

Radiographic abnormalities in the fetlock joints of equestrian horses in Tehran province, Iran

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Article Info	Abstract
Article history: Received: 14 May 2025 Accepted: 10 December 2025 Available online: 15 August 2026	Disorders and injuries of the fetlock joint, encompassing both bone and soft tissue, are significant causes of limb pain and lameness in horses. Over time, these conditions can lead to joint dysfunction and a diminished quality of life. This study aimed to identify fetlock joint disorders using radiological examinations conducted during pre-purchase evaluations of horses and to evaluate the influence of age and sex on their incidence rates. 100 horses were selected from equestrian centers in Tehran Province during 2017 - 2020. As part of pre-purchase examinations, standard radiographic projections of the fetlock joints of all four limbs were obtained. Among the 100 horses examined, 28 showed no abnormalities in the fetlock joint, while 72 exhibited at least one disorder. Osteoarthritis was the most frequently observed condition, with an incidence of 26.75%, followed by soft tissue swelling (15.80%), medial and lateral proximal sesamoiditis (6.00%), osteochondritis dissecans (7.50%) and avulsion fractures (1.50%). Other disorders accounted for less than 5.00% of cases. The prevalence of disorders was significantly higher in the forelimbs compared to the hindlimbs, while no significant difference was found between male and female horses. The findings of this study underscored the importance of conducting pre-purchase radiographic examinations, particularly of the fetlock joints in both forelimbs and hindlimbs. These evaluations are crucial for identifying potential bone complications and for assessing the prognosis of a horse athletic performance.
Keywords: Fetlock joint Horse Prepurchase examination Radiography	

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Introduction

The health of a horse limbs is a key indicator of its future performance, representing the foundation of its athletic and functional capabilities. For buyers, limb health is the foremost consideration during pre-purchase evaluations. Pre-purchase examinations involve clinical and radiographic assessments to identify potential limb complications.¹

In addition to mechanical injuries or trauma, various bone disorders can affect the musculoskeletal system in growing horses, commonly referred to as progressive orthopedic diseases.² These conditions may arise at birth, during development or at the onset of training. Among these, injuries to the metacarpophalangeal and metatarsophalangeal joints (fetlocks) are frequent causes of lameness in horses. While the fetlock is anatomically a relatively simple joint, accurately diagnosing disorders is crucial and radiology plays a vital role in this process.^{3,4}

Radiology not only aids in diagnosis but also serves as a valuable tool for creating records that can be used in epidemiological studies. Radiographic data enable prognoses of disorders, provide insight into the advisability of purchasing referral horses and support statistical analyses.⁵

During equine pre-purchase examinations, assessing the quality and extent of fetlock injuries helps veterinarians provide informed evaluations of referral horses. However, no studies in Iran have investigated these injuries using radiographic examinations during pre-purchase evaluations.

This study retrospectively analyzed abnormal radiographic findings in referral horses from equestrian centers in Tehran Province. It aimed to determine the frequency of complications in the fore and hind limbs during pre-purchase evaluations and to explore the effects of age and sex on their incidence. By comparing the results with those of other studies, this research sought to

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contribute to educational programs and improve the understanding of limb health in horses based on epidemiological data.

Materials and Methods

Animals. Digital radiography procedures and equine examinations were conducted in equestrian centers in Tehran Province from 2017 to 2020. A total of 100 horses (52 female and 48 male) were selected for the study. The horses involved in this study were between 9 and 14 years old, weighed 350 - 550 kg and included breeds such as Koninklijk Warmbloed Paardenstamboek Nederland (KWPN), Westphalian (WEST), Belgisch Warmbloed paard (BWP), Hanoverian, Thoroughbred and Holsteiner. They had 2-6 years of experience in domestic competitions. Horses were classified into three age groups: Under 5 years, 5 - 10 years and over 10 years.

