

A COMPARATIVE STUDY ON LEG POWER OF BOYS PLAYING FOOTBALL, BASKETBALL AND VOLLEYBALL OF AGE 14 TO 17 YRS

**Dr. Rajendran,
Director of Physical Education,
Government Arts and Science College,
Karur, Tamilnadu, India**

Abstract

The purpose of the study compare to leg power of boys playing football, basketball and volleyball of age 15 to 17 years. To test the hypothesis 120 boys - player of CBSE School of karur age between 14 to 17 yrs were selected at random test as subject forty each for the 3 games namely volley ball Basket ball football The player were subjected to the test of leg power using vertical jump standing broad jump and squat jump and their performance were noted in centimeters and the number of jump in squat jump test three trials were given and the best of the three trials was selected as the score. To compare on leg power of football, basketball and volleyball in statistically. This present study is in conformity with the three studies in using vertical jump standing broad jump and squat jump as the measure of leg power

Introduction

Power may be identified as the ability to release maximum force in the fastest possible time, It is exemplified in the vertical jump the broad jump the shot put and other movements against resistance in a minimum of time ,the measurement of power in physical education has recently become controversial enough to warrant recognition of two types of such measurement the two type are identified as follows.

Athletic power measurements is the type of measurement is expressed in terms of the distance through which the body of an object is propelled through space such tests sarget jump broad jump and medicine ball throw are both practical and common test of athletic power .white such test involve both force and velocity other factors also influence test results however the factors of force and velocity are not measured as such thus only the resultant distance (centimeters or meter)is recorded in athletic power measurement.

Work power measurement is the measuring power for research purposes special efforts are usually made to eliminate extraneous movements thus placing

maximum effort on the specific muscle group to be studied .Thus the result is usually based on computations of work (force x distance) or power (work/time) (johns and nelson 1969 sports performance is a unity of execution and result of sports action or complex sequence of sports actions measured or evaluated according to agreed and socially determined norms (Carry stem 1981)

Power is function of force and time (Power work /Time) and is defined as the rate of performing work (Work = force x distance) since work is the production offered and the distance over which the force is applied .Thus if two individuals of equal height weight and leg strength were to performs vertical jump the one who could apply force downward against the floor more rapidly would have a faster upward reaction would

Hypothesis :This study was hypothesized that there would not be any difference among the volley ball Basket ball football players in their leg power .

Methodology : To test the hypothesis 120 boys - player of CBSE School of karur age between 14 to 17 yrs were selected at random test as subject forty each for the 3 games namely volley ball Basket ball football The player were subjected to the test of leg power using vertical jump standing broad jump and squat jump and their performance were noted in centimeters and the number of jump in squat jump test three trials were given and the best of the three trials was selected as the score.

The scores were stastically analyzed by using one way analysis of variance method to find out the significance of the difference among the mean of the performance .Then the scheffe's post hoc post test was used to analyze the mean difference and their significance.

Result s and Discussion

Result on vertical jump

Table I

ONE WAY ANALYSIS OF VARIANCE FOR VERTICAL JUMP
PERFORMANCE OF
FOOTBALL BASKETBALL AND VOLLEYBALL PLAYERS

Source of variance	Sum of square	Df	Mean squares	F Ratio
Treatment (SSB)	1725	2	803.90	27.13
Error (SSW)	2007	97	39.40	----

*Significant at 0.05 level Tabulated F 0.05 (2,87) = 2.887

Table I shows the one way analysis of variance for the vertical jump performance of Football basketball and volleyball players is significant the statistical analysis of the data from table 1 clearly shows that the obtained F ratio 27.13 was significant at 0.05 level since the obtained F ration 27.13 is greater than the table value of 2.887 the scheffe's post hoc test was administered.

Table II

**POST HOC ANALYSIS OF VERTICAL JUMP
PERFORMANCE FOOTBALL BASKETBALL
AND VOLLEYBALL PLAYERS**

Football	Basket ball	Volleyball	Mean difference	Level of significant
46.25	43.13	5.93	(P<0.01)
45.25		42.14	11.07	(p<0.01)
48.15	42.27	42.14	5.13	(P<0.01)

Significant at 0.05 level table value of 3.28

Significant at 0.01 level table value of 3.98

From the table II it is found that the mean difference of vertical jump performance of Foot ball players and basketball players is 5.93 volleyball players and volleyball players is 11.03 and that of basketball and football players is 5.13 it is seen that the football and volley players are better than the basketball and football players in the vertical jump performance which one of the criterions of measuring leg power and the mean difference are higher than the required level of confidence interval of 3.28 at 0.05

Level .Through all the mean difference are significant at 0.05 level of confidence the volley ball players have shown a significant level of power in their legs in the vertical jump performance than the o

At the same time football players have been proved to be having comparatively lower leg power in accordance with the vertical jump performance than the volleyball and basket ball players

Table III

**ONE WAY ANALYSIS OF VARIANCE FOR STANDING BROAD JUMP
PERFORMANCE OF FOOTBALL BASKETBALL AND VOLLEYBALL
PLAYERS**

Source of variable	Sum of square	Df	Mean squares	F Ratio
Treatment (SSB)	12900	2	6450	22.12
Error (SSW)	25370	97	291.61	3.109

