ASSESSMENT OF PERFORMANCE COMPONENTS OF PHYSICAL EDUCATION PLAYERS OF DIFFERENT LEVEL OF ACHIEVEMENT

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***Abstract*: Physical education, as a part of human education lies always existed in the human society in one form or other. Since time immemorial, even before the dawn of civilization and culture, physical exercise has been a very important aspect of human existence. In the primitive societies the necessity for survival i.e. protection against hostile environment and wild beasts, motivated man to keep himself physically fit and strong enough in comparison to stronger forces of nature. His life was hard most of his working hours were devoted for hunting animals for food, in those days there were no machines to help man in his work. That is why he has to depend solely upon his physical powers and physical skill.**

***Keywords*: Physical Education Speed Explosive strength Strength Endurance Agility Cardio-vascular endurance**

1. Introduction:

Physical education, as a part of human education lies always existed in the human society in one form or other. Since time immemorial, even before the dawn of civilization and culture, physical exercise has been a very important aspect of human existence. In the primitive societies the necessity for survival i.e. protection against hostile environment and wild beasts, motivated man to keep himself physically fit and strong enough in comparison to stronger forces of nature. His life was hard most of his working hours were devoted for hunting animals for food, in those days there were no machines to help man in his work. That is why he has to depend solely upon his physical powers and physical skill. He considered his body to his prize possession and its maintenance and protection were his primary concern. Survival of the fittest was the order of the day. Man lived in such a state for thousands of years. There was neither any organization nor system. Most acts were learnt by the young generations by virtue of imitation rather than instruction. Experience latter gave rise to individualized instruction as a tradition from father to son and from mother to daughter gradually leading to enforcement of hard discipline and rigorous training.[1]

Today the preparation of an athlete for top notch achievement is a completely dynamic state characterized by a high level of physical and physiological efficiency and degree of perfection of the necessary skills and knowledge, technique and tactical preparation. An athlete arrived at thisstage only as a result of appropriate training. Thus, athletes training today are a multisided process of expedient use of aggregate factor so as 10 influences the development of an athlete and ensure the necessary level of participation.[2]
This is where the theoretical ideas involved in the discussion on the system that provide the energy necessary for human exercise become directly related to day to day sporting activities. This idea is that we should use our knowledge of the scientific basis of exercise to help us improve performance at our sport and do this in a systematic and predictable way. Unfortunately, nothing a human being does is ever thoroughly predictable and psychological, cultural and emotive factors tend to upset the true progress of science. However, it must be possible to enhance the aims of physical training by using what we know of physiology. And the aim and objective of training are to improve performance, skill, game ability and motor and physical fitness.[3]The world of training methodology has crossed many milestones as a result of different types of researches in general and their application to the sports development in particular. In the modern scientific age, athletes are being trained by highly sophisticated means for better achievement in their concerned sports. They are being exposed to the exercises and training methods which have proved beneficial for achieving higher standards. Much progress has been made in the recent years in the acquisition of knowledge about training means and techniques of sports skills. In sport training specialized exercises are being prescribed for the fullest and optimum development for a particular game. [14]
One of the goals of scientific research is to predict future events or results from present or past data. There are different types of prediction that we come across in our daily life, such as wealth-forecast, market-forecast, share market-forecast, election trends etcetera. These are based upon some known facts and so they are reliable prediction. Research in the field of sports and games had proved that the future performance of an individual or team could be predicted through the analysis of certain variables, which are found to be the basis for total performance.Performance of an athlete in sports does not depend only upon the physical fitness components but several other factors also contribute to his success, such as, scientific good quality equipment, clothing, training schedule, competition frequency psychological preparation, and balanced diet. All these factors together prepare the athlete for the

