Effect Of The Drug Miopets® On Body Weight And Clinical And Physiological Indicators Of Retarded Growth Rabbits.

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ABSTRACT

This article describes the results of using antiparasitic drugs in combination with gamma globulin in stunted and weakened rabbits. With parenteral administration of gamma globulin at a dose of 1 ml per 1 kg of live weight, as well as the immunomodulator Miopets® — for the first time at a dose of 1 ml and again after 10 days also at a dose of 1 ml intramuscularly — positive changes were observed in the rabbits by the 20th day: free movement, improved growth and development. By the end of the experiment, the body weight of the rabbits reached 4.800±0.42 kg, which is on average 2100 g more than at the beginning of the experiment and 950 g more than the control group. It was also established that with parenteral administration of gamma globulin at a dose of 1 ml per 1 kg of live weight in combination with antiparasitic agents in stunted and weakened rabbits, by the 30th day of the experiment an improvement in growth and development was observed, and the body weight at the end of the experiment was 3.150 ± 0.33 kg, which is 1150 g more than at the beginning of the experiment.

Keywords: hypotrophy, gamma globulin, parenteral, symptomatic, drugs, mucous membranes, intoxication, respiratory and digestive systems, nervous system.

Relevance of the topic.

Considerable experience has been accumulated in the study of the effects of substances that stimulate the growth of individual parts of the body (V.V. Melnik, 2000). Analysis of data on this issue shows that stimulants affect different organs in different ways. According to research, the more deficiencies in the development of

internal organs before the use of stimulants, the stronger their subsequent effect.

Adding biostimulating components to the poultry diet has a positive effect on the body's resistance, improves its physiological state, stimulates immunogenesis, resulting in increased resistance to negative factors, including pathogens of infectious diseases (Zdanovich S.N., 2012; Aleksandrova E.V., 2011; Evglevskaya E.P., 2018).

According to research (E.P. Dementyev, 2000), the use of the tissue preparation "Biostim" in pregnant cows has a positive effect on the course of labor and the postpartum period. In case of functional ovarian hypofunction in cows, the use of "Biostim" together with tetravit gave positive results (O.S. Bagdanova, 2002). Studying the effectiveness of tissue preparations in animal husbandry, E.P. Dementyev (2000) noted that under their influence, the hunting of sheep improved, and in pigs that had not come into heat for a long time, the functions of the reproductive organs returned to normal. Tissue preparations are successfully used to increase the productivity of poultry. According to Mannapova R.T. (2003), the introduction of dry tissues into the diet of chickens facilitates their absorption, promotes an increase in the growth of chickens by 11-16%, increases egg production by 19%, and also improves the hatchability and development of chickens. When studying the effect of biostimulants on the morphological composition of blood, many scientists have found an increase in the number of erythrocytes and hemoglobin in animals, while the level of leukocytes remained within the physiological norm (F.F. Asadullina, 2002; A.R. Farrakhov, 2002; Gilvanov M.M. et al., 2004). According to a number of authors, including E.P. Dementyev et al. (2000), biogenic stimulants have a significant effect on the hematopoietic function of the bone marrow of clinically healthy guinea pigs. Due to the activation of the regenerative function of the bone marrow, the number of erythrocytes, hemoglobin and the total number of granulophilocytes increases. P.P. Gizatullin (2000), E.P. Dementyev, V.B. Galyamshin et al. (2000) also indicate that under the influence of biostimulants, the level of total protein in the blood of animals increases.

Objective of the study.

Determining the effect of the immunomodulator Miopets®, produced in our country, on the body of stunted and weakened rabbits, as well as on their growth, body weight and clinical and physiological parameters.

Object and methods of the study:

Experiments to study the effect of the drug Miopets® on the body of stunted rabbits, their development, body weight and clinical and physiological parameters were conducted in the vivarium of the Department of Veterinary Surgery and Obstetrics of the Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology.

For the experiment, 6 rabbits with stunted growth, with an average body weight of 2.0-2.7 kg, were selected. When making a diagnosis, dispensary examination data, as well as anamnestic information on the conditions of feeding, keeping and using the animals, were used.

The rabbits were divided into two groups according to the principle of paired matching, 3 heads in each. All animals were prescribed drugs against parasites. The rabbits from the control (second) group were given gamma globulin parenterally at a dose of 1 ml per 1 kg of live weight.

The rabbits from the first (experimental) group were given Miopets® intramuscularly: the first time - 1 ml, and again after 10 days - also 1 ml.

During the experiment, the rabbits' body weight, feed consumption, the condition of visible mucous membranes, the condition of the skin and fur, signs of intoxication, diseases of the respiratory and digestive systems, pathologies in the functioning of the nervous system and coordination of movements were monitored.

