

A correlational study of components of motor fitness with football performance among football players of Rajasthan

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■ **ABSTRACT**

The high level football performance is the result of a multiple factors such as physical, motor abilities, constitutional mental abilities, high physiological work out put, technical and tactical efficiency etc. The present study deals to find the relationship between components of motor fitness with football performance. The present study is confined to 60 male school level football players who had played minimum at state level through random method of sampling. For the motor fitness test AAPHER Youth Fitness Test was used for measuring strength endurance, speed, power and agility and for football performance Warner's test was used. The mean S.D. and co-efficient of correlation was calculated for presenting the data statistically. The results revealed significant positive correlation of components of Motor Fitness with football performance. The results suggest that performance of football players largely depends on the speed, endurance, power, strength, power and agility. The present paper highlights the role of motor fitness components in good performance of football players.

■ **KEY WORDS** : Motor fitness, Strength, Speed, Power, Endurance, Agility

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Winning a medal in the Olympics, World Cup and other international competitions is not an easy task in the tough globalize world of football competitions. It is the long term plan in the clench of die-hard competitive football training. This has eventually compelled coaches, trainers, and all those concerned with the development of football to pick up children at an early young age in order to train them in long term planning for winning of the football competition in future. The search and selection of potential football players in the early age is matter of routine in many football developed countries. However, in India, this aspect has not been given serious consideration. The identification and

selection of future elite football players in childhood or adolescence has become a necessity (Cratty, 1991). It takes years of intensive regular training for and International performance to achieve. The children selected for elite football require suitable conditions and different exuberant facilities, hi-tech quality equipments, a rational style of life and the service of experts, physician, well-educated and experienced coaches, trainers etc.

High level football performance is the result of a multiple factors such as physical, motor abilities, constitutional mental abilities, high physiological work out put, technical and tactical efficiency etc. (Patel, 1985 and Chandrashekhar, 1991). The poor performance of

players at the higher competitions, not only concerns especially to the coaches, trainers and sports scientists, but it is also concerned directly to the player's inborn quality or natural ability. Numerous factors like skill abilities, motor abilities, psychological and physiological factors, social and environmental factors, etc. Are responsible as the performance limiting factors behind the football players on the marks of poor performance in major competitions. Natural ability is essential, but it needs to combine with good coaching with hi-tech modern facilities, hard work, and more challenging match experience. Therefore, the performance of excellent football players is the result of interactions of a number of these performance limiting factors, which includes high psychological and physiological demands. Not only is that traditional type social football culture of the society also very much important to create more football talent in the Indian scenario. It is distinguish that football is a game of psycho-physio-physical activity and highly influenced by traditional type football atmosphere.

Motor ability has been defined as the present acquired and innate ability to perform motor skills of a general or fundamental nature, exclusive of highly specialized sports and gymnastic techniques. This definition implies that motor ability is a result of innate capacity and diverse training and experience. Since motor ability is looked upon as a mosaic comprised of many components then each of these components must contribute interdependently in a successful performance of movement skill. However, there is no common agreement on what these components are. Test items are generally used in a battery to measure as many of these components as possible. Test administrative feasibility, however, discourages measurement of each of the factors independently.

The term motor fitness, while often used synonymously with physical fitness, was coined to include elements which involve more abilities than those basic physical fitness components yet was not to encompass the various neuromuscular coordination skills which make up general motor ability. Motor fitness takes into account efficiency of basic movements and therefore would involve such elements as power, agility, endurance, speed and strength.

Objectives :

The objectives are as follows:

- To study the components of motor fitness of

school level football players.

- To find the relationship between components of motor fitness and football performance.

Hypothesis :

There is no relationship between motor fitness components and football performance.

■ METHODOLOGY

Sampling :

The locale of the present study is confined to 60 male football players. The sample is selected through random method of sampling. The total samples drawn from the schools of Udaipur, Dungarpur, Banswara, Chittore and Sirohi Districts of Rajasthan. 10 players from each district only state level players are taken for the present research work. The selection of school state level players selected by random sampling method.

Tests and tools :

For motor fitness :

AAPHER Youth Fitness Test: It is a standardized test having high reliability and validity indexes. The following tests of AAPHER Youth Fitness test for measuring the physical health variables are administered:

Power	: Cardio-Respiratory Endurance- 800 Meters Run- and-Walk
Leg power	: Standing broad jump
Strength endurance:	Bent-Knee Sit-ups
Agility	: 4 × 10 meters shuttle run
Speed	: 50 meters run

For football performance :

Warner Test of Soccer Skills :

Warner test is to measure the basic and fundamental skills of soccer. The test items were evaluated by soccer coaches who rated them according to their importance and performance. Three main items is measured by this test are, Kicking for distance, Right Foot, Kicking for distance, Left Foot and Dribbling for Time. Fixed time period and chances are given to players and experts or soccer coaches rated them according to their performance out of 10 score on each dimension.

Collection of data :

The necessary data are collected through various measurement tools. The data's are collected at

playgrounds with the help of district football associations. The data regarding motor fitness are collected through standardized tools at their respective places of availability.

Statistical techniques :

The mean and S.D. scores were worked out. The relationship between motor fitness components and football performance is worked out through co-efficient of correlation.

