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Address

• Vikram Nagar, Boudhi Chouk, Latur.
• Tq. Latur, Dis. Latur 413512 (MS.)
• (+91) 9922455749, (+91) 8999250451

Email

• aiirjpramod@gmail.com
• aayushijournal@gmail.com

Website

• www.aiirjournal.com

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Determining The Physical Fitness Of Cricket, Football And Volleyball Players

Shaikh.Shaker Raja

Research scholar ,
Dr.Babasaheb Ambedkar Marathwada University,
Aurangabad

Mohd. Abdul Bari

Director and Head,
Maulana Azad College,
Aurangabad

Abstract

The purpose of this study is to determine the physical fitness of cricket, football and Volleyball players .Total 100 cricket players selected for the present study and compare with physical fitness with 100 Football and 100 Volleyball players. Flexibility was assessed using the sit and reach test to measure lower back and hamstring flexibility. Cardiovascular fitness was assessed using 12 minute run test. Muscular Endurance was evaluated by using 1 minute Bent Knee Sit Up test. Muscular strength was measured by Kraus Webber Strength Test and Body Composition was evaluated by using Body. The result of the study shows that there were significant difference were found in physical fitness with respect to Flexibility, Muscular Endurance, Cardio-Vascular Endurance, Cardio-Vascular Endurance and Body Composition between Cricket, Football and volleyball players. However, no significant difference were found in Bend & reach Flexibility and Kraus Weber Muscular Strength between Cricket, Football and volleyball players

Introduction

Cricket is the most popular sport in India, it is played by many people in open spaces throughout the country though it is not the nation's official national sport. Modern sports' training gives greater emphasis on preparing the cricketer's physical fitness. Physical educators & coaches believe that without sound physical fitness there is little chance of successes to the higher level of competitions. Several investigations revealed that apart from somatic & psychological variables, higher level of performance is depend dent upon an athlete's physical fitness. Physical fitness is must for any good performance in games and sports. Different sports require different types of fitness emplacing on a particular fitness factor. However, general level of physical fitness is necessary for every sportsman. Physical fitness involves the performance of the heart and lungs and muscles of the body. Today in all over the world, physical educators and coaches are facing their greatest challenge in handling problems in scientific ways, that is to give their sportsmen proper and progressive guidelines based on scientific approach which leads to desired results. The importance of physical fitness programmes is linked to a higher quality of life as well as academic achievements. It is well- documented that regular physical activity in childhood and adolescence improve strength & endurance, health build, healthy bones & muscles, hips control weights, reduce anxiety and stress, increases self- esteem and may improve cardio reparatory function. Physical fitness is recognized as an important component of health (Yitzhak 2000) and it may be important for the performance of functional activities and quality of life (Salmon, Owen, Crawford, Bauman, Sallis (2003). Low physical fitness may result in high physical strain during the performance of activities (Bruining et. al. 2007). As a consequence, activity levels may decrease due to fatigue and discomfort, exacerbating low physical fitness.

Methods

Total 100 cricket players selected for the present study and compare with physical, psychological and cardiovascular fitness with 100 Football and 100 Volleyball players who were participating in intercollegiate tournament in Marathwada region of Maharashtra. A pilot study was conducted for this research, prior to the commencement of the main study. The purpose of the pilot study

is to test the feasibility and logistical aspects of the proposed study. This study will involve a descriptive study of physical characteristics with other four games non-experimental, descriptive survey design. The training related information was collected through respondents in the form of different descriptive tests.

Assessment of Physical Fitness Tests

Flexibility

Administration of tests

The following tests were taken for measuring health related physical fitness of selected collegiate students from experimental group.

Cardio – Vascular Endurance

Cardio – Vascular Endurance or Cardio – Respiratory Endurance was measure by using 12 minute Run & Walk Test. The 12 minute run test requires the person being tested to run or walk as far as possible in a 12 minute period. The objective of the test is to measure the maximum distance covered by the individual during the 12 minute period and is usually carried out on a running track by placing cones at various distances to enable measuring of the distance. A stopwatch is required for ensuring that the individual runs for the correct amount of time. When time is over, at that time investigator gives signal to stop. Subject will stand right there where he stops. Then investigator measures the crossed distance by the subject.

Muscular Endurance

Muscular Endurance was evaluated by using 1 minute Bent Knee Sit Up test. Abdominal muscular endurance was measured by performing the 1-minute bent knee sit-up test. Subject Lied on his back with knees bent at a 90-degree angle. His feet were flat on the floor. Subject interlocked his fingers behind his head, and then slowly rises to sitting position and touched his elbows to knees. Now subject let down his body back to the starting position, and repeated the process as many times as possible for the subject within one minute.