Radiographic protocols. Digital radiography was performed using a CS-7 system equipped with a 10.00 × 12.00-inch detector (Konica Minolta, Tokyo, Japan) set at 66.00 kVp and 3.20 mAs. At least four standard radiographic views were obtained for each fetlock joint: Latero-medial, lateral oblique, medial oblique and dorso-palmar/dorso-plantar. The data were classified based on the presence or absence of bony changes, soft tissue injuries, age and sex of the horses. Cases included in the study were intra-articular swelling of the fetlock joint, osteoarthritis, bone fragments due to osteochondritis dissecans (OCD) or avulsion fractures, the location of detached bones and sesamoiditis. The type, severity and frequency of each disorder were analyzed. Comparisons were made between forelimbs and hindlimbs as well as between right and left forelimbs and hindlimbs. Relationships between these findings and independent variables such as age and sex were also evaluated.

Statistical analysis. All data obtained from this study were analyzed using SPSS Software (version 25.0; IBM Corp., Armonk, USA). Frequency and relative frequency indices were used to characterize the horses, while mean

and standard deviation values were applied to describe the severity of disease occurrence. To assess relationships between the occurrence of disorders and independent variables (age, sex, and limb), the chi-square test was employed. The Kruskal-Wallis and Mann-Whitney tests were used to evaluate the relationship between the severity of radiographic findings and the same variables. Statistical significance was established at $p < 0.05$.

Results

The results of the study revealed that out of the 100 horses examined, 52 were female and 48 male. Among them, nine horses were under 5 years old and 91 were over 5 years old. No bone or soft tissue abnormalities of the fetlock joint were identified in 28 horses, while 72 horses displayed at least one disorder. In the analysis of the 400 limbs, 238 were free of abnormalities, while 162 exhibited at least one disorder. Disorders in the forelimbs were significantly more frequent than in the hindlimbs ($p = 0.000$). Specifically, 51.50% of forelimbs (103 out of 200) had at least one disorder, compared to 29.50% of hindlimbs (59 out of 200).

Among the horses studied, the most common abnormality was osteoarthritis which occurred in 26.75% of the examined limbs (107 out of 400). Of the affected limbs, 41 showed a very mild degree, 60 showed a mild degree, six showed a moderate degree and no cases were classified as severe (Fig. 1).

Osteoarthritis was significantly more prevalent in horses over 10 years old ($p = 0.009$) and in the forelimbs compared to the hindlimbs ($p = 0.000$). The incidence of intracapsular soft tissue swelling was 11.50% (46 limbs), with two cases showing very mild swelling, 38 mild and six moderate swelling, while no severe cases were observed. This condition was significantly more common in female horses ($p = 0.028$). The incidence of sesamoiditis was significantly higher in male horses ($p = 0.002$), in forelimbs ($p = 0.001$) and in left limbs ($p = 0.040$). The frequency of OCD was 5.75% (23 limbs).

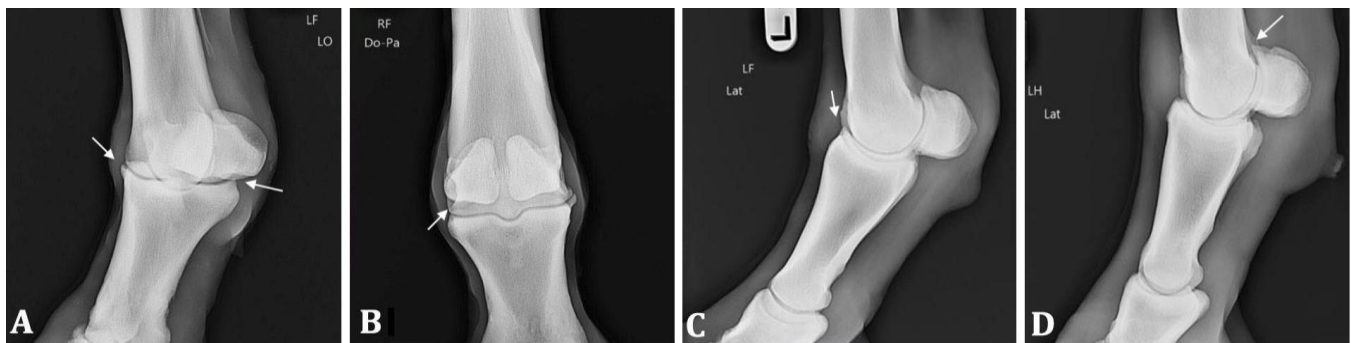


Fig. 1. A) Medium-grade osteoarthritis of the fetlock joint in the lateral oblique (LO) view of the left forelimb (LF; white arrows); B) Medium-grade osteoarthritis of the fetlock joint in the dorsal-palm (Do-Pa) view of the right forelimb (RF; white arrow); C) Mild-grade osteoarthritis of the fetlock joint in the lateral (Lat) view of the left forelimb (white arrow). D) Mild-grade osteoarthritis of the fetlock joint in the lateral view of the left hind limb (LH; white arrow).

