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Injuries of Metapodial and Acropodial Joints in Horses Participating in Sports

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Annotation: The article examines injuries of the musculoskeletal system, surgical diseases, and their complications in purebred horses aged 3 to 10 years, kept in specialized livestock farms and private households focused on horse breeding, jockey schools, equestrian sports clubs, and those participating in various sports competitions. The study takes into account the age of the horses, environmental conditions, and the biological activity of the organism. Clinical studies were conducted based on anamnesis data, analyzing the time of disease onset, characteristic clinical signs, housing conditions, feeding, training, and participation in competitions. During training and sports competitions, mechanical injuries and their effects on the distal parts of the forelimbs and hind limbs of horses, joint ligaments, and tendons were studied. In particular, the frequency of diseases such as tendinitis, tenosynovitis, and other inflammatory processes was determined, as well as the factors contributing to their development. Comprehensive diagnostic methods were used to establish an accurate diagnosis. In the conditions of our region, the morphological composition of the deep, middle, and superficial flexors of the fingers, as well as the joint ligaments, was studied. The nature of ruptures, stretching, and damage to tendon fibers, their impact on the musculoskeletal system, clinical manifestations, and the main factors causing pathological

changes were analyzed. The stages of the inflammatory process in the affected area were also considered. In the study of tendon diseases and their early diagnosis, anamnesis data were collected, and general and specialized examination methods were used. Palpation was performed in active and passive states to determine pain, swelling, and its characteristics, while different types of lameness were observed. To obtain complete information, thermography and radiographic methods were used to identify local temperature increases and structural tissue changes.

Keywords: horses, equestrian sports, mechanical injury, metapodium, acropodium, distal area, tendon fibers, flexor and adductor tendons, tendon diseases, tendinitis, tendovaginitis, vaginitis, inflammation, clinical examination, lameness, diagnosis, prevention.

Introduction. In order to develop horse breeding and equestrian sports in our republic, strengthen its material and technical base, train and educate a new generation of riders, increase the international level of national equestrian sports, actively promote and popularize them among broad segments of the population, especially young people, exchange experience with foreign countries, based on their advanced experience, breed pedigree, sports and service horses, form modern methods of breeding, increase the number of Karabayir and Akhaltaka thoroughbred horses, preserve them, provide high-quality veterinary services, improve the skills and retrain farrier specialists, and strengthen the material and technical and feed base of horse breeding and equestrian sports, a number of decisions have been adopted by our President. [1;4;6].

In our region, an appropriate infrastructure is being developed and favorable conditions are being created to develop and bring to the international scale such types of equestrian sports as three-course competition, show jumping, reining, distance running, driving, vaulting; national games such as "Uloq kupkari", "Chavgon", "Kiz kuvdi", "Ot ustida kurash", "Tourism and horse travel", and Polo. [9;12;13].

Common non-infectious diseases in horses of various breeds and ages belonging to cattle breeding, horse breeding and private farms in the districts of our republic make up 65-70%, of which 35-40% are surgical diseases. [7;14].

According to the analysis of the literature, the bones of the equine locomotor apparatus in the metapodial and acropodial regions, the deep and superficial tendons that bend the toes, the general tendon that bends the toes in the front leg and the long tendon that bends the toes in the hind leg, the surface that records the toe on the front surface of the front leg and the long tendons in the hind leg form the support and movement system of the body.

Pathological processes in this system are mainly caused by a violation of the feed ration during embryonic development, a deficiency of macro and microelements, and its complications are various diseases in the postembryonic period, as well as the abnormal development of the acropodial and metapodial organs of the locomotor apparatus and the ligaments affecting it, and changes in the joint angles, which leads to a violation of the support and movement system in

them. [10;11].

Injury to the locomotor apparatus of the organs of the distal spine, severe continental muscle overstrain, violation of a normal diet, physiological abnormalities in the work of muscles, genitals and genitals, improper transportation, tireless training, violation of the requirements imposed on participants and participants who do not meet the requirements imposed on participants and participants, The "Ulok Kupkari" is caused by the fall of horses in Equestrian Games, biting, kicking one in a pack, a violation of the competition routine and, along with the shortcomings that some riders have allowed, a deficiency of minerals and vitamins. As a result, the lesions of the horse locomotor apparatus pay ligaments system in the area of basipodium (forearm and heel), metapodium (front and next legs-palm) and acropodium (finger), rupture, breakage, stretching of the fibers of the affected pay ligaments in the area of aseptic and septic suppressive inflammatory processes, microtraumas, tendinitis, tendovaginitis, cause [2;3;5;8].

