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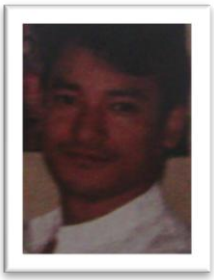
Peak Expiratory Flow Rate (PEFR) Among Selected National Level Male Players of Chandigarh



Th. Nandalal Singh
Assistant Professor,
Deptt.of Physical Education,
Panjab University,
Chandigarh

Harmandeep Kaur
M.Phil.Student,
Deptt.of Physical Education,
Panjab University,
Chandigarh

Abstract

The purpose of the present study was to compare the peak expiratory flow rate among selected national level male football, basketball and hockey players. For the purpose of the study, sixty (N=60) national level male players (twenty for each game) from Chandigarh (UT) were selected as subjects of the study by using stratified random sampling technique. The age of the subjects ranged between 19-25 years. To find out the significance differences selected national level male football, basketball and hockey players, one way ANOVA was used with the help of SPSS software. Further Scheffe's post-hoc test was applied to see the direction and significance of differences where 'F' ratio was found significant. The level of significance chosen was .05. Significant difference was obtained on peak expiratory flow rate among selected national level male players. Basketball players demonstrated significantly better than football and hockey players on peak expiratory flow rate.

Keywords : Male Players, Football, Hockey, Basketball, Peak Expiratory Flow Rate.

Introduction

Since different activities make different demands on the organism relating to neurological, respiratory, circulatory, metabolic and temperature. Studies provide evidence that physiological components effects individuals' capacity for exercise, training and performance. The peak expiratory flow rate (PEFR) is the maximum flow rate attained during a forced expiration after a maximum inspiration.

The traditional view of the role of lung function in sport is that it does not limit athletic performance in normal individuals. This view is too simplistic and required modification in the light of advances in knowledge in this field. In our experience at least 15- 20 per cent of athletes suffer from abnormalities of breathing which place a significant restriction on their ability to undertake endurance work. Usually this is unknown to the individual but in the majority of cases can be corrected if diagnosed. In order athletes the development of lung function improves economy which, in turn, results in better performance. Lung function is most critical in situations where the ventilation rate is maximal and the athlete is operating close to the respiratory break point.

Daily stretching of the adult lung and respiratory muscles over a 5-week period as occurs during programs of specific respiratory muscle training have been shown to elicit small but significant increase in vital capacity and peak flow. In general, lung volume and capacities change very little as the result of physical exercise. It does appear that vital capacity may increase slightly during maximal exercise, but this may be related to the slight exercise decrease seen in residual volume.

Objective of the Study

The objective of the study was to compare the peak expiratory flow rate among selected national level male football, basketball and hockey players.

Methodology

For the purpose of the study, sixty (N=60) national level male players (football=20, basketball=20 and hockey=20) from Chandigarh (UT) were selected as subjects of the study by using stratified random sampling technique. To peak flow meter was used to measure the peak expiratory flow rate (PEFR). To find out the significance differences among national

level players on peak expiratory flow rate, Analysis of Variance (ANOVA) was computed with the help of SPSS software. Further Scheffe's post-hoc test was used to see the direction and significances of differences where 'F' ratio was found significant. For testing hypothesis, the level of significance chosen was 0.05.

Figure-I: Peak Flow Expiratory Rate Measurement

Findings

Descriptive analysis of peak expiratory flow rate among national level male football, basketball and hockey players is presented in table-1.

Table-1
Descriptive Analysis of Selected Different Three Games on Peak Expiratory Flow Rate

Variable	Group	N	Mean	Std. Deviation	Std. Error
Peak expiratory Flow Rate (PEFR)	Football	20	534.00	61.25	13.69
	Basketball	20	552.00	55.59	12.43
	Hockey	20	491.50	40.94	9.15

The Analysis of Variance (ANOVA) among national level male football, basketball and hockey players on peak expiratory flow rate is presented in Table 2.

