

ORIGINAL ARTICLE

Comparison of Musculoskeletal Disorder in Defender and Striker Players in Football

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Abstract

Background: Over a billion people worldwide enjoy playing football, making it the most popular sport. Football is the sport with the highest injury rate among all others due to the high level of physical effort. Injuries including musculoskeletal disorders, soft tissue injuries, strains, sprains, and overuse injuries are the most common ones that players who participate in contact sports experience.

Objective: To compare musculoskeletal Disorder in Defender and Striker Player in Football.

Methodology: It was a descriptive cross-sectional study. A total of 152 football players were selected through convenient sampling technique. Out of them 69 were strikers and 83 were defenders. The sample size was collected by taking value of musculoskeletal disorders among football players from literature. Nordic questionnaire was used to determine the frequencies of musculoskeletal disorders in defenders and strikers. Results were shown in frequencies and percentages.

Results A total of 152 male football players participated in the study. Out of total 69 were strikers and 83 were defenders. The mean age of strikers was 25.99 ± 6.69 and defender was 28.02 ± 6.08 . The majority of participants were graduate (38.8%) and employed (37.5%).

Conclusion: The most common musculoskeletal disorders in strikers were shoulder 39(56.5%), neck 38(55.1%), and ankles 37(53.6%) whereas most common musculoskeletal disorders in defenders were ankles 57(68.7%), knee 48(57.8%), and Hip/Thighs 45(54.2%).

Keywords: Strikers, Musculoskeletal, Defenders, Osteoarthritis, Musculoskeletal Injuries

Introduction

Football is the most popular sport, with more than one billion supporters worldwide. Due to its physically demanding nature, football is the sport where footballers are most likely to get an injury¹.

Acute, recurrent, and severe disorders are more common in professional athletes, particularly injuries to muscles or joints that can result in decreased performance, inability to participate in practice or competition, and even surgeries that result in retirement or even the abrupt end of a career².

According to several researchers, football is the sport with the highest prevalence, severity, and other injuries. The knee and ankle joints are the most frequently damaged areas³. Due to the sport's strong need for physical fitness, severe physical contact, and quick, fast, in-contact actions, football accidents have risen in quantity and severity⁴. According to many researchers, football is the sport with the peak incidence, severity, and other types of injuries. The joints in the lower extremity suffer damage the most commonly³. As a result of the game's intense need for physical preparedness, high-intensity contact, and fast, speedy, in-contact movements, the frequency and seriousness of accidents have increased in football^{5,13,14}. There are varied levels of injuries according to the function and position of the player,

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according to recent studies. However, this claim is debatable. Therefore, it can be argued that every player at every position experience a different pattern and severity of damage depending on their level of effort, strength, and physical fitness⁶. Instead of concentrating on players' training and conditioning, risk factors for injuries should be recognized in football players. Playing in severe weather, a player's posture, footwear, outfield, prior injuries, and, most importantly, physical fitness are all critical variables⁷. A. Turner et al. (2000) investigated the long-term effects of football on professional football players' nutritional quality of life (HRQL). Compared to those who did not have OA, participants who had OA reported having poorer HRQL. Persons with OA experienced work-related disabilities more frequently than participants without OA³. According to a study by Kerkhoffs et al. (2017) on the connections between musculoskeletal ailments in football players, there is no connection between CMD symptoms in footballers and the beginning of acquiring musculoskeletal injuries. However, there was worry that players who had already experienced injuries were more prone to have CMD symptoms⁵. The most frequent injuries were soft tissue ones, such as thigh muscle strains and rips, ligament tears in the knee, and tears of the meniscus or other cartilage. However, there were no distinctions between players competing in various positions⁶. According to the study, midfielders were the players who suffered injuries the most frequently⁷. Complex interactions between numerous risk factors make up the mechanism of injuries⁹—the frequency of injuries associated with football. An average of 4.8 injuries for every 1000 hours of exposure time were recorded, even during match and training sessions; the numbers were 11.2 and 3.9, respectively¹⁰⁻¹². As football is an emerging worldwide game with popular musculoskeletal injuries, we aim to address possible and most common origin or injuries in strikers and defenders to engage proper treatment protocol to reduce future risks.

