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**ETIOPATHOGENESIS AND TREATMENT OF MYOSITIS IN HORSES**Assistant: **Bekmuratov K.R.**Assitant: **A.X.Yusupov**Master's student: **Omirezakov G.**

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**Abstract:**

This article presents information on diseases affecting the distal parts of the limbs in cattle, focusing on the polyetiological causes of hoof diseases. Hoof diseases are widespread among cattle, making the study of their etiopathogenesis highly significant. The research emphasizes the importance of understanding these conditions for effective treatment and prevention strategies.

**Keywords:** cattle, etiopathogenesis, distal, hoof, livestock, purulent pododermatitis

**Introduction**

The raising of healthy animals and their full utilization with high-quality output poses significant challenges for veterinary science and practitioners, as only healthy animals meet all necessary criteria [3]. Infectious diseases of agricultural animals, including horses, account for approximately 94-96% of all diseases in our region and abroad. These diseases cause considerable economic losses by sharply reducing

productivity, deteriorating operational qualities, premature culling, and, in some cases, death.

The modern system of training sport horses and their participation in competitions involve substantial load on the musculoskeletal system and maximal mobilization of all body systems. This leads to excessive strain on certain muscle groups, increasing the likelihood and severity of injuries. Consequently, sport horses may be unable to perform for extended periods, negatively affecting their performance.

Therefore, the development of equestrian sport demands strict requirements to maintain the health and high performance of sport horses, as specified by the International Federation for Equestrian Sports. Various equestrian disciplines included in the sport program require consistent high and stable results, underlining the importance of health maintenance.

It is well-known that various pathological processes, including muscular diseases in horses, reduce their vital activity and exploitation qualities. These conditions represent one of the challenges in horse breeding. Certain diseases of horses cause serious difficulties in their maintenance and reproduction. Among these, locomotor apparatus diseases are prevalent and lead to early disqualification of horses.

According to the decree No. PQ-5024 dated March 11, 2021, by the President of Uzbekistan on the further development of horse breeding and equestrian sports, efforts are directed towards enhancing horse breeding, local thoroughbred horse reproduction, popularizing modern pentathlon and polo sports, attracting foreign investments, and strengthening the material and technical base. The decree aims to make equestrian sports one of the most popular sports in the country [9].

In this context, research on the prevalence of myositis in sport horses, early diagnosis, elucidation of its etiopathogenesis, treatment, and preventive measures remains highly relevant.

## **Background and Literature Review**

In both our region and foreign countries, non-infectious diseases of agricultural animals, including horses, comprise approximately 94–96% of all diseases. Injuries in sport horses account for 86% of total diseases, of which 37% are pathologies of muscles, tendons, and joints. Until recently, the veterinary field has struggled to find reliable, rapid diagnostic methods to enable prompt and effective treatment [5].

Damage to the musculoskeletal system can result from short-term exposure to strong forces or long-term effects of weaker forces. This leads to distinctive pathological processes in organs and tissues. When the organism's regulatory mechanisms are insufficient to overcome the damaging stimulus, structural changes occur in cells of injured tissues, initiating pathological developments [1].

Sport horse injuries frequently occur when horses jump obstacles, fall, train on inadequately prepared grounds, use faulty equipment, or wear inappropriate shoes for the discipline. Additionally, repetitive, monotonous movements imposed on the musculoskeletal system may cause micro-injuries to muscles and tendons [7].

Myositis primarily occurs in horses and less commonly in other animals. It arises from trauma such as muscle strains or partial and complete ruptures, as well as various forms of myositis. Reports suggest that ossifying myositis develops following central nervous system damage [8].

## **Research Objective**

The goal of this study is to investigate muscle diseases, particularly myositis, among horses in the livestock farms of the Republic of Karakalpakstan. The study focuses on the etiopathogenesis, diagnosis, treatment, and prevention of myositis.

Objectives:

1. To study the etiology and prevalence of acute myositis in horses.
2. To develop modern methods for treating acute myositis in horses.

