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RESEARCH ARTICLE
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ANALYSING AND COMPARING ON SELECTED INJURY VARIABLES AMONG FOOTBALL PLAYERS OF DIFFERENT AGE GROUPS IN A COMPETITIVE ENVIRONMENT

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Abstract

Background: Football or Soccer is the largest global sport. In competitive environment injury occurs more frequently among football players of all ages. As a result, a large number of players suffered from prevalent injuries.

Purpose: The main objective of this investigation was to comparative analysis the nature, type and recurrence of previous injury in different age groups football players.

Method: A total number of 120 male football players who were previously injured and later return their game after treatment, were voluntarily selected as subjects from different football coaching camps of West Bengal, India. All subjects were classified into four age groups such as 14-17 years (N=30), 18-21 years (N=30), 22-25 years (N=30) and 26-30 years (N=30). The football injury variables consist with natures, types and recurrence of previous injury. All 120 subjects had filled the questionnaire regarding injury.

Result: In the present investigation observed that the most common natures of injury of different age groups football injury were ligament, muscles. In respect of the ligament injury, the 26-30 years group footballers were higher rate (70%) followed by 18-21 years group (60%), 14-17 years group (56.67%) and 22-25 years group (53.33%). Similarly, result also revealed that acute injure was more common and higher in rate than chronic injury among all four groups of footballers. In respect of recurrence of previous injury 26-30 years group was higher in rate (26%) followed by 22-25 years group (24%), 18-21 years (20%) and 14-17 years (12%), so far football age specific group is concerned.

Conclusion: It is concluded that the ligament and muscle injuries occur frequently in competitive football. Similarly, the analysis also concluded that the recurrence of previous injury rate increase with age. Therefore, the scientific knowledge and injury awareness regarding the risk environment in competitive situation can prevent and reduce injury rate football players regardless of age.

Key words: Competitive Football, Nature of injury, Type of injury and Recurrence of previous injury.

1. Introduction:

Association football, more commonly known as Football or Soccer, is highest global sport in the world [9]. Playing football can induce beneficial health effects, but there is also a high risk of injury [27]. Injury is the damage sustained by tissue of the body in response to physical trauma [24]. Football injuries are injuries that occur among football players during participation in training session and competition.

The football integrates multifunctional motor execution-oriented skills. The competitive environment such as the demand of coaches as well as the specters players try to expose their high excellence performance during game. The environmental factors that contribute to injury risk in football competition. [21] The physiological responses to potentially stressful athletic situations can influence sport injuries. [14] The maturation status and growth spurts seems to have an influence which can give raise several football injuries in children and adolescent players. [12] As a result, a large number of players suffered from the prevalence injuries.

Therefore, the scientific information and injury awareness regarding the risk environment in competitive situation can prevent and reduce injury rate. Last but not the least, prompt diagnosis, suitable treatment and rehabilitation are also important part so that the injured football players may return on their game as early as possible.

In the previous global research, the investigators had emphasized on football injury. But there was a dearth of information about football injury in respect of their age groups. Moreover, this research aimed to fulfil this gap along with focusing new insights and enlightened the prevalence of football injury related variables such as nature, type and recurrence of previous injury in relation with age. Considering the modern perspective and specificity of age related football injury, the scholar felt the need of conducting the study in this light. Therefore, the present investigation is largely concentrated on **Analysing and Comparing on Selected Injury Variables among Football Players of Different Age Groups in a Competitive Environment.**

1.1 Purpose of the study

The main objective of this study was to find out and comparing the different age group category football injury, such as 14-17 years group, 18-21 years group, 22-25 years group and 26-30 years group footballers are mentioned below-

I.Nature of football injury in different age groups.

II. Type of football injury in different age groups.

III. Recurrence of previous injury in different age groups.

2. METHODS

2.1 Subject and Design of the study:

A total number of 120 male football players who were previously injured and later return playing at standard level after appropriate treatment along with rehabilitation, were voluntarily selected as subjects. The subjects of this study were state to national level football players, age ranging from 14-30 years. The volunteered subjects were selected from different club, coaching comp, AIFF (14-17) camp, university players and attended various tournament. The subject were assigned to specific four groups according to age –

a) 14-17 years group football players.
b) 18-21 years group football players.
c) 22-25 years group football players.
d) 26-30 years group football players.

The research study was survey in nature in which purposive sampling technique was used.

2.2 Inclusion Criteria

a) Only football game was selected for the study.
b) A total number of 120 football players were selected.

c) Players age groups were selected as 14-17 years footballer players (N=30), 18-21 years footballer players (N=30), 22-25 years footballer players (N=30) and 26-30 years footballer players (N=30).
d) Previously suffered from injury in their career but after rehabilitation now practice under the expert coaches and participation in competitions.
e) Only one major football injury was included.
f) During competition match related injury was taken.
g) Minimum two years training age.
h) Level of participation: State, Kolkata club competitions, inter university and National.

2.3 Exclusion Criteria

a) Players with several injuries was excluded.
b) Those who were injured but did not consult with doctors should not be allow to carry on.
c) Football players' disease, illness and accidental injuries (not in game) were excluded.

2.4 Criterion Measures of Football injury in different age groups related variables

In this study the age-related football injury variables were consider as the criterion measures which have been mentioned in below in the below –

I. Nature of football injury in different age groups.
II. Type of football injury in different age groups.
III. Recurrence of previous injury in different age groups.