Material & methods

A cross-sectional study was conducted with a non-probability convenience Sampling technique. The sample size calculated is 148, i.e., 74 in each group through the following formula where p_1, p_2 = proportion (incidence) of groups #1 and #2 $\Delta = |p_2 - p_1|$ = absolute difference between two proportions, n_1 = sample size for group #1, n_2 = sample size for group #2, α = probability of type I error (usually 0.05), β = probability of type II error (usually 0.2), z = critical Z value for a given α or β , K = ratio of sample size for group #2 to group #1. Data was collected after an approval letter from HOD and the player's consent. Collected data was kept confidential.

Football players from clubs in Lahore were willing to participate in the study. Players with no pathology or deformity and those who didn't injure in the road or other accidents were included. In comparison, players with any pathology or deformity and those injured in the road or other accidents were excluded. The Standardized Nordic Questionnaire was used, and SPSS 24.0v was used to analyze the data.

Results

Table 1 Socio-demographic profile of participants

	POSITION		
	Striker n=69	Defender n=83	
AGE	25.99±6.69	28.02±6.08	26.02±4.12
QUALIFICATION	Below Matric	3 4.3%	1 1.2%
	Matric	8 11.6%	10 12.0%
	Intermediate	21 30.4%	29 34.9%
	Graduate	30 43.5%	29 34.9%
	Post Graduate	7 10.1%	14 16.9%
	Unemployed	22 31.9%	13 15.7%
PROFESSION	Casual Work	14 20.3%	21 25.3%
	Labor	2 2.9%	1 1.2%
	Businessman	10 14.5%	11 13.3%
	Employed	21 30.4%	36 43.4%
	Retired	0 0.0%	1 1.2%
			1 .7%

A total of 152 male football players participated in the study. Out of a total, 69 were strikers, and 83 were defenders. The mean age of strikers was 25.99±6.69, and the defender was 28.02±6.08. Most participants were graduates (38.8%) and employed (37.5%).

Table 2 Comparison of Musculoskeletal Disorders Among Strikers and Defenders

A R E A	ANY SYMPTOMS IN THE LAST 12 MONTHS IN THE REGION?			DURING THE LAST 12 DAYS, HAVE YOU HAD ANY TROUBLE IN THE REGION?			DURING THE LAST 12 DAYS, HAVE YOU SEEN A PHYSICIAN FOR THIS CONDITION?			DURING THE LAST 7 DAYS, HAVE YOU HAD ANY TROUBLE IN THE REGION?			
	Striker	Defender	Total	Striker	Defender	Total	Striker	Defender	Total	Striker	Defender	Total	
U P P E R L I M B	n=69	n=83	n=152	n=69	n=83	n=152	n=69	n=83	n=152	n=69	n=83	n=152	
	Shoulder	39(56.5%)	37(44.6%)	76(50.5%)	25(36.2%)	27(32.5%)	52(34.2%)	28(40.6%)	25(30.1%)	53(34.9%)	27(39.1%)	14(16.9%)	41(27.0%)
	Elbow	33(47.8%)	35(42.2%)	68(44.7%)	15(21.7%)	28(33.7%)	43(28.3%)	19(27.5%)	17(20.5%)	36(23.7%)	21(30.4%)	16(19.3%)	37(24.3%)
	Wrist	30(43.5%)	24(28.9%)	54(35.5%)	18(26.1%)	20(24.1%)	38(25.0%)	17(24.6%)	7(8.4%)	24(15.8%)	16(23.2%)	6(7.2%)	22(14.5%)
	Hand	38(55.1%)	33(39.8%)	71(46.7%)	19(27.5%)	17(20.5%)	36(23.7%)	23(33.3%)	16(19.3%)	39(25.7%)	13(18.8%)	13(15.7%)	26(17.1%)
	Upper back	32(46.4%)	18(21.7%)	50(32.9%)	19(27.5%)	20(24.1%)	39(25.7%)	14(20.3%)	13(15.7%)	27(17.8%)	15(21.7%)	7(8.4%)	22(14.5%)
	Lower back	34(49.3%)	42(50.7%)	76(50.0%)	20(29.0%)	33(39.8%)	53(34.9%)	19(27.5%)	28(33.7%)	47(30.9%)	18(26.1%)	19(22.9%)	37(24.3%)
	Neck	31(44.9%)	45(54.2%)	76(50.0%)	25(36.2%)	26(31.3%)	51(33.5%)	22(31.9%)	25(30.1%)	47(30.9%)	19(27.5%)	16(19.3%)	35(22.9%)
	Thigh	30(43.5%)	48(57.8%)	78(51.3%)	24(34.8%)	31(37.3%)	55(36.2%)	24(34.8%)	34(41.2%)	58(38.2%)	19(27.5%)	21(25.3%)	40(26.3%)
	Ankle	37(53.4%)	57(68.6%)	94(61.2%)	26(37.7%)	30(36.1%)	56(36.8%)	28(40.6%)	33(39.8%)	61(40.1%)	19(27.5%)	30(36.1%)	49(32.2%)

