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## Assessment of agility, strength and flexibility parameters between badminton and lawn tennis players

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### Abstract

The purpose of the study was to compare the agility, reaction time, strength and flexibility of Badminton and Lawn tennis player to fulfill the objectives of the study, 30 Badminton and lawn tennis players were selected from Punjab state. Who were participated in inter school tournament of Badminton and Lawn tennis. The age of selected subjects arranged from 17-19 years. Test used SEMO for agility test, vertical jump for strength test and flexibility (modified sit and reach test) were used to measure the selected physical fitness variables of players in order to analyze the data and significant different between badminton and Lawn tennis players of Punjab. The mean, SD and 't' values were calculated to find out the significant of differences between male Badminton and Lawn tennis players. Significant level is found out by the application of 't' test at 0.05 level. After comparing of the present data it is concluded that the lawn tennis players have demonstrated better in agility and flexibility tests than badminton players and badminton players demonstrated better in leg strength test.

**Keywords:** agility, strength, flexibility, badminton and lawn tennis

### Introduction

Physical fitness include additional than muscular strength. He further enunciates that physical fitness implies soundness of the body organs such as heart & lungs, a human mechanism that execute efficiently under exercise or work conditions, and reasonable measure of performance in selected physical activities [Bucher, 1983] <sup>[9]</sup>. Physical fitness includes those qualities which will permit an individual to perform life activities involving speed, strength, agility, power and endurance and to engage in various kinds of physical activities required of modern-day living including sports and athletics, and to be able to maintain optimum amount of fitness for the individual involved [Troestes, 1957] <sup>[10]</sup>. Mathews in board sense elaborates on physical fitness as the "capacity of an individual to perform given physical tasks involving muscular effort" [Mathews, 1978] <sup>[11]</sup>.

### Methodology

The following procedures including information regarding research design, source of data, sampling method, selection of subjects, criterion measures, selection of test, description of test and collection of data etc.

**Sample:** The data pertaining to this study was collected by administrating the appropriate tests described below on school players Punjab state, who participated at least inter-school tournaments. 30 male Lawn tennis players and 30 male Badminton players, be preferred as matters used for this learning the period of the subject is range beginning 17 years to 19 years. The design of the study was random group design, as 30 players from Lawn tennis and 30 players from Badminton were select randomly for the purpose of the study.

### Tools

The tests were conducted for testing the following measures are below:

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**1) Agility: SEMO agility test****Agility test purpose**

To measure the agility of the subject in maneuvering his body in forward, backward and sideward direction Equipment: Plastic or Wooden cones (9 x 9) inch in width and 12 inch in height and stop watch, lime powder etc.

**Description**

After a demonstration given by a trained helper, the tester asked the subject to stand just outside the marked rectangle at the starting point (s) with his back towards the free throw line, the subject waited for signal ready, steady, Go. At the word 'Go' the tester started the stop watch while the subject started side stepping to his right at his fastest speed until he reached outer corner of the second cone from where the subject started back pedaling (running backwards) from the outer corner of the second cone to the inner corner of the cone number 3, from where he came out of the test rectangle and took forward running sprint from cone 3 to cone 1 just outside the 19' marked line. As soon as the subject reached the cone no. 1 he was to take a side turn and again run back pedaling to reach the inner corner of cone no.4 at the free throw line where he had to change the direction to perform another sprint from the outer corner of the test rectangle at cone no. 4 to cone no. 2 where to he was to perform a side step to his left to reach the finish line as rapidly as possible with his best effort. As soon as he steps outside the finish line with his both feet, the tester stops the stopwatch.

**Scoring**

Each subject was given two trials and time of each trial was noted accurate up to 0.1 second. The lesser value of the time out of the two trials was the score of the subject. Semo agility test

**2) Strength: leg strength (Vertical Jump)****Vertical jump purpose**

To measures vertical jump ability (explosive strength) of the subjects. Equipment: Vertical Jump Area, Measuring tape, Chalk and Rag cloths.

**Description**

Before making an effort to jump, the subjects were asked to stand near the wall and to raise his hand without lifting his hill

to maximum and the measurement were recorded in centimeter as normal reach, then subjects were asked to swing his arms downward and backward taking a crunch position with knees bent approximately at a right angle. Then the subject matter is asked to jump as far above the ground as potential. Three jumps are given to each subject. The best out of three were recorded to the nearest centimeters.

**Scoring**

The measured highest touch and normal were recorded in nearest centimeters. The score were recorded by subtracting the two measurements.