■ OBSERVATIONS AND DISCUSSION

Table 1 showing mean and S.D. Scores of football players on components of physical fitness.

The Table 1 shows that Cardio Respiratory Endurance is highest among football players (percentile scores 75), then they have high level of Strength Endurance (Sit-ups percentile score 70) and Speed (50 yard dash percentile score 70). The agility is also found at marked level (4x10 mt. Shuttle run percentile scores 60) while they have normal level of explosive strength (standing broad jump percentile scores 50).

The Table 2 shows the correlation between physical fitness components and football performance (Warners Test Scores) and its significance level.

The Table 2 suggests that speed (50 mt. run) has highest correlation value of 0.93 (P<0.01) with football performance. As speed is an essential for successful performance in many motor activities thus in football game. In general, speed may be defined as the capacity of the individual to perform successive movements of the same pattern at a fast rate. In football game the rapidity of movement is affected by body weight, body

density, muscle viscosity, and such mechanical and structural features as length of limbs and flexibility of joints and if agility is high it can be said that the players with high agility perform better in football game.

The Table 2 also reflects that Cardio Respiratory Endurance (800 mt. Run walk scores) has very high correlation value of 0.87 (p<0.01) with football performance. Such high correlation is due to the result of a physiologic capacity of the individual to sustain movement over a period of time during playing the game football. The individual with endurance has the ability to continue successive respiratory movements. Naturally, the stronger person good performer is able to play over a longer period of time than the weaker person.

The Table 2 also reveals that agility (4x10 mt shuttle run scores) has highest correlation value of 0.81 (p<0.01) with football performance. Agility factor revealed by the ability of the body or parts of the body to change directions rapidly and accurately. Measures of this quality test the ability of the student to move quickly from one position in space to another. Agility involves co-ordinating quickly and accurately the bit muscles of the body in particular activity (Price, 1988). Theses rapid changes in movement patterns by the whole body or by some of its parts causes good performance in football game. The player’s level of agility is probably a result of both innate capacity and training and experience. It is revealed to great extent in football involving efficient footwork and quick changes in body position.

The Table 2 reveals that strength endurance (Bent Knee Sit-ups scores) has correlation value of 0.41 (p<0.01) with football performance. The individual with

Table 1 : Mean, S.D. and percentile scores on physical fitness components of football players

Physical fitness components	N	Mean	S.D.	Percentiles
800 meter run-walk (secs)	60	104.62	07.82	75
Standing broad jump (cms)	60	214.65	08.45	50
Bent knee sit-ups (numbers in 60 secs)	60	45.12	06.35	70
4 × 10 mt. shuttle run (secs)	60	09.63	01.43	60
50 yard dash (secs)	60	06.58	0.89	70

Table 2 : Correlation between physical fitness components and football performance

	N	R	Significance
800 meter run-walk	60	0.87	0.01
Standing broad jump	60	0.28	0.05
Bent knee sit-ups	60	0.41	0.01
4 × 10 mt. shuttle run	60	0.89	0.01
50 meters run	60	0.93	0.01

endurance has the ability to continue successive in situations where the leg muscles or muscle group being used are loaded heavily. A strong leg and abdominal muscle can be improved in endurance by developing more efficiency so that its recovery rate will be faster (Singh, 1985). This phenomenon of recovery is related to the number of functioning capillaries that are present within the muscle, as well as the strength of the muscle itself. Such endurance is characterized by the ability to continue repetitious actions with a heavy load at a maximum speed for a short period of time. Thus, the good football performers have high level of strength endurance.

The Table 2 also reveals that leg power (Standing Broad Jump Scores) has correlation value of 0.28 ($p < 0.05$) with football performance. The players who have high standing broad jump scores were found good performers. As they have more power which is the capacity of the individual to bring into play maximum muscle contraction at the fastest rate of speed. Power is an explosive action and it is equal to the product of force time velocity, where force has to do with muscle strength and velocity with the speed with which strength is used in motor performance. Thus, significant correlation was found between standing broad jump and football performance.

Over all it can be said the good performers are one who have more flexibility which is important in the performance of many skills and as a motor fitness factor in football game. Flexibility may be defined as the range of movement in a joint. It concerns degree of movement and it limits the degree to which the body or body parts can bend or twist by means of flexion and extension of muscles. This degree of movement depends on the flexibility and extensibility of the muscles and the ligaments surrounding the particular joint. A high level of flexibility fosters a saving in energy during vigorous movement because of the better mechanical adjustment. Because of this better physiologic and mechanical adjustment of the joint and muscles the individual may

be less vulnerable to injury. Flexibility plays its part in maintaining good posture. It is related to such components as endurance, speed, and agility. Flexibility negates tension and thus is a positive force in motor ability. Thus, the players who have more power, more agility, more strength and more endurance are good performers in football game. Thus, the hypothesis is rejected.

The present study suggests that the performance of the football player can be improved by increasing power, strength, speed, agility and endurance. The results of the present study thus to be significant as the findings of this study helps the policy makers in understanding the interrelationships of motor fitness with performance of football players and also the finding of the study significance in motivating for the future investigators to take up similar studies with some other variables and different games and at different states.

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