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## **A COMPARATIVE STUDY OF VERTICAL MEASUREMENTS WITH RESPECT TO CHEST GIRTH BETWEEN THE CHILDREN ACCORDING TO SEX**

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### **Abstract:**

*A study was conducted among 400 children (Girls - 200, Boys - 200), selected from the schools of urban areas in Agra and Firozabad districts by using the multistage stratified random sampling technique with the aims to measure the vertical measurements with respect to chest girth between the children according to sex. On the basis of chest girth, the children were divided into three sizes i.e. Small (S1), Medium (S2) and Large (S3) using the class interval of 4 cms. Majority of the children were found in small size due to poor nutrition. All the vertical measurements with respect to chest girth were found more among male children as compared to female children aged 5 - 7 years. Statistically significant differences in all vertical measurements with respect to chest girth except Large (S3) size of shoulder to waist and Medium (S2) size of arm scye depth between the boys and girls children in the present study.*

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### **Introduction:**

Textiles occupy a very important place in the present day life style. Clothing is considered as one of the prime necessities of life and the basic triumvirates of men's existence along with food and shelter. The readymade garment sector in India mainly developed after independence in 1947. The first attempts at manufacturing mass produced clothing were regarded with skepticism but later on readymade garments came to be accepted as a part of life. The textile industry holds a significant status in India. It caters to one of the most fundamental necessities of the people. It is an independent industry, from the basic requirement of raw materials to the final products, with huge value-addition at every stage of processing. In India the textile sector today accounts for nearly 14% of the total industrial output and about 30% in the total export.

The importance of clothing especially for school going children is expressed by various authors and stated that children naturally like clothes and find real satisfaction in bright colour of clothes and good feeling of different texture. The use of comfortable garments brings pleasure to the child and makes childhood happy and delightful. For this, proper measurement of the garments is the important factor. Considering the importance of garments for school going children, the present investigation is an attempt to compare the vertical measurements with respect to chest girth between the children aged 5 to 7 years according to sex.

### **Objective :**

To compare the vertical measurements with respect to chest girth between the children aged 5 to 7 years according to sex.

### Methodology:

A multistage stratified random sampling technique was used for selecting four hundred children (Girls - 200 and Boys - 200), aged 5 - 7 years from the schools in urban areas of Agra and Firozabad districts. The vertical measurements with respect to chest girth of the children aged 5 - 7 years were recorded on the proforma developed by the investigator. On the basis of chest girth, the children were divided into three sizes i.e. Small (S1), Medium (S2) and Large (S3) using the class interval of 4 cms.

### Results:

The obtained data were classified, analysed and were discussed in the light of the work conducted previously.

**Table - 1 : Chest girth of the selected children.**

Class Interval	Chest Girth Measurement in Cms.						Statistical Values	
	Girls			Boys			t	p
	No.	Mean	S.D.	No.	Mean	S.D.		
51-55 (S1)	111	52.01	0.95	82	53.28	1.02	8.896	<0.05
55-59 (S2)	70	55.76	0.93	89	57.31	0.58	2.462	<0.05
59-63 (S3)	19	59.37	0.48	29	61.03	0.70	8.830	<0.05
<b>Total</b>	200	54.02	2.62	200	55.43	2.67	5.331	<0.05

Mean chest girth of all the three sizes i.e. low, medium and high and overall were found more among the boys as compared to girls. Significant differences in mean chest girth of all the three sizes i.e. small, medium and large and overall were found between the boys and girls aged 5-7 years ( $p < 0.05$ ).

**Table - 2 : Shoulder to waist measurement with respect to chest girth of the selected children according to sex.**

Chest Girth in Cms.	Shoulder to Waist Measurement in Cms.						Statistical Values	
	Girls			Boys			t	p
	No.	Mean	S.D.	No.	Mean	S.D.		
51-55 (S1)	111	25.68	0.85	82	26.12	0.50	4.183	<0.05
55-59 (S2)	70	26.39	1.13	89	27.22	1.51	1.993	<0.05
59-63 (S3)	19	27.74	0.96	29	28.43	1.69	1.614	>0.05
<b>Total</b>	200	26.13	1.15	200	27.25	1.45	4.356	<0.05

Shoulder to waist measurement with respect to chest girth of the selected children indicates that mean of shoulder to waist measurement with respect to chest girth were found significant and more among the boys having the sizes of small (S1), medium (S2) and overall as compared to girls ( $p < 0.05$ ) while the mean of shoulder to waist measurement with respect to chest girth was found insignificant and more among the boys having the sizes of large (S3) as compared to girls even at 5% level of significance.

