

Comparative Assessment on Physiological and Psychological Variables Among Different Format of Soccer Games

Dr. Manoj Kumar Murmu¹, Dr. Limon Kumar Saha²

^{1,2}Assistant Professor, Post Graduate Government Institute for Physical Education, North 24 Parganas, West Bengal, India

ABSTRACT

The goal of this analysis was to compare among small sided different format of soccer players on selected Physiological parameter and psychological variable from different club of West Bengal. Thirty subjects (N=30) having age range from 16 to 19 years, (average of their ages 17.57 ± 1.43 years, average of their heights 171.18 ± 5.16 cm, average of their body weights 68.15 ± 4.21 kg and average of their sports experiences 4 years) who must have participated at different format of soccer games in different clubs in West Bengal voluntarily participated in this study. The physiological capacity measurements of players in this study were determined by VO_2 max test. The psychological variable was measured by Self-esteem scale. “F” test statistical procedure was taken and analysis of variance was set at 0.05% level of confidence. In order to find out the comparison of selected variables in different formats among soccer players from different clubs, the One-way Analysis of Variance (ANOVA) was applied. In comparison of VO_2 max and Self-esteem level, it was statistically found that there was no significant difference among different format of Soccer players ($P > 0.05$).

Keywords: Small sided soccer games, VO_2 max, Self Esteem, Soccer

INTRODUCTION

Soccer is most widely played team sports in the world and is characterized by the player's abilities of short sprints, rapid acceleration or deceleration, turning, jumping, kicking and tackling (Balsom et al., 1999), increasingly high dynamics, the number of direct one on one plays, motor preparation, mental preparation, technical as well as tactical skills of a player (Bangsbo & Krstrup, 2008). Soccer is a strenuous game demands a high degree of physical fitness as well as intelligence. Alertness of mind, speed, strength, agility, balance and flexibility are the basic qualities for all the elite soccer players (Rink, 1987). Sports scientists and sports experts laid emphasis on quality rather than quantity to extract maximum achievements from training procedures. Not only the technical, physiological and physical development of a player, the sports scientists are also making efforts to develop the intellectual ability of the soccer players. A player must be prepared both physically and mentally for better performance throughout the match. The essence of soccer match comprises of multi directional physical activities integrated with an array of technical skills (Bradley et al., 2009; Wallace & Norton, 2014).

The movements, frequently changing situations and playing pace in soccer require players to generate energy from different sources through aerobic and anaerobic metabolism (Oh et al., 2011). Short

exercises performed by players at maximal and high intensity (sprinting, striding) dominated by anaerobic energy processes are intertwined with activities of moderate and low intensity (walking, jogging) characterized by aerobic energy processes. However, match playing time, exercise intensity and the percentage of time devoted to the performance of particular activities clearly indicate that soccer match performance is dominated by the aerobic metabolism (Andrzejewski et al., 2013). Low intensity exercise and rest periods during a match, lasting from a few to more than ten seconds, are necessary for muscle relaxation, body recovery and lactate utilization (Spencer et al., 2005). A high level of players' aerobic fitness (VO₂ Max.) enhances all these reactions and physiological biochemical processes (Gharbi et al., 2015). Maintaining top performance throughout a tournament requires from players a high level of aerobic endurance, speed and strength (Hoff & Helgerud, 2004).

METHODOLOGY

SELECTION OF SUBJECTS

The subject of the study was consisted of Thirty subjects (N=30) having age range from 16 to 19 years, (average of their ages 17.57±1.43 years, average of their heights 171.18±5.16 cm, average of their body weights 68.15±4.21 kg and average of their sports experiences 4 years) who must have participated at different format of soccer games. The sample will further divide in three categories of five-a-side, seven-a-side and nine-a- side soccer games. Group 1 (n = 8) performed only the five-a-side game situation. Group 2 (n = 10) performed only the seven-a-side game situation while Group 3 (n = 12) performed only the nine-a-side game situation. Before measurements, the information was given to players about measurement protocols.

SELECTION OF THE VARIABLES

DEPENDENT VARIABLES

Hence the following variables was considered as dependent variables.

Physiological Parameters

VO₂ Max

Psychological Variable

Self Esteem

Table – I CRITERION MEASURES AND TOOLS USE

VARIABLES/PARAMETERS		TESTS	UNITS
Physiological	VO _{2max}	Yo-Yo Endurance test (Rampinini et al., 2007) https://www.theyoyotest.com/results.htm	ml/kg/min
Psychological	Self Esteem	Self-esteem scale by Dr. Santosh Dhar and Dr. Upinder Dhar	Numbers

RESULT

Table – II ANALYSIS OF VARIANCE AMONG DIFFERENT FORMATS OF SOCCER PLAYERS WITH RESPECT TO VO_{2max}

Different formats	Mean	SOV	S. S	DF	MS	F	Sig.
Five-a-side	50.51	B	2.456	2	1.228	0.598	0.557
Seven-a-side	50.18						
Nine-a- side	50.85	W	55.410	27	2.052		

From the table - II it is seen that VO_{2max} mean score of Five-a-side Soccer players is 50.51, Seven-a-side Soccer players is 50.18 and Nine-a-side Soccer players is 50.85. received “F” ratio was 0.598 which was not significant at 0.05 level. It was evident from table that there was a no significant difference among Five-a-side, Seven-a-side and Nine-a-side Soccer players on the scores of VO_{2max}, since the obtained ‘F’ value is 0.598 was lower than required table value at 0.05 level ($P > 0.05$).

