Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] . (2021). Haematoma and Haemorrhage Injuries in Football.
International Journal of Economic Perspectives,*15*(1),358–367.
Retrieved from https://ijeponline.org/index.php/journal/

Haematoma and Haemorrhage Injuries in Football

Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4]

[1]*Assistant Professor,*
Dept. of Physical Education and Sports Science, Manipur University
[2]*Assistant Professor,*
Dept. of Surgery, Regional Institute of Medical Science (RIMS), Imphal
[3]*Assistant Professor,*
Dept. of Anthropology, Presidency College, Government of Manipur
[4]*Research Scholar,*
Dept. of Physical Education and Sports Science, Manipur University

Abstract

The purpose of the study is to investigate and find out the variation in Haematoma and Haemorrhage traumatic injuries among the football players during match according to their positions, levels and stages of the tournament. From 61st Sir Churachand Singh KCSI-CBE Memorial Football Tournament (CC Meet) 2018-2019, 11th Manipur State League 2016 (MSL) Football Tournament and Thangjam Birachandra-Maipakpi Memorial 22nd -winners' Cup for Men Football Tournament, altogether 133 matches 798 (133 matches x 6 position) positions of the players consisting of state and national levels players in the entire tournaments are taken as source of subjects. The variations in the selected types of injuries are found to be statistically insignificant (P>0.05) between state level and national level matches in the study population. The notable variations in stage-wise injury rate of haemorrhage are found to be league (0.00±0.040), pre-quarter final (0.03±0.181) and semi-final (0.03±0.167) while their overall figure of 0.01±0.071. Out of the two types of injuries, haematoma (F=7.69; P<0.01) is found to be highly significant according to positions of the players in the tournaments viz., mid-fielder, striker, right-wing, left-wing, defender and goalkeeper. On the other hand, the variation in haemorrhage is observed to be statistically significant (P<0.05) with respect to the different positions of the players in the tournaments under study. Thus, it is concluded that variation in the Haematoma and Haemorrhage traumatic injuries among the football players of Manipur according to their position as well as stages of the tournament can be seen. Besides, it is also seen that the traumatic injuries in the football players who are playing at the national level are higher in the occurrence of injuries than the state level.

Keywords: Traumatic, Injuries, Haematoma, Haemorrhage, Football and Position.

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

INTRODUCTION

Sports are a very important part of our life. Some of the famous sporting activities include football, athletics, tennis, hockey, cricket and many more (Mary, 2019). Participation in sports has dramatically increased over the last three decades and sport related injury has increased proportionally. Sports injury surveillance classification systems have become increasingly popular during this time to gather information on these injury types, rates, mechanisms, and risk factors (Ashley K. Crossway, 2017). The term sports injury, in the broadest sense, refers to the kinds of injuries that most commonly occur during sports or exercise (Carol Eustice, 2020). Sports injuries are common in younger adults and children. More than 3.5 million children and teens are injured as part of an organized sports or physical activity each year, estimates Stanford Children's Health. One-third of all injuries in children are related to sports, too (David Heitz, 2018).

Meanwhile, football is the most popular sport worldwide (Hagglund M. 2009). Football is a complex sporting activity, placing great demands on agility and involving most different movement patterns, such as jumps, sprints or side cut manoeuvres that are frequently performed at high to maximal intensity. The substantial physiological demands and the body contact between players account for the generally high injury incidence in this sport (I. Shalaj, 2016). It is also a complex contact sport that involves relatively high risks and rates of injury in professional, amateur and youth players during practices and matches (Daniel Pfirrmann, 2016). The game began in England in the 12th century but Edward II banned it in 1324. His successor Edward III in 1939, Richard II in 1389 and Henry IV IN 1401, as also the Scottish rulers forbade people from playing football. The monarchs could not stop the interest of people and started taking a lenient view and football became popular, at least in the public schools. It is an intermittent sport that uses walking, jogging, running, and sprinting. Now, football has become one of the most widely played sports in the world. It is characterized by short sprints, rapid acceleration or deceleration, turning, jumping, kicking, and tackling. Football may be played competitively or for fun, as a career, a means of keeping fit or simply a recreational pursuit.