The problems observed above cause great economic damage to the yearbook to specialized farmers and personal farms, organizations, hitchhikers, riding schools and clubs.

Object of research and methods of verification. It is advisable to make a quick and accurate diagnosis by identifying the stages of elimination of inflammatory processes and the internal and external factors that cause it in the lesions of the horse locomotor apparatus pay ligaments, in the evolution of methods of prevention and rational treatment, the damaged area pay is of great importance in improving the morphological and functional state of the tissue integrity, increasing the activity of regenerative - recovery processes, prevention and treatment.

Scientific Research Samarkand State University of Veterinary Medicine, livestock and biotechnologies, faculty of Veterinary prevention and treatment Department" Anatomy, histology and pathomorphology of animals", "Riders schools" of Samarkand, Bukhara, Kashkadarya, Jizzakh regions, horse sports clubs, within the framework of specialized farmers and private farms for the yearling, were carried out on track and horses of different breeds from 3 to 10 years old. Scientific research was carried out during 2021-2024 in 365 head of foals of different ages, breeds and sexes from General dispensary, as well as horses, before and after which animals with traumatic diseases of the distal part areas of the legs were separated and divided into separate groups.

As part of the experiment, causative factors, types of disease, incidence, area, clinical signs were examined using traditional methods of general and special techniques based on Anamnesis data and disease sheets were filled in.

Before and during the experiment, in order to fully study the diseases of tendinitis and tendovaginitis from the distal field injury of horses, their maintenance, training processes and further condition, disease-causing factors, general and special clinical signs, type of lameness, auscultation and thermometry methods were widely used to determine the total body temperature, breathing and heart rate. Unlike other methods that can be used to determine body position, posture, palpation, and body shape, active and passive methods have a clear symmetrical character, that is, they are symmetrically symmetrical to a particular patient.

Using all - round X-rays of the pathological furnace area of the beds, methods of measuring the local temperature-thermography, hot tub, bulge-size, length, circumference-were used.

In our scientific research, Control and experimental groups were formed and the morphological and biochemical composition of blood samples obtained before and during the experiment was studied.

The results obtained are taxable. When we tax literature and Internet sites, it has been found that the animal support and movement organ system accounts for 60-68% of body weight in large horses, 70-78% in born slaves, while in the forelimb and finger areas of salt riding horses, pay diseases are found from 70% to 90%, and in the later legs-up to 10 [2;7;14].

The locomotor apparatus consists of a bundle of collagen fibers connecting the musculoskeletal system and supporting organs of the distal spine and its ligaments. Due to the fact that vascular atrophy and its complications can be caused by inflammatory processes in brain tissues, in some cases, vascular atrophy of the brain may develop. [5;18;20].

In the course of experiments conducted within the framework of this study, it was found that mechanical damage occurs when the organs of the locomotor apparatus of the distal spine are affected, the anterior limb Palm-toe area is more common than the flexor and scribal Pai diseases of the later limbs, the shape being aseptic and septic, stages of inflammatory rejection in the pathological hearth be inconsistent with different clinical signs, pathological foci subcutaneous fascia and damage to blood and lymphatic vessel capillaries in the klechatka floors cause redness of the skin, violation of vascular permeability the accumulation of serum or serous exudate leads to the formation of edema, the accumulation of lactic acid leads to tickling intense pain of nerves.

Within the framework of scientific research, the experiments were carried out on specialized horse farms and private horse farms in Samarkand, Bukhara, Jizzakh, and Kashkadarya regional districts, "Riders schools", equestrian clubs. General clinical tests on the regions were carried out on 365 head of foals and horses of different breeds of sports from 3 to 10 years old. Based on the results of the horses locomotor apparatus metopodium and acropodium Soha the degree of damage to the palate ligaments affecting the palms and fingers (Table 1), the causative factors (figures:1,2,3,4), the morphological structure of the pathological hearth (figures:5,6,7), Clinin symptoms (figures:8,9,10,11), inflammatory form and RET stages were studied using general and special methods of examination.

