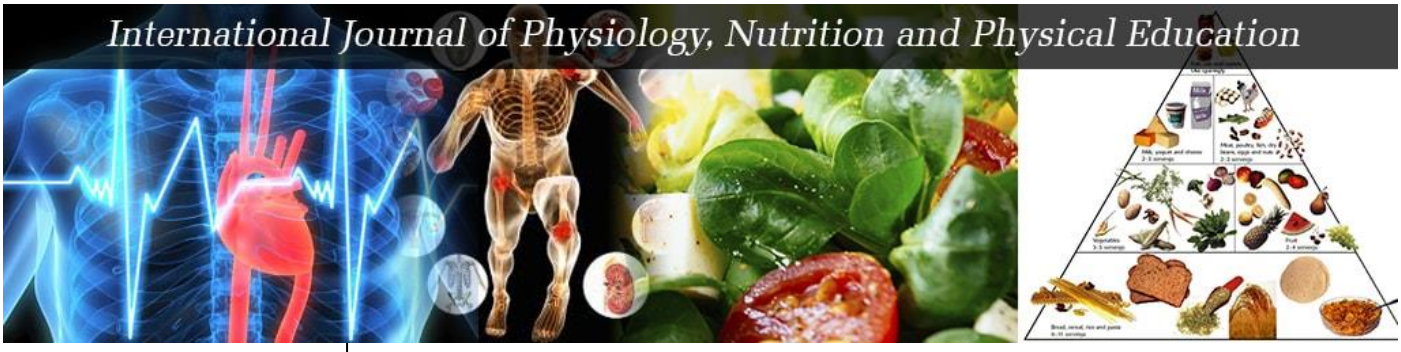

ISSN: 2456-0057
IJPNPE 2021; 6(2): 199-201

www.journalofsports.com
Received: 04-06-2021
Accepted: 06-07-2021

Dr. Thingnam Nandalal Singh
Professor, Department of Physical Education, Panjab University, Chandigarh, India

Akshay Kaushik
PGT, Physical Education, St. Soldiers International School, Sec 28-B, Chandigarh, India

Thingnam Premchandra Singh
Research Scholar, Department of Physical Education, Panjab University, Chandigarh, India

Corresponding Author:
Dr. Thingnam Nandalal Singh
Professor, Department of Physical Education, Panjab University, Chandigarh, India

A comparative study of selected physical variables among male cricketers of Chandigarh

Dr. Thingnam Nandalal Singh, Akshay Kaushik and Thingnam Premchandra Singh

Abstract
The purpose of the study was to compare the selected physical variables (strength, speed, agility and flexibility) among cricketers of Chandigarh. To achieve the objective of the study sixty (60) state level male cricketers (fast bowlers, spinners and batsmen) of Chandigarh were taken purposively as subjects of the study. The ages of cricketers ranged between 19-25 years. Strength was recorded on the leg dynamometer in kilograms. To measure speed minimum time was noted in seconds for 30 meter dash. Agility was recorded in seconds for 10 meter shuttle run test. Flexibility was recorded in centimeters to the nearest centimeters on Sit and Reach Box. For testing the significance difference in physical variables analysis of variance (ANOVA) was computed with the help of SPSS software, the level of significance was chosen 0.05. Statistical calculation of gathered data showed that there was significant difference found on leg strength variable. Fast Bowlers group performed better than spinners and batsmen on leg strength. Significant difference existed between fast bowlers and batsmen on leg strength and no significant differences existed between fast bowlers & spinners and spinners & batsmen of Chandigarh. No significant differences were obtained on speed, agility and flexibility variables.

Keywords: strength, speed, agility, flexibility, cricketers, leg dynamometer

Introduction
Cricket is a sport in which fitness is traditionally not thought of as very important. However, the success in the 1990s and 2000s of the world beating Australian team has been attributed to their professionalism, and in part to the way they address their fitness. The other test playing nations have rightfully put more emphasis on fitness recently and are reaping the benefits. With the introduction of one day Cricket and more recently Twenty20, the game has gone through major changes and the physical demands made on a Cricketer's body have also increased dramatically. Depending on the version of the game being played and the role of the player in the team, the importance of fitness will vary: the fitness requirements of a fast bowler will be greater and also different than that of an opening batsman, and one-day Cricket will be more demanding than a test match (Chappell, 1978) [2].

Game denotes physical exertion for amusement or competition governed by definite rules. Sports mean all those physical activities done for diversion, amusement, pleasure or success (Sharma, 2005) [6]. Batsmen stay at the crease for as long as possible, sometimes for periods of over four hours. In order to occupy this position, a good batsman must be able to stay focused, have good ball / eye skills, and have the strength and fitness to make each played shot productive. Fielders need the ability to sustain a concentrated effort for a period of six hours or more without fatigue and in sometimes very warm conditions. The body must be capable of explosive bursts at any given time - such as racing for a ball, jumping for a catch (Buchanan, 2008) [1]. Poor fitness and muscular strength will result in inaccurate bowling and greater risk of injury, especially for high speed bowlers and also allows the batsmen to settle down in the wicket to score more runs. Flexibility is very important for a fast bowler. Flexibility is designed to give the bowler full freedom of movement when bowling a full speed, without threatening damage to his muscle. In general, strength is required when executing a powerful hit out of the ground or to bowl a bouncer; speed is required to take a quick single, to stop a ball before it crosses the boundary line; flexibility is shown by an acrobatic fielder; a square

drive, a square cut speeding through the cordon of fielders shows a high degree of coordination and a pace bowler bowling through the entire session shows ample evidence of endurance (Chappell, 1978) [2].