Traumatic injury is a term which refers to physical injuries of sudden onset and severity which require immediate medical attention. The insult may cause systemic shock called "shock trauma", and may require immediate resuscitation and interventions to save life and limb (University of Florida Health, 2020). Sports trauma can be defined as the injuries caused while playing sports events like cricket, football, hockey, rugby etc. It can result from an acute trauma. These injuries are caused due to not warming up the bodies properly or by improper stretching before playing. Sports injuries can also cause due to overuse of a particular body parts like shoulders and ankles.

Whereas, haematoma is a localized collection of blood outside the blood vessels, usually in liquid form within the tissue. This distinguishes it from an ecchymosis, which is the spread of blood under the skin in a thin layer, commonly called a bruise. Chronic expanding haematoma of soft tissue is a rare entity. It is characterized by its persistence and by its increasing size for more than a

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

month after the initial hemorrhage. (Chang Haw Chong, 2012). A muscle haematoma can develop in athletes especially after a muscle tear or contusion. The most common area to see these injuries is the quadriceps muscle group of the leg. The quadriceps muscles are the large muscle on the anterior thigh commonly injured in contact sports such as football. There are two common types of muscular haematomas; one that occurs within the muscle itself (intramuscular) usually due to direct impact and the other that occurs between the muscles (inter muscular) typically due to a muscle tear. Many times a superficial haematoma can be apparent within the first 24 hours, however, in patients that have persistent or severe pain out of proportion for a simple contusion a deeper haematoma should also be considered. Thus, the present is focused to investigate and to check the variation in injuries of the football players during match according to the positions, levels and stages of the tournament.

HYPOTHESES

Hypotheses of the present study are as follows:

1) There would be a significant difference in the Haematoma and Haemorrhage traumatic injuries among the football players of Manipur according to their position as well as stages of the tournament.
2) There would be more traumatic injuries in the football players who are playing at the national level than the state level.

DEFINITION AND EXPLANATION OF TERMS

Haematoma:

A haematoma is a collection of blood, usually clotted, outside of a blood vessel that may occur because of an injury to the wall of a blood vessel allowing blood to leak out into tissues where it does not belong. The damaged blood vessel may be an artery, vein, or capillary; the bleeding may be very tiny, with just a dot of blood, or it can be large and cause significant blood loss (Charles Patrick Davis, 2016).

Haemorrhage:

A haemorrhage may be "external" and visible on the outside of the body or "internal," where there is no sign of bleeding outside the body. Bleeding from a cut on the face is an external hemorrhage. Bleeding into the spleen or liver are examples of internal hemorrhage (William C. Shiel Jr., 2018).

METHODOLOGY

Source of Subjects

The male footballer has been taken as subjects who are currently participated in the following tournaments viz. 61st Sir Churachand Singh KCSI-CBE Memorial Football Tournament (CC Meet)

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

2018-2019, 11th Manipur State League 2016 (MSL) Football Tournament and Thangjam Birachandra-Maipakpi Memorial 22nd -winners' Cup for Men Football Tournament respectively.

Selection of Subjects

Subjects are selected from the footballers of different clubs who are participated in the tournaments organized by All Manipur Football Association (AMFA) i.e. 61st Sir Churachand Singh KCSI-CBE Memorial Football Tournament (CC Meet) 2018-2019, 11th Manipur State League 2016 (MSL) Football Tournament and Thangjam Birachandra-Maipakpi Memorial 22nd-winners' Cup for Men Football Tournament 2017.

Altogether there are 133 matches for the entire tournaments. In these 133 matches there are 798 (133 matches x 6 position) positions of the players consisting of state and national levels players in the total Team or Club. All the 133 matches were observed by directly visiting to the football field during the tournament.

Selection of Variables

For the purpose of the study, the following variables were selected. The variables are as follows:

1. Haematoma
2. Haemorrhage

Selection of Tools

For investigation of the present study observation method has been adopted to find out the injuries of the subject with the help of the medical team assigned in the tournament. Whenever the injury is occurred and treatment on first aid by the medical expert is required, the opinion and identification of injuries by the medical team is being recorded.

Collection of Data

The data collection was started through cross-sectional mode. Simple random sampling without replacement (SRSWOR) was adopted as sampling technique. The data of the present investigation was taken from the major tournaments held under the aegis of All Manipur Football Association (AMFA) viz. 61st Sir Churachand Singh KCSI-CBE Memorial Football Tournament (CC Meet) 2018-2019, 11th Manipur State League 2016 (MSL) Football Tournament and Thangjam Birachandra-Maipakpi Memorial 22nd-winners' Cup for Men Football Tournament 2017.

