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CHARACTERISTICS OF CHANGES IN THE POSTNATAL ONTOGENESIS OF THE SCAPULA OF SMALL CORN MOLARS

N.B. Dilmurodov

Samarkand State Veterinary Medicine, University of Livestock and Biotechnology

Abstract:the dynamics of changes in the morphometric parameters of the scapula bones during the postnatal ontogeny of black sheep and goats were studied. It was determined that the linear dimensions and absolute weight of the scapula, regardless of the type of animal, increase rapidly until the first 3 months of postnatal development, this process does not change significantly until the next 48 months, and it shows the highest value at 60 months. Also, it was observed that the absolute indicators of the linear dimensions and weights of the scapula were higher in the Karakol sheep than in the goats at all the studied stages of postnatal ontogeny.

Key words: sheep, goats, scapula, linear size, absolute index, postnatal ontogeny, growth factor.

Enter. The organism continuously interacts with the external environment at all stages of the period of personal development. It ensures homeostasis or adaptation to the influencing factors of the environment by directing the activity of the organism to these dynamically changing conditions of the external environment.

Morphofunctional changes that occur as a result of physiological processes in the body, like all systems, are reflected in the morphological state of bones. Because the bone system is not only a reserve of elements such as calcium and phosphorus, which are important in the process of metabolism, but also an immune factor that ensures the natural resistance of the body.

Bone tissue is not only the main "foundation" that performs the movement-supporting function, but also participates in biological processes that are vitally important for the body. One of its tasks is to create a hematocellular barrier (Yu. V. Denisov-Nikolsky ..., 1992). According to the authors, this biological feature of the bone deteriorates with the aging of the body, its activity decreases, as a result, pathological processes increase in the system of various organs of the body.

Insufficient intake of dietary calcium plays an important role in the origin and development of osteoporosis, one of the most common pathological processes in the bone system, because many authors believe that calcium is the main mineral substance that determines bone strength (A.D. Shilin, V.A. Kryzhanovsky, S.S. Vinogradova, 2008) emphasize.

E.S. Durtkarinov (2004) studied the morphofunctional properties of the compact substance of the diaphyseal part of the femur of animals with different types of movement, and it was determined that the weight of the supporting force falls on different areas of the compact substance. That is, in sheep belonging to the group of walkers in the phalanx, it is noted that the weight of the supporting force falls more on the caudal area of the compact substance of the bone.

When the microhardness of the porous and compact matter of bones was studied under the influence of gravitational stress in laboratory animals (S.A. Kutya, I.A. Verchenko, 2008), it was found that this indicator shows specific differences in the compact matter of tubular bones and the porous matter of vertebrae. That is, if the microhardness of the compact material increases evenly, and that of the porous material occurs in a wavy form, and this condition also depends on the type of bone and the age of the animal, it is low in the neck and thoracic vertebrae of juvenile and old organisms, and in most cases, the humerus and lumbar vertebrae are control. was observed to be higher than that of animals in group

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A number of authors (A.N. Nakoskin, 2004; T.A. Silanteva, 2005; M.I. Novikov, A.N. Nakoskin, 2006) stated that bone is made up of highly mineralized tissue, which contains iron, which is of biological importance, they emphasize the presence of elements such as manganese, copper, zinc, cadmium and the preservation of these elements in the bone at different stages of postnatal ontogenesis, that is, the amount of the above elements in the tibia of the experimental dog decreases from 2 to 4 months of age and then begins to accumulate again until 6 months of age. According to the authors, the correlation between microelements depends not only on each other, but also on other osteogenic and osteotropic components.

Materials and methods. Scientific investigation was carried out on the scapula bones taken from small-horned cattle belonging to the 3-day, 3-, 12-, 18-, 36-, 48-, and 60-month stages of postnatal ontogenesis, which were cared for in the farms of Nurabad district, Samarkand region. Young, clinically healthy and moderately obese female animals were selected for sampling.

General morphological methods used and introduced by N.P. Chirvinskiy were used in processing bones and determining their morphometric parameters. Research work was carried out at the Department of Animal Anatomy, Histology and Pathological Anatomy of the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology.