Significant at 0.05

Tabulated $F_{0.05}(2,97)=3.109$

Table III shows that the one way analysis of variance for the standing broad jump performance of football , Basketball and volleyball player is significant .The statistical analysis of the data from table 3 clearly reveals that the obtained F Ratio 22.12 was significant at 0.05 level .Since the obtained F Ratio 22.12 is greater than the table value of 3.109 the scheff's post hoc test was administered

Table IV

**POST HOC ANALYSIS OF STANDING BROAD JUMP
PERFORMANCE OF FOOTBALL BASKETBALL AND VOLLEYBALL
PLAYERS**

Football	Basket ball	Volleyball	Mean difference	Level of significant
236.33	219.10	...	17.23	($P<0.01$)
236.33		207.17	29.17	($p<0.01$)
	219.10	207.17	11.93	($P<0.01$)

Significant at 0.05 level table value of 11.2499

Significant at 0.01 level table value of 14.0963

From the table IV it is found that the mean difference of standing broad jump performance is between volleyball player and basket ball player is 17.23 volleyball

player and football and that of the basketball and football player 29.17 it is seen that the volleyball player are better than the basketball and football player in the standing broad jump performance which is one of the criteria of measuring leg

power and the mean difference are higher than the required level of confidence interval of 11.2449 at 0.05 level. Through all the mean differences are significant at level of confidence, the volleyball player have shown a significant level of power in their legs in the standing. Broad jump performance that the other two

At the same time the football player have been proved to be having comparatively lower leg power

Table V

**ONE WAY ANALYSIS OF VARIANCE FOR SQUAT JUMP
PERFORMANCE OF FOOTBALL BASKETBALL AND VOLLEYBALL
PLAYERS**

Source of variable	Sum of square	Df	Mean squares	F Ratio
Treatment (SSB)	2.588	2	1294.00	12.82
Error (SSW)	8.7779	97	100.91

Significant at 0.05

Tabulated $F_{0.05}(2,97) = 3.109$

shows that one way analysis of variance for squat jump performance of volleyball, basketball and football is significant. The statistical analysis of the data from table 3 clearly shows that the obtained F Ratio 12.82 was significant at 0.05. Since the obtained F Ratio 12.82 is greater than the table value of 3.109, the Scheffé's post hoc test was administered.

Table 6

POST HOC ANALYSIS OF SQUAT JUMP PERFORMANCE OF VOLLEYBALL BASKET BALL AND FOOTBALL PLAYERS

Football	Basket ball	Volleyball	Mean difference	Level of significant
72.28	73.98	6.98	(P<0.01)
72.28		69.26	11.65	(p<0.01)
	73.98	69.26	3.35	(P<0.01)

Significant at 0.05 level table value of 5.2963

From the table VI It is found that the mean difference of squat jump performance is between volleyball player and basketball player is 6.98 volleyball player and football player is 11.65 and basket ball and football player is 3.35 . which is one of the criterions of measuring leg power and the mean difference are higher.

Than the required level of confidence interval of 5.2963 at 0.05 level except the difference between the basketball and football player which is insignificant through all the mean difference except between basketball and football player are significant at 0.05 level of confidence the volleyball player have shown a significant level of power in their legs in the squat jump performance than the other two

At the same time the football player have been proved to be having comparatively lower leg power in accordance with the squat jump performance than the volleyball and basket ball player

DISCUSSION OF HYPOTHESIS

It was hypothesized that there would not be any difference among the volley ball ,Basket ball and football player in their leg power .As per the finding displayed in the tables of analysis of variance for vertical jump standing broad jumped and squat jump it has been seen that the mean of volley ball players were better than the other two group finding of post hoc test for significant in the mean it was also concluded that the volley ball players have better leg power than the basket ball and football player

Hence the hypothesis stated earlier that there would not be any difference among then volley ball basket ball and football player in their leg power was rejected and concluded the volleyball player have better leg power that basketball and football player . As per finding of this study .it was also found that basket ball player had better leg power than the football player

The present study in consonance with the studies conducted by Glencross (1966) who had power lever as a criterion to compare and test the reliability of the

traditional test used for testing muscle power KB start (1966) and other who had used the power jump sargent jump , squat jump and standing broad jump for evaluating power and Kenneth D could (1976) who in this study tried to solve the question of whether these two test of legs power measure namely vertical jump test and margarita test measure the same or different muscular performance ability .This present study is in conformity with the above three studies in using vertical jump standing broad jump and squat jump as the measure of leg power

Conclusion

On the basis of the results obtained after the statistical analysis of the acquired data using one way analysis of variance and scheff's post hoc test the following conclusion were drawn .

- 1) The basket ball performance better than the football player and showed a higher measure of leg power .
- 2) The football player demonstrated comparatively lower leg quality of leg power than the other two groups .

Reference

- 1) Carr .carry stem (1981) “ changes in leg strength and muscles fibre hypertrophy following Isokinetic strength training “Dissertation abstract international vol41
- 2) Glencros D.J(1966) “The nature of vertical jump test and standing broad jump research quarterly vol 37:3)
- 3) Kennethn.D. (1976) “Leg power and Canadian female volley ball player Research Quarterlyvol 47:3
- 4) K.B. Start (1966) “A factorial Investigation of power speed Isometric strength and Anthropometric Measurements in the lower limbs Research quarterly vol37:4

- 5) Johnson barry lord jack K.Neloson (1969) Practical measurements for evaluation in physical education Minneapolis burgess publishing company.