

**CONSTRUCTION OF Z SCORE OF ANTHROPOMETRIC  
MEASUREMENT FROM BHUPATINAGAR POPULATION**



**A THESIS**

**For**

**Fulfillment of the Degree of Master of Physical Education**

**Of**

**Vidyasagar University**

**SUBMITTED BY**

**SUKANTA KHATUA**

**M. P. Ed. SEMESTER - IV**

**ROLL- PG/VUEGS32/PED-IVS NO - 21033**

**Department of Physical Education  
Mugberia Gangadhar Mahavidyalaya  
Bhupatinagar, Purba Medinipur, West Bengal**

Mugberia Gangadhar Mahavidyalaya  
DEPARTMENT OF PHYSICAL EDUCATION  
VIDYASAGAR UNIVERSITY  
Bhupatinagar, Purba Medinipur, West Bengal -721425

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SUKANTA KHATUA  
M.P. Ed SEM-IV Student

## DECLARATION

I do here by declare that the research work entitled "**CONSTRUCTION OF Z SCORE OF ANTHROPOMETRIC MEASUREMENT FROM BHUPATINAGAR POPULATION** " is an original piece of work done by me under the guidance and Supervision of **Dr. Debasish Ray Head of The Department, Department of Physical Education, Mugberia Gangadhar Mahavidyalaya, Bhupatinagar, Purba Medinipur**, that was approved by the research committee. I have specified, by means of reference, the information from where the work taken. To the best of my knowledge, this dissertation is not substantially the same as those, which have already been submitted for a degree or other academic qualification at any other University.

**Date: 12<sup>th</sup> August, 2023**

SUKANTA KHATUA  
M.P. Ed. Semester -IV

**DEPARTMENT OF PHYSICAL EDUCATION MUGBERIA**  
**GANGADHAR MAHAVIDYALAYA**  
**VIDYASAGAR UNIVERSITY**  
**721425, West Bengal**

e-mail: headbpedmgm@rediffmail.com      website: www/mugberiagangadharmahavidyalaya.org

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*Dr. Debasish Ray*

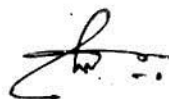
Professor

&

Head of the Department

Date: 12<sup>th</sup> August, 2023

I certify the entire work incorporated in this thesis has been carried out by Mr. Sukanta Khatua, a student of M. P. Ed. Semester-IV, Session-2021-2023, Department of Physical Education, Mugberia Gangadhar Mahavidyalaya, Bhupatinagar, Purba Medinipur, W. B. under my guidance. He completed his research work for the degree of Master of Physical Education under Vidyasagar University. I am forwarding his thesis entitled "Construction of Z Score of Anthropometric Measurement from Bhupatinagar Population" been submitted for the examination of M.P. Ed. degree of Vidyasagar University. Since Mr. Khatua has fulfilled all the requirements according to the rules of this University regarding the works embodied in his thesis, I, therefore, recommended that the same may please be accepted for the examination of M.P. Ed degree.