All numerical data obtained as a result of scientific investigations were subjected to mathematical processing according to the method of E.K. Merkureva, and the following indicators were determined:

arithmetic mean value: (1);

square deviation of the arithmetic mean value (2);

arithmetic mean value error (3);

coefficient of variation (4);

reliability criterion (5).

Reliability level - p (R) was found according to Student's table.

To determine the dynamics of bones depending on age, the growth coefficient was calculated. The growth coefficient was determined by dividing the length and weight of the bones of an adult animal by the corresponding indicators of the bones of a young animal, and the entire period of postnatal ontogenesis was determined by the formula (6) developed by K.B. Svechin:

K – growth factor;

W is the absolute index of the bone of an adult animal;

V0 is the initial index of the bone.

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

Results and their analysis. The absolute indicator of the height of the scapula, calculated as the arch of the foreleg, is 7.4 0.08 cm in 3-day-old goats, with a rapid increase until the first 3 months of postnatal ontogeny, i.e. 11.81 0.18 cm (K=1.59; r <0.03), this process continues step by step in the next studied adults and at 12 months - up to 12.86 0.07 cm (K=1.08), at 18 months - 13.12 0.14 cm (K=1.02), at 36 months – up to 15.64 0.21 cm (K=1.19), at 48 months – up to

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15.88 0.18 cm (K=1.01), At the age of 60 months, it was noted that it increased to 15.84 0.31 cm. It was observed that the coefficient of growth of the absolute indicator of the height of the scapula of goats increased up to 2.14 times during the period from 3 days to 60 months of postnatal ontogeny.

The absolute index of the height of the scapula increased slightly from 8.42 0.09 cm to 12.72 0.17 cm (K=1.51; r<0.03) from the first 3 days to 3 months of postnatal ontogeny of black sheep. this indicator gradually increases in the next studied stages and reaches 13.79 0.14 cm (K=1.08) at 12 months, and 15.12 0.17 cm (K=1.09) at 18 months at 36 months - 16.74 0.19 cm (K=1.11) at 48 months - 17.56 0.16 cm (K=1.04) at 60 months - 17.86 0 It was found to be equal to .21 cm (K=1.02). It was noted that the coefficient of growth of the absolute index of the height of the scapula reaches 2.12 times during the period from 3 days to 60 months of postnatal development of sheep.

The absolute index of the height of the scapula bone increases somewhat rapidly from the first 3 days of postnatal development of goats to 12 months, and in 3 days - by 2.12 0.07 cm, in 3 months - by 3.82 0.11 cm (K=1, 8; r<0.02), and at 12 months - 4.56 0.12 cm (K=1.19). This bone index remains almost unchanged (4.53 0.09 cm) at the 18-month stage of postnatal ontogenesis, and increases steadily in the later stages, i.e. at 36 months – up to 4.76 0.12 cm (K=1.05), 48 it was observed to increase up to 4.97 0.13 cm (K=1.04) at 60 months, up to 5.14 0.23 cm (K=1.03). It was found that the coefficient of growth of the absolute index of the height of the scapula bone increases up to 2.42 times from 3 days to 60 months of postnatal ontogeny of goats.

The absolute index of the height of the scapular bone increases rapidly from 3 days to 3 months of postnatal ontogeny of sheep, from 2.48 0.12 cm to 4.64 0.09 cm (K=1.87; r<0.03). and the gradual passing of this condition in later youth without major deviations and at 12 months - up to 5.16 0.11 cm (K=1.11), at 18 months - 5.52 0.16 cm (K=1.07), at 36 months - up to 5.84 0.12 cm (K=1.06), at 48 months - up to 5.96 0.11 cm (K=1.02), at 60 months - 6.22 It was found to increase to 0.19 cm (K=1.04). It was observed that the coefficient of growth of the absolute index of the height of the scapula was 2.61 times during the period from 3 days to 60 months of postnatal ontogeny.

The absolute index of the width of the border of the scapula bone increased slightly from 3 days to 12 days of postnatal development of goats, from 5.48 0.07 to 9.21 0.09 cm by 3 months (K=1.68; r<0.03), increasing to 10.82 0.16 cm at 12 months (K=1.17; r<0.03) and the gradual progress of this process in the next studied young people, i.e. at 18 months – 10.23 0.13 by cm, at 36 months - by 11.12 0.14 cm (K=1.09), at 48 months - by 10.94 0.15 cm, at 60 months - by 11.46 0.22 cm (K= It was found to reach 1.05; r<0.03). It was noted that the coefficient of growth of the absolute index of the width of the border of the scapula bone increased up to 2.09 times during the period from the first 3 days to 60 months of postnatal ontogeny of goats.

