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ORIGINAL ARTICLE

The Comparison of BMI in Cricket, Football and Hockey Athletes: A comparative cross-sectional Survey

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Author`s Contribution

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A B S T R A C T

Background: BMI is majorly used to measure overweight and obesity level in population. BMI is major contributor to athlete activity and injuries can be predicted from BMI of athlete. The ALT and creatinine level is correlated with BMI of sports person. In this study BMI level was measured in male athletes from Cricket, Football and Hockey of different clubs.

Objective: The objective of the study is to compare the BMI in Cricket, football and hockey players

Methodology: A cross-sectional survey was used and sampling technique of the study was Non Probability Convenience sampling. The sample size of the study was 80 athletes after inclusion criteria. The inclusion criteria of the athlete were age of 20-35 years of Cricket, Football and Hockey players and having minimum 3 months experience in the relevant sport. The data was collected from different clubs of Lahore, Pakistan. After collection of the data, the data was entered and analyzed through SPSS-16. BMI was calculated by dividing Height (m) by Weight (kg) of the participants.

Results: Out of 80 athletes most of them have normal BMI (18.6-24.9). The mean of height was almost same for all three sports. The weight of cricket players was highest. The overall mean value of BMI was (22.49±3.25).

Conclusion: If we categories three sports than hockey player's fall in normal BMI than football and football had more perfect BMI than cricket.

Introduction

The materialistic features and individual's body make up are the primary factors for brilliance in sportsmen's achievements.[1] The particular sports incidents need various athletic bodies to gain topmost achievements.[2] The sports person in cricket, football and hockey acts like scoots/darts and bounce during strike. The small and extended acts have been done through the whole game and these precise actions require proper fitness and ability of athletes to perform these acts.[3] The estimation of BMI of sports-persons assists to increase competitive actions and examine the achievements of exercise procedures that's why it has significant concern to athletes.[4-6] The biomedical marker and BMI are interlinked with each other. The biomedical markers such as creatinin and ALT raise after the activity in sports players. A study conducted by Giuseppe Banfi (2012) reported that BMI of a player impect on liver and kidney function. He reported that there is posititve correlation between ALT and creatinine.[7] A research was conducted by Nudri, Ismail, & Zawiak (1996) to evaluate the anthropometric calculations and body make up of sports-persons. The sample size is 84 sportsmen from 10 different categories of sports and 24 sports-women from five categories of sports. The SEGA weighing balance was used to calculate weight of individual and it was bind to height measuring tool. NSC standardized rules were

used to choose sports-men and women for this research. BMI was also measured from each person. The results of this research show that there is no significant variation in BMI of the sports-person from various sports.[2] Another study was conducted by Deba Pasad Sahu (2015) to compare BMI of Hockey and Cricket players. The saple size was 40, 20 from Hockey and 20 from cricket. He found significant difference in BMI between Hockey and cricket players.[8] The individual's body make-up, the anthropometric symmetry and grammatical features perform essential functions in evaluation of sportsperson.[9, 10] The BMI and injury are assocated with each other in sports players. A study conducted by Phillip A. Gribble (2015) on foot ball players concluded that those players who had greater BMI are more prone o ankle sprain injury.[11] The BMI is calculated by dividing the Weight to Height. BMI finding can lead to manage the practice sessions, diet etc according to their fitness level. Each sport which consists on a team of players, there are various positions which are assign to different players. These specific areas require proper physical, psychological and sometimes genetic make-up of a player. [12]

The objective of the study is to find out in which sport BMI in higher and in which sports BMI is lower. To find out which sports players are more overweight, underweight and with normal BMI.

Methodology

The Cross-sectional survey was used for this research. Convenience sampling (non-probability sampling technique) was used and the Sample Size of the study were 80 players from cricket, football and hockey. The inclusion criteria was male athletes of different sports (Age 20-35years) and at least 3 months working / training / practicing or playing in the field. The exclusion criteria was disable athletes, any medical pathology and banned / resting athletes.

The cricket athlete's data is collected from Township Whites Cricket Club, Bilal Cricket Club and Model Town Cricket Club. The data of football players is collected from Al-Faisal Football Club Zafarwal and Township Football Academy Lahore. The hockey player's data is collected from National Hockey Academy Qaddafi Stadium Lahore.

The SEGA weighing balance is used to measure weight without shoes and guard. Stadiometer is used to measure height of athlete bare footed.

Results

(Table I) shows mean of Age, Height, Weight, BMI in cricket, football and hockey athletes with mean±SD. mean height for cricket is (1.73±0.15), mean height for football is (1.71±0.87), mean height for hockey is (1.72±0.07), and mean value of height of all 3 sports is (1.72±0.11).

Mean weight for cricket is (69.36±6.16), mean weight for football is (67.00±7.62), mean weight for hockey is (66.62±4.83) and overall weight mean value is (67.71±6.37).