Among the affected limbs, there were seven cases with very small lesions, four with small lesions, seven with medium-sized lesions and four with large lesions. One horse had a unilateral osteochondrosis defect in the sagittal ridge of the third metacarpal (MC3)/third meta-

tarsal (OCD3) bone (Fig. 2). No significant relationship between OCD and age, sex or limb was observed.

Extracapsular soft tissue swelling was found in 3.75% of the limbs (15 limbs). Of these, eight cases were mild, five were moderate and two were severe. The occurrence of

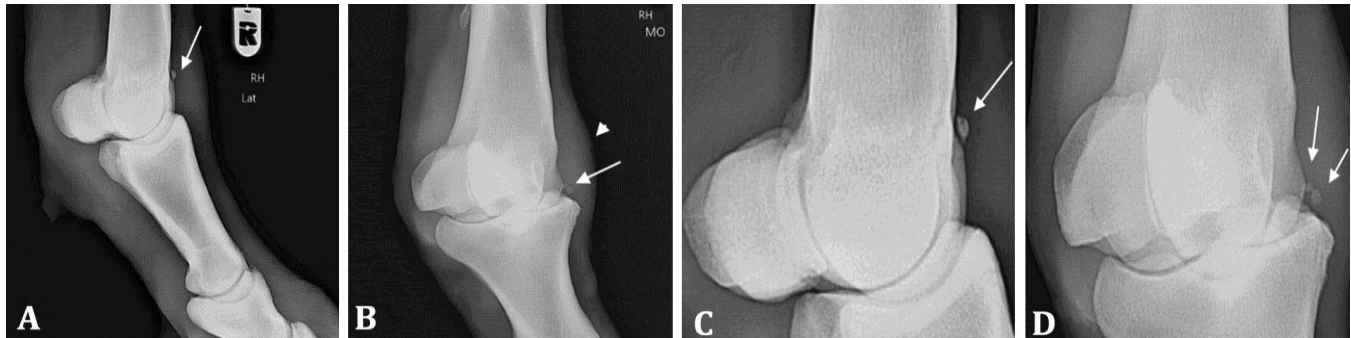


Fig. 2. Osteochondritis dissecans of the fetlock joint; **A and B)** Medium-sized detached fragment on the dorsoproximal surface of the joint in the lateral (Lat) view of the right hind limb (RH; white arrows); **C and D)** Small-sized osteochondral parts on the lateral dorsal surface of the joint (white arrows), with severe soft tissue swelling (white arrow tip) in the internal oblique view of the right hind limb.

Table 1. Occurrence of disease and severity of occurrence among horse in equestrian in Tehran province according to age.