The absolute index of the width of the border of the scapula bone increases slightly from the first 3 days to 3 months of postnatal ontogeny of sheep, from 6.16 0.09 cm to 10.19 0.09 cm, or its growth coefficient increases to 1.65 times during this period. and the gradual continuation of this process in later youth and at 12 months - 11.52 0.14 cm (K=1.13; r<0.03), at 18 months - 11.72 0.13 cm (K= 1.02), at 36 months - 11.98 0.12 cm (K=1.02), at 48 months - 11.92 0.14 cm, at 60 months - 12.38 0.24 cm (K=1.04) was noted. It was found that the coefficient of growth of this indicator of the scapula increases up to 2.01 times during the period from 3 days to 60 months of postnatal ontogeny of sheep.

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The absolute indicator of the weight of the scapula increases rapidly from the first 3 days of postnatal development of goats to 3 months, from 10.46 0.06 g to 48.53 0.09 g (K=4.64; r<0.03). A slight slowdown of this process at 12 and 18 months (respectively, 47.03 0.11 g; 48.12 0.14 g, K=1.02), acceleration again from 36 months, and at 36 months - 56.43 0 up to .24 g (K=1.17; p<0.03), at 48 months – up to 60.33 0.18 g (K=1.07), at 60 months – 67.76 0.22 g (K=1.12) was found to increase. It was noted that the growth coefficient of the absolute indicator of the weight of the scapula increased up to 6.47 times during the period from the first 3 days of postnatal ontogeny of goats to 60 months of age.

The absolute indicator of the weight of the scapula increased slightly until the first 3 months of postnatal ontogeny of sheep, increasing this indicator from 11.66 0.11 g to 49.83 0.08 g (K=4.27; r<0.04). and the gradual, almost constant continuation of this condition in the next studied young people, and at 12 months - 50.12 0.12 g (K=1.01; r<0.04), at 18 months - 50.07 0 ,11 g, at 36 months - 58.63 0.22 g (K=1.17), at 48 months - 63.24 0.14 g (K=1.07), at 60 months - 69, It was noted that it reached 62 0.26 g (K=1.11; r<0.03). It was found that the coefficient of growth of absolute index of weight of scapula increases up to 5.19 times during the period from the first 3 days of postnatal ontogeny of sheep to 60 months.

Summary:- it was determined that the linear dimensions and absolute weight of the scapula, regardless of the type of animal, increase rapidly until the first 3 months of postnatal development, pass this process without major changes until the next 48 months, and show the highest index at 60 months;

- it was observed that the absolute indicators of the linear dimensions and weights of the girdle bone were higher in Karakol sheep than in goats at all studied stages of postnatal ontogeny.

Used literature:

1. Денисов-Никольский Ю.И., Докторов А.А., Ломов Ю.Г., Матвейчук И.В. Принципы структурной организации гемато-целлюлярного барьера кости // Тезисы докл. XI съезда анатомов, гистологов, эмбриологов. – Полтава, 1992. – С. 70.

2. Дурткаринов Е.С. Микроархитектоника компактного вещества кости у животных при различной статолокомоции // Морфология. Т. 126. Вып. 4. Тезисы докладов VII конгресса международной ассоциации морфологов. - Санкт-Петербург, 2004. – С. 44.

3. Abdig'ulomovich, M. E., & Babaqulovich, D. N. (2022, April). Dynamics of triglitsrin in blood in different conditions. In *E Conference Zone* (pp. 202-204).

4. Abdigulomovich, M. E., & Bobokulovich, D. N. (2021). Changes In The Postnatal Ontogenesis Of Historological Indicators Of The Four-Headed Muscle Number Of Hisori Sheep. *nveo-natural volatiles & essential oils journal| nveo*, 15705-15709.

5. Alimjonovich, Y. M., & Abdiglomovich, M. E. (2022). ESTROPHANE SOME MORPHOGENESIS OF COW BLOOD. *American Journal of Research in Humanities and Social Sciences*, *6*, 38-42.

