

## **A Study of Relationship between Height and Selected Body Parts Flexibility of College Level Male Athlete**

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**Abstract:** For the purpose of study sixty (N=60) young healthy college male athletes were selected as subjects from Post Graduate Government Institute For Physical Education, Banipur, North 24 Parganas (West Bengal) to measure height and flexibility (Hyper extensibility of spine, Trunk and neck extension ability, Shoulder and wrist flexibility, Extension of shoulder, Extension of hamstring muscle, Extension of leg from front to rear, Extension in spreading the leg apart, Ankle extension ability). Height was measured by Anthropometric road in (cm), Hyper extension of spine was measured by Bridge up test in (inch), Trunk and neck extension ability was measured by Trunk and extension test in (inch), Shoulder and wrist flexibility was measured by Shoulder and wrist elevation test in (inch), Extension of shoulder was measured by shoulder rotation test in (inch), Extension of hamstring muscles was measured by Modified by sit and reach test in (inch), Extension of leg from front to rear was measured by Front to rear splits test in (inch), Extension in spreading the legs apart was measured by side splits test in (inch), Ankle extension ability was measured by Ankle extension (planter flexion) test in (inch). The age ranged from 22 to 28 years. For analysis of data mean and standard deviation of the variables were calculated. To test the relationship between height and flexibility of different body parts Pearson's Product moment correlation co efficient were used at the level of 0.05 level of confidence. The positive result has been found in respect of Hyper extensibility of spine, Trunk and neck extension ability, Shoulder and wrist flexibility, extension of hamstring muscle, Extension of leg from front to rear and Ankle extension ability with Height. But in case of extension of shoulder and Extension in spreading the leg apart negative insignificant correlation with Height has come.

**Key Words:** Height, Flexibility

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### **I. Introduction**

Millions of people around the world participate in some or other kind of sports in different levels. Taking part in sports and physical activities is the internal urge of every individual but the success depends upon various factors like anthropometric variables, physical fitness, physiological functioning of the body, psychological characteristics etc.

An anthropometric characteristic, particularly height, is the structural aspect of human machine. Human height is the distance from the bottom of the feet to the top of the head in a human body, standing erect. It is usually measured in centimeters, when using the metric system, and feet and inches when using imperial system. Height can significantly influence the success of sport performance to a considerable extent. In general taller athletes have advantages over shorter athletes in many sports. A taller boxer with a large reach can make contact with his punches while keeping his head out of his opponents reach. Taller swimmers can cover more distance and outreach their shorter opponents. Taller basketball players can more easily block shots and out-rebound shorter players. Taller volleyball player have an advantage at the net because they usually can stick the ball at a greater height and block shots more effectively. Sometimes shorter is better, the main advantages of shorter athletes is quickness and agility. Quickness can be helpful in basketball when shorter, more agile players have to get past taller, slower opponents. And in gymnastics being shorter, lighter and strong for their size gives gymnast an advantage over taller gymnast.

Flexibility is considered as an essential element of normal biomechanical functioning in sport. Flexibility indicates range of motion around the joints. More flexibility means to move the joint easily in various directions; on the other hand less flexibility indicates less movements or deficit in the range of motion. Quality of flexibility helps in the enhancement of sports performance and also active life style. The literature report shows a number of associated benefits of flexibility including improved athletic performance, reduced injury risk, prevention and reduction of post exercise soreness and improved co-ordination. Flexibility varies from person to person. Everyone have a predetermined range of motion of degree of flexibility. Flexibility is joint specific. This means that a person can be flexible in one joint and at the same time lack flexibility in another. This makes determining of scoring of individuals overall range of motion very difficult. Some joint allow motion in only one plane such as flexion and extension as the hinge joint perform in fingers. On the other hand

ball and socket joints located in the shoulder and hip allow movement in much different directions, such as flexion, extension, adduction, abduction, internal rotation and external rotation.

From the above point of view it can be identified that height and flexibility is one of the important components for achieving success in many sports. After knowing all the important information regarding height and flexibility it is also important to find out relationship between height and flexibility so that the unknown result or conclusion can be obtained.

Thus the present study has been attempted by the investigator to determine the relationship between height and different body parts flexibility of college level male athletes.

## II. Purpose Of The Study

Purpose of the present study was to determine the relationship between height and different body parts flexibility of college level male athletes.

## III. Methodology

For the purpose of study sixty (N=60) young healthy college male athletes were selected as subjects from Post Graduate Government Institute For Physical Education, Banipur, North 24 Parganas (West Bengal) to measure height and flexibility (Hyper extensibility of spine, Trunk and neck extension ability, Shoulder and wrist flexibility, Extension of shoulder, Extension of hamstring muscle, Extension of leg from front to rear, Extension in spreading the leg apart, Ankle extension ability). Height was measured by Anthropometric road in (cm), Hyper extension of spine was measured by Bridge up test in (inch), Trunk and neck extension ability was measured by Trunk and extension test in (inch), Shoulder and wrist flexibility was measured by Shoulder and wrist elevation test in (inch), Extension of shoulder was measured by shoulder rotation test in (inch), Extension of hamstring muscles was measured by Modified by sit and reach test in (inch), Extension of leg from front to rear was measured by Front to rear splits test in (inch), Extension in spreading the legs apart was measured by side splits test in (inch), Ankle extension ability was measured by Ankle extension (planter flexion) test in (inch). The age ranged from 22 to 28 years.