**3) Flexibility: trunk flexibility (Modified sit and reach test)****Flexibility modified sit and reach test purpose**

To measure trunk flexion (hip and back flexion) and ability to stretch thigh muscle of the subject. Equipment: Bench, Yard stick, Table etc.

**Description**

The subjects were asked to assume a sitting position on floor with knees fully extended and the feet touching against the bench. Subjects were asked to flex his trunk four times with arms fully extended and hands on the top of each other. In his last attempt subjects were asked to hold his position for one second so as to take measurement.

**Scoring**

Tester placed the yard stick with 15 Cm. marks at near edge of bench. Measurement approaching the mark not being able to reach toes was scored negative while those beyond 15 cm. marks will be scored positive. The score was measured to nearest centimeters.

**Analysis of data**

Statistical procedures constitute the means by which quantitative data – such as test scores from any individuals are organized, analyzed, and interpreted. Significant level is found out by the application of 't' test. The mean, SD and 't' values were calculated to find out the significant of differences between male Badminton and Lawn tennis players. Significant level is found out by the application of 't' test at 0.05 level.

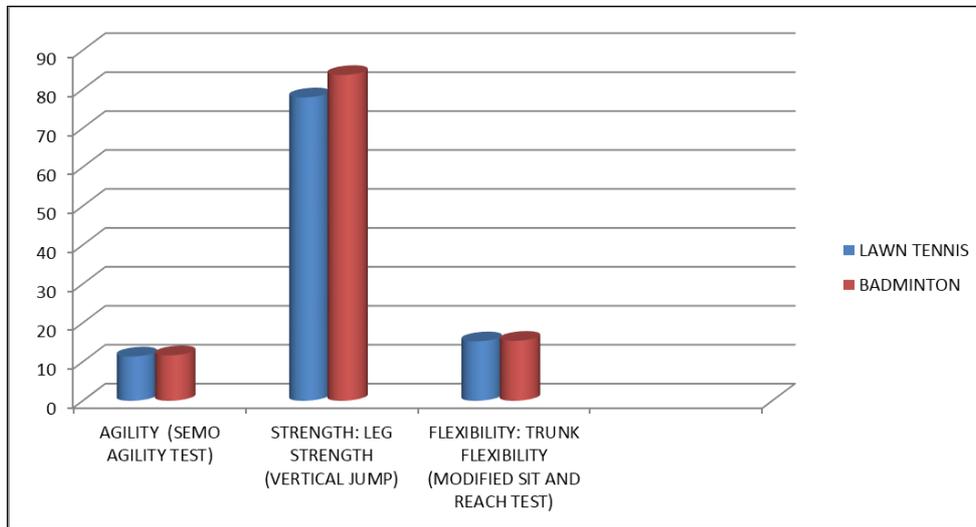
**Table 1:** Shows the comparison of agility, strength, flexibility parameters between Lawn tennis and Badminton players.

Variables	Mean		S.D		T. Value	P. Value
	Lawn Tennis	Badminton	Lawn Tennis	Badminton		
Agility (Sec)	11.3753	11.6777	0.1504	0.4892	3.2354*	0.0020
Strength: Leg Strength (Cm)	77.9173	83.6723	1.2208	5.1066	6.0036*	0.0001
Flexibility (Cm)	15.2680	15.4023	0.0489	0.1831	3.8823*	0.0003

\*Significant at 0.05 level

Presents the results of lawn tennis and badminton with regard to the variables agility (Semo agility test) strength: leg strength (vertical jump) flexibility: trunk flexibility (modified sit and reach test). The descriptive statistics shows the mean and SD values of lawn tennis on the variables agility (Semo agility test), strength: leg strength (vertical jump) and flexibility: trunk flexibility (modified sit and reach test). (11.3753+-0.1504, 77.9173+-1.2208 & 15.2680+-0.0489) respectively while in case of badminton the mean were found

(11.6777+-0.4892, 83.6723+-5.1066 & 15.4023+-0.1831) respectively. The 't' value 3.2354, 6.0036 & 3.8823 as shown in the table above was found statistically significant (p<.05). But while comparing the mean values of both the groups, it has been observed that lawn tennis players have demonstrated better in agility and flexibility tests than badminton players and badminton players demonstrated better in leg strength test.



**Fig 1:** The comparison of mean scores of both the groups has been presented graphically in figure

**Conclusions**

It is concluded from the above findings that the significant difference was found in agility: (semo agility test), strength: leg strength (vertical jump) and flexibility: trunk flexibility (modified sit and reach test). By Mean of performance results showed that lawn tennis players have demonstrated better in agility and flexibility tests than badminton players and badminton players demonstrated better in leg strength test.

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