Table – III ANALYSIS OF VARIANCE AMONG DIFFERENT FORMATS OF SOCCER PLAYERS WITH RESPECT TO SELF ESTEEM

Different formats	Mean	SOV	S. S	DF	MS	F	Sig.
Five-a-side	82.42	B	24.531	2	12.265	0.411	0.667
Seven-a-side	81.68						
Nine-a- side	84.37	W	805.449	27	29.831		

From the table - III it is seen that Self Esteem mean score of Five-a-side Soccer players is 82.42, Seven-a-side Soccer players is 81.68 and Nine-a-side Soccer players is 84.37. received “F” ratio was **0.411** which was not significant at 0.05 level. It was evident from table that there was a no significant difference among Five-a-side, Seven-a-side and Nine-a-side Soccer players on the scores of Self Esteem, since the obtained ‘F’ value is **0.411** was lower than required table value at 0.05 level ($P > 0.05$).

DISCUSSION

This study aims to compare the Max VO₂ and Self Esteem levels of soccer players according to their different formats of soccer games. Maximum oxygen consumption (MaxVO₂) is the most reliable test to determine maximal aerobic capacity. The high aerobic capacity of the player depends on the oxygen that he/she used per unit of time. The high performance of the player in endurance sports are related to his/her MaxVO₂ values (Akgun, 1994). The comparison of the aerobic capacity according to different formats of soccer games in our study, it was determined that MaxVO₂ levels of different formats are not significant ($P > 0.05$).

Astrand and Rodahl (1987) determined that MaxVO₂ level differs according to sex, body and genetic type, weight and condition of the player. On the other hand, one might still expect that regular soccer training should improve some of these skills. In accordance with earlier studies (Hennessy and Watson, 1994; Helgerud and Wisloff, 1999), the results in the present study also show that aerobic training does not have a negative impact on the strength, speed, and jumping ability. In addition, maximal kicking velocity was not altered by the training protocol, in agreement with previous research showing that improved rate of force development or improved coordination seems to be the trigger mechanism behind velocity development (Almasbakk and Hoff, 1996; Hoff and Almasbakk, 1995).

The results of the study clearly stated that, players of different format of soccer games have not significantly differ on Self Esteem. Team sports help in development of friendship, camaraderie, cooperation, teamwork skills, leadership skills, appreciation of different abilities, respect, a sense of belonging, social interaction skills, self-esteem and self-concept, team goalsetting skills, self-discipline, patience and persistence and resilience through sharing positive and negative experience (Wani and Gopinath, 2019).

CONCLUSION:

Soccer it's a multidirectional in nature but may not have the same positive effect where a direction of force production is dominant. The present study indicated that soccer players display high intensity levels when participating in small-sided games.

Within the limitation of the present study concluded that there was no significant difference found among different formats of soccer Players on Max VO₂ and self-esteem.

REFERENCES

1. Akgun, N. (1994). Egzersizvesporfizyolojisi (5. Baskı), Ege Unviversitesi. Basımevi, Cilt 1, Izmir.
2. ALMASBAKK, B., and J. HOFF. Coordination, the determinant of velocity specificity? J. Appl. Physiol. 80:2046 –2052, 1996.
3. Astrand, P. O., & Rodahl, K. (1987). Textbook of work physiology. Mc Graw-Hill, Singapore, 304-308.
4. Chatterjee, R., & Bandopadhyay, K. (2018). A comparative study on selected physiological profile of positional football players. *International Journal of Physiology, Nutrition and Physical Education*, 3(2), 598-601.
5. Chen, Z. H., Chen, J. F., & Chang, H. C. (2012). The relationships between physical fitness, emotional intelligence and academic achievement in a junior high school in Taiwan, Asia. *Pacific Journal of Sport and Social Science*, 1(2-3), 186-196.
6. Dupler, T. L., Amonette, W. E., Coleman, A. E., Hoffman, J. R., & Wenzel, T. (2010). Anthropometric and performance differences among high-school football players. *Journal of strength and conditioning research*, 24(8), 1975-1982.
7. Faycal, K. M., Kheiredine, B., Mohamed, B. M., & Mathivanan, D. (2018). A critical evaluation on Algerian footballers in developing a standard criterion in physical selection and their playing position in football. *International journal of physical education, sports and health*, 5, 19-24.
8. HENNESSY, L. C., and A. W. S. WATSON. The interference effects of training for strength and endurance simultaneously. *J. Strength Cond. Res.* 8:12–19, 1994.
9. HOFF, J., and B. ALMÅSBAKK. The effects of maximum strength training on throwing velocity and muscle strength in female team handball players. *J. Strength Cond. Res.* 9:255–258, 1995.
10. HOFF, J., J. HELGERUD, and U. WISLOFF. Maximal strength training improves work economy in trained female cross-country skiers. *Med. Sci. Sports Exerc.* 6:870–877, 1999.
11. Singh, S. N., Prakash, M. V., Bisht, M. S., & Rai, M. M. (2011). A study of comparison of aerobic, anaerobic and body composition of defenders and attackers of hockey players. *International Journal of Current Research*, 3(4), 47-52.

12. Toner, M. K. (1982). The Relationship of Selected Physical Fitness, Skill and Mood Variables to Success in Female High School Basket Ball Candidates. *Dissertation Abstracts International*, 42, 3909.
13. Wani A A and Gopinath V. Comparison of aggression among different team game players of khelo India under 17 boys (2019). *International Journal of Physiology, Nutrition and Physical Education* 2019; 4(1): 1664-1667.