The relevant data are collected from the venue of the Tournament itself which is being conducted at Polo Ground, Khuman Lampak main Stadium and Artificial Turf Ground. The necessary data in terms of injuries which is selected for the present study are noted wherever it is applicable by watching and witnessing every match of the Tournament.

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

Statistical Procedure

The data were analyzed through classical statistics like mean, SD, T-test, ANOVA-F. Level of significance was taken at 0.01 and 0.05.

RESULTS AND FINDINGS

The statistical technique employed for analyzing the data and findings of the study of the selected traumatic injuries of the present study with reference to football players of Manipur are reflected as follows.

DIFFERENTIAL IN LEVEL-WISE INJURIES WITH TYPES

Generally, football or soccer is a complex contact sport that involves relatively high risks and rates of injury in professional players during practices and matches. International football bodies are concerned about the pressure on elite and professional soccer players and the increased mental and physical demands leading to injuries. Soccer injuries are associated with player age, exercise load, level of play, standard of training etc. In this small section, it is investigated to check the variation in injuries of the football players namely, haematoma and haemorrhage during match according to the levels of tournament – state and national. The variations in the selected types of injuries are also found to be statistically insignificant (P>0.05) between state level and national level matches in the study population. It is shown in Table -1

Table –1

Level wise average number (mean±S.D) of injury with types

Level	Types of Injury	
	Haematoma	Haemorrhage
State	0.06±0.236	0.00±0.070
National	0.07±0.256	0.01±0.073
Total	0.06±0.241	0.01±0.071
Test value (t)	**0.50**	**0.06**
P-value	**>0.05**	**>0.05**

Despite statistical insignificance, the average number of haematoma (0.07±0.256) and haemorrhage (0.01±0.073) experienced by a player with position are found higher in national level than that of state level (haematoma: 0.06±0.236 and haemorrhage: 0.00±0.070) while their overall average of 0.06±0.241 and 0.01±0.071 respectively. The graphical presentations of the differentials in the injuries clustered by two levels are manifested in Figure –1

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

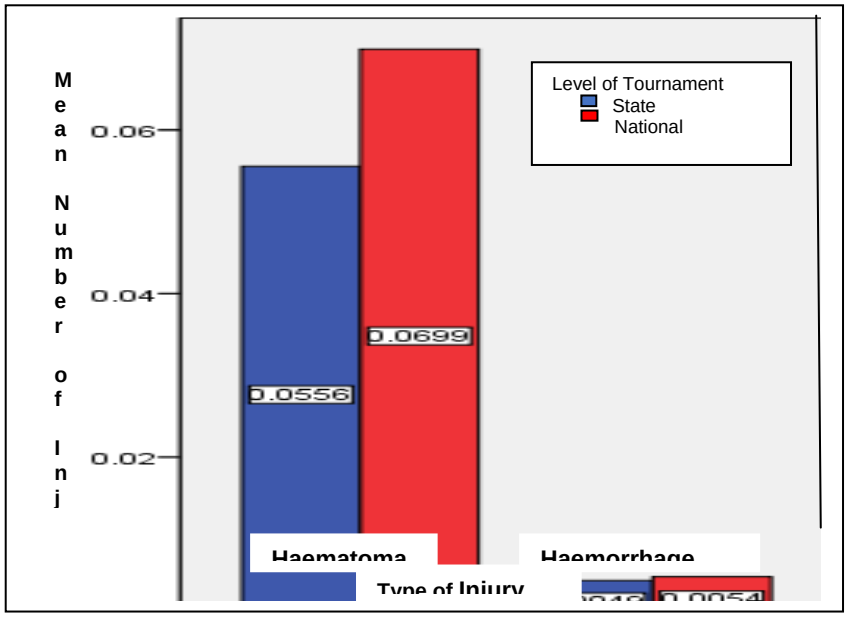

Figure –1: Differential in level-wise Injury according to

DIFFERENTIAL IN STAGE-WISE INJURIES WITH TYPES

The stage-wise variation in the average number of injuries is also analysed here for both the types of injuries namely, haematoma and haemorrhage according to five stages of tournament - league, pre-quarter final, quarter-final, semi-final, and final. The variation in the number of haemorrhage experienced by the football players is observed to be highly significantly varied with stage of tournament. It is witnessed by the value of test statistics (F=3.86; P<0.01) manifested in Table -2 The notable variations in stage-wise injury rate of haemorrhage are found to be league (0.00±0.040), pre-quarter final (0.03±0.181) and semi-final (0.03±0.167) while their overall figure of 0.01±0.071. The differentials in the stage-wise rate of haematoma and haemorrhage may be verified at-a-glance in Figure –2 to Figure -3