In addition, before the experiment and during its implementation, laboratory analysis of the animals' blood was performed.

Each group was kept separately in individual cages. Animals of all groups were weighed on electronic scales every 10 days, in the morning on an empty stomach. Blood for analysis was collected before the experiment and during its implementation. Morphological and

biochemical parameters of blood were studied on a hematological analyzer ("BC-2300" mindray Co., Ltd) in the Samarkand Regional Multidisciplinary Medical Center for Children. During the experiment, clinical parameters of animals were also regularly monitored: heart rate, respiration, body temperature, weight, skin and fur condition.

Analysis of the obtained results

In the rabbits of the first experimental group, to which the Miopets® preparation was administered intramuscularly at a dose of 1 ml twice with an interval of 10 days, impaired coordination of movements was observed at the beginning of the experiment: the animals moved cautiously, showed little interest in food, and some showed signs of digestive tract disorders. The mucous membranes were pale, the elasticity of the skin was reduced, the fur became dull and ruffled. Palpation revealed weak development of the subcutaneous layer and decreased muscle tone.

Clinical indicators: average body temperature - 39.2±0.22 °C, pulse - 146±1.44 beats/min, respiratory rate - 45±0.44 movements/min, body weight - 2.700±0.15 kg (see Fig. 1).

On the 10th day, the experimental animals began to move with improved coordination, held their limbs in a normal position, their appetite improved, the mucous membranes acquired a pinkish tint, the elasticity of the skin increased, but the fur still remained dull. Upon palpation, the subcutaneous layer was still weakly developed, muscle tone was reduced.

Clinical indicators: temperature - 38.6 ± 0.20 ° C, pulse - 138 ± 1.39 beats / min, respiration - 38 ± 0.41 movements / min, body weight - 2.900 ± 0.23 kg, which is 200 g more than the initial and 50 g more than the control group.

On the 20th day, the animals moved freely, actively used their hind limbs, positive changes in growth and development were noted. Activity increased, nutrition improved, the mucous membranes became pinkish-red, the skin was elastic, the renewed fur became smoother and shinier. Palpation showed development of the subcutaneous layer and improvement of muscle tone. Temperature — 38.8±0.21 °C, pulse — 140±1.41 beats/min, respiration — 48±0.46 movements/min, body weight — 3.200±0.31 kg (500 g more than the initial, 50 g more than the control group) (see Fig. 2).

On the 40th day, the animals moved freely, confidently leaned on their hind legs in a calm position. Clear signs of growth and development were observed: high activity, improved nutrition, mucous membranes bright pink, elastic skin, renewed fur became smooth and shiny.

The subcutaneous layer and muscle tone were well developed. Temperature: 39.8±0.24 °C, pulse: 144±1.42 beats/min, respiration: 46±0.45 movements/min, body weight: 4.000±0.35 kg (1300 g more than the initial group, 450 g more than the control group).

On the 60th day, the rabbits moved freely, changes in growth and development were obvious: the animals were active, their nutrition was excellent, the mucous membranes were pink, the skin was elastic, the fur was smooth and shiny.

The subcutaneous layer was well developed, the muscle tone was high. Temperature was 39.6 ± 0.23 ° C, pulse was 146 ± 1.44 beats / min, respiration was 48 ± 0.46 movements / min, body weight was 4.800 ± 0.42 kg (2100 g more than the initial, 950 g more than the control group).

In the rabbits of the second control group, which were administered gamma globulin at a dose of 1 ml per 1 kg of body weight, the clinical signs were similar to those of the first experimental group: impaired coordination of movements, decreased appetite, pale mucous membranes, decreased elasticity of the skin, and disheveled fur. Palpation revealed a poorly developed subcutaneous layer and a marked decrease in muscle tone. Temperature - 38.8 ± 0.21 ° C, pulse - 135 ± 1.35 beats / min, respiration - 35 ± 0.36 movements / min, body weight - 2.000 ± 0.20 kg.

