

## RELATIONSHIP BETWEEN MODIFIED BASS TEST AND Y BALANCE TEST: AN EXPERIMENT ON UNIVERSITY VOLLEYBALL PLAYERS

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**How to cite this article:** Ghosh, K., Chatterjee, K., & Biswas, S. (September 2021). Relationship between modified Bass Test and Y Balance Test: An experiment on university volleyball players. Journal of Physical Education Research, Volume 8, Issue III, 20-24.

**Received:** July 14, 2021

**Accepted:** September 25, 2021

### ABSTRACT

*The Purpose of the study was to find out the similarity between two different methods of balance test namely Modified Bass Test and Y Balance Test to measure Balance. For the purpose of the study 15 male university level volleyball players, from Visva-Bharati, Santiniketan, Birbhum, West Bengal were selected as subjects for this study. The age of the subjects was 22-25years. Modified bass test, Y-balance test Composite score of right leg and Y-balance test Composite score of left leg were considered as the variables of the study. Pearson product movement correlation coefficient was used to find out the relationship. The level of significance was set at 0.05 levels. The result shows that there was a positive relationship between Modified bass test and Y-balance test Composite Score of right and left leg of university level male volleyball players. Positive relationship was found between Modified Bass Test and Y-Balance Test Composite Score of Right & Left leg of university level male Volleyball players.*

**Keywords:** Modified bass test, Y-balance test, volleyball.

### 1. INTRODUCTION

Sport is accepted as part of society and culture throughout the world. Sports and games also effect on social processes, human values, social life and International affairs. It is Universal in the sense that it is practiced in every country and yet it does not always take the same form in each country (Murthy, 2018).

Sport is a combination of three different domain that is cognitive domain, Psychomotor domain and affective domain. Out of Psychomotor domain coordination plays an important role in modern sports. Balance is one of the major factor for good coordination.

Balance is accomplished through the complex process of identifying the movements of the body through the sensory organs, inputting them into the central nervous system, sending them out to the musculoskeletal system after sensory integration, and then performing the reaction. Balance is an indispensable element in all functional activities of daily life, including standing up, sitting, and walking (Yavuzer et al., 2006).

Balance is an ability to maintain a posture through the interactions between the musculoskeletal system and the nervous system and to maintain a state of equilibrium while keeping the center of gravity within the base of support (Nichols, 1996). Various neurophysiological and mechanical factors can affect the balance. Features such as height, weight body composition, base of support, the distance of center of mass from the ground, the length and weight of each limb, the length of muscles' torque arm and the mass

distribution in different body points can mechanically affect the individuals' balance (Palmieri et al., 2003).

Balance can be divided in to two parts-such as Static and Dynamic Balance. Dynamic balance is an important factor in day to day activities like sitting, standing, walking and also essential components for sports activities. There is various method to measure the dynamic balance like Modified bass test, Star excursion balance test, Y balance Test etc.

After reviewing different test batteries which measure the balance of the individual, the researchers thought that how much similarity exist between the results of different test batteries. To identify & verify the similarity between the result the researcher conducted this research between Modified Bass Test and Y-Balance Test .For the purpose of the research the study was conducted on University Level volleyball players of west Bengal. Because Volleyball is a game which demand high level of motor qualities and the game required repeated maximum jump to execute the skills such as spiking and blocking and also required greater agility to perform other defensive skills. For that the players required a great amount of balance. That's why the researcher thought to conducted this study on volleyball players. Thus, the Purpose of the study is to find out the similarity between two different methods of balance test namely Modified Bass Test and Y balance Test; the experiment was done on University level Volleyball players.

## 2. METHODS AND MATERIALS

### 2.1 Participants

The objective of the study was to investigate the similarity between two different methods of balance test namely Modified Bass Test and Y Balance Test. The experiment conducted on 15 male university level volleyball players, from Visva-Bharati, Santiniketan, West Bengal, India. Those players were selected who have at least 5 years of training experience and their fitness were at the top of that level and the age of the subjects were 22-25years.