*(Dr. Debasish Ray)*

Professor

&

Head of the Department

# Mugberia Gangadhar Mahavidyalaya

Bhupatinagar :: Purba Medinipur  
West Bengal :: India

Email: mugberia\_college@rediffmail.com

NCTE Recognized & NAAC Accredited with CGPA 2.71 Institution

<http://www.mugberiagangadharmahavidyalaya.org>



This is to certify that Mr./ Miss. Sukanta Khatua

Roll PG/VUEGS32/PED-IVs Number 21033 a PG / UG student of

SEM IV, Department of Physical Education has

successfully completed a dissertation / project entitled CONSTRUCTION OF

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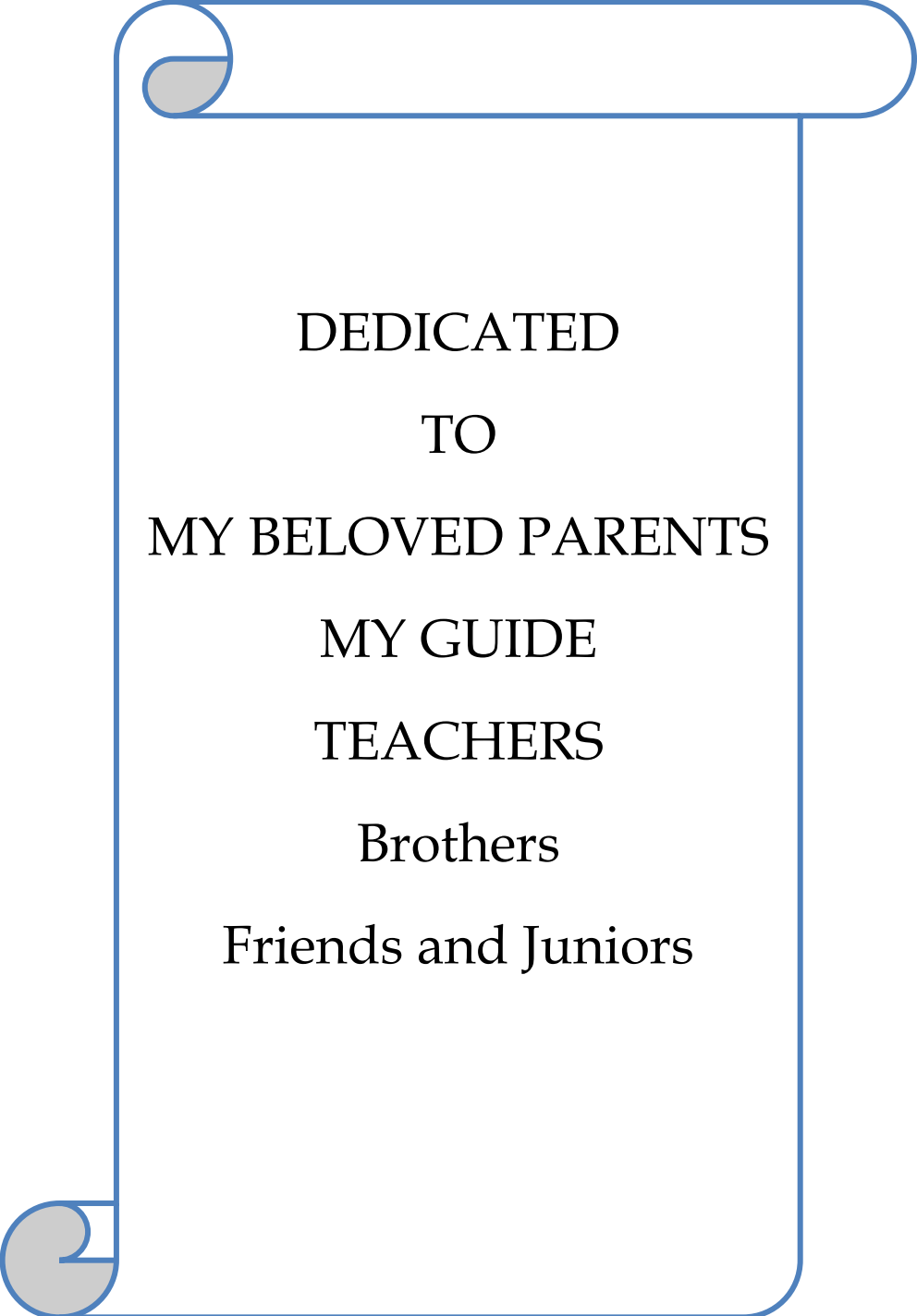
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DEDICATED  
TO  
MY BELOVED PARENTS  
MY GUIDE  
TEACHERS  
Brothers  
Friends and Juniors



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Date: 12<sup>th</sup> August, 2023

