22), on day 35 - by 6,4 ± 0,08 cm (p < 0,02; K = 1,12). It has been established that the growth rate of this tarsometatarsus indicator is 3,2 times in a period of 1 to 35 days of chickens.

The absolute length of the tarsometatarsus increased from the 1st day to the 7th day of postnatal development in chickens of the 2nd group - from 2,0 ± 0,035 cm to 2,6 ± 0,04 cm (p < 0.02; K = 1,31) and until the 14th day this process continues to 3,8 ± 0,048 cm (K = 1,46) and periodically in the next young to 4,88 ± 0,06 cm (K = 1,28) on the 21st day, increasing to 6,0 ± 0,07 cm (p < 20,0; K = 1,24) on day 28 and to 6,6 ± 0,14 cm (K = 1,09) on day 35. It was established that at the studied stages of postnatal ontogenesis of chickens, the growth coefficient of the absolute indicator of bone length was 3,3 times.

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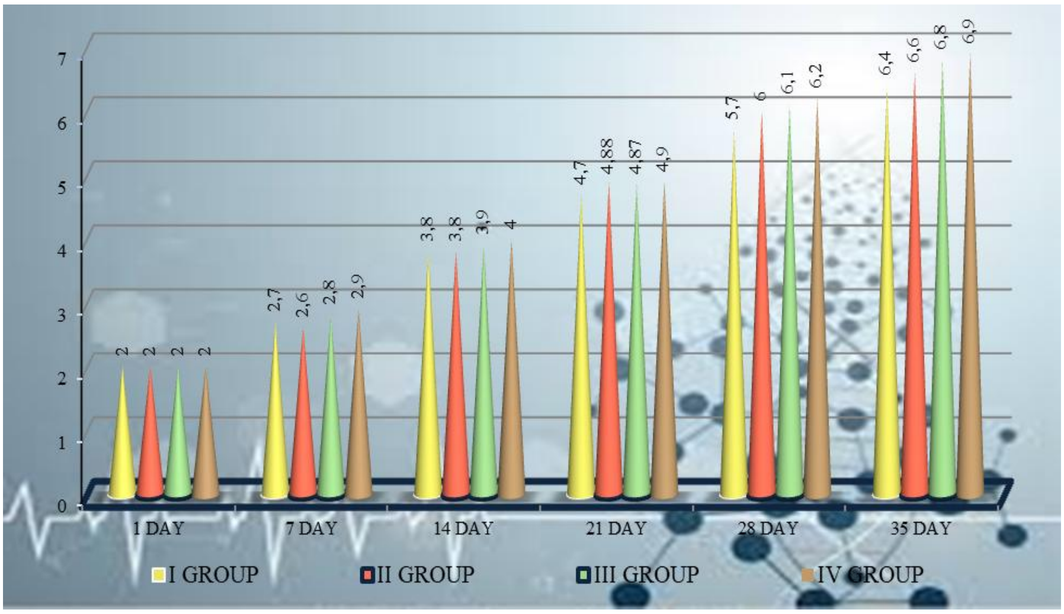
The absolute indicator of the length of tarsometatarsus of chickens of the 3rd group quickly increased rapidly from the first day to the 14th day of postnatal ontogenesis, as in chickens of the first and second groups, that is, from 2,0 ± 0,042 cm on the 1st day to 2,8±0,04 cm, on the 7th day ($p < 0,02$; K = 1.4), and on the 14th day - to 3,9±0,043 cm ($p < 0,02$; K = 1,36) and periodically continue this process in the following stages, that is, on 21 days - on 4,87±0,06 cm (K = 1,2), on the 28th day - by 6,1±0,07 cm (K = 1,25), on day 35 - by 6,8 ± 0,88 cm ($p < 0,02$; K = 1,12). It is noted that the growth rate of the absolute length of this bone increases to 3,4 times from the 1st day to the 35th day of chickens.

The absolute length of the tarsometatarsus increased from 2,0 ± 0,04 cm to 2,9 ± 0,035 cm ($p < 0,02$; K = 1,43) in chickens of the 4th group from the 1st to the 7-day age, and at a later stage of postnatal ontogenesis it was observed that this situation continues gradually until the 35th day of the study. That is, this indicator increased to 4,0±0,05 cm ($p < 0,02$; K = 1,39) in 14-day-old chicks, to 4,9 ± 0,055 cm (K = 1,22), in 28 days – 6,2 ± 0,07 cm. ($p < 0.02$; K = 1.26), on the 35th day – 6,9 ± 0,08 cm ($p < 0.02$; K = 1.11), an increase in its growth factor was found to 5,34 times in the period from the first day of postnatal development to 35 days.



Absolute indicators of the length of the tarsometatarsus of broiler chicks (cm)

Conclusions:

- it was noted that the absolute indicators of the length and mass of broiler chickens cross ROSS 308 slightly increased in the period from the first day to 14 days of postnatal ontogenesis, and this process continued without significant deviations in the subsequent stages studied;
- at the studied stages of postnatal ontogenesis of broiler chickens cross ROSS 308 (from 1 day to 35 days), it was observed that the growth coefficient of macro anatomical dimensions of tarsometatarsus was higher in absolute mass than in absolute length;
- absolute indicators of the mass and length of the tarsometatarsus from the first day of postnatal ontogenesis to the 7th day of it, 2 ml (1.0 x 109 CFU), mixed with a suspension of a probiotic containing Bacillus subtilis, in 1 liter of drinking water, the experimental group in 4 broiler chickens it was higher than in chickens of other groups.

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