Table-2
ANOVA of Selected Different Three Games on Peak Expiratory Flow Rate

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
Peak Expiratory Flow Rate	Between Group	38603.333	2	19301.667	**6.797***	.002
	Within Group	161855.000	57	2839.561		
	Total	200458.333	59			

**Significant at .05 level*
$F_{.05}$ (2, 57) = 3.15

Table-2 clearly indicates that there was no significant differences among national level male football, basketball and hockey players on peak expiratory flow rate since the obtained 'F' values at 0.05 level was 6.797 whereas, value needed to be significant was 3.15. Since the ANOVA was found significant, the Scheffe's post-hoc test was applied to find out which of the difference of the means amongst the group were statistically significant. The data related to this are presented in table-3.

Table-3
Significant Differences between the Paired Means of Peak Expiratory Flow Rate among Different Three Age Groups

VARIABLE	GROUPS			MEAN DIFFERENCE	Sig.
	Football	Basketball	Hockey		
Peak Expiratory Flow Rate	534.00	552.00		18.00	.290
	534.00		491.50	42.50*	.014
		552.00	491.50	60.50*	.001

Table 3 clearly indicates that the significant differences existed between football and hockey & basketball and hockey on peak expiratory flow rate since the value obtained were 42.50, and 60.50 respectively. No significant difference was obtained between football and basketball since the value obtained was 18.00. Mean scores of different three games on peak expiratory flow rate is graphically depicted in figure-3.

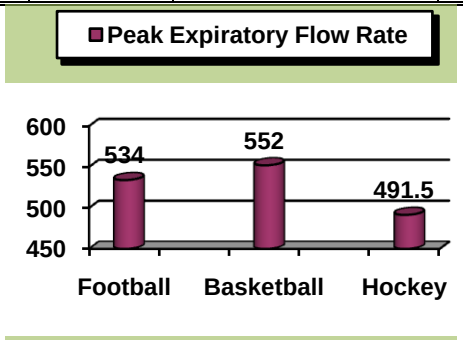


Fig: 2. Graphical Representation of Mean Scores of National Level Male Football, Basketball and Hockey Players on Peak Expiratory Flow Rate

Discussion of Findings

The finding of the study showed that there was no significant difference obtained on peak expiratory flow rate among selected national level male players. Basketball players demonstrated significantly better than football and hockey players on peak expiratory flow rate. It may be attributed to the fact that the body structure of basketballers is dissimilar when compared with football and hockey players. Hence, the three different selected games were differed significantly.

Conclusion

In the light of the findings and limitations of the present study the following conclusions were drawn:

1. Significant difference was found among national level male football, basketball and hockey players on peak expiratory flow rate.
2. Basketball players were performed significantly better on peak expiratory flow rate than their counterparts.

References

1. Hoffman, J. (2002). Physiological Aspects of Sport Training and Performance. United State: Human kinetics.
2. Idelle, M. Weisman, R. Jorge Zeballos (2002). Clinical Exercise Testing. Switzerland: S. Karger AG.
3. Marieb, N. E. (2006). Essentials of human anatomy and physiology. (10th Ed.). San Francisco: Pearson Benjamin Cummings.
4. McArdle, W. D., Katch, F. I., & Katch, V. L. (2006). Essentials of exercise physiology (3rd ed). Philadelphia, PA: Lippincott Williams & Wilkins.
5. Moser, Dr. M. (1994). High blood pressure: treat it for life. United State: Diane Publishing Company.
6. Watson, A.W.S. (1995). Physical fitness and athletic performance. (2nd edition). New York :Routledge
7. White, G. C. (2013). Basic clinical lab competencies for respiratory care: an integrated approach. (5th Ed.) New York: Delmar Cengage Learning.
8. Wilson, K. J. W. & Ross, J. S. (1987). Anatomy and physiology in health and illness. Edinburgh: Churchill Livingstone.