Muscular strength

- Muscular strength was measured by Kraus Webber Strength Test.
- Kraus Webber Strength Test: This test is made up by combining six physical activities or tests. These are as follows:
 - Test No. 1: The subject lied flat on back with his hands behind the neck, assistance held his feet on the ground, and performed one sit-up.
 - Test No. 2: The subject lied down with his knees were bent, with his ankles close to the buttocks and performed one sit-up.
 - Test No. 3: The subject lied flat on back with hands behind neck. Legs straightly lifted 10 inches off the floor. Subject holds his position for 10 seconds.
 - Test No. 4: The subject lied on stomach with a pillow under his lower abdomen and groin. Assistant holds his feet down. Subject lifted head, shoulders, and chest off the floor and holds for 10 seconds.
 - Test No. 5: The subject's position was the same, but the assistant holds the chest down. With straight knees, lift legs off floor and hold for 10 seconds.
 - Test No. 6: The subject stands erect. Subject keeps knees straight. Bend over slowly and touch the floor with the fingertips. Hold this position for 3 seconds.

Flexibility

Flexibility was measured by using Sit & Reach Test.

Sit & reach Test: The main aim of this test is to evaluate the flexibility of the subject. For conducting the test a stable wooden box 40 Cm's. high on one side is requires. Procedure: Subject sits bare foot with the box with both feet together with toes in line with the edge of the box. From this position he bends forward and while keeping his knees straight. He extends his hands along the scale as forward as possible. Both the hands should be parallel. At a maximum reach he holds the position for about 2 seconds. Scoring: The result is read from the scale. Two attempts are given at recovery rest of 30 seconds. In case a subject is not able to extend his hands even to the level of the box then the distance from the 0 Cm's. Mark to the tip of middle finger should be measured with a scale and recorded as negative score.

Mass Index (BMI).

Body Mass Index is calculated from [body mass](#) (M) and [height](#) (H). $BMI = M / (H \times H)$, where M = body mass in kilograms and H = height in meters. The higher score of the Body Mass Index usually indicates higher levels of body fat. **Scoring:** Use the BMI table to determine BMI rating. The rating scale is the same for males and females. You can also use the reverse lookup [BMI table](#) for determining your ideal weight based on height.

Data processing:

The data was checked for accuracy and completeness and was coded and entered into the Statistical Package for Social Sciences (SPSS).one way analysis of variance and a p-value of <0.05 consider statistically significant throughout the study.

Interpretation Of Data And Results Of The Study

The results have been presented in concise and comprehensive manner that is easy to comprehend starting with parameter.

Table – 1

Training Related Information Of Cricket, Football And Volleyball Players

Sr.No.	Components	Cricket		Football		Volleyball	
		Mean	SDS	Mean	SDS	Mean	SDS
1)	Training days (Week)	3.45	0.86	4.31	1.08	4.12	0.96
2)	Training duration (Hours)	2.12	0.67	4.50	1.18	2.04	0.34
3)	Competition in one year	11.78	2.15	16.78	3.12	21.45	3.67

Table -1 illustrates the morphological characteristics of Cricket , Football and Volleyball players. The mean score (S.Ds.) Training days (Week) of Cricket players were 3.45 (0.86) cm., mean score (S.Ds.) Training duration (Hours) of Cricket players were 2.12 (0.67) cm., mean score (S.Ds.) Training duration (Hours) of Cricket players were 2.12 (0.67) cm., mean score (S.Ds.) Competition in one year of Cricket players were 11.78 (2.15) cm., In addition, the mean values (S.Ds.) Training days (Week) of Football players were 4.31 (1.08) cm.,mean values (S.Ds.) Training duration (Hours) of Football players were 4.50 (1.18) cm.,mean values (S.Ds.) Competition in one year of Football players were 16.78 (3.12) cm., Furthmore, the Means (S.Ds.) Training days (Week) of Volleyball players were 4.31 (1.08) cm., Means (S.Ds.) Training duration (Hours) of Volleyball players were 4.12 (0.96) cm., Means (S.Ds.) Training duration (Hours) of Volleyball players were 2.04 (0.34) cm., Means (S.Ds.) Competition in one year of Volleyball players were 21.45 (3.67) cm.,

Table -2
Mean Scores And Standard Deviation Of Physical Fitness
Among Cricket , Football And Volleyball Players

Components	Players	No.	Means	S.Ds
Flexibility	Cricket players	100	15.89	2.31
	Football players	100	15.20	2.16
	Volleyball players	100	15.15	2.60
Sit and Reach Flexibility	Cricket players	100	14.30	2.31
	Football players	100	14.87	2.23
	Volleyball players	100	15.06	2.26
Muscular Endurance BENT KNEE SIT UPS	Cricket players	100	56.08	5.67
	Football players	100	52.90	5.34
	Volleyball players	100	48.89	5.13
Cardio-Vascular Endurance	Cricket players	100	1980.09	212.98
	Football players	100	2089.98	225.90
	Volleyball players	100	1806.78	201.07
Body Composition	Cricket players	100	21.56	4.11
	Football players	100	20.23	3.45
	Volleyball players	100	21.45	4.89
Kraus Weber Muscular Strength	Cricket players	100	20.80	2.40
	Football players	100	19.23	2.13
	Volleyball players	100	19.04	2.04

Table-2 illustrates the Mean scores and standard deviation of Physical fitness among cricket players football players and volleyball players.