**Table - 3 : Shoulder to hip measurement with respect to chest girth of the selected children according to sex.**

Chest Girth in Cms.	Shoulder to Hip in Cms.						Statistical Values	
	Girls			Boys			t	p
	No.	Mean	S.D.	No.	Mean	S.D.		
51-55 (S1)	111	36.32	1.22	82	38.04	2.16	7.011	<0.05
55-59 (S2)	70	36.84	1.34	89	39.07	0.79	13.075	<0.05
59-63 (S3)	19	38.63	0.48	29	40.53	1.52	5.235	<0.05
<b>Total</b>	200	36.72	1.39	200	38.86	1.80	13.307	<0.05

Shoulder to hip measurement with respect to chest girth of the selected children suggest that the mean of shoulder to hip measurement with respect to chest girth of all the sizes i.e. small, medium, large and overall were found more and significant among the boys as compared to girls aged 5-7 years ( $p < 0.05$ ).

**Table - 4 : Arm scye depth measurement with respect to chest girth of the selected children according to sex.**

Chest Girth in Cms.	Shoulder to Hip in Cms.						Statistical Values	
	Girls			Boys			t	p
	No.	Mean	S.D.	No.	Mean	S.D.		
51-55 (S1)	111	21.65	1.20	82	22.50	0.41	6.154	<0.05
55-59 (S2)	70	22.39	1.05	89	22.57	0.85	1.194	>0.05
59-63 (S3)	19	22.63	0.48	29	23.90	0.65	7.301	<0.05
<b>Total</b>	200	22.00	1.18	200	22.73	0.82	7.185	<0.05

Arm scye depth measurement with respect to chest girth of the selected children shows that mean of arm scye depth measurement with respect to chest girth were found significant and more among the boys having the sizes of small (S1), large (S3) and overall as compared to girls ( $p < 0.05$ ) while the mean of arm scye depth measurement with respect to chest girth was found insignificant and more among the boys having the medium (S2) sizes as compared to girls even at 5% level of significance.

**Table - 5 : Short sleeve length measurement with respect to chest girth of the selected children according to sex.**

Chest Girth in Cms.	Short Sleeve Length in Cms.						Statistical Values	
	Girls			Boys			t	p
	No.	Mean	S.D.	No.	Mean	S.D.		
51-55 (S1)	111	13.90	0.73	82	14.43	1.13	3.950	<0.05
55-59 (S2)	70	14.32	0.79	89	15.10	1.04	5.204	<0.05
59-63 (S3)	19	15.37	0.48	29	15.79	0.28	3.832	<0.05
<b>Total</b>	200	14.19	0.85	200	14.93	1.11	7.485	<0.05

The mean of short sleeve length measurement with respect to chest girth in all the three sizes i.e. small, medium and large and overall were found more among the boys as compared to girls. The values of t-test show the significant differences in mean of short sleeve length measurement with respect to chest girth in all the sizes i.e. small, medium, large and overall between the boys and girls aged 5-7 years ( $p < 0.05$ ).

**Table - 6 : Long sleeve length measurement with respect to chest girth of the selected children according to sex.**

Chest Girth in Cms.	Long Sleeve Length in Cms.						Statistical Values	
	Girls			Boys			t	p
	No.	Mean	S.D.	No.	Mean	S.D.		
51-55 (S1)	111	36.75	2.69	82	37.98	1.64	3.578	<0.05
55-59 (S2)	70	37.86	2.27	89	39.68	0.74	7.099	<0.05
59-63 (S3)	19	38.55	0.42	29	40.34	0.81	7.815	<0.05
<b>Total</b>	200	37.31	2.51	200	39.08	1.53	8.515	<0.05

Long sleeve length measurement with respect to chest girth of the selected children highlights that mean of long sleeve length measurement with respect to chest girth in all the sizes i.e. small, medium, large and overall were more among the boys as compared to girls aged 5-7 years. The values of t-test show the significant differences in mean of long sleeve length measurement with

respect to chest girth in all the sizes i.e. small, medium, large and overall between the boys and girls aged 5-7 years ( $p < 0.05$ ).

### **Discussion:**

In the present study, 200 boys and 200 girls were selected for the measurement of the body of upper garments. Majority of the children were found in small size. Statistically significant differences in all vertical measurements with respect to chest girth except large (S3) size of shoulder to waist and medium (S2) size of arm scye depth between the boys and girls children in the present study. Similar observation was reported by Geeta (1999), Baweja Swapna (2010), Gupta M. (1991), Madhulika (1991) and Manocha and Sangwan (2000) as they found that appreciable difference in vertical measurements with respect to chest girth between boys and girls.

### **Conclusion:**

On the basis of chest girth, the children were divided in to three sizes i.e. small (S1), medium (S2) and large (S3) using the class interval of 4 cms. Majority of the children were found in small size. All the vertical measurements with respect to chest girth were found more among male children as compared to female children aged 5 - 7 years. Statistically significant differences in all vertical measurements with respect to chest girth except large (S3) size of shoulder to waist and medium (S2) size of arm scye depth between the boys and girls children in the present study.

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