Objective of the Study

The objective of the study was to draw out the physical components (strength, speed, agility and flexibility) among state level male cricketers of Chandigarh.

Method and Procedure

The study was descriptive study focusing on physical variables among the cricketers of Chandigarh. A sample of sixty state level cricketers (20 fast bowlers, 20 spinners and 20 batsmen) of age group 19-25 was taken purposively as subjects of the study. In consultation with experts and considering tester's competency and even feasibility criterion in mind, especially of equipments reliability and time factor, the following physical variables were selected for the study namely: strength, speed, agility and flexibility. Strength was recorded on the leg dynamometer in kilograms. To measure speed minimum time was noted in seconds for 30 meter dash. Agility was recorded in seconds for 10 meter shuttle run test. Flexibility (Sit and Reach test) score was recorded to the nearest centimeters. For testing the significance difference in physical variables, analysis of variance (ANOVA) was computed with the help of SPSS software, the level of significance was set at 0.05.

Results and Findings

Descriptive analysis of physical variables (strength, speed, agility and flexibility) among cricketers has been presented in table no 1.

Table-1: Descriptive Analysis of Fast Bowlers, Spinners and Batsmen on Strength, Speed, Agility and Flexibility

Variable	Group	N	Mean	Std. Deviation	Std. Error
Strength	Fast bowler	20	146.25	22.70	5.07775
	Spinner	20	127.30	19.56	4.37583
	Batsmen	20	146.20	15.09	3.37530
Speed	Fast bowler	20	4.8950	.377	.08444
	Spinner	20	5.0050	.370	.08287
	Batsmen	20	4.9200	.19894	.04449
Agility	Fast bowler	20	10.6750	.74472	.16652
	Spinner	20	10.5150	.54413	.12167
	Batsmen	20	10.4300	.61482	.13748
Flexibility	Fast bowler	20	35.3400	7.26175	1.62378
	Spinner	20	34.2250	6.38970	1.42878
	Batsmen	20	35.6550	6.26616	1.40116

The Analysis of Variance (ANOVA) among state level male fast bowlers, spinners and batsmen of Chandigarh is presented in table- 2.

Table 2: Analysis of Variance (ANOVA) of Fast Bowlers, Spinners and Batsman on Strength, Speed, Agility and Flexibility

Variable	Source of Variance	Sum of Squares	Df	Mean Square	F
Strength	Between Group	4775.433	2	2387.717	6.359*
	Within Group	21403.150	57	375.494	
	Total	26178.583	59		
Speed	Between Group	.133	2	.066	.624
	Within Group	6.071	57	.107	
	Total	6.204	59		
Agility	Between Group	.619	2	.309	.756
	Within Group	23.345	57	.410	
	Total	23.964	59		
Flexibility	Between Group	22.582	2	11.291	.255
	Within Group	2523.695	57	44.275	
	Total	2546.277	59		

*Significant at .05 level

$F_{.05}(2, 57) = 3.15$

The above results shows that there has been a significant difference found among fast bowlers, spinners and batsman of Chandigarh on strength variable as the obtained F value (6.359) was found to be greater than the table value of 3.15, which was required to be significant at 0.05 level, but there is no significant difference has been found on speed, agility, and flexibility variables as they obtained F values .624, .756, and .255 respectively which are less than the table value of 3.15. Further, Scheffe's post hoc test of significant was applied to find out the actual significant difference on leg strength among three groups. The results of post-hoc test have been presented in table 3.

Table 3: Significant Difference between the Paired Means of Strength among Fast Bowlers, Spinners and Batsmen of Chandigarh

Group			Mean Difference	Significant
Fast bowlers	Spinners	Batsmen		
146.25	127.30		18.95	.012*
146.25		146.20	0.05	1.000
	127.30	146.20	18.90	.012*

Table 3 clearly indicates that the significant difference existed between fast bowlers & batsmen, spinner and batsmen on leg strength since the values obtained were .012 and .012 respectively. No significant difference existed between fast bowlers & batsmen since the value obtained was 1.00. Mean scores of different three groups of state level male cricketers on leg strength are depicted graphically in fig. 1.

