EFFECT OF WEIGHT TRAINING ON SELECTED ANTHROPOMETRIC AND PHYSICAL FITNESS VARIABLES ON MALE RAJBANGSI STUDENTS

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ABSTRACT

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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 fair skin tinged yellow, many other people have darker skin and some are black, the nose is flat at least the tip of the nose is broad, high cheek 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 organizational 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.

Reddy(2000), Mitra(2002) and Tiwari(2007) were found that all anthropometric measurements such as body weight, height, sitting height, head circumference, upper arm circumference, calf circumference and chest circumference exhibit uniform increase with age.

MacDonald,C.J, Lamont,HS, and Garner,J.C,(2012) were suggested that traditional resistance training, plyometric training and complex training have an effect on quadriceps girth, triceps girth and body mass.

The effectiveness of resistance training or weight training among children has been addressed recently by several comprehensive reviews, which all come to the conclusion that resistance training can be very effective for developing muscle strength among pre-pubertal children. The American College of Sports Medicine (ACSM, 1995), the International Federation of Sports Medicine (FIMS, 1998) and the

Vrijens (1978) reported the results of an 8 weeks resistance training programme done three times per week by boy. The adolescents were capable of increasing strength in all muscle groups tested.

Faigenbaum and Myer (2010) indicated that resistance training can be a safe, effective and worthwhile activity for children and adolescents.

**STATEMENT OF THE PROBLEM**

The present investigation was an attempt to analyze the Effect of Weight Training on selected Anthropometric and Physical Fitness variables on male Rajbangsi student.

**SUB PROBLEM**

To find out the relationship between thigh girth, calf girth and performance in 50mt. dash among Rajbangsi boys.

**PURPOSE OF THE STUDY**

a. To compare the selected anthropometric parameters like head circumference, chest circumference upper arm girth, thigh girth, calf girth and sitting height among Rajbangsi boys and General boys before and after 16 weeks weight training programme.

b. To compare the selected physical fitness variable such as muscular strength, muscular strength endurance and speed among Rajbangsi boys and General boys before and after 16 weeks weight training programme.

c. To observe the relationship between thigh girth, calf girth and performance in 50 mt dash among Rajbangsi and General experiment boys.

**METHODOLOGY**

**Subjects**

Total hundred (100) boys of which fifty (N=50) from Rajbangsi community and fifty (N=50) from General community were selected at random as subjects from three schools of two sub divisions in the district of Uttar Dinajpur, West Bengal State. All the subjects were the residents of two sub division i.e. Raiganj and Islampur in the district of Uttar Dinajpur. The age of the subjects were ranged from fourteen (14) to sixteen (16) years according to school ‘Date of Birth’ register. Under general
community, the subjects were selected from all community boys except Rajbangsi community.

All the subjects of Rajbangsi community were divided randomly in two groups such as RExpt and RCon group, each consisting of twenty five (N=25) subjects. Also subjects of General community were divided randomly in two groups such as GExpt and GCon group, each consisting of twenty five (N=25) subjects.

**Criterion measures**

Various anthropometric measures of subjects were considered as the criterion measures such as body weight, height, head circumference, chest circumference, upper arm girth, thigh girth, calf girth and sitting height.

Three physical fitness measures of the subject were considered as the criterion measures such as: i) Muscular Strength: It was measured by the researcher by using Grip Strength Test ii) Abdominal strength endurance: It was measured by sit up test. iii) Speed: It was measured by using 50mt. dash test.

**Statistical analysis**

The mean and standard deviation (S.D) were calculated for the analysis of the data as descriptive statistics. Statistical significance of two groups, mean difference was tested by Pair t-test and Student t-test. Relationship between two parameters was tested by Product moment coefficient of correlation. All the statistics were calculated by using SPSS version 19. The level of significance was set as 0.05.

**RESULTS**

**Anthropometric Variables**

After comparison of means of selected anthropometric variables such as head circumference, chest circumference, upper arm girth, thigh girth, calf girth and sitting height of GExpt group after treatment period, the scholar observed that t- values of these variables were 1.81, .802, 7.86, .106, 4.74 and 3.53 respectively and among these upper arm girth, calf girth and sitting height were significant at 0.05 level of confidence. The t-values these variables of GCon group after the study were 1.81, .030, 6.063, 1.444, 1.809 and 3.928 respectively and upper arm girth were significant. In case of RExpt group after treatment period the t- values of these variables were 3.84, .781, 7.96, 5.54, 3.41 and 4.21 respectively. The t-values these variables of RCon group after the study were 4.437, 1.296, 6.124, 3.263, 5.197 and 6.063
respectively and those were significant in both RExpt and RCon group at 0.05 level of confidence except chest circumference.