On the 10th day, the rabbits of the second group showed a slight improvement in motor coordination, when jumping, the limbs rose weakly, appetite remained reduced. The mucous membranes became light pink, the elasticity of the skin slightly increased, the fur was partially renewed, but remained dull. Temperature - 38.6 ± 0.20 ° C, pulse - 138 ± 1.38 beats / min, respiration - 36 ± 0.37 movements

/ min, body weight - 2.150 ± 0.22 kg (an increase of 150 g from the initial weight). On the 20th day, the movements slightly improved, the activity was moderate, the nutrition improved slightly, the mucous membranes became light pink, the fur was partially renewed. Palpation revealed a moderate improvement in muscle tone and the subcutaneous layer. Temperature was 39.2 ± 0.23 ° C, pulse was 140 ± 1.40 beats / min, respiration was 34 ± 0.34 movements / min, body weight was 2.450 ± 0.25 kg (gain of 450 g from the initial weight). On the 40th day, the rabbits moved and jumped freely, growth and development improved, nutrition returned to normal, mucous membranes were pink, the fur was partially renewed. However, the clinical and physiological parameters differed significantly from the experimental group. Temperature — 39.6±0.24 °C, pulse — 145±1.41 bpm, respiration — 38±0.45 bpm, body weight — 2.850±0.27 kg (850 g increase from initial weight).

On the 60th day, the rabbits confidently leaned on their hind legs, their activity and nutrition significantly improved, the mucous membranes became pink, the fur was renewed and shiny.

Temperature — 38.6±0.20 °C, pulse — 142±1.39 bpm, respiration — ... (not in the original), body weight — ... (not indicated at the end of the text).

Clinical indicators of puppies of the first experimental group.

Experiment days	Statistical indicators	Body temperature (□)	Pulse rate (bpm)	Respiration rate (bpm)	Body weight (g)
Norms		**38,5-40**	**130-325**	**30-60**	**2-4,5**
Before the experiment	M ±m %	39,2±0,22 100	146±1,44 100	45±0,44 100	2,700±0,15 100
Day 10 of the experiment	M ± m %	38,6±0,20 98,4	138±1,39 95,8	38±0,41 84,4	2,900±0,23 107
Day 20 of the experiment	M ±m %	38,8±0,21 98,9	140±1,41 95,8	48±0,46 106,6	3,200±0,31 118
Day 40 of the experiment	M ± m %	39,8±0,24 101,5	144±1,42 98,6	46±0,45 102,2	4,000±0,35 148
Day 60 of the experiment	M ± m %	39,6±0,23 101	146±1,44 100	48±0,46 106,6	4,800±0,42 177

Clinical indices of puppies of the second control group.

Experiment days	Statistical indicators	Body temperature (□)	Pulse rate (bpm)	Respiration rate (bpm)	Body weight (g)
Norms		**38,5-40**	**130-325**	**30-60**	**2-4,5**
Before the experiment	M ±m %	38,8±0,21 100	135±1,35 100	35±0,36 100	2,000±0,20 100
Day 10 of the experiment	M ± m %	38,6±0,20 99,4	138±1,38 102,2	36±0,37 102,8	2,150±0,22 107,5
Day 20 of the experiment	M ±m %	39,2±0,23 101	140±1,40 103,7	34±0,34 97,1	2,450±0,25 122,5
Day 40 of the experiment	M ± m %	39,6±0,24 102	145±1,41 107,4	38±0,45 108,5	2,850±0,27 142,5
Day 60 of the experiment	M ± m %	38,6±0,20 99,4	142±1,39 105	37±0,43 105,7	3,150±0,33 157,5

An average of 37±0.43 body weight measurements were recorded within 1 minute, with an average weight gain of 3.150±0.33 kg, corresponding to an increase of 1150 g per measurement.

Application of Miopets® in the first experimental group of rabbits.

1-drawing. 1-day of the experiment.

2-figure, 20-day of the experiment.

The use of Miopets® in underdeveloped and weak rabbits has shown significant positive results. Improved functioning of the nervous system, adrenal glands and pancreas, increased blood and lymph circulation, accelerated metabolism in tissues, increased muscle and ligament tone, and improved elasticity have been found. In addition, coat renewal has been noted: dull hair fell out, and new hair became shiny and silky.

Biostimulants can serve as an indicator of the stability of a body part or organ, acting as a coefficient of change in its size. The higher the coefficient of variation, the greater the influence of various factors on the tissue or organ, which may indicate low resistance to external influences, and vice versa.

Thus, under the influence of stimulants, the greatest changes are usually observed in tissues and organs with a high coefficient of variation, which indicates their high sensitivity to external influences. Thus, biostimulants have a powerful effect on the body, activating vital processes, increasing overall energy, activity of the main physiological systems, improving metabolism, increasing resistance to adverse factors and stimulating animal productivity. They affect digestion through the enzyme system and the central nervous system, improving the absorption of nutrients.