2.5 Questionnaire preparation

A (self-made) questionnaire was created by the researcher for this study in order to get data from football players on injuries. In order to create questionnaires about football injuries, the researcher took significant steps, including consulting with sports medicine physicians, coaches, specialists in physical education, check journals and theses. After conducting a pilot study using the questionnaire, the researcher eventually constructed the questionnaire pertaining to football injuries.

2.6 Nature of Questionnaire

I. Basic information of the subject like name, age, height, weight and address along with contact number.
II. Injury related information:-

a) Anatomical site of sustained injury.
b) The proper, precise term for the injury according to medical science.
c) Type and nature of injury.
d) Times when injury happened.
e) Recurrence of the previous injury.

2.7 Procedure of Data collection

The researcher visited several clubs, coaching camps and AIFF training venues, university and participated in a number of competitions to gather data on football injuries. The questionnaire about football injuries was fulfilled by the players. The researcher was there to support football players as they filled out the questionnaire.

2.8 Statistics Analysis

In the present research included Mean and Standard Deviation of personal data along with injury variables in percentage statistics.

3. RESULTS AND DISCUSSION

In this observational research results were mentioned systematically in the below table and figure.

3.1.1 Personal Data

Tab. No. 1: Personal Data of injured football players in different age groups.

Groups / Variables	14-17 years (N= 30)	18-21 years (N = 30)	22-25 years (N = 30)	26-30 years (N= 30)
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Age (years)	15.36± 2.65	19.63± 2.18	23.83± 2.85	28.09± 1.63
Height (cm.)	160.71 ±4.15	168.23± 3.26	171.10± 4.52	169.86± 3.53
Weight (kg.)	51.1± 4.82	61.27± 3.69	63.18± 3.54	65.13± 4.38

N- Number, SD- Standard Deviation

3.1.2 Nature of Football injury in different age groups.

(A) 14-17 years group:

The graphic of different nature and their percentage of injuries among 14-17 years footballers are depicted in figure 1.

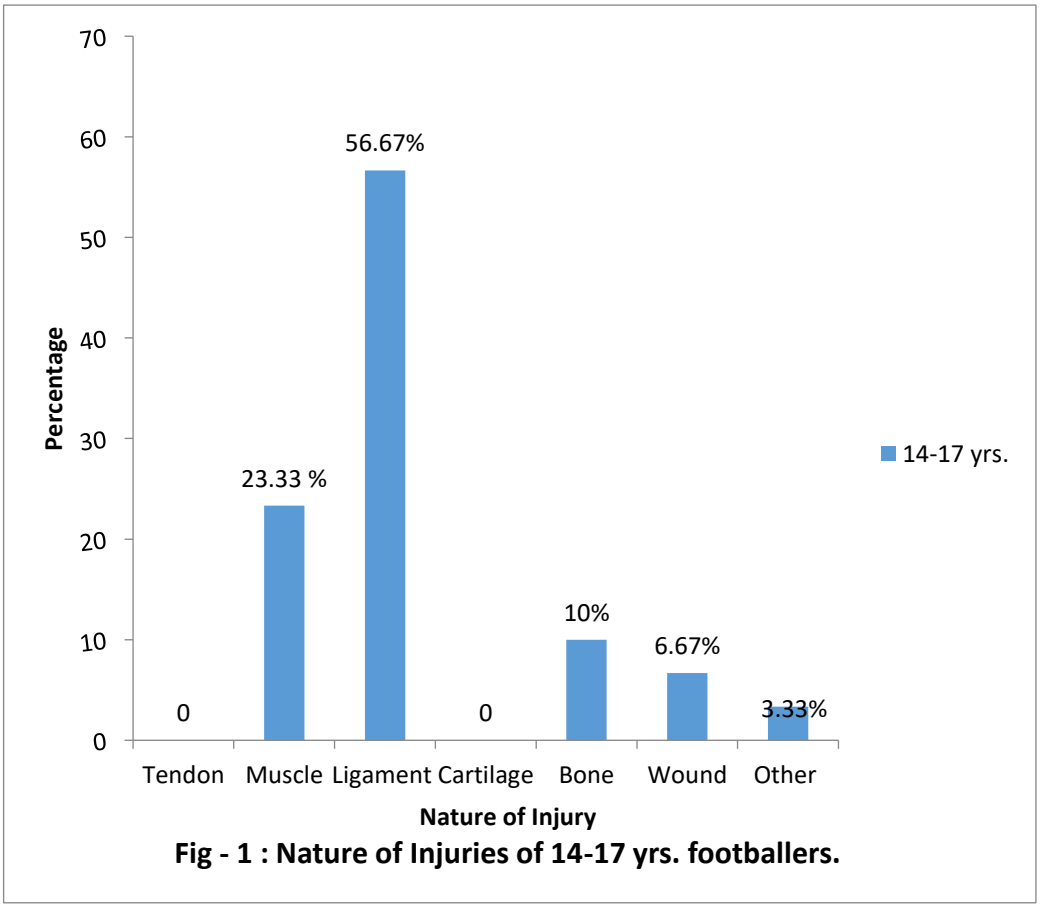


Fig - 1 : Nature of Injuries of 14-17 yrs. footballers.

Figure – 1: Reveals that 14-17 years injured footballers had no tendon and cartilage injuries, whereas 23.33% footballers had muscle injuries, 56.67% footballer had ligament injury, 10% had bone injuries, 6.67% had wound injury and 3.33 % had other injuries.

(B) 18-21 years group:

The graphic of different nature and their percentage of injuries among 18-21 years footballers are depicted in figure 2.