### Materials and Methods

To develop an effective treatment method for myositis, research was conducted on 10 horses from farms and private owners in Karakalpakstan. The horses were divided into two groups: 5 control and 5 experimental. The studies were performed mainly at the animals' housing facilities. Each horse's disease stage, pathogenesis, and general condition were documented. Treatment methods were selected according to the disease severity in each group.

### Results and Discussion

The use of surgical methods in diagnosing and treating diseased horses enables the selection of effective treatment approaches in early stages of myositis. These findings can be applied in clinical veterinary education.

Muscle tissue development continues throughout an organism's life, adapting to changing conditions. Muscle fibers can elongate and thicken, a process known as hypertrophy.

Second-type cells of myotomes differentiate into myosatellite cells. These cells adhere to the surface of myofibers and their plasma membranes contact each other. A single myofiber surface may host many such cells. Myosatellite cells lack fibrils, possess a single nucleus surrounded by organelles, and represent the cambial elements of muscle tissue [5].

During regeneration, inflammation, degeneration, and other causes often prevent full restoration. The defect is filled with connective tissue. However, under certain conditions, full regeneration may occur. Following injury, muscle buds containing sarcoplasm and numerous nuclei grow from the damaged muscle fiber, with nuclei

dividing by amitotic division. Myoblasts separate from muscle buds. Damaged fibers are phagocytosed by macrophages. Subsequent regenerative phases resemble normal histogenesis [2].

Myositis is muscle inflammation caused by trauma, rupture, rheumatism, or certain infectious diseases. It manifests in various forms, including serous, purulent, and fibrinous. Myopathies are non-inflammatory muscle diseases accompanied by pain and functional impairment. Causes include prolonged repetitive work or standing in a stable, leading to excessive fatigue or strain of specific muscle groups, exterior defects, and others. Injuries in sport horses may constitute up to 86% of all diseases, with 37% involving muscles, tendons, and joints [6].

In sport horses, acute aseptic myositis develops from injuries under multiple etiological factors such as the use of inadequate racetracks, inconsistent training, poor care and nutrition, feeding imbalances (lack of digestible protein, raw fiber, phosphorus, copper, zinc, iodine, vitamins A, B, E, B6, B12), and simultaneously excessive calcium, magnesium, iron, manganese, vitamins B1, B2, B3, B4, and nicotinic acid [4].

Myositis causes muscle swelling. Palpation elicits severe pain; muscles become tense and dense; the skin over the affected area is warm and swollen. Depending on the muscle function affected, different types of lameness develop. In myopathy, limbs weaken, forward placement and support become unsteady, and affected muscles become flaccid and painless [6].

Treatment includes warming compresses, physiotherapy, abscess drainage, and administration of antibiotics and sulfonamides. Myopathy is treated with heat therapy, massage, ultrasound, and iontophoresis of iodine salts on the affected area [7].

### **Experimental Study**

Ten horses with acute aseptic myositis were divided into two groups (Table 1):

No	Group	Number of Animals	Treatment Procedures
1	Control group	5	1. Dimexide 2. Gentamicin 10 ml 3. Camphor spirit
2	Experimental	5	1. Dimexide 2. Gentamicin 10 ml 3. Camphor spirit 4. Hemobalance 10 ml/450 kg

Control group horses were treated by first eliminating the cause, improving keeping conditions, and normalizing the diet.

Treatment included 5-6 days of rest for horses with acute aseptic myositis, followed by 30 minutes of daily walking. Initially, Dimexide was applied, then camphor spirit massage with warm dressing. Gentamicin 10 ml was injected intramuscularly.

The experimental group received the same treatment with the addition of Hemobalance injections (10 ml per 450 kg) intramuscularly.

## Conclusion

1. Myositis in the studied horses primarily occurred due to mechanical injuries during traditional equestrian games, poor horse preparation, rider inexperience, as well as allergic and rheumatic effects.
2. Clinical signs included muscle swelling, severe palpation pain, complete refusal to move, tachycardia, and profuse sweating.

3. In horses treated with Hemobalance injections, lymphocyte counts increased by 30.7%, hemoglobin by 42.5%, indicating improved morphological parameters throughout the experiment.

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