Variables		Occurrence					Severity		
Diseases	Age (year)	Frequency		Relative frequency (%)		p- value	Mean	SD	p- value
		Yes	No	Yes	No				
Osteoarthritis	< 5	6	30	16.70	83.30	0.00*	2.00	0.00	0.32
	5 - 10	55	189	22.50	77.50		1.55	0.53	
	> 10	46	74	38.30	61.70		1.72	0.66	
Intracapsular soft tissue swelling	< 5	0	36	0.00	100	0.43	0.00	0.00	0.23
	5 - 10	30	214	12.20	87.80		2.03	0.42	
	> 10	16	104	13.30	86.70		2.20	0.41	
Sesamoiditis	< 5	0	36	0.00	100	0.65	0.00	0.00	0.95
	5 - 10	16	228	6.50	93.50		1.13	0.35	
	> 10	8	112	6.70	93.30		1.12	0.35	
Osteochondritis	< 5	6	30	16.70	83.30	0.21	1.00	0.00	0.18
	5 - 10	10	234	4.00	96.00		2.41	1.16	
	> 10	7	113	5.80	94.20		2.62	1.06	
Extracapsular soft tissue swelling	< 5	0	36	0.00	100	0.00*	0.00	0.00	0.84
	5 - 10	3	241	1.20	98.80		2.50	0.70	
	> 10	12	108	10.00	90.00		2.66	0.77	
Avulsion fractures	< 5	0	36	0.00	100	0.60	0.00	0.00	0.79
	5 - 10	3	241	1.20	98.80		4.66	0.57	
	> 10	3	117	2.50	97.50		4.33	1.15	
Sesamoid bone enthesophyte	< 5	1	35	2.70	97.30	0.01*	-	-	-
	5 - 10	1	243	0.40	99.60		-	-	
	> 10	1	119	0.80	99.20		-	-	
Calcification	< 5	0	36	0.00	100	0.43	-	-	-
	5 - 10	1	243	0.40	99.60		-	-	
	> 10	2	118	1.70	98.30		-	-	
Periostitis	< 5	0	36	0.00	100	0.58	-	-	-
	5 - 10	2	242	0.80	99.20		-	-	
	> 10	0	120	0.00	100		-	-	
Luxation	< 5	0	36	0.00	100	0.76	-	-	-
	5 - 10	1	243	0.40	99.60		-	-	
	> 10	0	120	0.00	100		-	-	
Fracture	< 5	0	36	0.00	100	0.76	-	-	-
	5 - 10	1	243	0.40	99.60		-	-	
	> 10	0	120	0.00	100		-	-	

* indicates significant differences at $p = 0.05$.

extracapsular soft tissue swelling was significantly higher in horses over 10 years old ($p = 0.000$) and in females ($p = 0.017$). The frequency of avulsion fractures was 1.50% (six limbs).

Of the affected limbs, one was medium-sized, one was large and four were very large. The fractures were located in the apex of the lateral surface of the proximal sesamoid bone (one case), the inner surface area of the proximal sesamoid bone body (two cases), the palmar or plantar surface of the proximal phalanx (two cases) and the dorsal surface of the proximal phalanx (one case). No significant relationship between avulsion fractures and age, sex or limb was found.

Other disorders, including enthesophyte formation in the sesamoid bone (0.80%), soft tissue calcification around the fetlock joint (0.80%), periostitis (0.50%) and subluxation and incomplete fractures (0.30%), were observed in less than 1.00% of the limbs. Enthesophyte formation was more common in horses under 5 years old ($p = 0.011$). No significant relationship was found between the occurrence of soft tissue calcification, periostitis, subluxation or incomplete fractures and age, sex or limb.

The study also revealed that the incidence of osteoarthritis was significantly higher in horses over 10 years old compared to horses aged 5 to 10 and under 5 years old ($p = 0.009$). The occurrence of osteoarthritis in the forelimbs was significantly higher than in the hindlimbs ($p = 0.000$). Intracapsular soft tissue swelling was more prevalent in female horses ($p = 0.028$), while sesamoiditis occurred more frequently in male horses ($p =$

0.002), in forelimbs ($p = 0.001$) and in left limbs ($p = 0.040$; Tables 1 - 3).

There was no significant relationship between age, sex, or limbs and the occurrence or severity of OCD. The incidence of extracapsular soft tissue swelling was significantly higher in horses over 10 years old ($p = 0.000$) and in females ($p = 0.017$). Avulsion fractures showed no significant correlation with age, sex, or limb. Finally, the occurrence of enthesophyte formation in sesamoid bones was significantly higher in horses under 5 years old ($p = 0.011$). No significant relationships were found between the occurrence of soft tissue calcification, periostitis, subluxation or incomplete fractures and age, sex or limbs. These findings provided valuable insights into the prevalence, severity and risk factors of fetlock joint disorders in horses, highlighting the importance of radiographic evaluation in equine pre-purchase examinations.

Discussion

The field of horse keeping and equine competitions has witnessed significant growth in recent years. This development has necessitated advancements in diagnostic techniques to ensure the well-being and performance of equine athletes. Among these techniques, digital radiography has emerged as a crucial tool for examining the limbs of horses, both as a diagnostic method and as a component of pre-purchase examinations. The importance of this modality cannot be overstated, particularly for

Table 2. Occurrence of disease and severity of occurrence among horse in equestrian in Tehran province according to sex.