competition. Apart from those all, he must develop the motor fitness. Research findings show that high level of technique perfection alone cannot produce success in competitive sports. Most of the games demand a higher level of fitness of the athletes. [16]
Regular exercise benefits players of all ages and sexes. Regular physical activity and exercise offer great benefits to players is a good reason to make exercise routine. It is generally accepted that the resting heart rate, resting blood pressure of a well trained, athlete tend to be lower than for a sedentary person. Trained the vital capacity is slightly longer than that of the sedentary subjects. Every game required a considerable amount of physical fitness and mastery of skills. Now the question that arises in the mind of every individual is "what does the term 'physical fitness' deal with? Fitness is very specific to the sports or activity, which a person does. For example the fitness required to play soccer is different from that needed by rugby, hockey or squash. Soccer players must have good endurance, good lower and upper body strength, good flexibility, agility and speed (Rechard L. Nelson, 1976).[19]
Strength is one of the most important components of physical fitness, which affects the performance in all activities in some form or the other. Development of strength is essential for power and speed. Strength is a complex factor which depends upon both the stimulus given by the nervous system and upon the capacity of the muscles for contraction, their size and shape.
As pointed out earlier and out of the latest scientific progress in the field of physical education and sports, it is a fact that strength is the most indispensable factor of physical prowess and the best way to develop strength is through an organized programme of weight training and all the empirical evidence available shows conclusively that through the judicious use of weight training, we effectively improve strength local muscular
endurance and power, all of which are vital to the athlete. Logan has opined that strength is necessary for the stability of joints, particularly of the extremities.
Speed is important ability which highly affects the performance of players, it is necessary to improve it before to take part in any competition; it is the ability to move the body, or a portion of the body, quickly, (Power, a concept much discussed in relation to the modern game, is the ability to exert a large force quickly, and is therefore a product of speed and strength). When undertaking training to improve the speed of players, the fitness advisor (or coach) should consider the training to improve the elements of reaction time, acceleration, and sprinting technique, all of which should be incorporated into the training programmed.
Speed is the ability to cover the distance between 2 points in the shortest possible time. This is the product of reaction time (time taken to detect and respond to a stimulus) & movement time (time from beginning of a movement to its completion). Movement time can be seen as the product of acceleration and top speed i.e. maximum possible meters per second that a player can run (Paradisis G.P., 1999).[20]

2. Materials and Methods

PROCEDURE

In this chapter the selection of subjects, collection of data, criterion measures, procedure for administration of tests, and statistical technique employed for analyzing the data had been described.

Selection of Subjects

The research scholar conducted the study on a total of 50 male soccer players randomly selected from state level 25 and national level 25 participated in various Tournament. All the players from different sports club running in Bhopal, M.P. were selected as the subjects for the study.

Selection of Variable

A feasibility analysis as to which of the important variables could be taken up for investigation in keeping with the availability of equipments, acceptability to the subjects and the legitimate time that could be devoted for tests as well as to keep the entire study unitary and integrated, was made in consultation with experts.By keeping above criteria in mind the following variables were selected because they are known to have been directly or indirectly related to the Motor Performance Components football players are:-

- Speed
- Explosive strength
- Strength Endurance
- Agility
- Cardio-vascular endurance

Criterion Measures

The criterion measures chosen were:

I. Speed was measured by 50 m dash. The score was recorded to the nearest tenth of a second.
II. Explosive strength was measured by the horizontal distance covered in feet and inches between the take off line and the nearer break made in landing using standing broad jump.
III. Agility was be measured by using 4 x 10 m shuttle run. The score was recorded to the nearest tenth of a second.
IV. Muscular strength was measured with the help of sit ups and the number of sit ups in one minute was taken as the score.
V. Cardio vascular endurance was measured by the 600m run/walk and the score was recorded to the nearest one tenth of a second.

Collection of Data

At the beginning, the investigator gathered all the subjects of this study in the football ground of Barkatullah University, Bhopal. And other sports clubs explained the purpose of the present study to them. Necessary instructions were passed on to the subject before the administration of each test. Confidentiality of response was guaranteed. The required data in motor performance components was collected during the training sessions.

Tester Competency and Reliability of Tests

The investigator followed a standard procedure for motor performance components under the direct supervision of soccer experts. All the measurements were taken by the investigator with the assistance of experts and lecturers. To determine the reliability of test as per Indian conditions the performance of 10 subjects selected at random were recorded twice under identical condition on the motor performance components. Pearson's Product Moment correlation was computed between the two measures of each variable and their reliability coefficients have been presented in table -1

Table - 1

Reliability Coefficient of Test and Retest Scores

S.No.	Name of the Test Items	Coefficient of Reliability (r)
1	Speed	0.99*
2	Explosive strength	0.99*
3	Muscular endurance	0.98*
4	Agility	0.98*
5	Cardiovascular	0.99*

***Significant at 0.05 level, r.05 (8) =0.632**

As shown is table - 1 that value of coefficient of correlation is found to be significant and very high from 0.98 to 0.99 hence, investigator competency to administer to tests as well as reliability of tests were established. This established competency of scholar to administer the tests.

Reliability of Data

To obtain reliable measurements the instruments used in the study were obtained from standard firms, which cater to the needs of various research laboratories in India and abroad was insured by the manufactures.

Administration of Tests

Motor Performance Components:

Speed (50-mts Dash)

Equipments:

Chalk powder, Measuring tape, Stopwatches and clapper.