6. Avazbek, B., Javohir, M., & Elmurod, M. (2022). Qondagi albuminning turli shashroitlardagi ko'rsatkichlari. *World scientific research journal*, *2*(2), 128-132.

7. MUKHTAROV, B. Z., & DILMURODOV, N. B. Some Biochemical Indicators of Blood in Prosperous Cows in Pure Pododermatitis. *JournalNX*, *6*(06), 58-62.

8. Mukhtarov, E. A., Bobokulovich, D. N., & Ishkuvvatovich, B. E. (2022). Dynamics of some indicators of sheep blood. *Journal of new century innovations*, *17*(2), 36-42.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

9. Mukhtorov, B. Z., & Dilmurodov, N. B. (2021). Pathomorphological changes in poultry pododermatitis in cows. *Academicia: An International Multidisciplinary Research Journal*, *11*(4), 1679-1683.
10. Muxtarov, E. A., Normuradova, Z. F., & Dilmurodov, N. B. (2022). QO'YLAR MUSKULLARNING MORFOMETRIK O'ZGARISh DINAMIKASI. *AGROBIOTEXNOLOGIYA VA VETERINARIYA TIBBIYOTI ILMIY JURNALI*, 407-410.
11. Muzafar, Y., Zoyir, M., & Nasriddin, D. (2023). MORPHOMETRIC FEATURES OF THE FEMOR BONE OF DIFFERENT RABBITS. *Scientific Impulse*, *1*(9), 563-570.
12. Oybek, A., & Elmurod, M. (2022). MORPHOMETRIC CHANGES OF SKELETAL MUSCLES OF ANIMALS IN THE POSTNATAL PERIOD (REVIEW OF LITERATURE). *Conferencea*, 161-165.
13. ULOMOVICH, M. E. A., & BABAKULOVICH, D. N. Morphogenesis Of The Hind Leg Distal Muscles Of Hissar Sheep Of Different Breeds In Different Ecological Conditions. *JournalNX*, *6*(06), 25-29.
14. Yakubov, M. A., Dilmurodov, N. B., Muxtorov, B. Z., & Muxtarov, E. A. (2023). CHANGE OF BIOCHEMICAL INDICATORS OF BLOOD IN PUTURAL PODODERMATITIS OF PRODUCTIVE COWS. *Scientific Impulse*, *1*(9), 555-562.
15. Бобоназаров, Э. И., & Мухтаров, Э. А. (2022). Применение препарата полиамидин-п для профилактики и лечение пироплазмоза крупного рогатого скота. *Journal of new century innovations*, *17*(2), 43-50.
16. Дилмуродов, Н. Б., & Мухтаров, Э. А. (2020). Ҳисори зотли қўйлар олдинги оёқ дистал мускулларнинг постнатал онтогенезидаги морфологик хусусиятлари. VETERINARIYA MEDITSINASI.
17. Дилмуродов, Н. Б., & Мухтаров, Э. А. (2021). Ҳисори зотли қўйлар постнатал онтогенезида соннинг икки бошли мускулларнинг морфологик хусусиятлари. Veterinariya meditsinasi Agrozoovetservs.
18. Дилмуродов, Н. Б., & Мухтаров, Э. А. (2022). Hisori zotli qo 'ylar postnatal ontogenezida katta yumaloq muskulining o 'zgarish dinamikasi.«. *Ta'limda raqamli texnologiyalarni tadbiq etishning zamonaviy tendensiyalari va rivojlanish omillari» mavzusidagi Respublika miqyosidagi ilmiy-amaliy, masofaviy konferensiya materiallari (27 yanvar 2022 yil)–T.: Rishton XTB*, 19-25.
19. Дилмуродов, Н., & Мухторов, Э. (2021). Турли яшаш шароитидаги ҳисори зотли қўйлар постнатал онтогенезида оёқлар проксимал мускулларининг морфометрик хусусиятлари. *Вестник Ветеринарии и Животноводства*, *1*(1).
20. Кулиев, Б. А., Ахмедов, С. М., & Мухтаров, Э. А. (2022). К ВОПРОСУ ПАТОМОРФОЛОГИИ ПНЕВМОНИИ КАРАКУЛЬСКИЙ ЯГНЯТ. *Journal of new century innovations*, *17*(4), 139-145.
21. Кулиев, Б. А., Ахмедов, С. М., & Мухтаров, Э. А. (2022). Лечение т-активином ягнят каракульской породы, больных пневмонией. *Journal of new century innovations*, *17*(4), 130-138.
22. Кулиев, Б. А., Ахмедов, С. М., & Мухтаров, Э. А. (2022). Патоморфология пневмоний у ягнят каракульской породы. *Journal of new century innovations*, *17*(4), 146-154.
23. Мухтаров, Э. А. (2020). Қўйлар постнатал онтогенезида мускулларнинг айрим кимёвий хусусиятлари.
24. Мухтаров, Э. А., & Дилмуродов, Н. (2021). Ҳисори зотли қўйлар постнатал онтогенезида мускулларнинг айрим кимёвий кўрсаткичлари. Veterinariya meditsinasi Agrozoovetservs.
25. Мухторов, Э. А. (2019). Ҳисори зотли қўйлар орқа оёқ мускулларининг постнатал онтогенездаги морфометрик хусусиятлари. *журнал агро процессинг*, (4).