Conclusions:

1. When using the immunomodulator Miopets® in combination with antiparasitic agents in rabbits that are lagging behind in growth and weak, a significant improvement in their condition is observed. The introduction of gamma globulin (1 ml per 1 kg of body weight) and the immunomodulator Miopets® (1 ml intramuscularly) after 10 days leads to an improvement in the motor activity, growth and development of the animals. By the end of the experiment, the body weight of the rabbits reaches 4.800±0.42 kg, which is 2100 g more than the initial level, and 950 g more than the control group. 2. When using only gamma globulin (1 ml per 1 kg of body weight) without adding the immunomodulator Miopets®, the rabbits also show an improvement in growth and development. By the end of the experiment, the body weight is 3.150±0.33 kg, which is 1150 g more than the initial level.

List of references:

1. 1.Асадуллина, Ф.Ф. Применение биологически активных веществ при

выращивании телят // Научные труды Баш НПВЛ. Посвящается 105-летию образования ветеринарной лаборатории в Башкортостане. - Уфа: 2002. - С. 58-60.

2. Александрова, Е.В Влияние биостимуляторов на основе янтарной кислоты на показатели неспецифической резистентности цыплят-бройлеров // Вестник Курской государственной сельскохозяйственной академии. - Курск: 2011. - С. 66-67.
3. Багданова, О.С Влияние тканевого препарата "биостим" на воспроизводительную способность коров // Перспективы развития производства продовольственных ресурсов и рынка продуктов питания. Материалы международной научно-практической конференции . 2002. - С. 111-114.
4. Дементьев, Е.П., Галямшин, В.Б., Галямшин, Р.Р. Применение тканевого препарата "биостим" при выращивании телят // Методы повышения продуктивных и защитных функций организма животных в Республике Башкортостан. Башкирский государственный аграрный университет. - Уфа: 2000. - С. 100-102.
5. Дементьев, Е.П., Галямшин, В.Б., Галямшин, Р.Р. Применение тканевого препарата "биостим" при выращивании телят // Современные вопросы ветеринарной медицины и биологии. Сборник научных трудов по материалам Первой международной конференции. 70 лет Башкирскому государственному аграрному университету. Башкирский государственный орденаТрудового Красного Знамени аграрный университет. - Уфа: 2000. - С. 123-124
6. Гильванов, М.М. Продуктивные качества уток при введении в рацион ферментного препарата // Проблемы и пути интенсификации племенной работы в отраслях животноводства. 2004. - С. 167-169.
7. Гиззатуллин, Р.Р. Влияние тканевого препарата «Биостим» на некоторые морфологические и биохимические показатели крови телят // Современные вопросы ветеринарной медицины и биологии. - Уфа: 2000. - С. 93-94.
8. Евглевская, Е.П. Динамика прироста живой массы цыплят на фоне выпойки иммуннометаболической композиции «Цыпарик-1» // Агропромышленный комплекс: контуры будущего. Материалы IX Международной научно-практической конференции студентов, аспирантов и молодых ученых. 2018. - С. 241-242.
9. Зданович, С.Н. Использование биологически активном добавки на основе продуктов пчеловодства в кормлении цыплят-бройлеров кросса ISA-JV// Достижения науки и техники АПК. 2012. - С. 41-43
10. Мельник, В.В. Рост и развитие цыплят, выращиваемых в условиях повышенных температур и при скармливании сульфатного препарата илеомукозы // Современные вопросы ветеринарной медицины и биологии . - Уфа: 2000. - С. 197-200.
11. Маннапов, А.Г., Каримов, Ш.Ф., Дементьев, Е.П. Перестройки в t- и b зависимых зонах селезенки при стимуляции птиц тканевым препаратом"биостим" // Современные проблемы патологической анатомии, патогенеза и диагностики болезней животных. Всероссийской научно методической конференции патологоанатомов ветеринарной медицины. 2003. - С. 222-223.

12. Фаррахов, А.Р. Продуктивные и биологические особенности гусят при использовании "эраконда": дис. ... канд. с/х. наук: 06.02.04. - Уфа, 2002. - 117
13. Niyozov, H., Ernazarov, D., Avezimbetov, S., Rejepbayev, J. S., & Shakilov, U. (2025). Various methods of treatment of artificial purulent necrotic process in rabbits. In *BIO Web of Conferences* (Vol. 181, p. 01007). EDP Sciences.
14. Niyazov, H., Ruziev, A., Achilov, O., Abdiev, S., Ruziev, Z., & Quyliyeva, M. (2025). Changes in blood leukogram during the treatment of purulent otitis in rabbits by using different methods. In *BIO Web of Conferences* (Vol. 181, p. 01031). EDP Sciences.
15. Niyazov, H., Ruzimov, V., Eshkuvatov, X., Ruziev, Z., & Rejepbayev, J. S. (2025). Clinical and hematological parameters of rabbits when using multivit+ mineral and bodifors preparations. In *BIO Web of Conferences* (Vol. 181, p. 01030). EDP Sciences.