Marking:

50-meter track was marked.

Description:

Two subjects took a standing position behind the starting line. The starter gave the start by clapper. The time taken to complete 50-meters by each subject was recorded by the timekeeper at the finishing line.

Scoring:

The time recorded to the nearest $1/10^{th}$ of a second.[71]

Explosive Leg Strength (Standing Broad Jump)

Equipments:

A marking tape, long jump pit.

Description:

Each subject was asked to stand behind a take offline with his feet comfortable apart. Before jumping, the subject was allowed dipping at the knees and swings the arms backward and then jumps forward by simultaneously extending the knees and swinging arms forward to cover maximum possible horizontal distance, landing on both the feet.

Scoring:

The recommended procedure was to administer three trials and award the student the best of the three trials. The test was scored in feet and inches to the nearest inch.

Muscular Endurance (Sit-Ups)

Equipments:

A clean surface and a stopwatch.

Description:

The student lied on his back with the knees bent, feet on the floor, and heels no more than 12 inches from the buttocks. The angle at the knees was less than 90-degrees. The student's hands were on the back of the neck with fingers clasped and elbows touching the surface. By tightening the abdominal muscles, the student brought the head and elbows forward as he curls up to touch their elbows to their knees. This action constituted one sit-up. The student returns to the starting position before executing another sit-up. The students began on the command "Go", and stops on the command "stop".

Scoring:

The students score was the number of correctly executed sit-ups performed in 60 seconds.

Cardiovascular endurance (600 Mts. Run/Walk)

Equipments:

The test was being administered on 400 meter running track with the following dimensions: 160-meter straight 240-meter curve. A stop watch was needed to measure elapsed time.

Description:

At the signal "Ready Go." the student starts running the 600-meters distance. The object was to cover the distance in the shortest time. It was possible to have a dozen students run at one time by having the students pair off before the start of the run and the partner serves as the runner's scorer. The timer calls out the runner's time to the scorer as the runners cross the finish line. [72]

Scoring:
The time of the run was recorded in minutes and seconds. [73]

Statistical Analysis

In order to know the subject characteristics, descriptive statistics was employed, for finding out the significance of difference of the mean among the various motor performance component's ratio' was applied at the .05 level of significance.

3. Results & Discussion (Times New Roman, 12, Bold)

The statistical analysis of data has been presented in this chapter. The motor performance components were collected on 50 male subjects belonging to different sport clubs in Bhopal M.P. The student's belonged 25 each from State Level and National Level.

To observe the differences between both the categories on their selected variables named speed, explosive strength, muscular endurance, agility and cardiovascular endurance the data Collected was analyzed using the mean, standard deviation and comparison of mean. The level of significance was set at .05 level.

Findings

The results are presented in this chapter in tabular form and discussion of findings was made group and variable wise. The findings and discussion of findings with regard to the present study have been presented in the tables and their interpretations are given accordingly. Graphical representation of each variable is also presented for mean comparison. Further discussion of finding is initiated for better understanding of results. Deals with the means, standard deviation and comparison of speed, explosive strength, muscular endurance, agility and cardiovascular endurance among all the variables are as follows - Table – 2 reveals that the mean and standard deviations of players belonging to state level and national level. The observed mean and standard deviation of speed were 8.1072 & 7.1488 and S D .75349 & .45016 respectively. There was a significant difference of speed in the state level and national level soccer players as the obtained t value 5.460 was greater than the table value of t (2.0106) at 0.05 level as shown in table. So that the null hypothesis may be rejected at 0.05 level of significance. Thus it may be concluded that speed of state level soccer player were significantly high in comparison to national level players speed which means national level players.Table –3 reveals that the mean and standard deviations of players belonging to state level and national level. The observed mean and standard deviation of Standing Broad Jump were 2.14 & 2.41 and S D .32549 & .32349 respectively. There was an significant difference of Standing Broad Jump in the state level and national level soccer players as the obtained t value - 2.929 was greater than the table value of t (2.0106) at 0.05 level as shown in table. So that the null hypothesis may be rejected at 0.05 level of significance. Thus it may be concluded that Standing Broad Jump of national level soccer player were significantly high in comparison to state level players which means national level players were more leg strength than the state level soccer players.