Variables		Occurrence				p-value	Severity		
Diseases	Sex	Frequency		Relative frequency (%)			Mean	SD	p-value
		Yes	No	Yes	No				
Osteoarthritis	Male	55	137	28.60	71.40	0.41	1.60	0.63	0.12
	Female	52	156	25.00	75.00		1.75	0.52	
Intracapsular soft tissue swelling	Male	23	169	12.00	88.00	0.73	1.95	0.21	0.02 *
	Female	23	185	11.10	88.90		2.21	0.52	
Sesamoiditis	Male	19	173	9.90	90.10	0.00*	1.15	0.37	0.89
	Female	5	203	2.40	97.60		1.20	0.45	
Osteochondritis	Male	14	178	7.30	92.70	0.12	2.42	1.28	0.76
	Female	9	199	4.30	95.70		2.25	0.88	
Extracapsular soft tissue swelling	Male	5	187	2.60	97.40	0.24	2	0	0.01*
	Female	10	198	4.80	95.20		2.90	0.74	
Avulsion fractures	Male	2	190	1.00	99.00	0.47	5	0	0.53
	Female	4	204	1.90	98.10		4.25	0.96	
Sesamoid bone enthesophyte	Male	2	190	1.00	99.00	0.51	-	-	-
	Female	1	207	0.50	99.50		-	-	
Calcification	Male	1	191	0.50	99.50	0.61	-	-	-
	Female	2	206	1.00	99.00		-	-	
Periostitis	Male	0	192	0.00	100	0.17	-	-	-
	Female	2	206	1.00	99.00		-	-	
Luxation	Male	0	192	0.00	100	0.33	-	-	-
	Female	1	207	0.50	99.50		-	-	
Fracture	Male	1	191	0.50	99.50	0.29	-	-	-
	Female	0	208	0.00	100		-	-	

* indicates significant differences at $p = 0.05$.

Table 3. Occurrence of disease and severity of occurrence among horse in equestrian in Tehran province according to limb.

Diseases	Limb	Frequency		Relative frequency (%)		<i>p</i> -value	Severity			<i>p</i> -value
		Yes	No	Yes	No		Q1	Q2	Q3	
Osteoarthritis	Forelimb	75	125	37.50	62.50	0.00*	1.24	1.62	2.00	0.23
	Hindlimb	32	168	16.00	84.00	-	1.37	1.78	2.19	-
	Right	45	155	22.50	77.50	0.07	1.31	1.71	2.11	0.57
	Left	62	138	31.00	69.00	-	1.25	1.64	2.03	-
Intracapsular soft tissue swelling	Forelimb	29	171	14.40	85.60	0.06	1.83	2.13	2.43	0.26
	Hindlimb	17	183	8.50	91.50	-	1.76	2.00	2.24	-
	Right	23	177	11.50	88.50	0.94	1.79	2.04	2.29	0.46
	Left	23	177	11.50	88.50	-	1.82	2.13	2.44	-
Sesamoiditis	Forelimb	19	181	9.50	89.50	0.00*	0.90	1.15	1.40	0.79
	Hindlimb	5	195	2.50	97.50	-	0.91	1.25	1.59	-
	Right	7	193	3.50	96.50	0.04*	1	1	1	0.38
	Left	17	183	8.50	91.50	-	0.94	1.23	1.52	-
Osteochondritis	Forelimb	8	192	4.00	96.00	0.18	1.03	1.87	2.71	0.14
	Hindlimb	15	185	7.50	92.50	-	1.97	2.64	3.31	-
	Right	11	189	5.50	94.50	0.97	1.67	2.36	3.05	1
	Left	12	188	6.00	94.00	-	1.50	2.36	3.22	-
Extracapsular soft tissue swelling	Forelimb	8	192	4.00	96.00	0.80	2.12	2.63	3.13	0.84
	Hindlimb	7	193	3.50	96.50	-	2.04	2.57	3.10	-
	Right	8	190	4.00	96.00	0.76	2.31	2.88	3.44	0.14
	Left	7	195	3.50	96.50	-	1.96	2.29	2.61	-
Avulsion fractures	Forelimb	3	197	1.50	98.50	0.98	3.55	4.33	5.11	0.79
	Hindlimb	3	197	1.50	98.50	-	4.27	4.66	5.05	-
	Right	2	198	1.00	99.00	0.42	5.00	5.00	5.00	0.53
	Left	4	196	2.00	98.00	-	3.61	4.25	4.89	-
Sesamoid bone enthesophyte	Forelimb	3	197	1.50	98.50	0.08	-	-	-	-
	Hindlimb	0	200	0.00	100	-	-	-	-	-
	Right	1	199	0.50	99.50	0.57	-	-	-	-
	Left	2	198	1.00	99.00	-	-	-	-	-
Calcification	Forelimb	2	198	1.00	99.00	0.56	-	-	-	-
	Hindlimb	1	199	0.50	99.50	-	-	-	-	-
	Right	2	198	1.00	99.00	0.55	-	-	-	-
	Left	1	199	0.50	99.50	-	-	-	-	-
Periostitis	Forelimb	2	198	1.00	99.00	0.15	-	-	-	-
	Hindlimb	0	200	0.00	100	-	-	-	-	-
	Right	2	198	1.00	99.00	0.15	-	-	-	-
	Left	0	200	0.00	100	-	-	-	-	-
Luxation	Forelimb	0	200	0.00	100	0.31	-	-	-	-
	Hindlimb	1	199	0.50	99.50	-	-	-	-	-
	Right	0	200	0.00	100	0.32	-	-	-	-
	Left	1	199	0.50	99.50	-	-	-	-	-
Fracture	Forelimb	1	199	0.50	99.50	0.31	-	-	-	-
	Hindlimb	0	200	0.00	100	-	-	-	-	-
	Right	0	200	0.00	100	0.32	-	-	-	-
	Left	1	199	0.50	99.50	-	-	-	-	-

