

## A Relative Study Of Anthropometric Measurements and Selected Motor Fitness Variables Among Elite Athletes In Hyderabad

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### Abstract

**Objective:** To examine the relative study of anthropometric measurements and selected motor fitness variables among elite athletes in Hyderabad. **Method:** A sample of (N=90) subjects were selected For this study total 90 Male Elite Athletes i.e. 30 Male Sprinters, 30 jumpers and 30 Male Throwers .The selected 90 subjects were 20±2years of age. And the anthropometric measurements (Height,Leg length,) and conducted the motor fitness tests(50M dash for speed,Standing broad jump for explosive power) of those subjects were taken.after collection of data to compare sprinters,jumpers and throwers with respective of motor fitness variables i.e explosive power and speed of those subjects statistical analysis done by one-way anova.to check the mean differences banferroni post hoc tests were done of those subjects. **Results:** The results of the study indicates that there will be a significance difference among sprinters,jumpers, and throwers with respective of anthropometric measurements (weight,Arm and Thigh girth) and motor fitness variables(Speed,Explosive power) .Keywords: Anthropometric measurements,motor fitness variables, Elite athletes etc

### INTRODUCTION

Sports serve vital social and cultural functions the importance of which can hardly be exaggerated. The contribution of sports towards the overall welfare of the human society and Sports help in the all round development of human personality. Provide ample and healthy means for recreation and relaxation of human mind and body.

### Anthropometric Variables

Anthropometry is the measurement of body size and proportions. The measurements include body weight, height, circumference, skin fold thickness and bony widths and lengths(Heyward, 2006). Anthropometry is a branch of science concerned with comparative measurement of the human body, its part, and its proportions and compositions. It is the study of measurement of the human body in terms of the dimensions of bone, muscle and adipose tissue.

## **ANTHROPOMETRY AS A SELECTIVE DIAGNOSTIC PARAMETER IN SPORTS**

Anthropometry, the science of human physical measurement, has wide application as one of the essential parameters consisting the selective diagnostic of any game or sport. Selective diagnostic includes the various sport medical parameters, facilitating the assessment of the comprehensive functional fitness of the sports participant. The study of “Body types” has a significant place in the field of sport. The majority opinion was that certain correlation existed between body build, physical characteristics and motor capacity. In modern sports the anthropometric measurements and their relationship with physical fitness will be the important guide for the coaches and athletes themselves for making training schedule and for classification of students into different groups according to their age, ability etc.

### **Anthropometric Advantage In Sports And Games**

The physical structure, especially the height, has definite and decisive advantage in game or sport. Similarly, segmental length of individual body parts, the leg length especially, is of considerable advantage in selected events in athletics and certain games jumping ability and sprinting.

### **Significance of the Study**

The research” A study on anthropometric measurements and selected motor fitness variables among elite athletes in Hyderabad” useful as fallow

1. The result of this study is useful to teachers, coaches, trainers, sports students and those who are involved in competitive sports.
2. This study is add to the knowledge in the area of sports training and sports coaching.
3. This study may help the future scholars to select problem related to this study.
5. The findings may be helpful in identifying the strength and weakness of the subjects.

### **AIM OF THE STUDY**

To compare the anthropometric measurements among and motor fitness variables sprinters,jumpers and throwers of elite athletes of Hyderabad.

### **METHODOLOGY**

#### **SELECTION OF THE SUBJECTS**

A sample of (N=90) subjects were selected For this study total 90 Male Elite Athletes i.e. 30 Male Sprinters, 30 jumpers and 30 Male Throwers and The selected 90 subjects were 20±2years of age. And the anthropometric measurements (Height, Leg length,) and conducted the motor fitness tests(50M dash for speed, Standing broad jump for explosive power) of those subjects were taken.after collection of data to compare sprinters, jumpers and throwers with respective of motor fitness variables i.e explosive power and speed .

**SELECTION OF VARIABLES**

The investigator reviewed the available scientific literature on the basis of discussion with experts, feasibility criteria, and availability of equipment’s and relevance of the present study variable. Selected Motor Fitness variables are – Speed and Explosive power. Speed by administering 50M Dash and Explosive Power by administering Standing broad Jump test.

**COLLECTION OF DATA**

In order to collect the data test were administrated the score were recorded in the observed readings for the group.

**Statistical Technique**

After all the data procured the researcher used one way Anova test for statistical analysis to find comparison among the sprinters,jumpers,throwers with respective of Anthropometric measurements and motor fitness variables. Then to check the mean differences of anthropometric measurement and motor fitness variables among sprinters,jumpers,throwers Banferroni post hoc test was performed and significant relations and insignificant relations were found.

**Results**

The results of the study indicates that there was a significance difference between anthropometric measurements and selected motor fitness variables among sprinters,jumpers,throwers. It was hypothesized that there was significance difference between anthropometric measurements and selected motor fitness variables among sprinters,jumpers,throwers . Hence the hypothesized was accepted.