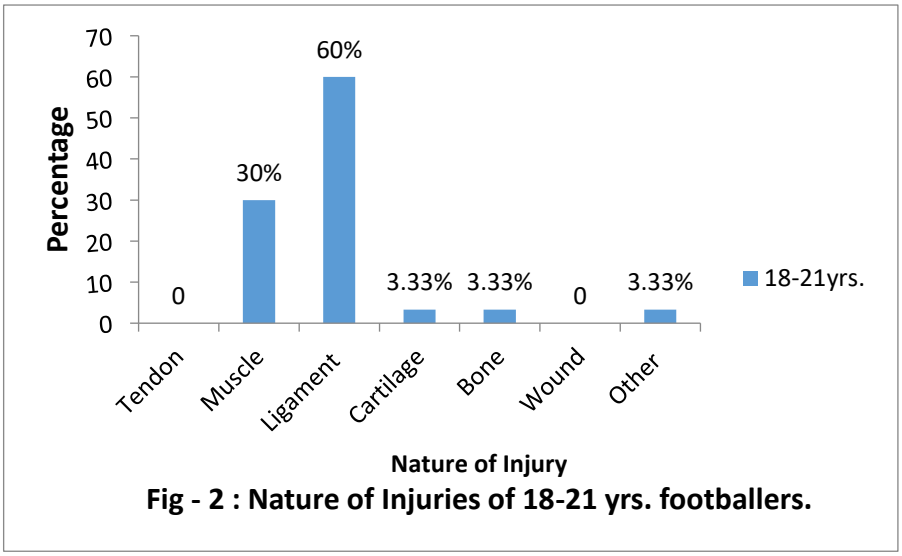


Fig - 2 : Nature of Injuries of 18-21 yrs. footballers.

Figure – 2: Shows that 18-21 years injured footballer had no tendon and wound injuries, whereas 30% footballers had muscle injuries, 60% footballer had ligament injuries, 3.33% had cartilage injuries, 3.33% had bone injuries and 3.33% had other type of injuries.

(C) 22-25 years group:

The graphic of different nature and their percentage of injuries among 22-25 years footballers are depicted in figure 3.

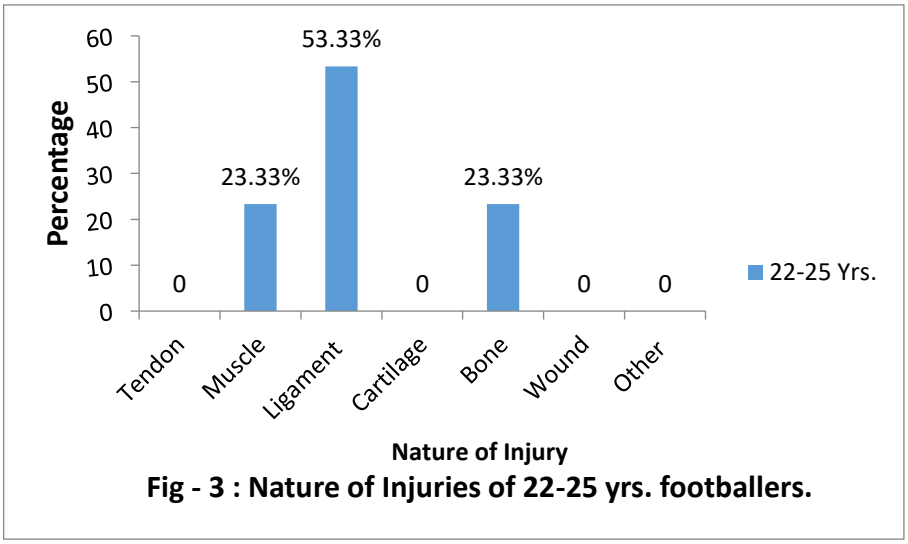


Fig - 3 : Nature of Injuries of 22-25 yrs. footballers.

Figure – 3: Indicates that 22-25 years footballer had no tendon, cartilage, wound, bone and other injuries whereas 23.33% footballers had muscle injuries, 53.33% footballers had ligament injuries and 23.33% had bone injuries.

(D) 26-30 years group:

The graphic of different nature and their percentage of injuries among 26-30 years footballers are depicted in figure 4.

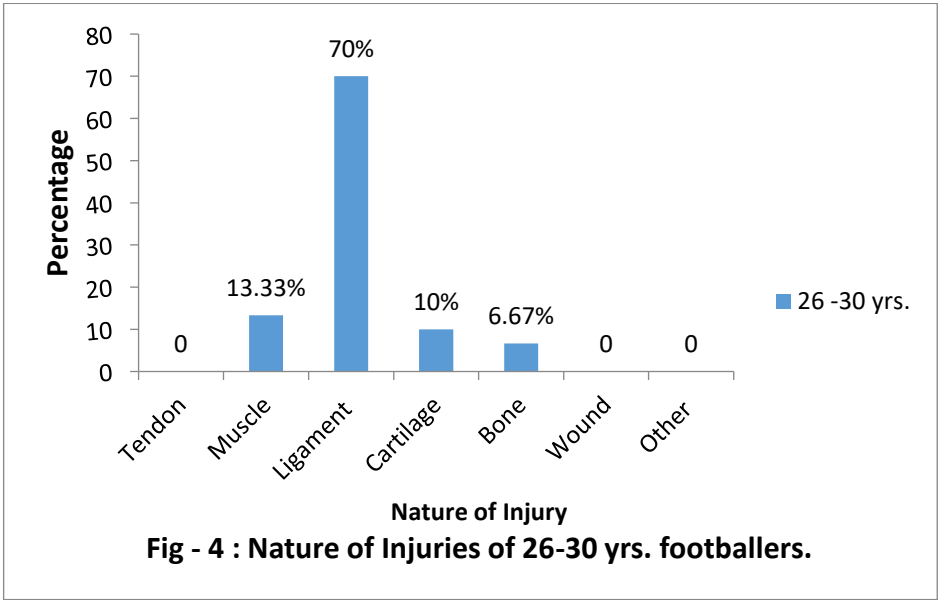


Fig - 4 : Nature of Injuries of 26-30 yrs. footballers.