Table – 4 reveals that the mean and standard deviations of players belonging to state level and national level. The observed mean and standard deviation of Muscular Endurance were 29.64 & 52.60 and S D 8.5190 & 10.657 respectively. There was a significant difference of Muscular Endurance in the state level and national level soccer players as the obtained t value -8.414 was greater than the table value of t (2.0106) at 0.05 level as shown in table. So that the null hypothesis may be rejected at 0.05 level of significance. Thus it may be concluded that Muscular Endurance of state level soccer player were significantly high in comparison to national level players which means national level players were more muscular endurance capacity than the state level soccer players. Table – 5 reveals that the mean and standard deviations of players belonging to state level and national level. The observed mean and standard deviation of Agility were 11.04 & 10.58 and S D 1.12 & .88 respectively. There was an insignificant difference of Agility in the state level and national level soccer players as the obtained t value 1.631 was lesser than the table value of t (2.0106) at 0.05 level as shown in table. So that null hypothesis may be accepted at 0.05 level of significance. Thus it may be concluded that Agility of national level and state level soccer players was similar.

Table – 5 reveals that the mean and standard deviations of players belonging to state level and national level. The observed mean and standard deviation of Cardio Vascular Endurance were 131.92 & 111.40 and S D 15.01 & 9.91 respectively. There was an insignificant difference of Cardiovascular Endurance in the state level and national level soccer players as the obtained t value 5.703 was greater than the table value of t (2.0106) at 0.05 level as shown in table. So that the null hypothesis may be rejected at 0.05 level of significance. Thus it may be concluded that Cardiovascular Endurance of state level soccer player was significantly high in comparison to national level players that means national level players were more cardio ability.

3.1 Tables and Figures

Table – 2

Significant Differences in the Mean Scores of state level and national level football player on Motor performance Components Variable

Variable	Subject	N	Mean	S D	t - Value
Speed	State Level	25	8.1072	.75349	5.460
	National Level	25	7.1488	.45016	

***Significant at 0.05 level, t.05 (48) =2.0106**

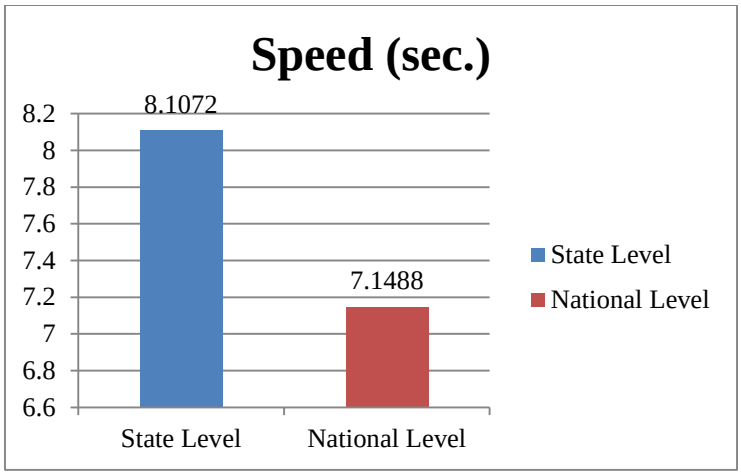

Figure 1: Mean of Speed of State and National Level Soccer Players

Table – 3

Significant Differences in the Mean Scores of state level and national level football player on Motor performance Components Variable

Variable	Subject	N	Mean	S D	t - Value
Explosive Strength	State Level	25	2.1448	.32549	-2.929
	National Level	25	2.4136	.32349	

***Significant at 0.05 level, t.05 (48) =2.0106**

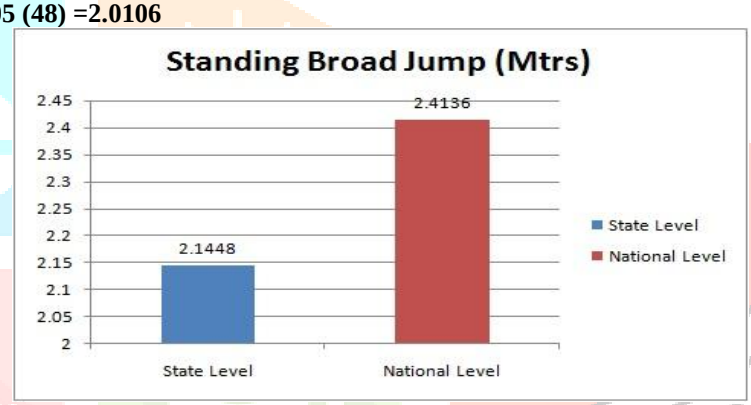

Figure 2: Mean of Standing Broad Jump of State and National Level Soccer Players

Table – 4

Significant Differences in the Mean Scores of state level and national level football player on Motor performance Components Variable

Variable	Subject	N	Mean	S D	t - Value
Muscular Endurance	State Level	25	29.640	8.5190	- 8.414
	National Level	25	52.600	10.657	