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

26. Мухторов, Э. А. (2020). Действие условия содержания на морфологические показатели мускулатуры конечности постнатального онтогенеза у гиссарской породы овец. In *современное состояние, традиции и инновационные технологии в развитии апк* (pp. 137-140).

27. Мухторов, Э. А., & Дилмуродов, Н. Б. (2020). Ҳисори зотли қўйлар постнатал онтогенезида оёқ мускулларининг морфологик кўрсаткичларига яшаш шароитини таъсири. *журнал агро процессинг*, *2*(2).

28. Мухторов, Э., & Дилмуродов, Н. (2021). Ҳисори зотли қўйлар елканинг сонниг тўрт бошли мускули толасининг ядроси диаметрини постнатал онтогенезда ўзгариши. In *International Conference on Agriculture Sciences, Environment, Urban and Rural Development.* (pp. 49-52).

29. Bakhodirovich, Y. J., & Bobokulovich, D. N. (2022). Treatment and Prevention of Transmissive Veneric Sarcoma in Dogs. *Eurasian Medical Research Periodical*, *7*, 81-85.

30. Dilmurodov, N. (2010). The Developmental Peculiarities of Tubular Bones of Autopodies of Sheep at Postnatal Ontogenesis in Dependence on Habitat Conditions. *新疆农业大学学报*, *6*.

31. Dilmurodov, N. B., Yakhshieva, S. K., & Rakhmanova, G. S. (2021). Probiotics influence on the glandular stomach of broiler chickens in postnatal morphogenesis. *ACADEMICIA: AN INTERNATIONAL MULTIDISCIPLINARY RESEARCH JOURNAL*, *11*(2), 1656-1660.

32. Dilmurodov, N., Mirzoyev, Z., & Normuradova, Z. (2022). МОРФОГЕНЕЗ БЕДРЕННОЙ КОСТИ КРОЛИКОВ ПОРОДЫ ФЛАНДЕР НА РАЗНЫХ ФИЗИОЛОГИЧЕСКИХ СТАДИЯХ. *Вестник ветеринарии и животноводства (ssuv. uz)*, *2*(2).

33. Dilmurodov, N., Raxmanova, G., Fedotov, D., & Normuradova, Z. (2022). ВОЗРАСТНАЯ МОРФОЛОГИЯ НАДПОЧЕЧНИКОВ У ПТИЦ. *Вестник ветеринарии и животноводства (ssuv. uz)*, *2*(2).

34. Hakim, N., Numon, D., & Nasriddin, D. (2021). Treatment of aseptic diseases of limb distal part joints in uzbek sport horses. *Journal of Microbiology, Biotechnology and Food Sciences*, *2021*, 478-481.

35. Mukhtorov, B. Z., & Dilmurodov, N. B. (2021). Pathomorphological changes in poultry pododermatitis in cows. *Academicia: An International Multidisciplinary Research Journal*, *11*(4), 1679-1683.

36. Muzafar, Y., Zoyir, M., & Nasriddin, D. (2023). MORPHOMETRIC FEATURES OF THE FEMOR BONE OF DIFFERENT RABBITS. *Scientific Impulse*, *1*(9), 563-570.