* indicates significant differences at $p = 0.05$.

diagnosing lameness, which is a common and often debilitating condition in horses.⁶ This study underscored the significance of detecting limb disorders early, as they could lead to premature retirement from active roles in competition or breeding. Furthermore, it highlighted that digital radiography often provided more valuable insights than other clinical tests, particularly for detecting subtle abnormalities that might not be evident during physical examinations. Notably, forelimbs were more frequently

affected than hind limbs, likely due to their role in bearing approximately 60.00% of a horse's body weight.

In the present study, osteoarthritis was identified as the most common disorder in the horses examined, with a frequency of 26.75%. This condition was significantly more prevalent in horses older than 10 years compared to those aged 5 to 10 years and those younger than 5 years. These findings were consistent with previous research by De Rosi, which reported a 39.60% prevalence of osteo-

arthritis in elderly horses based on clinical and epidemiological assessments.⁷ Interestingly, studies on the Mangalarga Marchador breed indicated a high incidence of osteoarthritis (over 80.00%) in horses aged between 12 and 36 months.⁸ This finding contrasted with the results of the current study, emphasizing that osteoarthritis could also affect young horses. Additionally, Santschi highlighted that osteoarthritis of the fetlock joint is more prevalent in racing horses, further reinforcing the importance of targeted diagnostic approaches for specific populations.⁹

A notable study conducted by the University of Ghent in 2009 explored soft tissue disorders in the fetlock region using a combination of radiography and ultrasound. Vanderperren and Saunders reported that this dual approach remained the most common diagnostic method for such conditions.¹⁰ Their research demonstrated that soft tissue swelling in the fetlock joint was often attributable to trauma, with no significant influence of age or sex on its occurrence.¹¹ However, in the present study, soft tissue swelling was significantly more common in mares than stallions. Additionally, a strong association between soft tissue swelling and osteoarthritis was observed, further underscoring the interconnected nature of these conditions.

Sesamoiditis was another common disorder that was more frequently observed in the forelimbs than the hind limbs and in the left limbs compared to the right ones in this study. This distribution could be attributed to the higher load borne by the forelimbs, which increased the risk of damage to the suspensory ligaments. Poor limb conformation, often observed in wrestling horses, may also contribute to the development of enthesopathy in the suspensory ligament, particularly at its attachment to the sesamoid bones.¹² The current study found a higher prevalence of sesamoiditis in stallions than in mares, potentially due to greater muscle development around the fetlock joint in stallions, influenced by sex hormones. However, further research is needed to confirm this hypothesis. McLellan and Plevin noted that sesamoiditis was one of the most frequently reported findings in pre-purchase radiographic examinations, while Reesink highlighted that this condition commonly affected two-year-old horses. Radiographic diagnosis of sesamoiditis typically involves identifying an increase in the number and size of vascular canals. Reesink's study also demonstrated a significant correlation between suspensory ligament injuries and sesamoiditis.^{11,12}

