



P-ISSN: 2394-1685  
E-ISSN: 2394-1693  
Impact Factor (ISRA): 4.69  
IJPESH 2016; 3(2): 305-307  
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www.kheljournal.com  
Received: 27-01-2016  
Accepted: 01-03-2016

**Dr. Shrikant S Mahulkar**  
Director of Physical Education,  
Late Dattatraya Pusadkar Arts  
College, Nandgaon Peth Dist.  
Amravati (Maharashtra) India.

## Comparative study of some anthropometric variables, agility and body mass index of bodybuilder and athletes

**Dr. Shrikant S Mahulkar**

### Abstract

The main purpose of the study is to find out some anthropometric variables, agility and body mass index of bodybuilder and athletes. The present researcher will take the male subjects for the study. The sources from bodybuilder and athletes of Amravati city health center will be taken as sources of data. The researcher was select 20 bodybuilder and 20 athletes. The 40 Subjects would be selected by purposive sampling method. The data collected on 40 subjects was Analyzed by Applying 't' test to compare Anthropometric, Agility and Body mass index of Athletes and Bodybuilder. To test the hypothesis, the level of significant was set at 0.05 level of confidence which was considered adequate and reliable for the purpose of this study. In the present study it is found that there was a significant difference in chest girth, thigh girth, calf girth, agility and body mass index between athletes and bodybuilder because calculated 't' more than tabulated value. Also there was a no significant difference in palm length, arm length, lower-leg-length, foot length between athletes and bodybuilder because calculated 't' less than tabulated value.

**Keywords:** anthropometric variables, body mass, bodybuilder, athletes

### Introduction

Anthropometry measures all physical aspects of the human body. Simple measurements include height and width. But a more thorough body of measurements is usually needed for the human factors to work. Measurements such as the length from the elbow to the tip of the finger or the circumference of the skull are some examples. In a complete anthropometric survey measurements are taken between every joint and across hinge joints (such as the knee and elbow). Range of motion is also recorded along with thickness or girth.

Anthropometry means the measurement of a man, whether living or dead. In simple terms it is the dimensions of the body. Anthropometry represents the typical and traditional tool of human biology, physical anthropology and axiology. Recently it has taken a strong bonded relationship with physical and sports sciences [1].

Anthropometry has kept pace with these developments and has provided suitable measurements and techniques. While anthropometry was traditionally used in static measurements, it has now developed functional measurement suiting the present day needs. Anthropometry is not merely an ensemble of technique and measurements, but it is a powerful method for description and analysis of body size, shape, form and proportion.

The Anthropometric measurement relates to the body mass as its potential value is not appreciated by the health personnel. For proper evaluation of significance of weight on growth, it is studied in combination with the other appropriate body measurements and clinical examinations. The height of an individual is an important anthropometric measurement which sums up the linearity of the body. Height of a person is composed of legs, pelvis, trunk (Supine), head and face. The components of the height are important in pertaining to the assessment of growth in different body proportions and for other general and specific purposes [2].

### Methodology

The main purpose of the study is to find out some anthropometric variables, agility and body mass index of bodybuilder and athletes. The present researcher will take the male subjects for the study. The sources from bodybuilder and athletes of Amravati city health center will be taken as sources of data. The researcher was select 20 bodybuilder and 20 athletes.

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The 40 Subjects would be selected by purposive sampling method. Following equipments and test would be used for collection of data:

1. Anthropometric measurement would be measured by using sliding beam caliper.
2. Agility would be measured by shuttle run.
3. Body Mass Index with measuring stadiometer, weighing machine would be used.

**Statistical Analysis**

**Finding**

To test the hypothesis, the level of significant was set at 0.05 level of confidence which was considered adequate and reliable for the purpose of this study.

The data collected on 40 subjects was Analyzed by Applying ‘t’ test to compare Anthropometric, Agility and Body mass index of Athletes and Bodybuilder.