37. Po'lat, Z., & Nasriddin, D. (2022). TOVUQLAR OVQAT HAZM ORGANLARINING TUZILISHIDAGI MORFOFUNKSIONAL XUSUSIYATLAR (Adabiyot ma'lumotlari tahlili). *Conferencea*, 120-125.

38. Qurbonova, N., & Dilmurodov, N. (2022). PROBLEMS IN LEARNING A FOREIGN LANGUAGE. *ILM FAN TARAQQIYOTIDA ZAMONAVIY METODLARNING QO'LLANILISHI*, *2*(28), 51-53.

39. Shuxratovna, R. G., Babakulovich, D. N., & Nikolayevich, F. D. (2022). Anatomical Structure of Reproductive Organs of Chickens in the Egg Direction. *Middle European Scientific Bulletin*, *24*, 240-243.

40. Shuxratovna, R.G., Babaqulovich, D.N., Fayzullayevna, N.Z., & Nikolayevich, FD (2022). "TUXUM YO 'NALISHIDAGI TOVUQLAR REPRODUKTIV ORGANLARINING POSTNATAL MORFOGENEZI"(ADABIYOT MA'LUMOTLARI ASOSIDA). *Ilmiy impuls* , *1* (4), 603-608.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

41. Tursagatov, J. M., & Dilmurodov, N. B. (2023). Influence of the Conditions Regions on the Linear Parameters Forearm-Elbow Bones of Karakul Sheep. *European Journal of Veterinary Medicine*, *3*(6), 8-11.
42. Tursagatov, J. M., & Dilmurodov, N. B. (2022). HAR XIL YOSHLI QORAKO'L QO'YLAR STILOPODIY SUYAKLARI DIAFIZI QALINLIGINGING O'ZGARISH DINAMIKASI. *AGROBIOTEXNOLOGIYA VA VETERINARIYA TIBBIYOTI ILMIY JURNALI* , 949-953.
43. Tursagatov, J., & Dilmurodov, N. (2022). ДИНАМИКА ИЗМЕНЕНИЯ ЛИНЕЙНЫХ ПАРАМЕТРОВ БОЛЬШЕБЕРЦОВОЙ КОСТИ В ПОСТНАТАЛЬНОМ ОНТОЕНЕЗЕ КАРАКУЛЬСКИХ ОВЕЦ. *Вестник ветеринарии и животноводства (ssuv. uz)*, *2*(2).
44. Yaxshiyeva, S. X. (2022). Ross-308 krossiga mansub broyler jo ‘jalar muskulli oshqozonning postnatal ontogenezi. *Gospodarka i Innowacje.*, *24*, 926-930.
45. Yunusov, H. B., Dilmurodov, N. B., Kuliev, B. A., & Akhmedov, S. M. (2021). The Role Of Coccal Microflora In The Etiology And Pathogenesis Of Respiratory Diseases In Lambs Of The Karakul Breed Of Uzbekistan. *Int. J. of Aquatic Science*, *12*(3), 1923-1928.
46. Zafarovich, D. S., & Babakulovich, D. N. (2021). Changes In Natural And Hygroscopic Moisture Content Of Broiler Chickens In Postnatal Ontogenesis. *nveo-natural volatiles & essential oils journal| NVEO*, 15710-15713.
47. Zafarovich, D. S., Babakulovich, D. N., & Norboyevich, C. O. (2022). Changes in the Amount of Calcium and Phosphorus in the Composition of the Femur Bone of Broiler Chickens in Postnatal Ontogenesis. *International Journal of Innovative Analyses and Emerging Technology*, *2*(2), 21-25.
48. ДИЛМУРОДОВ, Н. Б. (2015). Физические параметры метаподия овец гиссарской породы в постнатальном онтогенезе. *Вестник ветеринарии*, (4), 58-60.
49. Дилмуродов, Н. Б., Дониёров, Ш. З., & Султонов, Б. А. (2021). Бройлер жўжалари узангилик (цевка) суягининг морфогенезига пробиотиклар таъсири. *Вестник Ветеринарии и Животноводства*, *1*(2).
50. Дилмуродов, Н. Б., Дониёров, Ш. З., & Чориев, О. Н. (2022). Бройлер жўжалар елка суяги таркибидаги кул ва умумий органик моддалар миқдорини постнатал онтогенезда ўзгариши. *Вестник Ветеринарии и Животноводства*, *2*(1).
51. Дилмуродов, Н. Б., Дониёров, Ш. З., & Чориев, О. Н. (2022). Бройлер жўжалар елка суяги таркибидаги кул ва умумий органик моддалар миқдорини постнатал онтогенезда ўзгариши. *Вестник Ветеринарии и Животноводства*, *2*(1).
52. Дилмуродов, Н. Б., Пардаева, Ш. А., & Мирзаев, С. М. (2023). СИГИРЛАРДА ПОДОДЕРМАТИТ ЖАРАЁНЛАРИНИ КЕЛТИРИБ ЧИҚАРУВЧИ ОМИЛЛАР ВА КЕЧИШ ХУСУСИЯТЛАРИ. *ВЕСТНИК ВЕТЕРИНАРИИ И ЖИВОТНОВОДСТВА*, *3*(1).
53. Дониёров, Ш. З., & Дилмуродов, Н. Б. (2021). Бройлер жўжалар елка суяги таркибидаги намлик миқдорини постнатал онтогенезда ўзгариш динамикаси. In *International Conference on Agriculture Sciences, Environment, Urban and Rural Development.* (pp. 45-48).
54. Нурмухамедов, Б. М., Дилмуродов, Н. Б., Эшбуриев, С. Б., & Эшматов, Г. Х. (2019). Морфофункциональные изменения в яичниках коз под влиянием гонадотропных препаратов.
55. Рахманова, Г. Ш., Дилмуродов, Н. Б., & Федотов, Д. Н. (2022). ГИСТОЛОГИЧЕСКОЕ СОСТОЯНИЕ НАДПОЧЕЧНИКОВ У КУР В УСЛОВИЯХ ПТИЦЕФАБРИК УЗБЕКИСТАНА. *AGROBIOTEXNOLOGIYA VA VETERINARIYA TIBBIYOTI ILMIY JURNALI*, 353-355.
56. Федотов, Д. Н., & Дилмуродов, Н. Б. (2020). Практическое изучение микропрепаратов в общей и частной гистологии.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