### 2.2 Criterion Measure

Variable	Test	Unit
Dynamic Balance	Modified Bass Test (MBT)	Scores
	Y-Balance Test Composite Score of Right leg (YBT-CSRL)	C.M
	Y-Balance Test Composite Score of Left leg(YBT-CSLL)	C.M

### 2.3 Data Collection

An informed consent was obtained from the samples prior data collection. It was also assured that all selected participants were free from any form of injury. Proper demonstration and information related with the test was given to the participants. After establishing a good faith researcher approached for final data collection. The data was collected in two alternative days, on the first day data was collected on modified bass test and then on the next day on Y balance test.

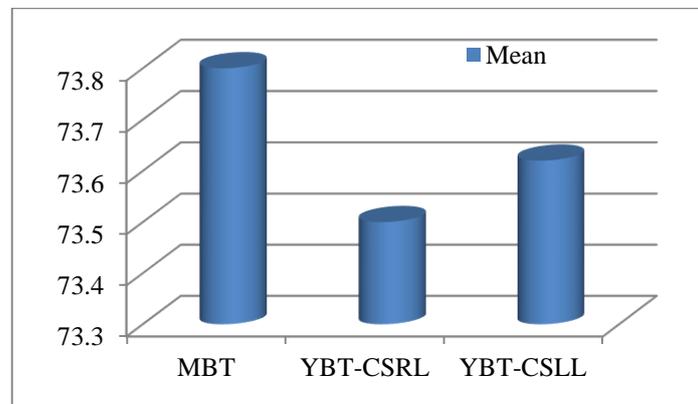
### 2.3 Statistical Procedure

To find out the similarity to measure the Dynamic Balance between two different methods of balance test, the data was collected from volleyball players, Pearson product movement correlation coefficient was used. The level of significance was set at 0.05 levels.

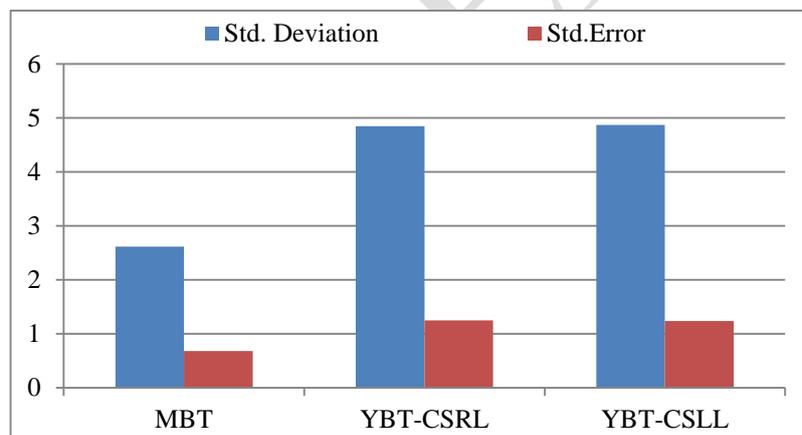
### 3. RESULTS

**Table 1: Mean, standard deviation and standard error of different methods of balance test**

Dynamic Balance	Mean	Standard Deviation	Standard Error
MBT	73.80	2.62	0.68
YBT-CSRL	73.50	4.85	1.25
YBT-CSLL	72.62	4.87	1.26



**Figure 1: Graphical presentation of Mean of MBT, YBT-CSRL and YBT-CSLL of volleyball players**



**Figure 2: Graphical presentation of Standard Deviation and Standard error of MBT, YBT-CSRL and YBT-CLL of Volleyball players**