***Significant at 0.05 level, t.05 (48) =2.0106**

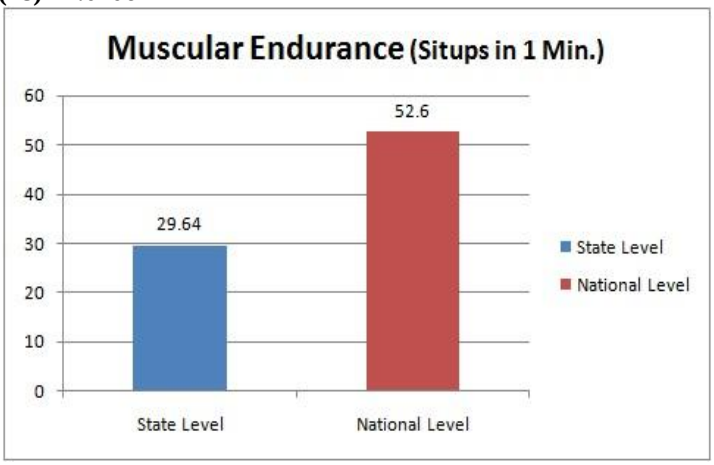

Figure 3: Mean of Muscular Endurance of State and National Level Soccer Players

Table – 5
Significant Differences in the Mean Scores of state level and national level football player on Motor performance Components Variable

Variable	Subject	N	Mean	S D	t - Value
Agility	State Level	25	11.04	1.120	1.631
	National Level	25	10.58	.8813	

***Significant at 0.05 level, t.05 (48) =2.0106**

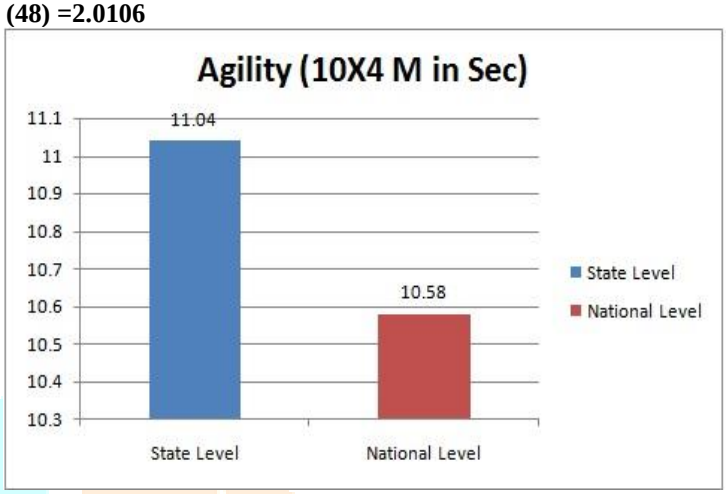

Figure 4: Mean of Agility of State and National Level Soccer Players

Table – 6
Significant Differences in the Mean Scores of state level and national level football player on Motor performance Components Variable

***Significant at 0.05 level, t.05 (48) =2.0106**

Variable	Players	N	Mean	S D	t- Value
Cardio Vascular Endurance	State Level	25	131.92	15.01	5.703
	National Level	25	111.40	9.90	

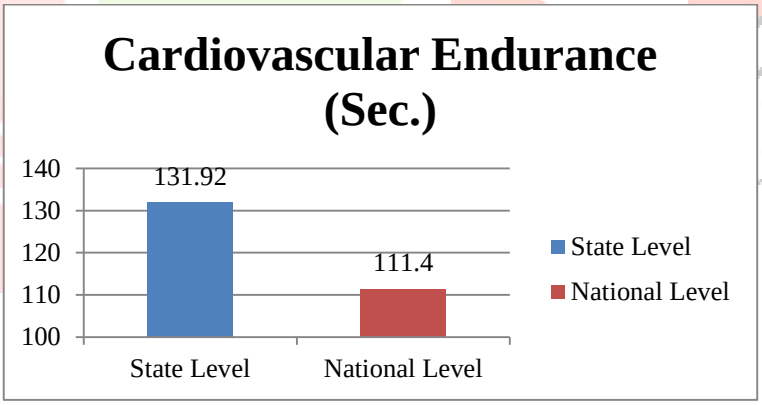

Figure 5: Mean of Cardio Vascular Endurance of State and National Level Soccer Players

4. Conclusions

On the basis of the results of the study, the hypothesis was rejected at 0.05 level of significance in speed, explosive strength, muscular endurance and cardiovascular endurance because there significant differences were found. The hypothesis of agility was accepted at 0.05 level of significance.

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