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PREVENTION OF CALCIUM-PHOSPHORUS AND VITAMINS METABOLISM DISORDERS IN RABBITS

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Annotation: This article describes clinical signs, hematological indicators and changes in the Prevention of calcium-phosphorus metabolism in rabbits. Low-satiety, poor-quality feeding of Mother rabbits during the choking period is considered to be a complete failure of the mother rabbits ' body's needs for vitamins and macro-microelements. Methods have been developed to give granular omuxta baits enriched with Nova Marx primix to prevent calcium and phosphorus exchange disorders in rabbits, such as palpitations of the skin coating, decreased glare, Intense Whitening of the mucous membranes, decreased body weight, decreased appetite, and mixing in water with an Innoprovet probiotic. This method of prevention prevents calcium-phosphorus metabolism disorders in rabbits.

Keywords: rabbits, calcium, phosphorus, Nova Marx, premix, Innoprovet, hypocalcemia, hypophosphaemia, hypoglycemia, hypogemoglobinemia.

Relevance of the topic. Today, worldwide rates of substance exchange disorders among purebred rabbits, including disorders of calcium and phosphorus metabolism, and the resulting births to nymphs and low viability or dead rabbit children, are common. The program for the development of the livestock sector and its industries in the Republic of Uzbekistan for 2022-2026 provides for "Further development of the rabbit network, raising the level of consumption of quality rabbit meat and increasing its share in the volume of total meat products, achieving an increase in the volume of rabbit meat production from 100 tons to 23 thousand tons, To

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effectively perform these urgent tasks, diseases of the metabolism disorders of rabbits, in particular disorders of the exchange of minerals, are one of the major obstacles.

The importance of calcium and phosphorus elements is extremely high in ensuring the growth and development of the body of rabbits, the rigidity of bones and the moderation of the processes of metabolism in them. Disorders of calcium and phosphorus mineral metabolism in rabbits cause growth and developmental withdrawal, rickets, D-hypovitaminosis lead to decreased productivity as well as organism resistance [3,4].

Copper is also necessary for the animal organism as a microelement, as it is involved in the respiratory and circulatory processes of tissues. Lack of copper in the body causes skin damage, delays growth in growing young animals, and develops anemia. Manganese has been noted to have a high role in improving animal reproductive capacity activity, as well as in skeletal formation. Its deficiency in the diet of growing young rabbits leads to deformation of bones and slowing their growth [5,8,9].

Manganese is stored in large quantities in the green leaves of plants and wheat bran. Cobalt plays an important role in the synthesis of vitamin B12 and is involved in the processes of hematopoiesis. It has a positive effect on the quality of rabbit wool [1,2,4]

Like minerals, vitamins are complex compounds necessary for the rabbit's body. Vitamins are essential for the growth and development of rabbits. There is a lack of vitamins (hypovitaminosis) and an excess of them (hypervitaminosis). Both of these factors negatively affect the life of the animal and affect the causes of various diseases, as well as the reproductive nature of rabbits [6,7]

The mineral substances contained in the feed have a positive effect on the reproduction process of animals, a high figure of growth, the acquisition of healthy offspring. Indicators of the need and norm for minerals have been developed, taking into account the sex and age of the animal. The use of mineral elements in the established norm has a positive effect on the body's endurance, their productivity indicators, digestion of nutrients and a decrease in feed consumption [6].

Place, object and styles of research. The experimental part of the scientific research was carried out on the “Silverkent-Khumo bird”, rabbit farms in the Oqdarya District of Samarkand region.

Through a clinical examination with 10 heads separated from the examined deer mother rabbits in farms, the overall condition, appetite, obesity rate, response to external influences,

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mucous membrane color, skin coating, skin and movement organ condition, body temperature, 1 minute breath and pulse number were determined.

Biochemical indicators of rabbit blood have been found expressly in the biochemical apparatus of “Genru GS300 Plus and CYANSmart”.

Scientific and practical laboratory experiments were carried out in order to select prophylactic agents for disorders of calcium and phosphorus metabolism in rabbits, to study their effect on the body and productivity of rabbits, and to determine the economic effectiveness of the prophylactic method.

Analysis of the results obtained. The etiology of calcium and phosphorus metabolism disorders in rabbits largely depends on the conditions of their storage, feeding type, satiety of rations, the degree to which the body of rabbits is supplied with biologically active substances macro and microelements. Based on the study and analysis of the level of metabolism in the body and the content and satiety of the rabbit diet with dispensary examinations in bull rabbits, it was found that the rabbit body lacks hemoglobin content, glucose, total protein, carotene, inorganic phosphorus, total calcium.

For experiments, mother rabbits of the xicol Breed, brought from the farm “Nurniaz dad", were kept in a rabbit shed in the University vivaria, where experiments were carried out.

Our experiments were carried out with the aim of continuing to study the effect of the above preparations on the clinical, hematological indicators of stork rabbits and, on this basis, to develop a prophylactic agent against the violation of calcium-phosphorus metabolism in rabbits. For experiments,three groups of rabbits were formed, each consisting of 4-4.5 months of rabbits from 5 heads. Rabbits selected for experiments were fertilized sunium.