Table –2

Stage wise average number of injury with types

Stage	Types of Injury	
	Haematoma	Haemorrhage
League	0.06±0.239	0.00±0.040
Pre-Quarter Final	0.05±0.220	0.03±0.181
Quarter Final	0.06±0.245	0.00±0.000
Semi-final	0.08±0.280	0.03±0.167
Final	0.07±0.261	0.00±0.000
Total	0.06±0.241	0.01±0.071
Test value (F)	**0.151**	**3.861**
P-value	**>0.05**	**<0.01**

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

While the average number of Haematoma experienced by the players in a position is 0.06±0.241, the highest rate of 0.08±0.280 is observed in the stage of semi-final followed by the final with 0.07±0.261 and the lowest figure of 0.05±0.220 is noted in the pre-quarter final.

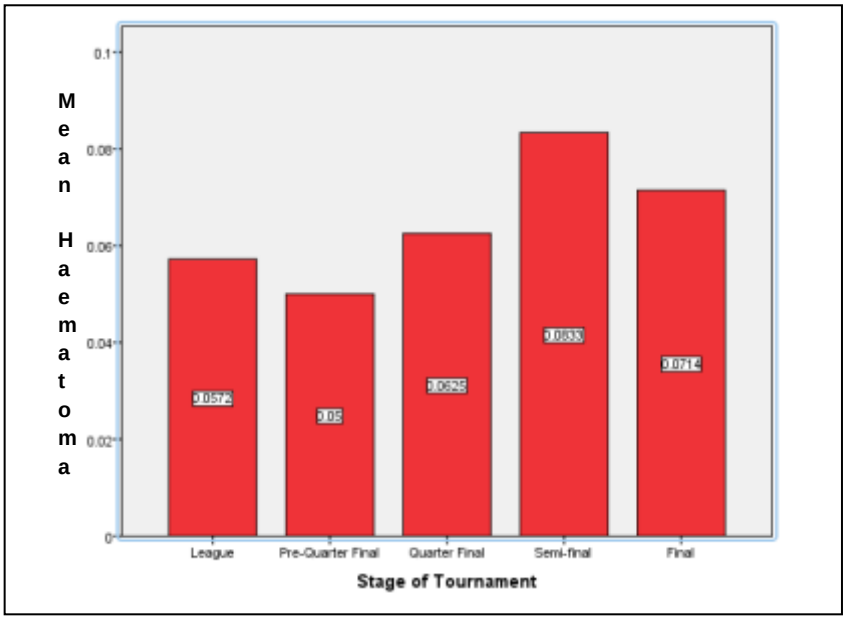

Figure –2: Differential in Haematoma with respect to different stages

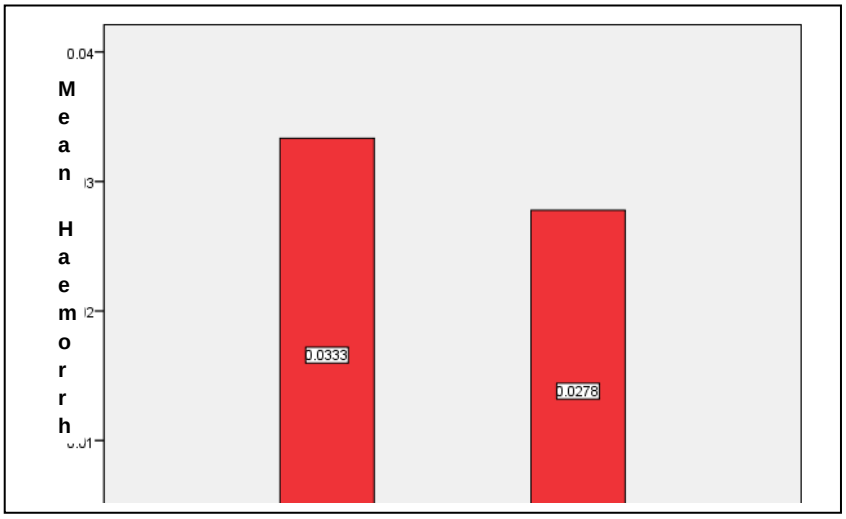

Figure –3: Differential in Haemorrhage with respect to different stages

DIFFERENTIAL IN POSITION-WISE INJURIES WITH TYPES

In the previous section, the variation in average number of haemorrhage experienced by the football players under observation is highly significant (P<0.01). The position-wise variation in the average number of injuries is analysed for both the selected different types of injuries namely, haematoma and haemorrhage. The variations in the number of types of injury namely hematoma and