Figure 4: Also reveals that 26-30 years footballers had no tendon, wound and other types of injuries whereas 13.33% footballers had muscle injuries, 70% footballers had ligament injuries, 10 % footballers had cartilage injuries and 6.67% had bone injuries.

3.1.3. Type of Injuries (Acute or Chronic) :

(A) 14-17 years group:

The graphic type of injures and their percentage of injuries among 14-17 years footballers are depicted in figure 5.

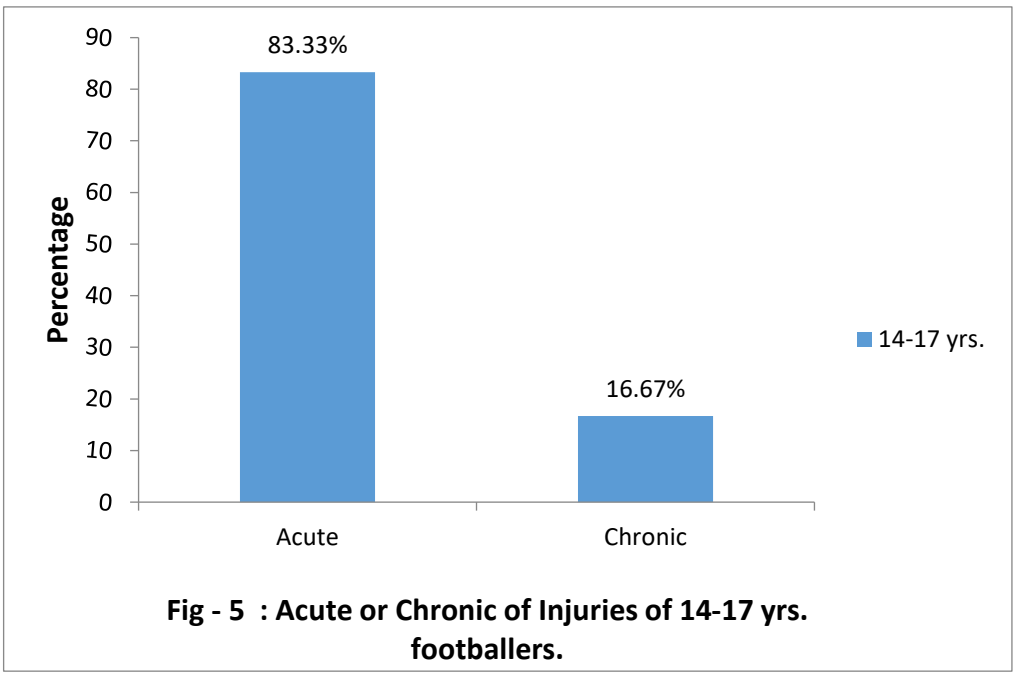


Fig - 5 : Acute or Chronic of Injuries of 14-17 yrs. footballers.

Figure – 5: Reveals that 83.33% footballers had acute injuries whereas 16.67% footballers had chronic injuries.

(B) 18-21 years group:

The graphic type of injures and their percentage of injuries among 18-21 years footballers are depicted in figure 6.

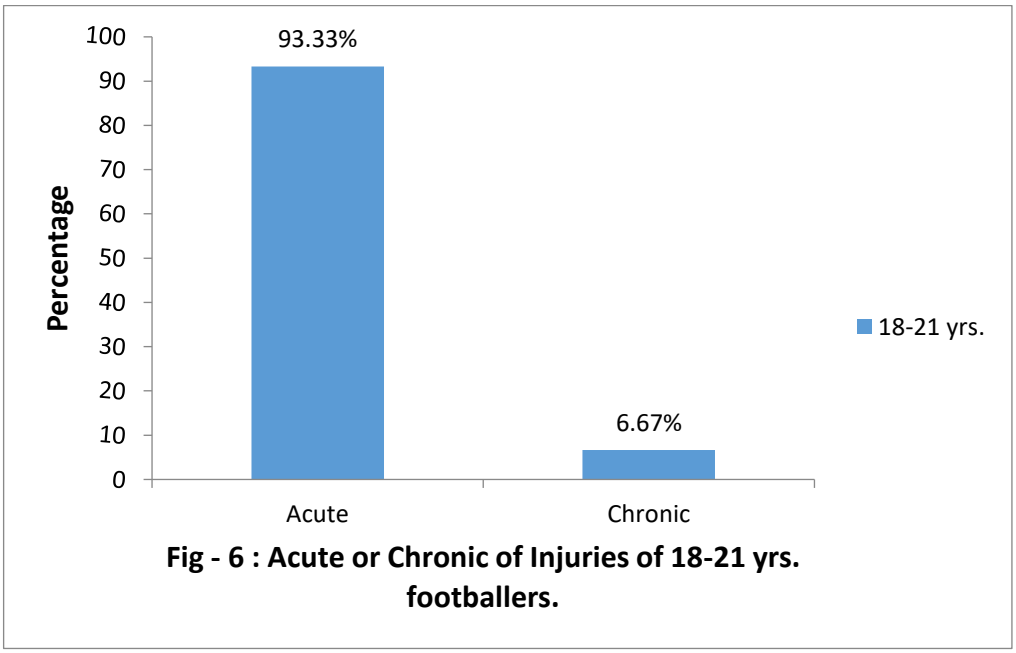


Fig - 6 : Acute or Chronic of Injuries of 18-21 yrs. footballers.