## IV. Statistical Analysis

For analysis of data mean and standard deviation of the variables were calculated. To test the relationship between height and flexibility of different body parts Pearson's Product moment correlation coefficient were used at the level of 0.05 level of confidence.

**Table -1 Representing Mean and standard Deviation of different variables**

Sl. No	Name of the variables(Unit)	Mean	SD
1	Height(cm)	165.67	6.18
2	Hyper extensibility of spine (inch)	15.14	3.01
3	Trunk and neck extension ability(inch)	11.11	3.25
4	Shoulder and wrist flexibility(inch)	14.94	3.78
5	Extension of shoulder(inch)	21.00	6.39
6	Extension of hamstring muscle(inch)	16.69	1.67
7	Extension of leg from front to rear(inch)	8.57	3.41
8	Extension in spreading the leg apart(inch)	9.92	2.31
9	Ankle extension ability(inch)	0.30	0.35

**Table-2 Representing Coefficient of Correlation of different Body parts Flexibility with Height of Male College Athletes**

Sl No.	Name of the variables(Unit)	Coefficient of Correlation 'r'
1	Hyper extensibility of spine (inch)	0.156
2	Trunk and neck extension ability(inch)	0.039
3	Shoulder and wrist flexibility(inch)	0.087
4	Extension of shoulder(inch)	-0.143
5	Extension of hamstring muscle(inch)	0.001
6	Extension of leg from front to rear(inch)	0.027
7	Extension in spreading the leg apart(inch)	-0.091
8	Ankle extension ability(inch)	0.074

\*Significant table value of 'r' in P<0.05 level at df (58) = 0.273

From table-2, it observed that Hyper extensibility of spine, Trunk and neck extension ability, Shoulder and wrist flexibility, extension of hamstring muscle, Extension of leg from front to rear and Ankle extension ability have positive insignificant correlation with Height. Extension of shoulder and Extension in spreading the leg apart have negative insignificant correlation with Height.

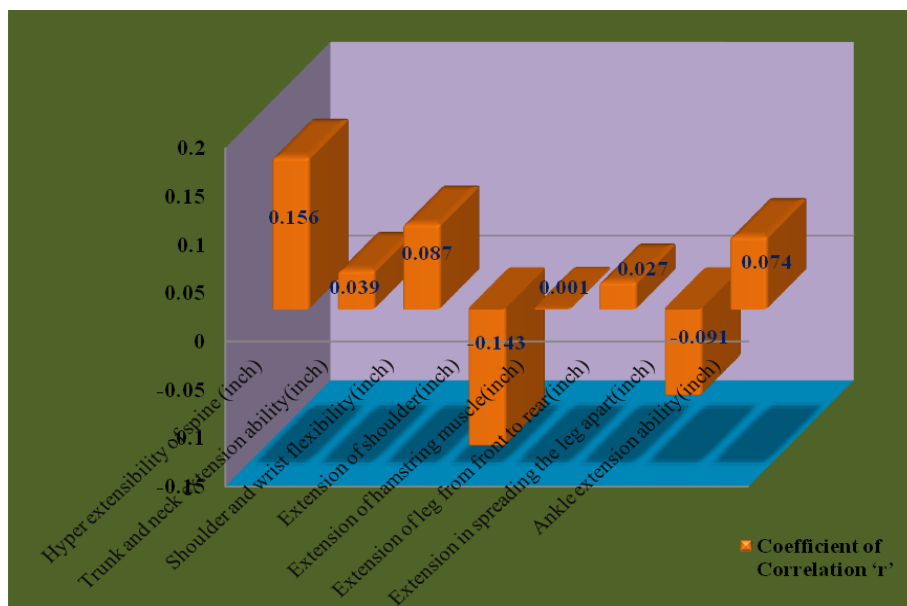


Fig-1 Graphical Representation of Coefficient of Correlation of different Body parts Flexibility with Height of Male College Athletes

### V. Discussion And Findings

The analysis of data reveals a positive insignificant relationship between hyper extensibility of spine, trunk and neck extension ability, shoulder and wrist flexibility, extension of hamstring muscle, extension of leg from front to rear and ankle extension ability with height and negative insignificant relation between extension of shoulder and extension in spreading the leg with height.

Flexibility is measured by determining the range of movement possible at a joint. This has given an idea that flexibility in joint specific and flexibility also depends upon anatomical structure of joint, ligaments of the joints, stretch ability of muscle, co ordination and strength. The findings of the present study supported by Alter.

### VI. Conclusion

Thus from the above discussion, it may conclude that height of the young college level athletes have no significant relation with the flexibility of the different body parts of the same athletes.

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