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

haemorrhage experienced by the football players are found to be significantly varied with positions of the players in the tournaments under study. Out of the two types of injuries, haematoma (F=7.69; P<0.01) is found to be highly significant according to positions of the players in the tournaments viz., mid-fielder, striker, right-wing, left-wing, defender and goalkeeper. On the other hand, the variation in haemorrhage is observed to be statistically significant (P<0.05) with respect to the different positions of the players in the tournaments under study. It is noted in Table -3.

Table -3
Position wise average number of injury with types

Stage	Types of Injury	
	Haematoma	Hemorrhage
Mid Fielder	0.04±0.191	0.00±0.000
Striker	0.13±0.335	0.02±0.149
Right Wing	0.05±0.224	0.00±0.000
Left Wing	0.01±0.087	0.00±0.000
Defender	0.13±0.357	0.01±0.087
Goalkeeper	0.00±0.000	0.00±0.000
Total	0.06±0.241	0.01±0.071
Test value (F)	**7.694**	**2.522**
P-value	**<0.01**	**<0.05**

The highest rate of haematoma is observed to be (0.13±0.357) in defender position followed by 0.13±0.335 in striker position and the smallest average (0.01±0.087) of haematoma is noted in left wing position. However, no haematoma is experienced by goalkeeper in the tournaments under analysis while their overall average of 0.06±0.241. The patterns of variation in the average number of injuries experienced by the players of all positions have been depicted graphically using simple bars in Figures – 4 to Figures - 5