**Table 2: Pearson Correlation Coefficients between MBT and YBT-CSRL, YBT-CSLL of Volleyball Players**

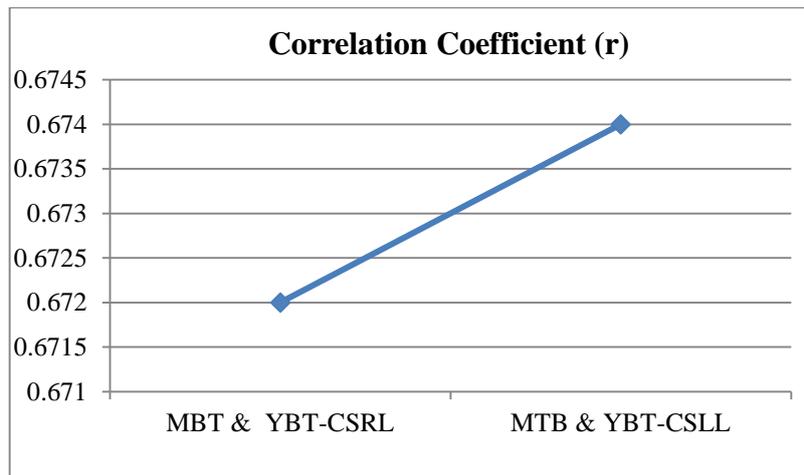
Variables	N	Correlation Coefficient (r)	Significant level (0.05)
MBT & YBT-CSRL	15	0.672*	0.514
MBT & YBT-CSLL	15	0.674*	

(MBT= Modified Bass Test, YBT-CSRL= Y-Balance Test Composite Score of Right leg, YBT-CSLL= Y-Balance Test Composite Score of Left leg)

\*Significant

The result shows that there is positive Correlation between Modified Bass Test (MBT) and Y-Balance Test Composite Score of Right Leg (YBT-CSRL) that is  $r = 0.672$ .

The result also indicate a positive Correlation between Modified Bass Test (MBT) and Y-Balance Test Composite Score of Left Leg (YBT-CSLL) that is  $r = 0.674$  at 0.05 level of significance.



**Figure 3: Graphical presentation of Correlation Coefficient between MBT & YBT-CSRL and MBT & YBT-CSLL**

#### 4. DISCUSSION

The Study was formulated to find out the similarity between two established balance tests. The result shows a positive correlation between Modified Bass Test and Y Balance Test Composite score of Right Leg ( $r = 0.672$ ) and Modified Bass Test and Y Balance Test Composite score of Left Leg ( $r = 0.674$ ). It means the two sets of data are more than 67% similar on university level Volleyball players who were acted as subjects for this study.

The reason behind it all the subject were well trained volleyball players and they have played for their university several time and having at list 5 years of training age. Secondly the method of the testing between Y-Balance Test and Modified Bass Test are quite similar that's why the result shows more that 67% similarity.

The balance depends on Somatosensory, Vestibular and Visual System provides input regarding the body's equilibrium and thus maintains balance. Lions, C.et al. reported that Proprioceptive information from spino-cerebellar pathways, processed unconsciously in the cerebellum, are required to control postural balance (Lions, BuiQuoc, Wiener-Vacher, & Bucci, 2014; Sherrington, 1906). The subjects were well trained in volleyball, due to their volleyball training neuromuscular co-ordination has developed in optimum level that may be another reason for this result.

Gonell, Romero, and Soler, (2015) stated that YBT is a Functional test that requires physical strength, flexibility and neuromuscular control, stability, range of movement, balance and proprioception.

Mendonça, Bitterncourt, and Santos, (2016) reported their study dynamic stability which is tested by Y Balance Test depends on factors such as muscle strength, co-contraction, flexibility, passive stiffness of the lower limbs and lumbopelvic stability. At the last the researcher is in thought that if the research can conduct with large sample size, the similarity between two test increases in adequate manner.

#### 5. CONCLUSION

The objective of the study was to investigate the similarity between two different methods of balance test namely Modified Bass Test and Y balance Test. The experiment conducted on

15 male university level volleyball players, from Visva-Bharati, Santiniketan, West Bengal, India. The result indicates a Positive Corelation between Modified Bass Test and Y-Balance Test Composite Score of Right leg. Similarly, a Positive relationship was found between Modified Bass Test and Y-Balance Test Composite Score of Left leg. Overall it can be concluded that these two test batteries are 67% similar in judging the dynamic balance abilities on university volleyball players.

## 6. ACKNOWLEDGEMENTS

The authors want to express sincere gratitude and special thanks to the participants of Visva-Bharati, Santiniketan, Birbhum, West Bengal, India who voluntarily participated in this study and for their immense contributions and endless support to complete the current study. We would also like to acknowledge the Coaches.

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