57. Дилмуродов, Н. Б., Дониёров, Ш. З., & Чориев, О. Н. (2022). Бройлер жўжалар елка суяги таркибидаги кул ва умумий органик моддалар миқдорини постнатал онтогенезда ўзгариши. *Вестник Ветеринарии и Животноводства*, *2*(1).
58. Дилмуродов, Н. Б., Дониёров, Ш. З., & Султонов, Б. А. (2021). Бройлер жўжалари узангилик (цевка) суягининг морфогенезига пробиотиклар таъсири. *Вестник Ветеринарии и Животноводства*, *1*(2).
59. Zafarovich, D. S., Babakulovich, D. N., & Norboyevich, C. O. (2022). Changes in the Amount of Calcium and Phosphorus in the Composition of the Femur Bone of Broiler Chickens in Postnatal Ontogenesis. *International Journal of Innovative Analyses and Emerging Technology*, *2*(2), 21-25.
60. Zafarovich, D. S., & Babakulovich, D. N. (2021). Changes In Natural And Hygroscopic Moisture Content Of Broiler Chickens In Postnatal Ontogenesis. *nveo-natural volatiles & essential oils journal| NVEO*, 15710-15713.
61. Дониёров, Ш. З. (2022, July). Бройлер жўжалари елка суягининг айрим микроанатомик кўрсаткичларига пробиотиклар таъсири. In *" ONLINE-CONFERENCES" PLATFORM* (pp. 94-98).
62. Sh Z Doniyorov, NB Dilmurodov. Broyler jo'jalar elka suyagi tarkibidagi namlik hududni postnatal ontogenezda o'zgarish dinamikasi. 2021. Qishloq xo'jaligi fanlari, atrof-muhit, shahar va qishloqlarni rivojlantirish bo'yicha xalqaro konferentsiyada.(45-48-betlar)
63. Дониёров, Ш. З., & Дилмуродов, Н. Б. (2021). Бройлер жўжалар елка суяги таркибидаги намлик миқдорини постнатал онтогенезда ўзгариш динамикаси. На *Международной конференции по сельскохозяйственным наукам, окружающей среде, городскому и сельскому развитию.* (стр. 45-48).
64. Dilmurodov, N. B. Doniyorov Sh. Z., Choriev ON Changes in the Amount of Calcium and Phosphorus in the Composition of the Femur Bone of Broiler Chickens in Postnatal Ontogenesis. *International Journal of Innovative Analyses and Emerging Technology. India. e-ISSN*, 2792-4025.
65. Nasriddin Dilmurodov, Shokhrukh Doniyorov, Otabek Choriev ИЗМЕНЕНИЕ КОЛИЧЕСТВА ЗОЛЫ И ОБЩИХ ОРГАНИЧЕСКИХ ВЕЩЕСТВ В СОСТАВЕ ПЛЕЧЕВОЙ КОСТИ ЦЫПЛЯТ-БРОЙЛЕРОВ В ПОСТНАТАЛЬНОМ ОНТОГЕНЕЗЕ. 2022. Вестник ветеринарии и животноводства (ssuv. uz)
66. Dilmurodov, N., & Doniyorov, S. (2021). ВЛИЯНИЕ ПРОБИОТИКОВ НА МОРФОГЕНЕЗ КОСТЕЙ ЦЕВКА У ЦИПЛЯТ-БРОЙЛЕРОВ. *Вестник ветеринарии и животноводства (ssuv. uz)*, *1*(2).
67. Dilmurodov, N., Mirzoyev, Z., & Normuradova, Z. (2022). МОРФОГЕНЕЗ БЕДРЕННОЙ КОСТИ КРОЛИКОВ ПОРОДЫ ФЛАНДЕР НА РАЗНЫХ ФИЗИОЛОГИЧЕСКИХ СТАДИЯХ. *Вестник ветеринарии и животноводства (ssuv. uz)*, *2*(2).
68. Mirzoev, Z. R., Rakhmonov, R. A., & Khudoynazarova, N. E. (2021). Morphometric properties of the shoulder bone in the postnatal ontogenesis of rabbits in the meat direction. *nveo-natural volatiles & essential oils Journal| NVEO*, 15714-15717.
69. ZR Mirzoyev, NB Dilmurodov, ZF Normuradova FLANDER ZOTLI QUYONLAR SON SUYAGINING TURLI FIZIOLOGIK BOSQICHLARIDAGI MORFOGENEZI UXeXc [Sc [re [TT [ůe [US jacUSj [^[] Tq^^ XeX
70. Rajabovich, M. Z., Alimjonovich, Y. M., & Abdiglomovich, M. E. (2022). MORPHOMETRIC CHARACTERISTICS OF TIBI BONE IN POSTNATAL ONTOGENESIS OF RABBITS OF DIFFERENT BREEDS. *Spectrum Journal of Innovation, Reforms and Development*, *9*, 324-330.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 12, Dec-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