Figure – 6: Shows that 93.33% footballers had acute injuries whereas 6.67% footballers had chronic injuries.

(C) 22-25 years group:

The graphic type of injures and their percentage of injuries among 22-25 years footballers are depicted in figure 7.

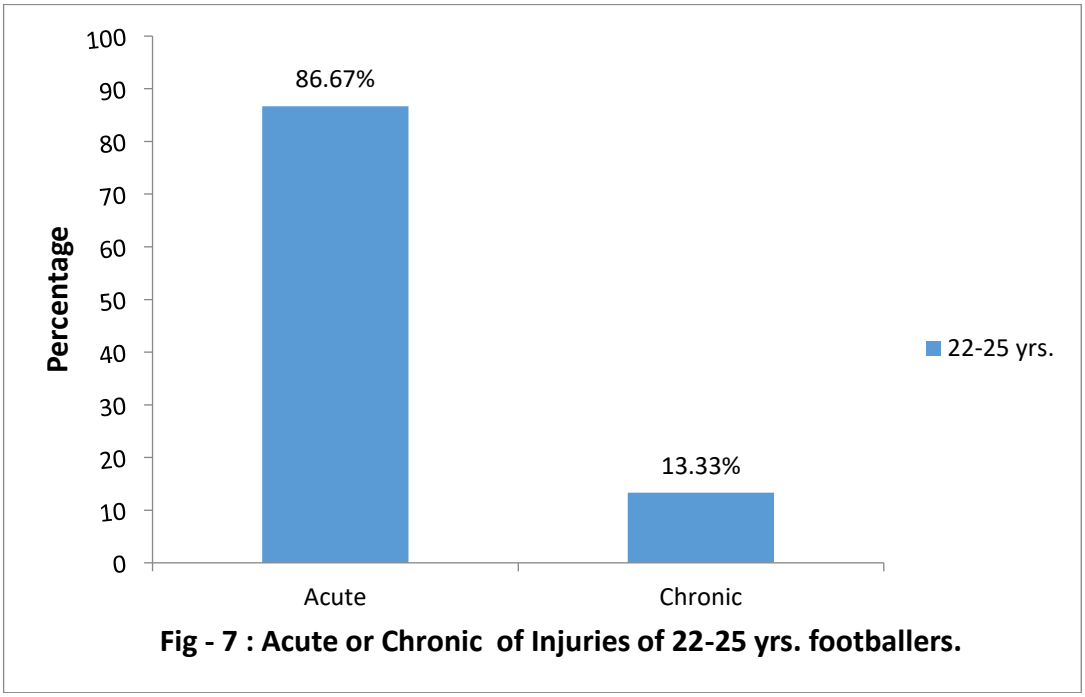


Fig - 7 : Acute or Chronic of Injuries of 22-25 yrs. footballers.

Figure 7: Indicates that 86.67% footballers had acute injuries whereas 13.33% footballers had chronic injury.

(D) 26-30 years group:

The graphic type of injures and their percentage of injuries among 26-30 years footballers are depicted in figure 8.

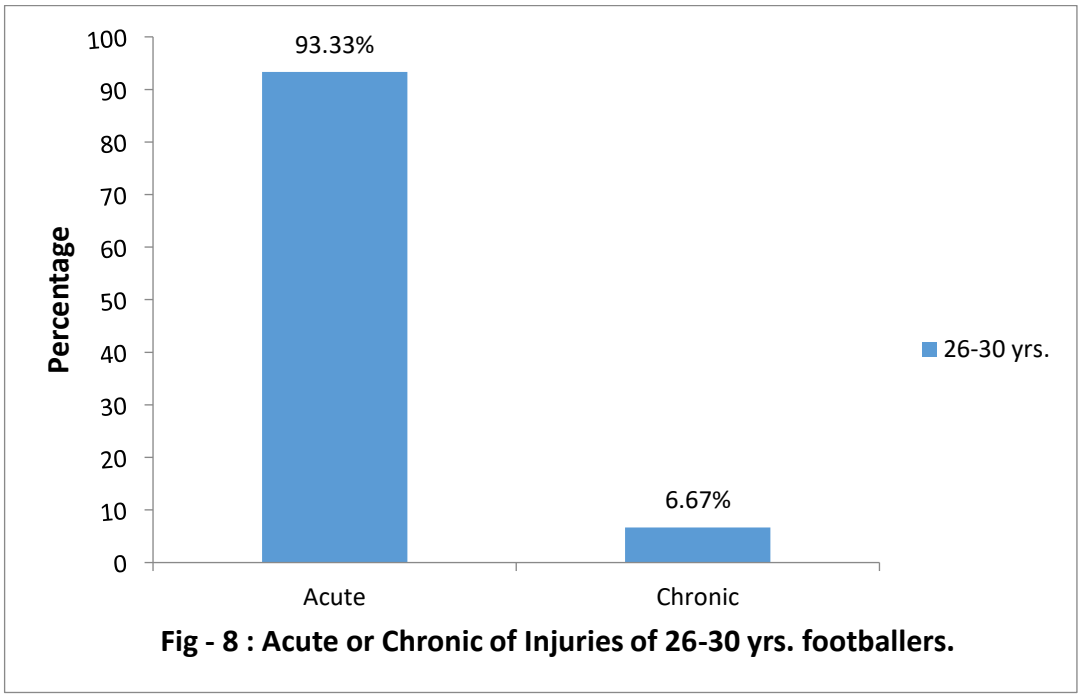


Figure 8: Reveals that 93.33% footballers had acute injuries whereas 6.67% had chronic injuries.