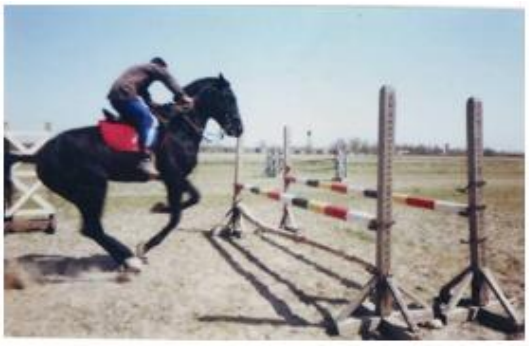
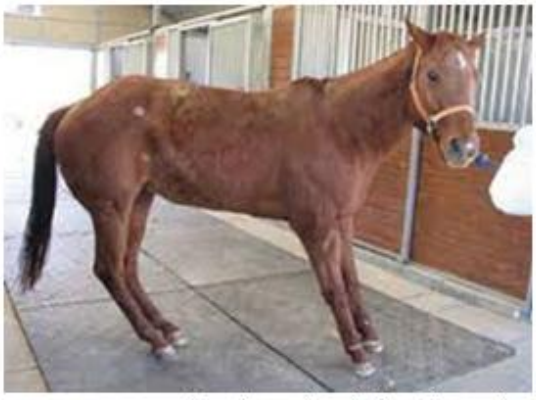


Figure-1. Hurdle jump

Figure-2 Keeping horses

In Figure 1, in the process of training the horses to jump, ligaments are damaged by the fact that the front or subsequent legs can hit the palm or finger area of the fence with several times, causing inflammatory processes to cause tendinitis, tendovaginitis and other types of diseases. The 2nd figure shows soldering and microbeads that do not meet zoohygenic requirements.



Picture - 3 feed racioninig disorder

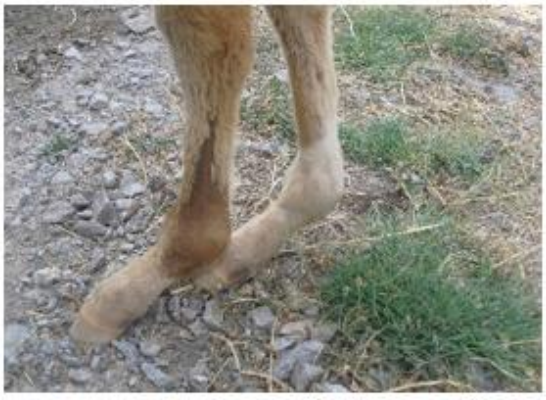


Figure - 4 congenital anomaly

In Figure 3, nutrient ration degradation causes several diseases in the locomotor apparatus

system, such as myositis, rheumatoid, lyaminitis. Excessive accumulation of lactic acid in the soft muscle and pubic tissues of the body leads to severe complications by removing the system of the base and organs of movement from the track. For example: at the symptoms of tireless training, exhaustion, tension, when the concentrate received nutrients, watering them in a sweaty state was found to be the cause of severe asocial disorders.

Figure 4 shows that a violation of the composition of the feed ration of reindeer mares, a lack of amino acids, vitamins, macro-and microelements, organic and inorganic substances is the cause of metabolic disorders in the body of mares. As a result, the normal development process is disrupted during embryonic development, which is the main factor in the occurrence of diseases of the digestive system, respiratory system, circulatory system, and musculoskeletal system.

Within the framework of the conducted research work, horses preparing and participating in various sports games were isolated from traumatic diseases of the musculoskeletal apparatus of the soft tissues of the distal region of the horse with such groin diseases as vaginitis, tendinitis, tendovaginitis, experimental groups were formed and the results of the examination were summarised (Table 1).