38(55.1%) strikes and 33(39.8%) defenders reported that they had symptoms in the region from the last 12 months.19(27.5%) strikes and 17(20.5%) defenders said that they had trouble in the region in last 12 months. 23(33.3%) strikes and 16(19.3%) defenders said that they had seen a physician due to this problem in the last 12 days, and 13(18.8%) strikers and 13(15.7%) defenders said they had trouble in the region in last 7 days.

In the Shoulder region, 39(56.5%) strikes and 37(44.6%) defenders reported that they had symptoms in the region from the last 12 months.25(36.2%) strikes and 27(32.5%) defenders said that they had trouble in the region in last 12 months. 28(40.6%) strikes and 25(30.1%) defenders said that they had seen a physician due to this problem in the last 12 days, and 27(39.1%) strikers and 14(16.9%) defenders said they had trouble in the region in last 7 days.

In the Elbow region, 33(47.8%) strikes and 35(42.2%) defenders reported that they had symptoms in the region from the last 12 months.15(21.7%) strikes and 28(33.7%) defenders said that they had trouble in the region in last 12 months. 19(27.5%) strikes and 17(20.5%) defenders said that they had seen a physician due to this problem in the last 12 days, and 21(30.4%) strikers and 16(19.3%) defenders said they had trouble in the region in last 7 days.

In the Wrist & Hands region, 30(43.5%) strikes and 24(28.9%) defenders reported that they had symptoms in the region from the last 12 months.18(26.1%) strikes and 20(24.1%) defenders said that they had trouble in the region in last 12 months. 17(24.6%) strikes and 7(8.4%) defenders said that they had seen a physician due to this problem in the last 12 days, and 16(23.2%) strikers and 6(7.2%) defenders said they had trouble in the region in last 7 days.

In the Neck region, 38(55.1%) strikes and 33(39.8%) defenders reported that they had symptoms in the region from the last 12 months.19(27.5%) strikes and 17(20.5%) defenders said that they had trouble in the region in last 12 months. 23(33.3%) strikes and 16(19.3%) defenders said that they had seen a physician due to this problem in the last 12 days, and 13(18.8%) strikers and 13(15.7%) defenders said they had trouble in the region in last 7 days. In the Neck region,

In the Upper Back region, 32(46.4%) strikes and 18(21.7%) defenders reported that they had symptoms in the region from the last 12 months.19(27.5%) strikes and 20(24.1%) defenders said that they had trouble in the region in last 12 months. 14(20.3%) strikes and 13(15.7%) defenders said that they had seen a physician due to this problem in the last 12 days, and 15(21.7%) strikers and 7(8.4%) defenders said they had trouble in the region in last 7 days.