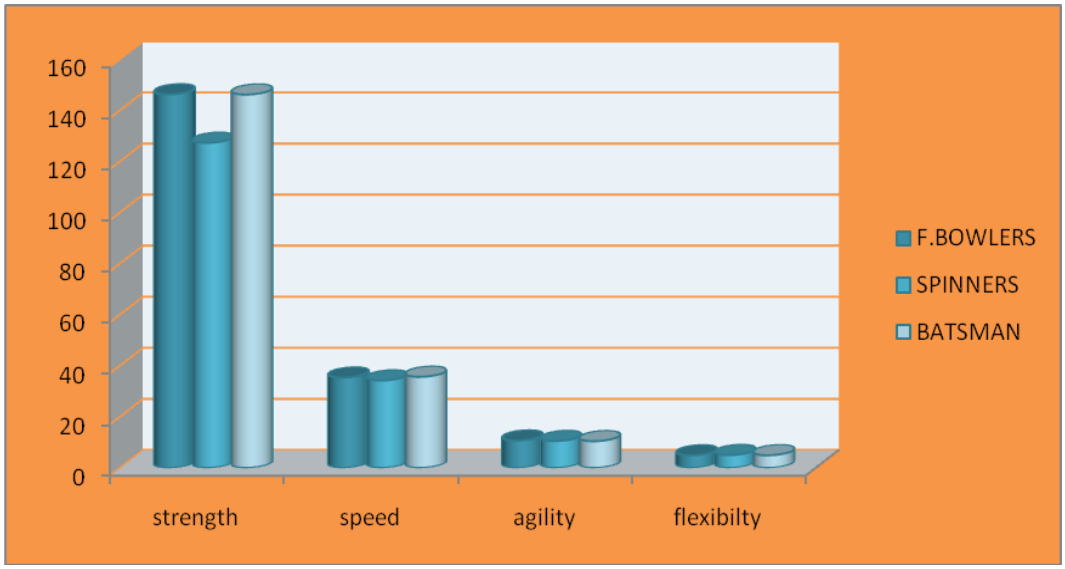

Fig 1: Graphical Representation of Mean Scores of Fast Bowlers, Spinners and Batsmen of Chandigarh on Strength, Speed, Agility and Flexibility

Discussion of Findings

The analysis of data in respect of physical variables reveals that there was significant difference obtained among fast bowlers, spinners and batsmen of Chandigarh on leg strength as the F value (6.359) was found to be greater than the table value of 3.15, which was required to be significant at 0.05 level, but there was no significant difference found on selected speed, agility, and flexibility variables as they obtained F values .624, .756, and .255 respectively which were less than the table value of 3.15.The fast bowlers need tremendous amount of strength in their muscles to execute a delivery. Their conditioning programme is also sufficiently strenuous as compared to spinners and batsmen, though batsmen also required good amount of strength while playing strokes but less than fast bowlers and more than spinners. Strength training programs of fast bowlers are heavier than batsmen and spinners. This study is supported by other study conducted by Kaul (2009) [3], a study on "anthropometric physiological and physical profiles of the cricketers" with purpose of preparing anthropometric physiological and physical profiles of cricketers. The study concluded that subjects were differ in anthropometric, physiological and physical characteristics, fast bowlers were found greater in body fat, leg length, chest girth, calf girth, lean body weight, blood pressure, hemoglobin content, vital capacity and anaerobic capacity than spinners and batsmen. But batsmen were found having lower resting pulse rate than fast bowlers and spinners. With respect of strength, speed and endurance fast bowlers were found significantly better than batsman and spinners. Kumar (2007) [5] compared on selected physical and anthropometric variables of javelin throwers and fast bowlers. He found that there was significant difference in the arm strength, back strength and weight between fast bowlers and javelin throwers. Koley *et al*. (2010) [4] conducted a cross-sectional study as of two-fold: firstly, to evaluated the back strength of Indian inter-university male cricketers and secondly, to study its relation to leg strength, along with selected anthropometric characteristics. They found statistically significant differences (0.05) in weight, BMI, thigh length, total leg length, biceps, triceps, subscapular and calf skinfolds, percentage of body fat and back strength between the cricketers and control participants.

Conclusions

1. There was significant difference obtained on leg strength among state level male cricketers of Chandigarh. State level male fast bowlers and batsmen of Chandigarh performed significantly better than sate level male spinners on the variable of leg strength.
2. No significant differences were obtained among fast bowlers, spinners and batsmen on the variables of 30 metre dash (speed), sit and reach test (flexibility) and shuttle run (agility).

References

1. Buchanan J. Learning from legends Australian cricket. Sydney: Fairfax books 2008.
2. Chappell G. The Ashes. United Kingdom: Bookbarn International 1978.
3. Kaul KT. Anthropometric physiological and physical profiles of the cricketers. Gwalior: Laxmibai National University of Physical Education 2009.
4. Koley S, Khajuria A, Melton S. The correlation betwen back strength among Indian inter-university male cricketers. Facta-Universities-series: Physical Education and Sport 2010, 125-132.
5. Kumar S. Anthropometric and physical comparison of javelin throwers and fast bowlers. A journal of all India Council of Physical Education Human Kinetics 2007, 1(2).
6. Sharma O. History of physical education. New Delhi: Khel Sahitya Kendra 2005.