

## Study on relationship between selected anthropometric variables and performance in 50 mt dash among Rajbangsi boys

Dr.Md.Imran Hossain\* & Dr.Kanchan Bandopadhyay\*\*

\*Assistant Teacher, Physical Education, Mozampur HSSB High School, Malda, West Bengal, India.

\*\*Professor(retd), Department of Physical Education, University of Kalyani, West Bengal, India.

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### ABSTRACT

*The purpose of the study was to find out the relationship between selected anthropometric variables such as thigh girth, calf girth and performance in 50 mt dash among Rajbangsi boys. To achieve this purpose of the study, fifty (50) school going boys (14-16 years) were selected randomly from two subdivisions in the district of Uttar Dinajpur, West Bengal. They were divided into two groups such as Rajbangsi Group (GR) and General Group (GG) each consisting of twenty five (25) subjects. Selected weight training exercises for 16 weeks was assigned as treatment to the entire experimental group. The selected criterion variables were assessed using standard procedures, before and after the training regimen. Data were analyzed with mean, standard deviation, t-value and correlation using SPSS version 19. The level of significance was set as 0.05. Data revealed that relationship between thigh girth, calf girth and performance in 50 mt dash were better among Rajbangsi boys in comparison to General boys. These results suggest that weight training has significant influence in improving sprinting ability.*

**Keywords:** Rajbangsi, Anthropometry, Weight Training

**INTRODUCTION:** The main essence of the study was embodied on the effect of weight training among an ethnic community of North Bengal called 'Rajbangsi' with distinctive physical features along with their observable physiognomy. Anthropometrically the Rajbangsi community is quite different from that of the General population in the same locality due to specific physiognomy of a mixed breed of Koches predominantly Mongoloid. Rajbangsi community people have darker skin and some are black, the nose is flat at least the tip of the nose is broad, high chick bones and thick lips, the eyes generally small and slightly oblique (Sanyal,2002). Rajbangsi is the largest scheduled caste community in the state of West Bengal. According to the latest 2011 census estimate their population is about 3801677 in the state of whom majority (about 80%) are found to live in the northern parts of the state community known as "North Bengal". Rajbangsi occupy an important place in the southern districts of North Bengal which include Malda and two (North and South) Dinajpur districts. Geographically, they have greater concentration in region between river Kulick and river Tangan, an area stretching over the South and parts of North Dinajpur districts. (Mukhopadhyay, 2013).

The knowledge of anthropometric characteristics is essential for the physical education planning, choice of methods and organisational types of work and in the choice of exercises. The choice of these characteristics was influenced by thinking and belief that experimental treatment would provoke the largest growth in this field. Some related findings were given below.

Sil (2013) studied the correlation between running speed with selectee anthropometric variables like height, weight, WHR, total leg length, total arm length, thigh girth, calf girth, biceps girth, foot length and chest circumference. From the finding it may be concluded that running speed has strong and significant relationship with chest circumference, thigh girth, calf girth, biceps girth and foot length but not significant relationship with WHR in school going boys. Results also revealed that the height total arm length and total leg length should be considered as the best predictor of running speed than other variables

Nuhmani and Akthar (2014) observed the correlation between body composition and functional performance of elite Indian Junior tennis players. The anthropometric data (height, weight, BMI, girth etc.) of each athlete has measured and has been correlated with all the three functional performance tests. The study result showed there was a significant relationship exists between thigh girth, calf girth and 40 yard sprint performance of junior tennis players

Rathore and Mishra (2016) investigated to find out correlation between independent variables (height, weight, leg length, thigh girth and calf circumference) and dependent variable (speed ability). They were found in their study that significant relationship was found between speed and height, speed and weight, speed and leg length. Significant relationship was also found between speed and thigh girth but not found between speed and calf girth.

The present study analyzed the relationship between selected anthropometric variables and performance in 50 mt dash among Rajbangsi boys.

**MATERIALS AND METHODOLOGY**

**Subjects:** Total fifty (50) boys, twenty five (25) Rajbangsi community and twenty five (25) general community, were selected randomly as subjects from two subdivisions in the district of Uttar Dinajpur, West Bengal. Personal data of the subjects were given in table-1.

**Criterion measures:** Various anthropometric measures of subjects were considered as the criterion measures such as thigh girth, calf girth and speed measured by 50 mt dash test.