SUKANTA KHATUA  
M.P.Ed Scholar

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## **LIST OF ABBREVIATION**

<b>SL. NO</b>	<b>ABBREVIATION</b>	<b>DESCRIPTION</b>
1.	Ht.	Height
2.	Wt.	Weight
3.	GEN	Gender
4.	DOB	Date of birth
5.	St. Ht.	Sitting Height
6.	HUM	Humerus
7.	RED	Radius
8.	F.L	Full Length
9.	PLM	Palm
10.	FEM	Femur
11.	TIB	Tibia
12.	FT	Foot
13.	A.P.	Anterior posterior
14.	LAT	Lateral
15.	HD	Head
16.	NCK	Neck
17.	ABD	Abdomen
18.	WST	Waist
19.	BUTCS	Buttocks
20.	THI	Thigh
21.	B CEP	Biceps
22.	F. ARM	Fore arm
23.	BIAC	Biacromial
24.	BI-IL	Bi-illial
25.	BITRO	Bitrochanteric
26.	BIMAL	Bimalleolar
27.	T CEP	Triceps
28.	SUBS	Subscapular
29.	SUPRA	Suprailiac

## **CHAPTER-V**

### **SUMMARY CONCLUSION AND RECOMONDATION**

#### **5.1 SUMMARY:**

Anthropometric measurement of Variation in external shape and size of human being differs according to race, cast, community and nature of activity is a common phenomenon. During the process of growth and development this external shape as may also change as per individual because of daily life activity. Lifestyle has an important role in this regard. Being interested to observe this variation the investigator gone through different related literature which were available with the limitations of the investigator and formulated the problem stated as the Construction of Z Score of Anthropometric Measurement from Bhupatinagar population.

For the purpose of the study the investigator randomly selected 400 students age ranging from 11 to 15 years from school students of district Purba Medinipur. The criterion measured were age in years, height in cm, weight in kg, bone diameters of humerus and femur in cm, girth measurement of arm, fore arm, abdomen, chest, thigh, calf, skin folds of triceps, sub-scapular, supra-iliac and calf in mm and circumferences of biceps and calf in cm. the obtained data was statistically Analyzing to find out the Phantom Z Score.

Analyzing the data, the findings reveals that the measured sample showed the normal growth and development of human being. In this cross-sectional study the subjects made up their maturity at par with the chronological age.

#### **5.2 CONCLUSIONS:**

- a) The height of the subject increased according to age but very negligible increment found the age groups of 22-29years.
- b) The body weight was found in this quite natural as per developmental process.
- c) The Upper Full length in cm was found at the age groups 15-18 years and lowest Full length age groups 2-4 years, the Analyzing of the data humerus was found at the age group 30-39 years. The radius was founded the age groups 40-49 years overall length lowest was 2-4yers age group.
- d) The highest palm and lower full was found the age groups 19-21years and lowest was 2-4 years age group.

e) The greater Head Anterior-posterior, Head Lateral, Biacromial and Humerus diameter was found in the age group 30-39 years. The Humerus diameter was found at the age group 60-85 years and lowest was 2-4 years age group.

f) The greater Bi-illial, Bitrochantric was found at the age group 30-39 years. The Bimalleolar was found in 40-49 age group and lowest was 2-4 years age group.

g) The highest Chest, Biceps Thigh girth was found in the age group 22-29 years and lowest 2-4 years age group.

h) The highest head circumference was found in age group 50-59 years. On the other hand in case of the age group 5-9 years lowest circumference.

i) the highest Neck, Abdominal circumference was found in age groups 40-49 years.

j) The highest Fore arm, Waist, Buttocks and Calf Girth was found in age group 30-39 years and lowest age group 2-4 years.

k) The thickest skinfold Triceps, subscapular, Suprailiac, thigh and Calf was found at the age group 22-29 years.

l) The Thickest biceps and Abdomen were found at the age group 30-39 years.

### **5.3 RECOMMENDATIONS:**

Within the limitations of the study the following may be recommended:

- 1) The study may be conducted over a larger number of samples.
- 2) To observe the growth spurt of the adolescents this may be conducted over all the districts of West Bengal.
- 3) This study may be conducted including state country population.
- 4) On the basis of statistical evaluation this type of study may be conducted on different sports activities.