

## CORRELATION OF BODY COMPOSITION AND SELECTED MOTOR FITNESS VARIABLES TO LAWN TENNIS PERFORMANCES

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### Abstract

The purpose of the study was to determine the correlation between the body composition and motor fitness variables to lawn tennis performances. To achieve the objectives of the present study, the correlation by product moment method was utilized. Endurance, Strength Endurance, flexibility, muscular power and lung capacity have positive and significant correlation with lawn tennis performance where as Biceps, triceps, calf skin fold, speed and agility showed negative correlation with lawn tennis performance.

### INTRODUCTION:

A full-time participation and the practice of athletes are demanded all year round to achieve the peak of their exercise. In their various areas, the worldwide community of sport enthusiasts is likewise interested about greater and better performances. Sportsmen worldwide have greater and higher expectations and aspirations from the individuals concerned. The excellent performance of women and sportsmen requires a highly scientific approach and has to be achieved from a talent level.

Scientists and physiologists have been of the view that anthropometric measurements and Physical components of an athlete have a lot to do with his performance, more than the technique and tactics of players or a team. Physical and Physiological characteristics help him for better performance.

### Methodology:

The present study was conducted on 50 lawn tennis players of university level. The data was collected by administering the tests for the chosen **body composition variables**, motor fitness variables and by three judges rating scale made for lawn

tennis performance at the time of university inter college tournaments. All the **body composition measurements** were taken on the left side of the body of the subject. Skin fold measurement were measured with the help of skin fold caliper respectively.

Body composition variables were calculated using sum of four skin folds i.e. biceps, triceps, sub scapular, super iliac skin folds, body density, fat weight and lean body mass were calculated by using Durnin's and Rehman's (1967) method and percentage fat was calculated by using Siri's (1956) formula. Body weight was measured by using same portable weighing machine for all subjects.

To measured the motor fitness of tennis players, 12 min run test for endurance, 50 yards dash test for speed, zig zag run test for agility, forward bend and reach test for flexibility, beam walk test for balance, push ups in 30 sec test for shoulder strength, standing broad jump test for explosive strength were used. To measure the lawn tennis performance, three judges rating scale test was used.

To achieve the objectives of the present study, the correlation by product moment method was used.

**RESULTS AND DISCUSSION:**

**Table 1**  
**Relationship of skin fold measurements and Body composition**  
**Variables to performance Lawn Tennis**

Variables Correlated	Coefficient of Correlation (r)
Biceps skin fold and performance	.284*
Triceps skin fold and performance	.339*
Sub scapular skin fold and performance	.134
Supra iliac skin fold and performance	.132
Thigh skin fold and performance	.108
Calf skin fold and performance	.281*
Mid auxiliary at xphoid and performance	.091
Chest skin fold and performance	.113
Body density and performance	.033
Percentage fat and performance	-.117
Fat weight and performance	.123
Lean body mass and performance	.330*

\* Significant at 5% .354

N = 50 df 48

From table 1 it is clear that performance in lawn tennis has significant and positive correlation with biceps skin fold, triceps skin fold and calf skin fold at 5% level. Among body composition variables Lean body mass has positive and significant correlation with performance at 5% level. Other skin fold and body composition variables have no significant correlation with Lawn tennis performance.

**Table 2**  
**Relationship of motor fitness variables**  
**With lawn tennis performance**

Variables Correlated	Coefficient of Correlation (r)
Endurance and performance	.275*
Strength and performance	.345*
Speed and performance	.286*
Flexibility and performance	.283*
Agility and performance	.311*
Muscular power and performance	.287*
Balance and performance	-.090
Coordination and Performance	.340*

\* Significant at .05 level = .354

N = 50

df = 48

Table 2 shows that endurance, Strength, flexibility, muscular power and coordination have positive and significant correlation where as speed and agility has negative but significant correlation with performance at 5% level. Other variables of motor fitness have no significant correlation with lawn tennis performance.

#### **DISCUSSION OF RESULTS:**

Table 1 shows that biceps, triceps, and calf skin fold has negative and significant correlation with lawn tennis performance. It means that biceps, triceps, and calf skin fold has optimum amount of fat which is required during play, as more accumulation of fat in these area hindrances lawn tennis performance. Lower body mass has significant correlation with lawn tennis performance.

Table 2 depicts that endurance, Strength endurance, flexibility and muscular power have positive and significant correlation with lawn tennis performance. It means that these variables contributes in lawn tennis performance. Endurance and Strength Endurance helps in to maintain the quality of skill for longer duration during the play. Flexibility helps the Lawn tennis player to execute the proper techniques with full

range of motion. Muscular power helps in producing the required force for various strokes. Besides, speed and agility have been found to have significant but negative correlation with lawn tennis performance. It means that time decreases and the performance of LTP increases. A lawn tennis players needs speed at the time of service and at other points of play. Agility helps the lawn tennis player to move in any direction accordingly, hence helps in the performance. Motor fitness variables helps to improve the performance of lawn tennis players.

The results of the present study as discussed here are completely supported by to her similar studies conducted by the scientists i.e. Parnell (1951), Pere et. al. (1954), Clarke (1957), William (1981), Mastura (1982), Sodhi and Sidhu (1984), Chauhan (1986), Chauhan (1988), Kumar Subhash (1995), Chauhan et al (2003), Jain(2004), Dinesh (2004), Jossen (2007), Satish (2008)Singh et al(2009) Ranawat and Kang(2010).

On the basis of the discussion of the results in the following conclusions were made.

1. Biceps, triceps, calf skin fold has negative and significant correlation with lawn tennis performance. Other skin fold and body composition variables have no significant correlation lawn tennis performance.
2. Endurance, Strength Endurance, flexibility, muscular power have positive and significant correlation where as speed and agility have negative and significant correlation with lawn tennis performance. Balance has no significant correlation with lawn tennis performance.

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