3.1.4. Recurrence of Previous Injury:

A) 14-17 years group:

The graph of recurrence of previous injury and their percentage of goalkeepers are depicted in figure 9.

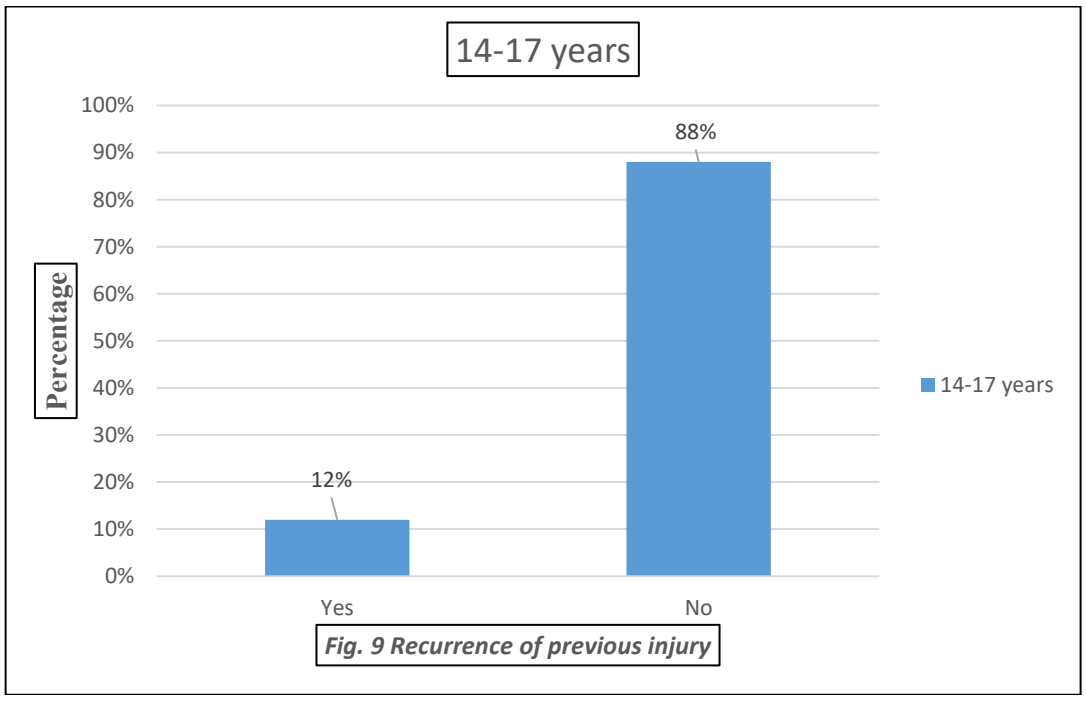


Fig.9 Recurrence of previous injury of 14-17 years group

Fig.9 Reflects that out of 30 footballers of 14-17 years group, 12% had recurrence of previous injury but 88% had not found the recurrence of previous injury.

B) 18-21 years group:

The graph of recurrence of previous injury and their percentage of 18-21 years group is depicted in figure 10.

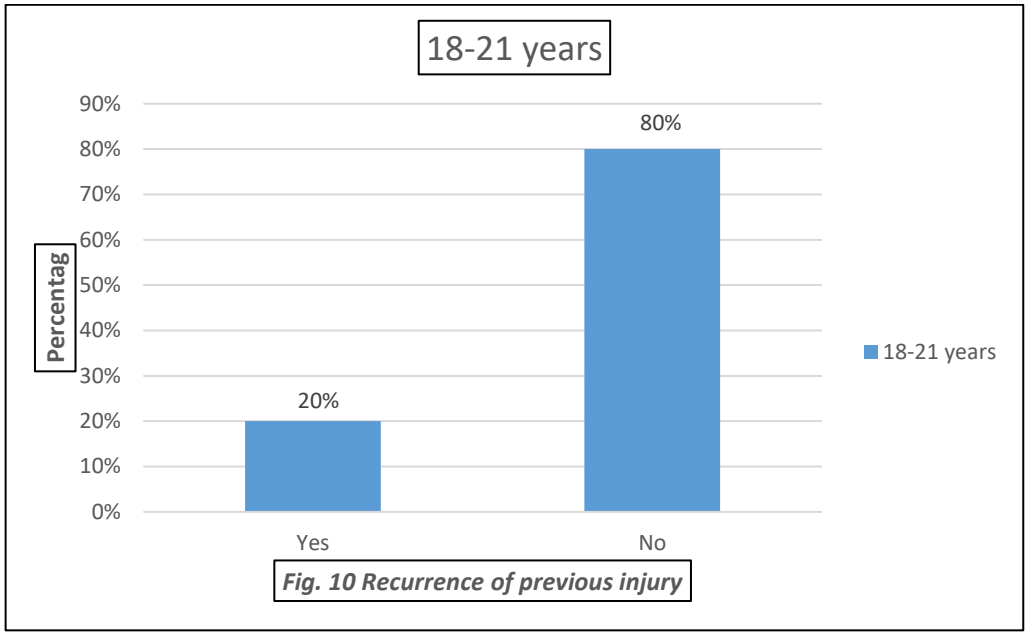


Fig.10 Recurrence of previous injury of 18-21 years group

Fig. 10 shows that out of 30 footballers of 18-21 years group, 20% had recurrence of previous injury whereas 80% had not found the recurrence of previous injury.