The first experimental group was fed granular omuxta feed enriched with baktovit probiotics (1tonna feed per 1 kg of powder). To the second experimental group, granule feed (enriched with 1 kg of Nova Marks premix per 1 tonne feed) + Innoprovet 1 ml with 1 liter of water (for 7 days).

The control group was fed in the farm diet. The experiments were carried out for a month. Clinical and hematological examinations were carried out on the 10th, 20th and 10th days after childbirth. The birth body weight of rabbit children born from them was determined. After the children of the experimental mother rabbits were weaned after 25 days of age and began to feed independently, the experiments were continued with the use of prophylactic agents in the order given to the mother rabbits in 3 groups of 5 heads each. During the experiments, the growth, clinical and hematological indicators of rabbit children were checked

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once every 10 days. The experiments took 30 days. The effect of prophylactic agents applied to rabbits on the morphometric dimensions of Bones has also been studied. At the end of the experiments from each experimental group, a total of 9 head rabbits were slaughtered from 3 heads and the thigh and shoulder bones were separated from the muscles to determine the weight, length and width.

Clinical and hematological examinations were carried out in experimental rabbits. Through the clinical examination of rabbits, the generally accepted clinical examination methods revealed the general condition, appetite, obesity rate, response to external influences, mucous membranes, skin coating, skin and movement organ condition, body temperature, pulse and breath count in 1 minute. The obtained digital data was subjected to biometric processing.

The results obtained were compared with regulatory indicators. According to the results of one clinical examination on the 10th day after giving birth in rabbits in the experiment, the body temperature of rabbits in all experimental groups was at the limit of physiological norms at the beginning of the experiments, there was a decrease in appetite, pallor of mucous membranes, a decrease in the level of obesity, a decrease in the response While these changes were noted to be positive in experimental groups during experiments, it was observed in the control group that the symptoms detected at the beginning of the experiment were repeated during experiments as well. It can be seen from this that disorders of mineral metabolism in rabbits have been observed to deepen with the end of the Strait.

A study of the clinical indicators of rabbits in the experiment showed that in Experiment 1, the body temperature averaged 38.3±0.01 at the beginning of the experiment, 37.2±0.03 on the 20th day of the experiment and 38.1±0.03 ◦C on the 10th day after the collision, and 38.8±0.02±C, 38.9±0.03 ◦C and 38.7 ± 0.04 ± C, respectively. The control group had 38.6±0.01 ◦C, 38.2±0.01 ◦C, and 38.1±0.03 ± C ($P<0.05$). In relation to all groups, Experience 2 in Group rabbits, the indicators were manifested at the level of physiological norms.

The pulse count in 1 minute was 129.4±3.1 times average (120-200 times average) at the beginning of the experiment in rabbits in the first group, and 126.2±4.7 times average at the end of the experiments. Experiment 2 averaged 132.7±4.2 and 122.2±4.5 times, respectively, in the control group 128.4±4.2 and 146.9±3.6 times ($P<0.01$). Granular feed (enriched with 1 kg Nova Marks premix per 1tonna feed) + Innoprovet 1 ml with 1 l of water (for 7 days) was found to show better pulse number compared to other groups in Experimental Group 2.

1 -table

Clinical indicators of rabbits in the experiment (n=15). M±m

Experimental groups	Check time	Temperature, ^{0}C	Pulse number, in 1 minute	Number of breaths, in 1 minute
Normal				
		38,5-39,5	*120-200*	*50-60*
1-Experiment	A	38,3±0,01	129,4±3,1	55,4±0,8
	B	37,2±0,03	128,3±3,1	52,2±0,05
	C	38,1±0,03	126,2±4,7	54,3±0,03
2-Experiment	A	38,8±0,02	132,7±4,1	58,7±0,10
	B	38,9±0,03	129,5±3,8	57,6±0,9
	C	38,7±0,04	122,2±4,9	52,3±0,07
Control	A	38,6±0,01	128,4±3,7	55,6±0,04
	B	38,2±0,01	132,6±4,8	58,5±0,06
	C	38,1±0,03	146,9±3,9	61,9±0,02
P<		(P<0,05)	(P<0,01)	(P<0,05)

Note: A - at the beginning of the experiment; B - in the middle of the experiment; C-at the end of the experiment.

In rabbits in the experiment, the number of breaths in 1 minute (the norm is 50-60 times in 1 minute) averaged 55.4±0.8 at the beginning of the experiment in Group 1, 52.2±0.05 between and 54.3±0.03 times at the end, and 58.7±0.10, 57.6±0.09 and 52.3±0.07 times respectively in Group 2, 61.9±0.02 times (P<0.05) (1.- table).

On average, 10 children were taken from rabbits in the first experimental group, of which 2 were stillborn, while 12 were stillborn from rabbits in the second experimental group. On average, 8 children were taken from rabbits in the control group, and a total of 3 stillbirths were observed in the group.