**Experimental design:** The experiment conducted on 14-16 years school going boys. Total 50 subjects (GR=25 and GG=25) were selected randomly from two subdivisions in the district of Uttar Dinajpur, West Bengal. The selected weight training programme( specially for children and adolescent) including bench press, biceps curl, barbell row, standing heel raise, squat, triceps extension, abdominal crunches, wrist curl exercises was assigned as treatment to all the experimental groups. The duration of the experimental period was 16 weeks excluding the days required for initial and final test. The treatment was given thrice (Monday, Wednesday, and Friday) in a week in the afternoon session for a duration of approximately 60 minutes which include warm-up for 5-10 minutes and cooling down for 5-6 minutes. The volume and repetitions of the exercises were fixed according to the principles of weight training and goal of the study.

**Statistical analysis:** The mean, standard deviation (S.D), t-value and co-efficient of correlation were calculated by using SPSS version 19. The level of significance was set as 0.05.

**RESULTS AND DISCUSSION**

**Results:**

**Table-1** Personal Data of Group RExpt and GExpt.

	RExpt.(Mean SD)	GExpt.( Mean SD)	t-value
Age(Years)	15.02±0.50	14.96±0.56	0.43
Height(Meters)	1.588±0.082	1.596±0.064	0.42
Weight(Kg.)	46.8±6.37	45.92±7.62	0.44
BMI	18.64±2.00	17.84±1.82	1.48

\*Significant at 0.05 level of confidence. RExpt.- Raibangsi experimental, GExpt.- General experimental

Table-1 represents age, height, weight and BMI as personal data of the subject. After comparing the means of the above mentioned data and corresponding t-values show no significant difference at 0.05 level of confidence which may be considered both the experimental group as equated group.

**Table-2** Co-efficient of correlation between calf girth and performance of 50 mt dash of GExpt group

Variables	N	r	
		Pre	Post
Calf Girth			
VS	25	-.2413	-.2651
performance of 50mt dash			

\*Significant at 0.05 level of confidence.

Table-2 represents the co-efficient of correlation between calf girth of GExpt group and performance of 50mt. dash of GExpt group. The r-value of calf girth and performance of 50 mt dash among GExpt Group was -.2413(pre) and -.2651(post). The r-value was not significant at 0.05 level of confidence.

**Table-3** Co-efficient of correlation between thigh girth and performance of 50mt dash of GExpt group

Variables	N	r	
		Pre	Post
Thigh Girth			
VS	25	-.1632	-.1788
performance of 50mt dash			

\*Significant at 0.05 level of confidence.

Table-3 represents the co-efficient of correlation between thigh girth and performance of 50mt. dash of GExpt group. The r-value of thigh girth and performance of 50mt dash of GExpt group was -.1632(pre) and -.1788(post) and was not significant at 0.05 level of confidence. To be significant at 0.05 level of confidence r-value should be greater than 0.381.

**Table-4** Co-efficient of correlation between calf girth and performance of 50mt dash of RExpt group

Variables	N	r	
		Pre	Post
Calf Girth			
VS	25	-.3711	-.4155*
performance of 50mt dash			

\*Significant at 0.05 level of confidence.

Table-4 represents the co-efficient of correlation between calf girth and performance of 50mt. dash of RExpt group. The r-value of calf girth and performance of 50 mt dash among RExpt group was -.3711(pre) and -.4155(post). The r-value was not significant at Pre training but significant at after training at 0.05 level of confidence. To be significant at 0.05 level of confidence r-value should be greater than 0.381.

**Table-5** Co-efficient of correlation between thigh girth and performance of 50mt dash of RExpt group

Variables	N	r	
		Pre	Post
Thigh Girth			
VS	25	-.3795	-.4555*
performance of 50mt dash			

\*Significant at 0.05 level of confidence.

Table-5 represents the co-efficient of correlation between thigh girth and performance of 50mt. dash of RExpt group. The r-value of thigh girth and performance of 50mt dash among RExpt group was -.3795(pre) and -.4555(post). The r-value was not significant at before training but significant at after training at 0.05 level of confidence. To be significant at 0.05 level of confidence r-value should be greater than 0.381.

**Discussion:** The physical performances like strength, speed, muscular power are influenced by the girth or the circumference of the related body parts. In the present study the scholar undertook an attempt to find out the relation between thigh girth, calf girth and performance in 50mt dash both among GExpt and RExpt group. A significant relationship has been found among thigh girth and 50mt dash; calf girth and 50mt dash among RExpt group but in case of GExpt group no such significant results have been observed. The findings of the study corroborates with the findings of Rathore and Mishra (2016); Sil, P (2013) and Nuhmani and Akhtar (2014).

**CONCLUSION:** The finding of the present study demonstrated that the relationship between thigh girth, calf girth and 50 mt dash among Rajbangsi boys were significantly improved due to 16 weeks weight training programme. Based on the result of this study it may be concluded that the improvement in the relation between thigh girth, calf girth and 50 mt dash were better among Rajbangsi group in comparison to General group.

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