71. O`A Rahmonov, NE Khudoynazarova, Karimov MG, Ibragimov BH, Morphofunctional Properties of the Adrenal Glands of Rabbits. Jundishapur Journal of Microbiology Research Article Published online 2022 April, 7245-7251.
72. Normuradova, Z. F., & Arzikulova, S. M. (2022, May). QUYONLARNING BIOLOGIK XUSUSIYATLARI. In E Conference Zone (pp. 44-47).
73. Mirzoev, Z. R., Rakhmonov, R. A., & Khudoynazarova, N. E. (2021). Morphometric properties of the shoulder bone in the postnatal ontogenesis of rabbits in the meat direction. nveo-natural volatiles & essential oils Journal| NVEO, 15714-15717.
74. Gulyamovich, M., & Hakimovich, I. B. (2021). Morphofunctional properties of the adrenal glands of rabbits. Webology (ISSN: 1735-188X), 18(1), 19-24.
75. Yunusov, X. B., & Turdiyev, A. K. (2022). QUYONCHILIKDA VETERINARIYA SANITARIYA GIGIYENASI TADBIRLARI. AGROBIOTEXNOLOGIYA VA VETERINARIYA TIBBIYOTI ILMIY JURNALI, 1312-1322.
76. OZ Ergasheva, S Sh Beknazarov 2023 RESPUBLIKAMIZDA PARVARISHLANAYOTGAN QUYON ZOTLARI VA ULARNING BIOLOGIK XUSUSIYATLARI. Новости образования: исследование в XXI веке, 418-424.