In the Lower Back region, 34(49.3%) strikers and 42(50.6%) defenders reported that they had symptoms in the region from the last 12 months. 20(29%) strikers and 33(39.8%) defenders said that they had trouble in the region in last 12 months. 19(27.5%) strikers, and 28(33.7%) defenders said that they had seen a physician due to this problem in the last 12 days, and 18(26.1%) strikers and 19(22.9%) defenders said they had trouble in the region in last 7 days.

In the Hip/Thighs region, 31(44.9%) strikers and 45(54.2%) defenders reported that they had symptoms in the region from the last 12 months. 25(36.2%) strikers and 26(31.3%) defenders said that they had trouble in the region in last 12 months. 22(31.9%) strikers and 25(30.1%) defenders said that they had seen a physician due to this problem in the last 12 days, and 19(27.5%) strikers and 16(19.3%) defenders said they had trouble in the region in last 7 days.

In the Knee region, 30(43.5%) strikers and 48(57.8%) defenders reported that they had symptoms in the region from the last 12 months. 24(34.8%) strikers and 31(37.3%) defenders said that they had trouble in the region in last 12 months. 24(34.8%) strikers and 34(41%) defenders said that they had seen a physician due to this problem in the last 12 days, and 19(27.5%) strikers and 21(25.3%) defenders said they had trouble in the region in last 7 days.

In the Ankles region, 37(53.6%) strikers and 57(68.7%) defenders reported that they had symptoms in the region from the last 12 months. 26(37.7%) strikers and 30(36.1%) defenders said that they had trouble in the region in last 12 months. 28(40.6%) strikers, and 33(39.8%) defenders said that they had seen a physician due to this problem in the last 12 days, and 19(27.5%) strikers and 30(36.1%) defenders said they had trouble in the region in last 7 days.

Discussion

In our study total of 152 male football players participated. Out of a total, 69 were strikers, and 83 were defenders. The mean age of strikers was 25.99 ± 6.69 , and defenders were 28.02 ± 6.08 . Most participants were graduates (38.8%) and employed (37.5%). Researchers proposed that there are different levels of injuries as per position and role of the player, but it is controversial^{11,12,13}. A study by Longo UG et

al. reported that several factors are responsible for increased musculoskeletal problems among football players, and the position of playing is a very significant factor among them^{14-15,16}.

Our study has observed a very high percentage of problems compared to international literature. One reason was the lack of a warm-up period, as advised by FIFA for football players¹⁷. In the Neck region, most strikers reported pain and discomfort. In the Shoulder region, also the majority of strikers reported problems and pain. A study by Sousa P resulted in similar results¹⁸.

Problems and pain In the Elbow region are also higher in strikers. Strikers report more problems and pain in the Wrist & Hands, and Upper Back regions. More problem and pain are reported by defenders in the Lower Back region, Hip/Thighs region, In Knee region, and In Ankles region. Another research concluded that half-backs and defenders are more prone to injuries than any other player in football. Defenders and goalkeepers are most commonly injured in football.^{11,16} Wessner et al. (2016) found no differences between players playing at different positions¹⁹. M. Zarei et al. (2009) players playing as strikers were the most frequently injured players²⁰.

A study by O'Brien J et al. reported that the role of the coach is very important because the positions of patients in the field, according to his expertise and capacities, could decrease the musculoskeletal problems in football players²¹. According to our study, most common injured areas among football players were neck and ankle. However, a study by Herrero H et al. reported different results. According to them, the most commonly injured area among football players was the knee. A study by van Beijsterveldt AM et al., conducted on Dutch football players, reported that the risk of musculoskeletal injuries among players depends upon the fitness and positions of players, and players playing attackers are more prone to musculoskeletal injuries^{22,23}.

Conclusion

The most common musculoskeletal disorders in strikers were shoulder 39(56.5%), neck 38(55.1%), and ankles 37(53.6%) whereas most common musculoskeletal disorders in defenders were ankles 57(68.7%), knee 48(57.8%), and Hip/Thighs 45(54.2%).

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