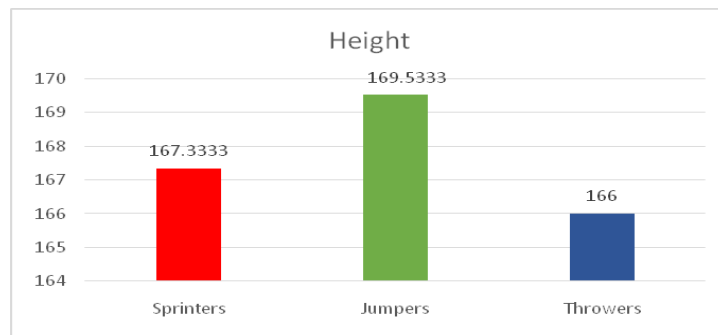
**TABLE – 1 One way ANOVA table of Height in sprinters,jumpers.throwers (Units in centi meters)**

S.No	APM	N-90	Groups	Mean	S.D	SV	SS	df	MS	F	Sig.
1	Height	30	Sprinters	167.33	3.19	BG	191.02	2	95.51	22.32	.000
		30	Jumpers	169.53	1.00						
		30	Throwers	166.00	1.25	WG	372.13	87	4.27		

\*The table value required at df2 and df 87 is 3.10 at 0.05 significant level.

Figure-1

Graph represent the difference of Height between Sprinters, Jumpers and Throwers



**DISCUSSION**

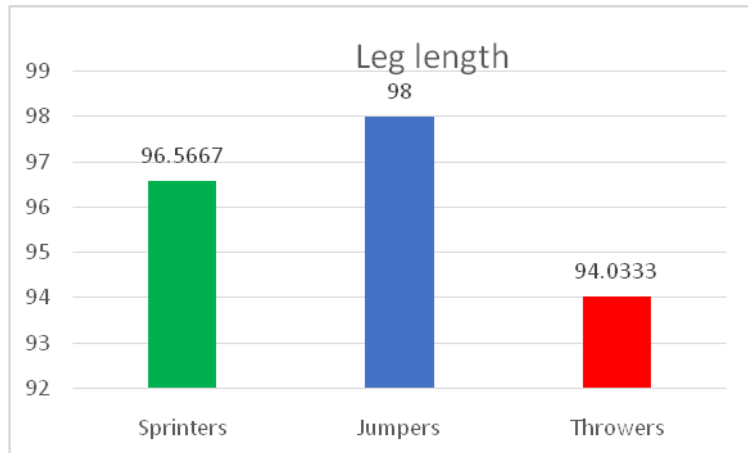
Researcher conducted the Oneway Anova of the Height among sprinters,jumpers and throwers and get the statistics of Mean and Standard deviation and F-ratio.Mean of the Height in sprinters,jumpers and throwers respectively 167.33,169.53,166.00 and standard deviation3.19,1.00,1.25 respectively and researcher conducted the Anova and result was between groups sum of squares was 191.02 with in groups 372.13 And the F-ratio was 22.32 and significance is .000 is less than the table value 3.10 so there is difference among subjects to see the how much difference researcher did the post hoc test for differences there was significant relation betwixt sprinters and throwers, and Jumpers and throwers.**TABLE – II One way ANOVA table of Leg length in sprinters,jumpers.throwers**

(Units in centimetres)

S.no	APM	N-90	Groups	Mean	S.D	SV	SS	df	MS	F	Sig.
1	Leg length	30	Sprinters	96.56	3.23	BG	242.06	2	121.03	30.75	.000
		30	Jumpers	98.00	.69						
		30	Throwers	94.03	.92	WG	342.33	87	3.93		

\*The table value required at df2 and df 87 is 3.10 at 0.05 significant level.

**Figure – 2 :Graph represent the difference of Leg length Among Sprinters, Jumpers and Throwers**



**Discussion**

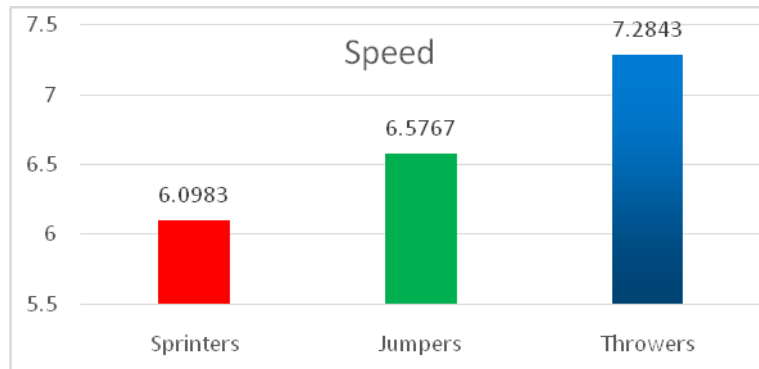
Researcher conducted the Oneway Anova of the Leg length among sprinters, jumpers and throwers and get the statistics of Mean and Standard deviation and F-ratio. Mean of the Leg length in sprinters, jumpers and throwers respectively 96.56,98.00,94.03 and standard deviation 3.23,.69,.92 respectively and researcher conducted the Anova and result was between groups sum of squares was 242.06 with in groups 342.33 And the F-ratio was 30.75 and significance is .000 is less than the table value 3.10 so there is difference among subjects to see the how much difference researcher did the post hoc test for differences there was significant relation betwixt sprinters and throwers, and Jumpers and throwers.