Table – 3
Comparison Of Physical Fitness Of Cricket, Football And Volleyball Players

Sr. No.	physical fitness	Source of Variance	DF	SS	MSS	F-ratios
1.	Bend & reach Flexibility	Between group	2	4.56	2.28	1.90 NS
		Within group	297	356.78	1.20	
2.	Flexibility	Between group	2	7.98	3.99	2.96 *
		Within group	297	398.78	1.34	
3.	Muscular Endurance	Between group	2	9.56	4.78	4.12*
		Within group	297	345.67	1.16	
4.	Cardio-Vascular Endurance	Between group	2	45.89	22.95	4.06*
		Within group	297	1678.05	5.65	
5.	Body Composition	Between group	2	11.88	5.94	3.85*
		Within group	297	458.89	1.54	
6.	Kraus Weber Muscular Strength	Between group	2	8.37	4.18	2.76 NS
		Within group	297	450.93	1.51	

Table – 3 , Illustrates the f-ratio of physical fitness of Cricket, Football and volleyball players.

Discussion

The purpose of this study is to determine the physical fitness of cricket, football and Volleyball players. With regards to mean score Bend & reach Flexibility Cricket players was obtained 15.89 , mean score of Bend & reach Flexibility of Football players was 15.20 and the mean score of Bend & reach

Flexibility of Volleyball players was 15.15 respectively. However the standard deviation of Bend & reach Flexibility of Cricket players was obtained 2.31, standard deviation of Bend & reach Flexibility of Football Players was obtained 2.16 and standard deviation of Bend & reach Flexibility of volleyball players was obtained 2.60 respectively, With regards to mean score of Flexibility (Sit and Reach) of Cricket players was obtained 14.30, mean score of Bend & reach Flexibility of Football players was 14.87 and the mean score of Flexibility (Sit and Reach) of Volleyball players was 15.06 respectively. However the standard deviation of Flexibility (Sit and Reach) of Cricket players was obtained 2.31 , Flexibility (Sit and Reach) of Football Players was obtained 2.23 and Flexibility (Sit and Reach) of Volleyball Players was obtained 2.26 respectively, With regards to mean score of Muscular Endurance of Cricket players was obtained 56.08, The mean score of Muscular Endurance of Football players was 52.90 and mean score of Muscular Endurance of Volleyball players was 48.89 respectively. However the standard deviation of Muscular Endurance of Cricket players was obtained 5.67, Muscular Endurance of Football Players was obtained 5.34 and standard deviation of Muscular Endurance of Volleyball Players was obtained 5.13 respectively, With regards to mean score of Cardio-Vascular Endurance of Cricket players was obtained 1980.09, The mean score of Cardio-Vascular Endurance of Football players was 2089.98 and mean score of Cardio-Vascular Endurance of Volleyball players was 1806.78 respectively. However the standard deviation of Cardio-Vascular Endurance of Cricket players was obtained 212.98, Cardio-Vascular Endurance of Football Players was obtained 225.90 and standard deviation of Cardio-Vascular Endurance of Volleyball Players was obtained 1806.78 respectively, With regards to mean score of Body Composition of Cricket players was obtained 21.56, The mean score of Body Composition of Football players was 20.23 and mean score of Body Composition of Volleyball players was 21.45 respectively. However the standard deviation of Body Composition of Cricket players was 4.11, Body Composition of Football Players was obtained 3.45 and standard deviation of Body Composition of Volleyball Players was obtained 4.89 respectively, With regards to mean score of Kraus Weber Muscular Strength of Cricket players was obtained 20.80, The mean score of Kraus Weber Muscular Strength of Football players was 19.23 and mean score of Kraus Weber Muscular Strength of Volleyball players was 19.04 respectively. However the standard deviation of Kraus Weber Muscular Strength of Cricket players was 2.40, Kraus Weber Muscular Strength of Football Players was obtained 2.13 and standard deviation of Kraus Weber Muscular Strength of Volleyball Players was obtained 2.04 respectively, The result of the study shows that there were significant difference were found in physical fitness with respect to Flexibility, Muscular Endurance, Cardio-Vascular Endurance, Cardio-Vascular Endurance and Body Composition between Cricket, Football and volleyball players. However, no significant difference were found in Bend & reach Flexibility and Kraus Weber Muscular Strength between Cricket, Football and volleyball players.

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