The body weight of children born to rabbits of the xicol breed in the experiment was on average 58.2±11.1 grams of rabbits in Experiment 1 and on average 54.8±10.7 grams in the control group, and on average 76.3±16.3 grams in Experiment 2, with a normal birth live weight

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of 50-90 gr. Rabbit children born to rabbits in this group were noted to have an advantage in birth weight over other groups. At 10 days, the average of 196.7±22.4, 186.5±20.1 and 214.3±18.2 grams in suitable (130-260 gr by Norm) groups, and it was also found that the body weight of the 2nd group of rabbit children was higher than that of the control group as well as the 1st experimental group.

At the age of 20 days of rabbit children (norm 250-500 gr), the average body weight was 267.5±28.2 in Experimental Group 1, 458.7±32.6 in Experimental Group 2, and 256.5±18.4 grams in control, 452.8±38.1, 648.3±46.2 and 436.4±30.2 in 30.2 in 30 days (norm 400-9000 gr) respectively. Innoprovet probiotics and enriched granule lobster feed showed high rates of live weight of their children born to rabbits in experimental group 2 compared to experimental group 1 and Control (2.- table).

2.- table

The body weight (n=15), M±M, of their children born to rabbits in the experiment.

Experimental groups	Body weight at birth, g	In 10 days, g	In 20 days, g	In 30 days, g
Normal	*50-90*	*130-260*	*250-500*	*400-900*
1-Experiment	58,2±11,1	196,7±22,4	267,5±28,2	452,8±38,1
2-Experiment	76,3±16,3	214,3±18,2	458,7±32,6	648,3±46,2
control	54,8±10,7	186,5±20,1	256,5±18,4	436,4±30,2

A study of maternal rabbit body weight in the experiment found that no major difference in live weight of rabbits was observed at the beginning of the experiment, but went as far as the 30-day period of the Strait and found that group 2 rabbits had an average body weight of 5.46±1.48 kg over other groups.

3 -table

Rabbits in the experiment change body weight (kg)

Experimental groups	At the beginning of the experiment	**30 days**

1-Experiment	4,22±0,25	4,86±0,54
2-Experiment	4,08±1,06	5,46±1,48
Control	4,18±0,43	4,71±0,34

This was an average of 4.86±0.54 kg on the 30th day of the Strait in Group 1 and an average of 4.71±0.34 kg in the control group (Table 3).

Hematological indicators in experimental rabbits were characterized by an increase in hemoglobin levels by the end of experiments to an average of 99.5±2.6 g/l in Experimental Group 1, and a decrease in hemoglobin levels by an average of 101.2±3.6 g/l (P<0.001) at the beginning of experiments to an average of 101.5±5.1 g/l.

Total serum protein levels were found to increase at the beginning of experiments from an average of 54.25±1.52 g/l in Experimental Group 1, to an average of 62.6±1.48 g/l by the end of experiments, to an average of 53.15±1.54 g/L in Experimental Group 2, to an average of 53.15±1.54 g/l (p<0.05) was found to be reduced.

According to an analysis of the blood glucose levels of rabbits in the experiment, experiment 1 showed an average increase of 3.45±0.421 mmol/L at the beginning of the experiment, an average of 3.76±0.422 mmol/l at the end, and an average increase of 3.32±0.245 mmol/l at the 2nd experimental group, from an average of 3.32±0.232 mmol/l (p<0.05) decrease was observed.

Serum total calcium Group 1 showed an average increase of 2.22±0.250 mmol/l at the beginning of experiments, an average decrease of 2.66±0.050 mmol/l at the end, and a p<0.01) decrease of 2.34±0.451 mmol/l at the 2nd group to 3.54±0.216 mmol/l at the control group.

Inorganic phosphorus levels increase from an average of 1.46±0.0253 mmol/l in Group 1 rabbits at the beginning of the experiment and 1.62±0.054 mmol/l at the end, respectively from an average of 1.38±0.074 mmol/l in Group 2 to 1.95±0.053 mmol/L in the control group, an average decrease of 1.48±0.024 mmol/L to 1.26±0.069 mmol/l (P<0.01 observed.

Although no significant differences in clinical-physiological, hematological indicators were observed in rabbits in experimental and control groups at the beginning of experiments, by the end of experiments, as a result of a positive effect on the rabbit body of preventive agents given to rabbits in the experimental group, the processes of metabolism, clinical, hematological indicators improve at the level of norms, , even before the end of the experiments, clinical signs of a violation of calcium-phosphorus metabolism in rabbits (changes in appetite, general depletion, decrease in anemia body sheath flare) were noted.

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CONCLUSIONS

1.When prophylaxis of calcium and phosphorus exchange disorders in rabbits, they have a high effect of using granular feed and innoprovet probiotic in the period from 10 days of vaporization to 10 days after birth, improving metabolism in rabbits, ensuring that clinical and hematological indicators are at the level of norms by 28.4% higher than the control group.

2. In the Prevention of calcium and phosphorus exchange disorders in mother rabbits, granule feed (enriched with 1 kg of Nova Marx premix per 1tonna feed) and innoprovet 1 ml of 1 liter of water (for 7 days) in the period from the 10th day of birth to the 10th day of menstruation have a high effect of applying hemoglobin in the blood on average it has been found to increase 0.216 mmol/L and inorganic phosphorus to 1.95±0.053 mmol/L.

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