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A Study on Physical Fitness Components of Football Players

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Abstract – The purpose of this paper was to examine the relationship between physical fitness components; football skills and playing ability of football players. Some information regarding the purpose of this research is given by means of literature review. The subjects of this study, football players performance test on selected physical fitness tests as recommended by Nagerkoti (1989) namely, a) Five hops with right foot and left foot, b) 40 meters sprint test, c) 6 X 10 meters shuttle run test, d) 2.4 KM running test, e) Bend and reach flexibility test; six Soccer skill tests used which is recommended by the Portuguese Football Federation namely, Ball juggling (ball control with the body), Ball juggling (ball control with the head), dribbling with a pass, speed dribbling, passing and shooting and Playing ability of the players will be judged by three experts, by seven point scale and the average of all three scores will be taken as playing ability score of the subject for this study. The reliability of tests was determined through test-retest method, applying all the tests twice with the gap of one month between tests. The correlation between physical fitness tests, football skill tests and playing ability was examined, which showed that all skill tests were having significant related with physical fitness tests and playing ability. The physical fitness tests have significant relation with playing ability. The results of the study enable us to conclude that the playing ability is depending upon the football skills and physical fitness abilities of the players.

Keywords: Physical Fitness, Components, Football Players, information, performance, etc.

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INTRODUCTION

Physical fitness plays a very important role in a normal individual as well as in an individual who is there participating in some kind of sports events. There are different kinds of sports and games which are performed all over world some are related to each other but some are entirely different. So to perform there different kind of sports event physical fitness is an essential component which should be possessed by a player, individual has lacked his physical fitness due many new inventions and now is totally dependent upon various machines for his daily works, yes it's true that it saves times but at last these has some sort of adverse effects on physical fitness and wellbeing of an individual. To improve physical fitness of an player training plays a very important role, as the techniques which are given in training to a player improves the players performance give positive effects to his performance in events. The ability of a sportsman to bear things plays a vital role in his performance. Physical fitness is a very important concept of physical education and can't be neglected, it is a very important determinant, (Suresh, 2011), for a high level of efficiency in techniques and tactics in most sports, a high level of physical fitness is most important. So for making selection in sports physical fitness is the most important factor and can't be neglected, (Vishaw Gaurav, 2011) made an investigation to compare physical fitness variables and superior to physical fitness variables compared to other district boys. In another similar study [Bompa T 2006] found in an investigation that individual games athletes had significantly higher muscular strength, agility, power, speed and cardiovascular endurance ($p<0.01$) than team games athletes. Further investigations are needed on the above studied variables along with physiological variables to assess relationships among them and with performances in team games and individual games athletes.

REVIEW OF LITERATURE:

Physical fitness is the ability to carry out daily tasks with vigor and alertness, without undue fatigue, and with ample energy to engage in leisure pursuits and to meet emergency situations. (Battaglia et. al., 2014) determined performance indices of a repeated sprint test (RST), and examine their relationships with performance indices of a repeated jump test (RJT)

and with aerobic fitness among trained Football Players. No significant correlations were found between performance indices of the RST and RJT. Significant correlations were found between PD, IS, and TS in the RST protocol and predicted peak VO2. No significant correlations were found between performance indices of the RJT and peak VO2. The findings suggest that a selection of repeated activity test protocols should acknowledge the specific technique used in the sport, and that a distinct RJT, rather than the classic RST, is more appropriate for assessing the anaerobic capabilities of Football Players. The findings also suggest that aerobic fitness plays only a minor role in performance maintenance throughout characteristic repeated jumping activity of a Football game (Sterkowicz-Przybycien et. al., 2014) identified fitness and game performance profiles, assessed the relationship between these profiles, and also assessed the relationship between individual player profiles and team performance during play. They showed a relationship between both types of profile. Then, linear regression revealed a moderate relationship between the number of players with a high Football Players fitness profile and a team's results in the championship. They concluded that their findings may enable coaches and trainers to manage training programs more efficiently in order to obtain tailor-made training, identify Football-specific physical fitness training requirements and reach better results during competitions (Dal Pupo et. al., 2014) examined factors contributing to jump performance in professional Australian Rules Football (ARF) players. Physical measures included mass, height, age, lower body strength, and eccentric utilization ratio and leg stiffness. The HC group demonstrated a higher CMJ velocity and CMJ power when compared to the LC group. Further, the HC group demonstrated 7.5% higher Kleg than the LC group. Spearman's rho correlations demonstrated moderate-large relationships between jump height and strength, velocity and power, while the regression analysis revealed velocity was the sole predictive variable of jump performance. Jumping performance clearly differs within a group of professional ARF athletes. Movement velocity appears to be an important factor contributing to jump performance; however, lower body power and Kleg are also important for jump performance (Battaglia et. al., 2014) evaluated the influence of 3 years of sport-specific training background (SSTB) on vertical jumping and throwing performance in young Football players. They reported that During SJ and CMJ with and without arm swing VP group showed a higher vertical jump performance than BP and C ones. In particular we showed that VP exhibited a higher flight time and jump height than C in SJ, CMJ and CMJ-AS tests. Players showed higher performances than C in SCPT and SBOMBT. However, they found only a significant difference in the comparison between BP and C during SCPT. Moreover, we found significant correlations between SBOBMT performances and CMJ-AS jump heights in C and VP groups compared to BP one. They suggest that 3 years of SSTB might be able to promote significant neuromuscular adaptations in Football maximal power compared to age-matched control subjects (Sterkowicz et. al., 2014) investigated that whether and how age, body height, body mass, body mass index and results from fitness tests are related to sport skill level and gender of the participants of the Olympic Football tournament. They concluded that selection for national teams should take into consideration the players with long competitive experience with adequate weight/height ratios, who exhibit good training adaptations to jumping exercise (Dal Pupo J et.al., 2014) showed excellent test-retest reliability for the maximal jump height, mean vertical jump height and fatigue index. Peak lactate showed moderate reliability. Large correlations were found between the mean height of the first four jumps of CJ30 and the peak power of the Wingate, between the mean vertical jump height of CJ30 and the mean power of the Wingate and between the lactate peak of CJ30 and Wingate. A moderate correlation of fatigue index between CJ30 and the Wingate was found. The continuous jump is a reliable test and measures some of the same anaerobic properties as WAnT. The correlations observed in terms of anaerobic indices between the tests provide evidence that the CJ30 may adequately assess anaerobic performance level (Carling and Collins, 2014) placed more in the context of the physical testing and subsequent benchmark profiling of the youth player within elite academy talent identification and development processes. This point is further strengthened by the current media debate at the time of writing on the development of elite youth football players in England and the Elite Player Performance Plan or EPPP (Elite Player Performance Plan. London: Author) published by the English Premier League as part of a vision for the future development of youth football in the League and throughout the English professional game. The EPPP recommends the implementation of a national database to enable comparison of Academy player performances against national physical testing "benchmark" profiles. In continuing the above debate, this letter questions the real-world utility and potential pitfalls of nationwide athletic benchmark profiling programmes for elite youth football (Robertson S et.al. (2014) develop a physiological performance and anthropometric attribute model to predict Australian Football League draft selection. Data was obtained from three Under-18 Australian football competitions between 2010 and 2013. Logistic regression models showed multistage fitness test, height and 20m sprint time as the most important attributes in predicting Draft success. Rule induction analysis showed that players displaying multistage fitness test scores of >14.01 and/or 20m sprint times of <2.99s were most likely to be recruited. High levels of performance in aerobic and/or speed tests increase the likelihood of elite junior Australian football players being recruited to the highest level of the sport (Nikolaidis, 2013) examined the prevalence of overweight/obesity, and the relationship between body mass index (BMI), body fat percentage (BF) and physical fitness in adolescent and adult female Football Players. They