In the experiment we determined the degree of lesion of tendons of the distal part of the musculoskeletal apparatus of horses, the main provoking factors, Causes of tendonitis, vaginitis and tendovaginitis in horses, diseases, morphological changes in the composition of damaged briquetting tissues , disorders of their functioning, pronounced clinical signs, swelling in the area, pain, local temperature, types of lameness.

figure-5

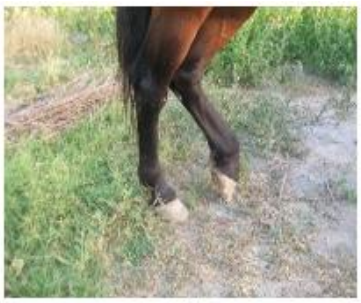


figure-6

figure -7

figure -8

figure -9

figure -10

Figure 5 shows injuries to the tendons of the anterior right acropodium palmar flexor tendon affecting the finger joint and the medial tendon and their sheaths, characterised by aseptic inflammation, swelling, pain and local temperature elevation.

Figure 6 shows injury to the toe flexor surface and medial tendons on the right forefoot, 18 cm long swelling, pain and local temperature of 40.1 degrees centigrade resting on a hoof hanger.

Figure 7 shows a flexor digitorum and medial tibia injury in the palm and toe of the hind left foot causing tendovaginitis. From the clinical signs-edema 18.4 cm long, pain, local temperature up

to 39.9 degrees Celsius, resting on the tip of the hoof.

Figure 8 shows that as a result of the horse's fall in the Goat to Goat games, the flexor surface, middle and deep tendons affecting the anterior left carpal, palmar-finger and hoof-ankle joints were injured and, despite therapeutic procedures, a 28.6 cm long tumour had formed by the third day. there was severe pain and lameness in the hanging position, a local temperature of 39.8 was found to be level.

Damage to the writing surface and deep tendons affecting the palm and toe area of the front right feet of both horses in Figures 9-10 was observed as a result of repeated impacts against obstacles during continuous exercise and jumping. There was unknown swelling in the area but severe pain was observed. He was found to be holding on by leaning forward with his legs.

5-6-7-8-9-10 as can be seen from the figures, horses participating in sports musculoskeletal system the origin of injuries in the area of acropodium and metopodium depends more on the impact of mechanical factors and its strength than on the aseptic form of the course of the inflammatory process in the pathological focus, general and branch clinical signs, pain sensations, local temperature, shape and length of tissues in the pathological focus, signs of lameness during active and passive movements (leaning on hoof rack, leaning, hanging, blending).

Types and characteristic signs of fatigue as a result of relentless training of horses and foals, decrease or loss of appetite when horses are fatigued without rest in competition, swelling, pain and lameness in certain areas of the musculoskeletal organs have been studied.

In horses and foals in which microparticles were noted on day 3-4 of the experiment, no obvious local clinical signs were observed in the pathological focus as a result of site lesions.

It has been found that damage to the ulnar apparatus of the distal part of the tendons due to overstraining of horses not only causes tearing and stretching of tendon fibres, but also causes vaginitis and tendovaginitis. As a result, a disruption of the normal physiological state of the tendons, Change in clinical status, severe pain, increased sweating, leg tremors, decreased movement in the head area, support on the hoof hook, redness of visible mucous membranes were detected.

Our scientific research experiments used observation, palpation, thermography, radiology, tape and caliper examination methods to obtain complete information.

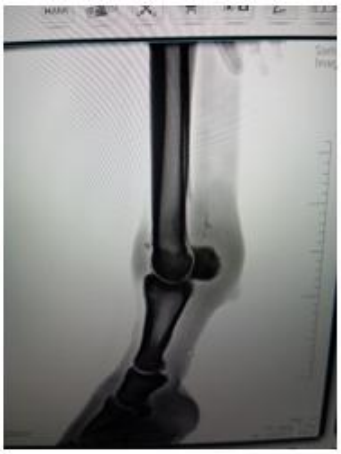


figure 11

figure 12

figure 13

In radiological studies

Figure 14. palpation method

Figure 15. Thermography method

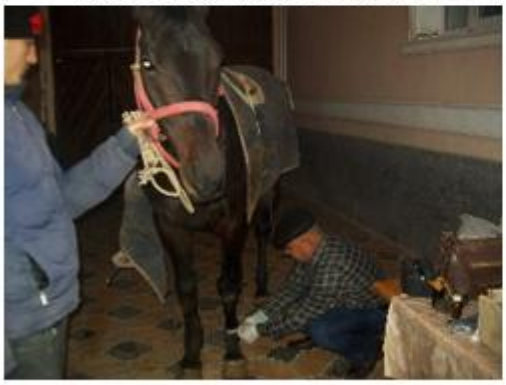


Figure-16 tape measure method

figure-17 caliper method

In our scientific experiments, radiological studies were carried out on a DIAGNOSTIC X-Ray UNIT/PASKOM model PX-20HF digital X-ray machine. Morphophysiological structure and composition of locomotor fibres of the distal part of the palm and finger mechanically damaged under the influence of X-rays were studied (Fig.11,12,13).