Mean BMI for cricket is (21.87±4.29), mean BMI for football is (22.99±2.95), mean BMI for hockey is (22.64±1.99) and overall mean value of all 3 sports is (22.49±3.25).

(Table II) Have data about BMI level in all 3 sports. There are 4 categories of BMI Underweight (<18.5), Normal (18.6-24.9), Overweight (25-30) and Obese (>30).[13] Out of 80 sample size 28 (35.00%) are cricket players, 27 (33.75%) are Football players and 25 (31.25%) are Hockey players. Out of 28 Cricket athletes 2 (7.1%) are lie in Underweight category, 22 (78.6%) are at Normal level of BMI, 4 (14.3%) are lie in Overweight and no one is Obese. Out of 27 Football athletes 2 (7.4%) are in Underweight category, 22 (81.5%) lie in Normal BMI level, 2 (7.4%) are in Overweight category and 1 (3.7%) is Obese. Out of 25 Hockey athletes no one is in

Table I: Shows mean physical characteristics of Cricket, Football and Hockey Athletes with Mean±SD

Type of sports	n	Age (yr)	Height (Meter)	Weight (kg)	BMI (kg/m²)
Cricket	28	23.12±3.18	1.73±0.15	69.35±6.15	21.86±4.28
Football	27	23.44±2.06	1.71±0.08	67.00±7.61	22.98±2.95
Hockey	25	23.16±2.36	1.72±0.07	66.62±4.83	22.64±1.99
Mean		23.16±2.36	1.72±0.10	67.70±6.37	22.48±3.25

Table II: Shows BMI in Cricket, Football and Hockey Athletes.

Sports categories	n	Categories of BMI			
		Under-weight (BMI <18.5)	Normal (BMI 18.5-24.9)	Overweight (BMI 25-29.9)	Obese (BMI >30)
Cricket	28	2	22	4	0
Football	27	2	22	2	1
Hockey	25	0	22	3	0
Total %age		4 (5%)	66 (82.5%)	9 (11.2%)	1 (1.2%)

Underweight category, 22 (88.0%) lie in Normal BMI level, 3 (12%) have Overweight and no one lie in obese category.

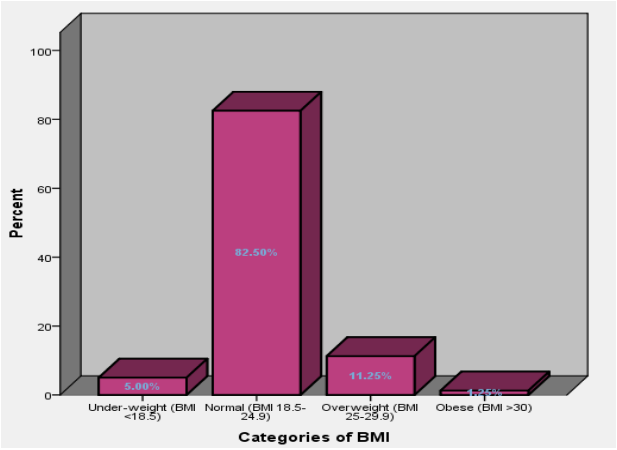

Figure 1. Shows frequencies of BMI in cricket, football and Hockey players

Discussion

The mean heights of cricket, football and hockey in this study are (1.72m±0.11) which is very similar to previous studies of male athletes. In the study, done by Zawiak and Ismail (1996)[2] the mean height value was (1.73m±0.09) and these values resemble to those values those were published by Myphew, Piper and Holmes (1981). [14]

In this study, the mean value of BMI of cricket, football and hockey athletes is (22.49±3.25). This is very similar to those values (22.9±3.9) that were obtained Zawiak and Ismail (1996). [2]

In this study most of the athletes lie in normal BMI range only few are overweight or underweight. By comparing three sports than Result shows that there was no difference in height but there is significance difference in weight. The mean weight of cricket was highest, than football and the hockey is at lowest mean weight. It means that a person with high weight can play cricket but for football and hockey a person with high weight can had difficulties. Deba pasad sahu in 2015 found that there is no difference in weight of cricket and hockey players.[8]

The mean value of BMI of athletes in all three sports is almost similar there is no significant variation. Deba pasad sahu in 2015 found that there is significant difference in BMI of cricket and hockey players.[8] If we look for overweight, underweight and normal categories. The result showed that football and cricket had equal percentage of underweight category but there was no underweight player in hockey. In normal weight category hockey was at high percentage of normal weight than come football and cricket was in last. Cricket players are more overweight and football players are less overweight.

Conclusion

The conclusion is that if we categories three sports than hockey had more perfect BMI than football and football had more perfect BMI than cricket. Those athlees who have higher body weight, their BMI also higher. So, we can say that if we can maintain weight of athletes we can maintain their BMI level. In last overweight is more acceptable in cricket but in football and hockey there is limited acceptance for overweight.

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