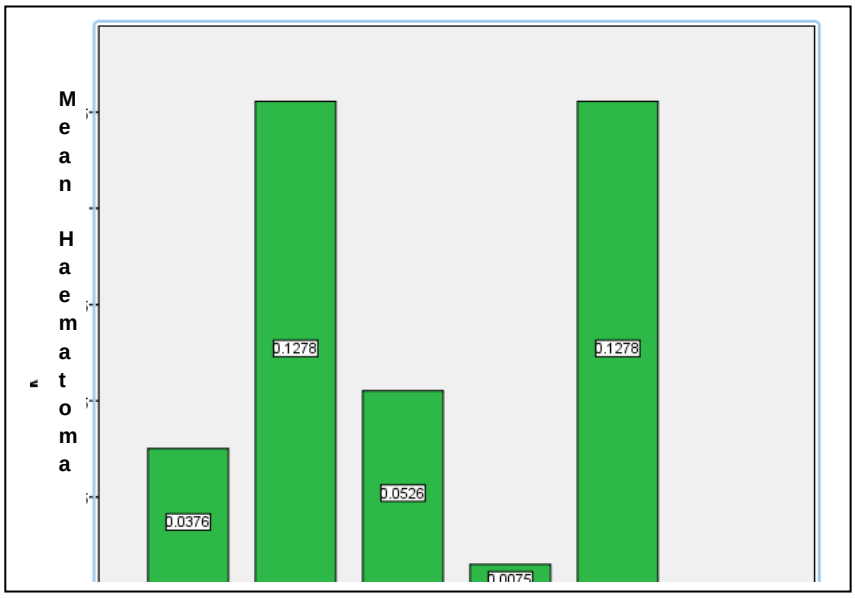

Figure –4: Differential in Haematoma with respect to different positions

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

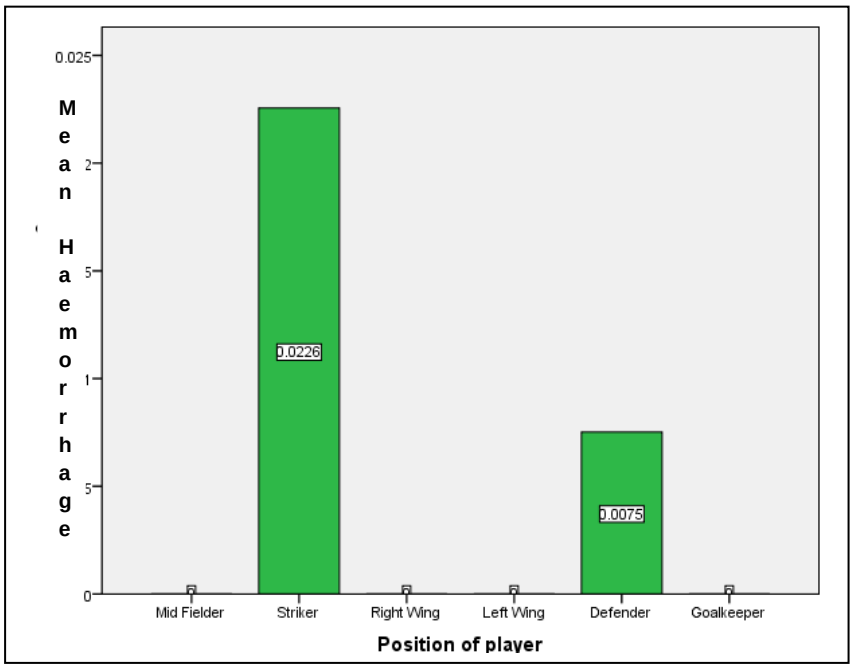

Figure –5: Differential in Haemorrhage with respect to positions of player

CONC

Based on the findings, the following conclusions are made:

1. Both the haematoma and haemorrhage traumatic injuries are found higher in national level than that of state level.
2. The highest rate of haematoma is observed by the players in the stage of semi-final followed by the final match.
3. The variations in the types of injury namely hematoma and haemorrhage experienced by the football players are found to be significantly varied with positions of the players.

REFERENCES

Carol E. (2020). 8 Common Types of Sports Injuries.Verywell Health.

Chang H.C. (2012). A Football Injury – Organizing Haematoma Mimicking as a Leg Cancerous Tumour. *HC Chang Orthopaedic Surgery, Singapore.*

Crossway, A.K., Games, K.E., Eberman, L.E., &Fleming N. (2017). "Orchard Sports Injury Classification System 10.1 Plus: An End User Study" *International Journal of Exercise* Science. 10, 284-293.

David H. (2018). Everything You Need to Know About Sports Injuries and Rehab. *Healthline.*

Fuller, C. W., Ekstrand, J., Junge, A., Andersen, T. E., Bahr, R., Dvorak, J., Hägglund, M., McCrory, P., &Meeuwisse, W. H. (2006). Consensus statement on injury definitions and data collection procedures in studies of football (soccer) injuries. *British journal of sports medicine*, *40*(3), 193–201.

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,

Hagglund, M., Walden, M.,&Atroshi, I. (2009). Preventing knee injuries in adolescent female football players - design of a cluster randomized controlled trial.*BMC Musculoskeletal Disorders, 10*.

Hawkins, R.D.,& Fuller, C.W. (1999). A prospective epidemiological study of injuries in four English professional football clubs.*British journal of sports medicine, 33*, 196–203.

Junge, A., Dvorak, J., Graf-Baumann, T., & Peterson, L. (2004). Football injuries during FIFA tournaments and the Olympic Games, 1998-2001: development and implementation of an injury-reporting system. *The American journal of sports medicine*, *32*(1), 80S–9S.

Pfirrmann, D., Herbst, M., Ingelfinger, P., Simon, P., & Tug, S. (2016). Analysis of Injury Incidences in Male Professional Adult and Elite Youth Soccer Players: A Systematic Review. *Journal of athletic training*, *51*(5), 410–424.

Shalaj, I., Tishukaj, F., Bachl, N., Tschan, H., Wessner, B., &Csapo, R. (2016). Injuries in professional male football players in Kosovo: a descriptive epidemiological study. *BMC Musculoskeletal Disorders, 17*, 338.

LINK

https://ufhealth.org/traumatic-injury

Corresponding author: Dr. Maibam Chourjit Singh[1], Dr. Chetan Maibam[2], Dr. H. Jibonkumar[3] and Athokpam Manoranjan Singh[4] .
Submitted: 27 Nov 2021, Revised: 09 Dec 2021, Accepted: 18 Dec 2021,