In the course of the conducted scientific research we were convinced that 365 heads of pedigree foals and horses at the age of 3 to 10 years, who passed the dispensary in specialised farms and personal farms of Samarkand, Bukhara, Jizzak, Kashkadarya districts of Samarkand, Bukhara, Jizzak, Kashkadarya regions, in 78 heads locomotor apparatus of metapodium and acropodium area tendinitis and tendovaginitis due to tendon damage were detected.

Out of 214 heads of horses that underwent general examination in the districts of Samarkand region, 51 heads (23.8%) were found to have PA diseases in the palms and fingers of the forelimbs, while 9 horses (17.6%) were found to have tendinitis in the palms, tendovaginitis in 8 (15.7%) and tendovaginitis in the fingers 8 (15.7%). In 5 heads of horses, tendinitis was found on the hind legs (9.8%) and tendovaginitis on the head 3 (5.9%). On the hind legs compared to common ligamentous diseases of the lower leg in horses, 8 heads (15.7%) had tendinitis in the palms, 9 heads (17.6%) tendovaginitis in the toes 4 heads (7.8%) tendinitis, 3 heads (5.9%) tendovaginitis. Most groin diseases were observed in weddings aged 2-4 years.

In an examination of 48 heads (13.1%) of sport horses in the care of riding schools, clubs and private farms in Bukhara regional districts, 8 heads (17.6%) of horses were found to be predisposed to pa disease. Horses with tendinitis of 1 head (12.5%) in the palms of the forelimbs, tendovaginitis of 3 heads (37.5%) in the toes, tendinitis of 1 head (12.5%) in the toes of the following limbs, and tendovaginitis of 1 head (12.5%) were identified in animals infected with the disease. Kashkadarya region Yakkabagh district . During general examination of 42 heads (11.5%) of horses belonging to ‘karabair’ LLC, pa diseases accompanied by acute aseptic inflammation were detected in 7 heads (17.0%) of horses. It was found that the previous foot was affected by tendinitis in the palm area of 2 head of horses (28.6%), tendovaginitis in 3 head of

horses (42.8%), tendovaginitis in 1 head horse (14.3%) in the palm area of later feet and tendinitis in 1 head horse in the toe area (14.3%).

Jizzak oblast Zomi district of LLC ‘Karabair’ at clinical examination of 41 horses head tendovaginitis in horses 4 heads (9,7%) in the area of forelimbs, tendinitis in horses 3 heads (7,3%) in the area of toes, tendinitis in horses 2 heads (4,9%) in the area of hind limbs and tendovaginitis in horses 2 heads (4,9%), tendovaginitis in horses 1 head (2,4%) in the area of toes, tendovaginitis in horses 2 heads (4,9%) in the area of hind limbs and tendovaginitis in horses 1 head (2,4%) in the area of toes.

Table 1. High incidence of metacarpal ligament diseases affecting the locomotor apparatus of metapodia and acropodia was noted in regional livestock farms and private subsidiary farms.

(tendinitis and tendovaginitis)