showed BMI cut-off points, 27.5% of adolescent and 12.3% of adult participants were classified as overweight, with the prevalence of overweight being higher in girls than in women. BMI was correlated with BF in both age groups. Normal participants had superior certain physical and physiological characteristics than those who were overweight. For instance, normal girls and women had higher mean power during WAnT than their overweight counterparts. Except for flexibility, BMI and BF were inversely related with physical fitness. The findings confirmed the negative effect of overweight and fatness on selected parameters of physical fitness. The prevalence of overweight in adolescent Football Players was higher than in general population, which was a novel finding, suggesting that proper exercise interventions should be developed to target the excess of body mass in youth Football clubs.

CRITERIA OF MEASUREMENT OF PHYSICAL FITNESS:

Muscular Strength: Strength is the ability to overcome resistance or to act against resistance (Carling, 2014). Maximal contraction power of the muscles is known as muscular strength. The muscular strength is usually measured with respect to individual group of muscles acting together. Muscular strength is tested with the help of dynamometers and/or densitometers which measure the amount of force exerted in a single effort by a particular group of muscles. The reliable and valid evaluation of hand strength provides an objective index of general upper body strength. The power grip is the result of forceful flexion of all fingers joint with the maximum voluntary force that the subject is able to exert under normal bio-kinetic conditions. The synergistic action of flexor and extensor muscles and the interplay of muscle group is an important factor in the strength of resulting grip. Many factors influences the strength of the grip, including muscles strength, hand dominance, fatigue, time of day, age, nutritional status, restricted motion and pain.

Muscular Endurance: The duration for which the muscle groups may perform work maximally is known as muscular endurance. Muscular endurance, depending upon the category of muscular wok, is also divided in two types: endurance of isometric and isotonic muscular contraction.

Cardiovascular Endurance: Cardiovascular endurance may be defined as the ability of heart and lungs to take in and to transport adequate amount of O2 to the working muscles for activities that involved large muscle masses to be performed over long periods of time. Cardiovascular endurance has many synonyms like cardio-respiratory endurance, circulatory respiratory endurance, cardiopulmonary endurance etc. (Woods, 2015) The direct testing of cardio-vascular endurance is made by measuring one's aerobic power or maximum oxygen uptake while indirectly it is measured with the help of long duration activities like middle/long distance running, cycling, swimming etc.

Speed: One's ability to perform successive movement of the same pattern at a fast rate is speed. Speed may also be defined as rapidity with which a movement or successive movements of the same kind may be performed by an individual. Speed of muscle contraction is an inherited quality but it can be greatly improved through training by proper techniques and practicing speedy movement and their proper coordination. Speed is measured by dividing distance by time in short runs.

Agility: The speed with which an individual may change his body positions or fastness in changing directions while moving is known as agility. It may be defined as one's controlled ability to change body position and direction rapidly and accurately.

Power: Ability to release maximum muscular force in an explosive manner in the shortest duration is known as muscular power, for example, standing broad jump or vertical jump performance.

CONCLUSION:

Physical fitness is an essential first and foremost criterion in every game. Without having physical fitness no one can elicit his amble performance level. Therefore it is essential to investigate that in Football game, the level of physical fitness is more essential. The purpose of this paper was to investigate the level of physical fitness of football player. On the basis of data collected football players physical fitness variables it was concluded that the physical fitness football players is better.

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