**TABLE – III:One way ANOVA table of Speed in sprinters,jumpers.throwers**  
(Units in Seconds)

\*The table value required at df2 and df 87 is 3.10 at 0.05 significant level.

S.No	MFC	N-90	Groups	Mean	S.D	SV	SS	df	MS	F	Sig.
1	Speed	30	Sprinters	6.0983	.15079	BG	21.362	2	10.681	81.402	.000
		30	Jumpers	6.5767	.58839						
		30	Throwers	7.2843	.15714	WG	11.415	87	.131		

**Figure – 3**Graph represent the difference of Speed between Sprinters, Jumpers and Throwers



**DISCUSSION** :Researcher conducted the Oneway Anova of the Speed among sprinters,jumpers and throwers and get the statistics of Mean and Standard deviation and F-ratio.Mean of the Speed in sprinters,jumpers and throwers respectively6.09,6.57,7.28 and standard deviations .15,.58,.15respectively and researcher did the Anova And the F-ratio was 81.40 and significance is .000 is less than the table value 3.10 so there is difference among subjects to see the how much difference researcher did the post hoc test for differences there was significant relation betwixt sprinters and throwers, and Jumpers and throwers.

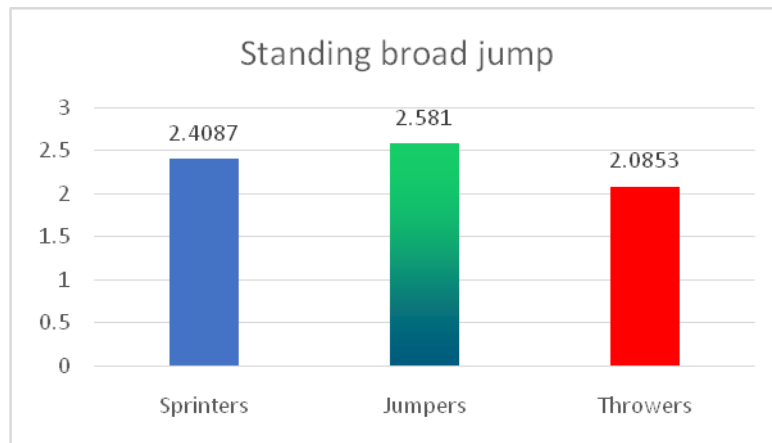
**TABLE-IV**One way ANOVA table of Standing broad jump in sprinters,jumpers.throwers

(Units in meters)

S.no	MFC	N-90	Groups	Mean	S.D	SV	SS	df	MS	F	Sig.
1	Standing Broad jump	30	Sprinters	2.4087	.23068	BG	3.799	2	1.900	60.650	.000
		30	Jumpers	2.5810	.14620						
		30	Throwers	2.0853	.13920	WG	2.725	87	.031		

\*The table value required at df2 and df 87 is 3.10 at 0.05 significant level

**Figure-4:Graph represent the difference of Standing broad jump(Explosive power) Among Sprinters, Jumpers and Throwers**



**Discussion:** Researcher conducted the Oneway Anova of the Standing broad jump among sprinters, jumpers and throwers and get the statistics of Mean and Standard deviation and F-ratio. Mean of the Standing broad jump in sprinters, jumpers and throwers respectively 2.40, 2.58, 2.08 and standard deviations .23, .14, .13 respectively and researcher did the Anova and result was between groups sum of squares was 3.79, with in groups 2.72 And the F-ratio was 60.65 and significance is .000 is less than the table value 3.10 so there is difference among subjects to see the how much difference researcher did the post hoc test for differences there was significant relation betwixt sprinters and throwers, and Jumpers and throwers.

**Conclusion:**

Within the limitation of the study and on the basis of the obtained results from this study, the following conclusions had been drawn:

It was concluded that for Height there was significant relations betwixt sprinters and throwers, Jumpers and throwers, sprinters and jumpers.

It was concluded that for Leg length there was significant relations betwixt sprinters and throwers, Jumpers and throwers, sprinters and jumpers.

It was concluded that for Speed there was significant relations betwixt sprinters and jumpers sprinters and throwers, Jumpers and throwers. It was concluded that for Standing broad jump there was significant relations betwixt sprinters and jumpers sprinters and throwers, Jumpers and throwers.

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