**Table 1:** Showing Comparison between Athletes and Bodybuilder in Anthropometric components

Anthropometric components	Group	Mean	S.D.	S.E.	M.D.	O.T.	D.F.
Arm Length	Athletes	74.05	7.92	2.38	2.10	0.88	38
	Bodybuilder	76.15	7.10				
Palm Length	Athletes	17.93	1.16	0.38	0.61	1.62	
	Bodybuilder	18.54	1.22				
Chest Girth	Athletes	69.99	4.78	1.81	16.75	9.24*	
	Bodybuilder	86.74	6.55				
Lower-Leg-Length	Athletes	51.73	3.42	1.16	2.29	1.97	
	Bodybuilder	54.02	3.90				
Foot Length	Athletes	24.62	1.62	0.50	0.43	0.87	
	Bodybuilder	25.06	1.54				
Thigh Girth	Athletes	50.66	2.44	1.14	5.81	5.08*	
	Bodybuilder	56.47	4.50				
Calf Girth	Athletes	30.55	3.47	0.99	2.15	2.18*	
	Bodybuilder	32.71	2.74				

\*Significant at 0.05 level of confidence.

Tabulated ‘t’ 0.05 (38) = 2.02

Table-1 reveals that there is insignificant difference in arm length between athletes and bodybuilder. The obtained t-value of 0.88 is less than the table value of 2.02.

Table-1 reveals that there is insignificant difference in palm length between athletes and bodybuilder. The obtained t-value of 1.62 is less than the table value of 2.02.

Table-1 reveals that there is significant difference in chest girth between athletes and bodybuilder. The obtained t-value of 9.24 is more than the table value of 2.02.

Table-1 reveals that there is insignificant difference in lower leg length between athletes and bodybuilder. The obtained t-value of 1.97 is less than the table value of 2.02.

Table-1 reveals that there is insignificant difference in foot length between athletes and bodybuilder. The obtained t-value of 0.87 is less than the table value of 2.02.

Table-1 reveals that there is significant difference in thigh girth between athletes and bodybuilder. The obtained t-value

of 5.08 is more than the table value of 2.02.

Table-1 reveals that there is significant difference in calf girth between athletes and bodybuilder. The obtained t-value of 2.18 is more than the table value of 2.02.

**Table 2:** Showing Comparison between Athletes and Bodybuilder in Agility

Group	Mean	S.D.	S.E.	M.D.	O.T.	D.F.
Athletes	11.64	1.00	0.33	0.92	2.75*	38
Bodybuilder	12.56	1.10				

\*Significant at 0.05 level of confidence.

Tabulated ‘t’ 0.05 (38) = 2.02

Table-1 reveals that there is significant difference in agility between athletes and bodybuilder. The obtained t-value of 2.75 is more than the table value of 2.02.

**Table 3:** Showing Comparison between Athletes and Bodybuilder in Body Mass Index

Group	Mean	S.D.	S.E.	M.D.	O.T.	D.F.
Athletes	21.14	23.95	0.67	2.81	4.21*	38
Bodybuilder	2.57	1.52				

\*Significant at 0.05 level of confidence.

Tabulated ‘t’ 0.05 (38) = 2.02

Table-1 reveals that there is significant difference in body mass index between athletes and bodybuilder. The obtained t-value of 4.21 is more than the table value of 2.02.

**Discussion of Finding**

The findings of this study show that there was significant difference among the Athletes and Bodybuilder of Amravati City.

When we compare athletes and bodybuilder then we find that the Anthropometric of bodybuilder is better than the athletes and Agility and Body mass index is good in athletes.

**Testing Hypothesis**

In the light of above results it was found that the assumption made by the researcher was correct, it was hypothesized that there will be significant difference in some Anthropometric

Variables, Agility and Body Mass Index of Bodybuilder and Athletes.

On the overall comparison of anthropometric, agility and body mass index of Bodybuilder and athletes, it was found there was significant difference between Bodybuilder and athletes at Amravati City, therefore the hypothesis was accepted.

**Conclusion**

In the present study it is found that there was a significant difference in chest girth, thigh girth, calf girth, agility and body mass index between athletes and bodybuilder because calculated ‘t’ more than tabulated value. Also there was a no significant difference in palm length, arm length, lower-leg-length, foot length between athletes and bodybuilder because calculated ‘t’ less than tabulated value.

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