The evaluation of the fetlock joint through radiography during pre-purchase examinations frequently reveals osteochondral fragments as a primary cause of lameness. These fragments are most commonly located in the dorso-proximal part of the first phalanx (P1), the proximal synovial pad, the proximal palmar/plantar border of P1, and the sesamoid bones. The present study findings were in agreement with those of previous research by Reesink.¹²

Also, Vos reported that osteochondritis with or without intra-articular bone fragments was a common finding in the Dutch Warmblood breed. Similarly, Boado and López-Sanromán identified lesions on the sagittal ridge of the third metacarpal/metatarsal bones as a traumatic origin of osteochondritis in pure Spanish horses.^{13,14} Declercq *et al.*, emphasized the clinical importance of osteochondral fragments in the fetlock joint, highlighting radiography role in detecting lameness during pre-purchase evaluations.¹⁵

Some studies have suggested that subchondral bone pathologies could lead to subchondral lesions and osteoarthritis in both horses and humans.¹⁶ Statistical analysis from the present study revealed that fragments in the dorso-palmar/dorso-plantar region of the joint and the dorso-proximal part of the P1 were more frequent than in other anatomical locations. Most of these fragments were small or medium in size. Additionally, bacillar fractures of the proximal sesamoid bone and latero-palmar/latero-plantar fractures of the P1 were more prevalent than other types of fractures. These results were consistent with findings by Declercq, which identified apical and bacillary fractures of the proximal sesamoid bones as more common in foals.¹⁵ Beinlich and Nixon examined the pathological and radiographic characteristics of avulsion fractures in horses, describing these fragments as degenerative joint complications or manifestations of dystrophic mineralization.¹⁶ Similarly, Higgins and Snyder noted that detached fractures of the femoral joint often resulted from displacement of parts of the plantar surface.¹⁷

The current study also highlighted the significance of identifying subtle abnormalities during pre-purchase examinations. Radiographic analysis not only aids in detecting visible issues but also serves as a preventive tool, identifying horses predisposed to specific disorders based on their anatomical and physiological characteristics. Horses with prior injuries or those involved in high-intensity activities such as racing and jumping often exhibit an increased incidence of both degenerative and traumatic conditions. These findings underscore the critical role of regular monitoring and targeted interventions in managing the long-term health of equine athletes.¹⁸

Furthermore, the present study revealed that forelimbs were significantly more affected by disorders than hind limbs ($p = 0.00$). Given that 60.00% of a horse body weight is borne by its forelimbs, it is unsurprising that these limbs are more prone to lameness. This finding further emphasizes the importance of radiographic evaluation of the fetlock joint in both forelimbs and hind limbs during pre-purchase examinations. Such assessments are essential for determining the health status and detecting bone disorders in these areas.¹ Other disorders with lower frequencies were not included in the scope of this study, as their statistical significance was minimal.

In conclusion, the results of this study underscored the critical role of digital radiography in diagnosing distal limb disorders, particularly as part of equine pre-purchase examinations and lameness evaluations. Early detection of these disorders could significantly influence prognosis and might prevent premature retirement in horses. When radiographic equipment is available, it should be utilized as a primary diagnostic tool. In many cases, radiographic findings provide more valuable information than other paraclinical procedures, especially when assessing bone disease complications or evaluating the structural integrity of joints and other anatomical features. This study reaffirmed the importance of continued research and development in equine diagnostic techniques to enhance the health and performance of horses in competitive and recreational settings. It is imperative to build upon these findings with further research, incorporating advanced imaging modalities such as computed tomography and magnetic resonance imaging to gain deeper insights into equine musculoskeletal health.

Acknowledgments

The authors gratefully acknowledge the assistance of the Research Council of University of Tehran, Tehran, Iran, for financial support (granted to M. Masoudifard, No. 7508054/6/24).

Conflict of interest

The authors are responsible for the content of this article and declare that they have no competing interests.

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