C) 22-25 years group:

The graph of recurrence of previous injury and their percentage of 22-25 years group are depicted in figure 11

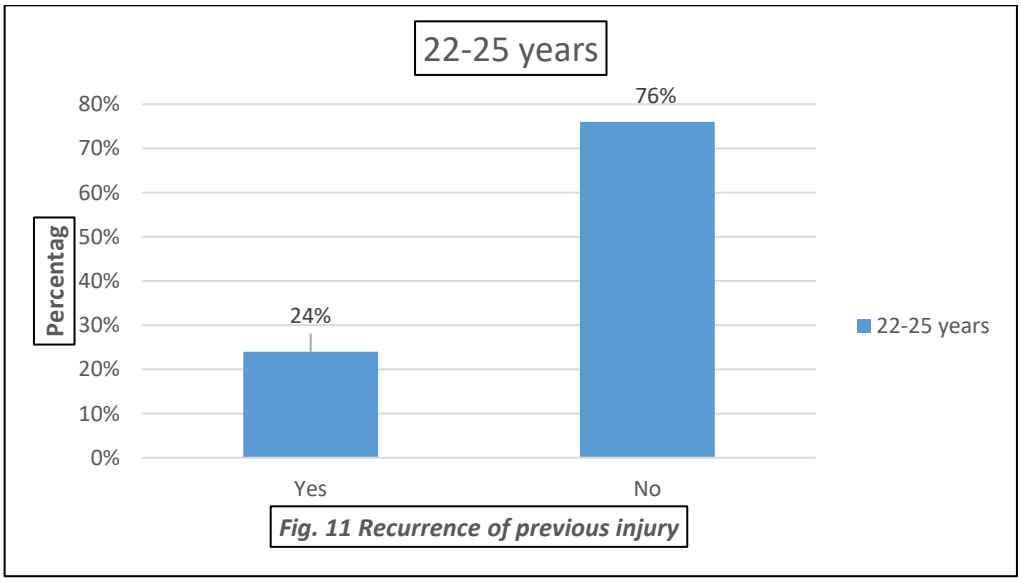


Fig.11 Recurrence of previous injury of 22-25 years group

Fig. 11 shows that out of 30 footballers of 22-25 years group 24% had recurrence of previous injury but 76% had not found the recurrence of previous injury.

D) 26-30 years group:

The graph of recurrence of previous injury and their percentage of 26-30 years group is depicted in figure12.

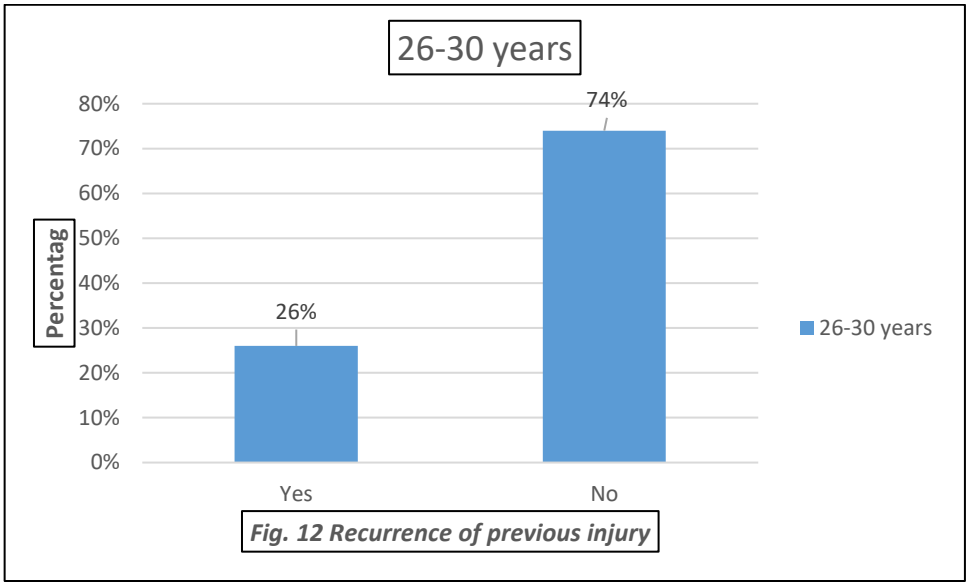


Fig.12 Recurrence of previous injury of 26-30 years group

Fig. 12 indicates that out of 30 footballers of 26-30 years group 26% recurrence of previous injury whereas 74% had not found the recurrence of previous injury.