№	Regional and district farms	Uu General checked horses	Lacomator apparatus of the metapodia and acropodia region									
			Front foot						Next leg			
			Common sick horses head number	Total %	Palm		Finger		Palm		Finger	
					Tendini-tis head / %	Tendo vaginitis head / %	Tendini-tis head / %	Tendo vaginitis head / %	Tendini-tis head / %	Tendo vaginitis head / %	Tendini-tis head / %	Tendo vaginitis head / %
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Samarkand city	22	6	27,3	1 - 4,5	2 - 9,1	1 - 4,5			1 - 4,5		1 - 4,5
2	Samarkand city M.Ch. “Tur Orient” farm	54	3	5,5	1 - 1,8		1 - 1,8	1 – 1,8				1 - 1,8
3	Samarkand district “Dilfin” farm	19	4	21,0	1 - 5,3		1 – 5,3		1 – 5,3	1 – 5,3		
4	Pastdargom district personal horses	34	9	26,5	2 – 5,9			3 - 8,8	2 - 5,9	1 - 2,9	1 - 2,9	
5	Ishtikhon district “Suyunov Jura bobo” farm	32	8	25,0	2 - 6,25				2 - 6,25	2 - 6,25	1 - 3,1	
6	Jomboy district MTP livestock farm	23	5	21,7	1 4,35		1 -4,35		2 - 8,7	1 - 4,35		
7	Bulungur district “Toxir bobo” livestock farm	24	9	37,5	1 - 4,2	4 - 17,0			1 - 4,2	2 - 8,3		1 - 4,2
8	Urgut district “G’us” livestock farm	26	7	27,0	1 - 3,8	2 - 7,7		1 - 3,8		1 - 3,8	2 - 7,7	
9	Buxoro region riding school and private farms	48	9	18,7	1 - 11,1	3 - 33,3		3 - 33,3			1 - 11,1	1 - 11,1
10	Kashkadaryo region Yakkabog district .”Qorabair” MChJ	42	7	16,7	2 - 28,6	3 - 42,8				1 - 14,3	1 - 14,3	
11	Jizzax region Zomin district	41	12	29,3		4 - 33,3	3 - 25,0		2 - 16,7	2 - 16,7	1 - 8,3	

	"Qorabair" MChJ											
Total		**365**	**78**	**21,4**	**16 - 20,5**	**14 – 17,9**	**7 - 9,0**	**8 - 10,2**	**10 - 12,8**	**12 - 15,4**	**7 - 9,0**	**4 - 5,1**

Conclusion. Clinical examination was carried out on 365 thoroughbred horses aged from 3 to 10 years old in the care of individual horse breeding farms and private farms, equestrian clubs, riding schools in the districts of Samarkand, Bukhara, Kashkadarya and Jizzak regions. Mechanical trauma during training and athletic competition, as well as the force of their effects on the fore and hind limbs of horses distal clamps, diseases such as tendonitis, tendovaginitis, which occur in tendons affecting the palmar and finger regions, are frequent, causative factors. course and clinical signs were investigated using general and special methods. Previous and subsequent locomotor apparatus identified pai diseases occurring in the metopodium and acropodium region.

When analysing the results obtained in Samarkand region, district out of 234 foals and horses examined in farms and private farms, 51 horses were found to have tendinitis and tendavaginitis diseases, which was 21.8%. Compared to the horses that got sick forefoot tendinitis in the palm area 19,6%, on the toe 7,8%, next foot tendinitis in the palm area 15,7%, on the toe 7,8%, tendovaginitis in the palm area 15,7%, on the toe 9,8%, next foot tendinitis in the palm area 13,7%, on the toe 7,8%, tendovaginitis in the palm area 17,6%, on the toe a in the industry 5,9%.

During dispasserisation of 48 foals and horses in farms of Bukhara region, 9 animals were found to have rump diseases, which was 18.7%. Before that tendinitis in the area of the palm of the foot was 11,1%, tendovaginitis-33,3%, tendovaginitis in the area of the toe-33,3%, tendinitis in the area of the hind toe-11,1%,tendovaginitis-11,1%.

Yakkabagh district of Kashkadarya region.During general examination of 42 heads of horses belonging to 'Karabair' farm, diseases of palm and toe rations were detected in 7 of them, which was 16.7%. Tendinitis in the region of the palm of the forefoot was found in 4.8%, tendovaginitis in 7.1%, tendovaginitis in the region of the toes in 3 heads of horses, 33.3%. Tendovaginitis in the palm of the hind leg was 7.1%, tendonitis in the toe region the same percentage.

Jizzak Out of 42 horses that underwent general examination in the farm 'Karabair' Ltd. of Zaamin district, 12 horses showed signs of disease, which is 28.6% of cases of palm and toe spheres. Tendovaginitis in the area of the palm of the front leg was diagnosed in 33.3%, tendonitis in the area of the toe in 25.0%, tendonitis and tendovaginitis in the area of the palm of the hind leg in 16.7%, tendonitis in the area of the toe in 8.3%.

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