3.2 Discussion on Findings

1. Nature of Football Injury in respect of age groups

In the present study it has been observed that the four different age groups of football players had common nature of injuries like muscle, ligament and bone. In respect of the ligament injury, the 26-30 years group footballers were higher rate (70%) followed by 18-21 years group (60%), 14-17 years group (56.67%) and 22-25 years group (53.33%). Similar partial result found by the other leading researchers such as Cromwell et al (2000) conducted a pilot study for examining injuries in elite footballer and result showed that muscle in 33% injuries, ligament in 32% injuries, tendon in 16% injuries and fracture in 5% injuries. Howkings & Fuller (1998) conducted a prospective epide miological study of injuries in four English professional football club (1994-1997), result represent that strains in 41%, Sprain in 20%, contusion in 20% major types of injuries. In respect of the ligament injury, the 26-30 years Footballers group was higher rate (70%) in comparison to other groups. Brito, et al. (2012) conducted a study on injuries in Portuguese youth soccer player over the 2008-2009 season and observed that muscle strain were most common injuries among the u-19 (34%), U-17 (30%) and U-15 (34%) age group.

The former investigation had some limitations in scope which was not depicted with accordance to age related football injury. So, many more studies are required to offer manifold opportunities to inspect the nature of injury of football players in comparison to age. So, from the above discussion, it is opined that the football player in respect of specific age along with their growth spurts and maturation status is consider providing training load systematically and scientifically under the expert coaches with the proper training environment that will help to prevent injuries in competitive environment.

2. Type of Football Injury in respect of age groups

In the present study it has been observed that the four different age group football players had acute injury much more than chronic injuries. Jordan (1996) conducted a study Acute and chronic brain

injuries in United State National team and result showed that soccer player relates more to acute head injuries. Woods (2002) conducted a detailed analysis of preseason football injuries sustained in English professional footballer over two competitive season and found that player is greater risk of overuse injury. The finding of the present study in similar path with the other leading researches.
But, the previous investigation had some dearth of information in connection with age wise type of football injury. So, need more studies are required to find out the acute and chronic injury report of football players in respect with age. Therefore, appropriate treatment along with rehabilitation is most important consideration in football game in respect of all ages.

3. Recurrence of previous injury in respect of age groups

Recurrence of previous injury is the very common in football players in all age. From the present study it has been found that four different age related football players had commonly suffered from recurrence of previous injury. In respect of recurrence of previous injury 26-30 years group was higher in rate for (26%) followed by 22-25 years group (24%), 18-21 years (20%) and 14-17 years (12%), so far football age specific group is concerned. These results are in similar with Hawkins, R.D. and Fuller, C.W. (1999) concluded that out of the total injury 22% were counted reinjuries. Cromwell, F, Walsh J., Gormley J (2000) showed that 35 % injuries were of the recurrent nature is also a cause for concern. Martin Hägglund (2007) noticed in his investigation that 30% re-injury sustained of football players.
Thus, from the above discussion, it is of general opinion that the injury history, appropriate treatment and rehabilitation of previous injury, physiological condition, coping with social competitive environment and psychological condition of the players are major factors for the recurrence of previous injury. The pronouncements of this investigation would necessarily step for the prevention of recurrent injury and provide information to the players, coaches and all football lovers.

4. CONCLUSION

In the present study findings of the related variables are discuss in details. However, considering the limitation of the present study and on the basic of finding, the following specific conclusion may be drawn –

1. Nature of injury

In the present study it has been observed that the most common natures of different age groups football injury were ligament, muscles, bone and cartilage.

A) **Nature of injury of 14-17 Years Football Players Group:** The most common natures of injury of 14-17 Years Footballers were ligament (56.67%) and muscles (23.33%).

B) **Nature of injury of 18-21 Years Football Players Group:** The most common natures of injury of 18-21 years Footballers were ligament (60%) and muscles (30%). In respect of the muscle injury, the 18-21 years Footballers group was higher rate in comparison to other groups.

C) **Nature of injury of 22-25 Years Football Players Group:** The most common natures of injury of 22-25 years Footballers were ligament (53.33%), muscles (23.33%) and bone (23.33%). In respect of the bone injury, the 22-25 years Footballers group was higher rate in comparison to other groups.

D) **Nature of injury of 26-30 Years Football Players Group:** The most common natures of injury of 26-30 years Footballers were ligament (70%), muscles (13.33%) and bone (6.67 %). In respect of the ligament injury, the 26--30 years Footballers group was higher rate in comparison to other groups.

2. Type of injury

In the present study it has been observed that acute injure was more common and higher in rate than chronic injury among all four groups of footballers.

A) Type of injury of 14-17 Years Football Players Group: The acute injure rate was 83.33% and chronic injury rate was 16.67% of 14-17 years group Football players.

B) Type of injury of 18-21 Years Football Players Group: The acute injure rate was 93.33% and chronic injury rate was 6.67% of 18-21 years group Football players.
C) Type of injury of 22-25 Years Football Players Group: The acute injure rate was 86.67% and chronic injury rate was 13.33 % of 22-25 years group Football players.
D) Type of injury of 26-30 Years Football Players Group: The acute injure rate was 93.33% and chronic injury rate was 6.67% of 26-30 years group Football players.

3. Recurrence of previous injury

In the present study it has been observed that the Football players in all age groups had the risk of recurrence of previous injury.
A) 14-17 Years Football Players Group: The Recurrence of Previous Injury rate was 12% of 14-17 years group Football players.
B) 18-21 years Football Players Group: The Recurrence of Previous Injury rate was 20% of 18-21 years group Football players.
C) 22-25 Years Football Players Group: The Recurrence of Previous Injury rate was 24% of 22-25 years group Football players.
D) 26-30 Years Football Players Group: The Recurrence of Previous Injury rate was 26% of 26-30 years group Football players.
The investigation also concluded that the rate of injury recurrence increases with age.

5. ACKNOWLEDGEMENT

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