After comparison of means of selected anthropometric variables such as head circumference, chest circumference, upper arm girth, thigh girth, calf girth and sitting height between GExpt and RExpt group, t-values of these variables were 2.468, 1.177, 1.320, .668, 2.028 and 3.381 respectively before experimental period and t-values of these variables after experimental period were 3.219, 1.172, 1.416, 2.325, 2.570 and 3.327 respectively. Head circumference, calf girth and sitting height were significant in both the GExpt and RExpt group and thigh girth of RExpt group was also significant at 0.05 level of confidence. The t-values of head circumference, calf girth and sitting height of GCon and RCon group were significant at 0.05 level of confidence.

**Physical fitness variables**

T-values of muscular strength, muscular strength endurance and speed of GExpt group were 5.96, 3.99 and 4.16 respectively and t-values of RExpt group after experimental period were 7.27, 3.80 and 3.34 respectively and those were significant at 0.05 level of confidence. Also t-values of these variables of GCon group were 0.234, 0.492 and 0.998 respectively and t-values of these variables of RCon group were 1.000, 2.031 and 1.49 respectively.

After comparison muscular strength, muscular strength endurance and speed between GExpt and RExpt group, t-values of these variables were 1.002, 2.396 and 1.86 respectively before experimental period and t-values of these variables were 2.046, 2.076 and 2.83 respectively after experimental period and those were significant at 0.05 level of confidence. The t-value of muscular strength endurance between GCon and RCon group was 3.323 and 3.017 before and after the study and significant at 0.05 level of confidence.

**Relationship between calf girth, thigh girth and performance of 50mt dash**

The r value of calf girth and performance of 50 mt dash of RExpt group was .4155 and significant at 0.05 levels of confidence and the r value was -.2651 in case of GExpt group and not significant.

The r value of thigh girth and performance of 50 mt dash of RExpt group was .4555 and significant at 0.05 levels of confidence and the r value was -.1788 in case of GExpt group and not significant.
CONCLUSION

Under the conditions of the present study the results seem to conclude the following:

**Anthropometric Variables**

1. Head circumference of Rajbangsi experimental group was significantly improved due to weight training programme.
2. Head circumference of Rajbangsi control group were also significantly improved.
3. There was no significant differences exist in head circumstance of both the experimental and control group among General boys.
4. The improvement in head circumference was greater among Rajbangsi experimental group in comparison to general experimental group.
5. There was no significant difference found in chest circumference of both the experimental and control group among Rajbangsi boys as well as General boys.
6. Upper arm girth of Rajbangsi experimental group was significantly improved through weight training programme.
7. Upper arm girth of Rajbangsi control group was also significantly improved.
8. Upper arm girth of General experimental group was significantly improved following weight training programme.
9. Upper arm girth of General control group was also significantly improved.
10. Thigh girth of Rajbangsi experimental group was significantly improved due to weight training programme.
11. Thigh girth of Rajbangsi control group was also significantly improved.
12. There was no significant improvement found in thigh girth of both the experimental and control group among General boys.
13. The improvement in thigh girth was better among Rajbangsi experimental group in comparison to General experimental group.
14. Calf girth of Rajbangsi experimental group was significantly improved due to weight training programme.
15. Calf girth of Rajbangsi control group was also significantly improved.
16. Calf girth of General experimental group was significantly improved following weight training programme.
17. There was no significant improvement found in calf girth among General control group.
18. The improvement in calf girth was better among Rajbangsi experimental group in comparison to General experimental group.
19. The improvement in calf girth was better among Rajbangsi control group in comparison to General control group.
20. Sitting height of Rajbangsi experimental group was significantly improved due to weight training programme.
21. Sitting height of Rajbangsi control group was also significantly improved.
22. Sitting height of General experimental group was significantly improved following weight training programme.
23. Sitting height of General control group was also significantly improved.
24. The improvement in sitting height was greater among Rajbangsi experimental group in comparison to General experimental group.
25. The improvement in sitting height was greater among Rajbangsi control group in comparison to General control group.

Physical Fitness Variables

26. Grip strength of Rajbangsi experimental group was significantly improved through weight training programme.
27. There was no significant improvement found in grip strength among Rajbangsi control group.
28. Grip strength of General experimental group was significantly improved due to weight training programme.
29. There was no significant improvement found in grip strength among general control group.
30. The improvement in grip strength was better among Rajbangsi experimental group in comparison to General experimental group.

31. There was no significant differences exist in grip strength between Rajbangsi control group and General control group.

32. Abdominal strength endurance of Rajbangsi experimental group was significantly improved following weight training programme.

33. There was no significant improvement found in abdominal strength endurance among Rajbangsi control group.

34. Abdominal strength endurance of General experimental group was significantly improved following weight training programme.

35. There was no significantly improvement found in abdominal strength endurance among General control group.

36. The improvement in abdominal strength endurance was better among General experimental group in comparison to Rajbangsi experimental group.

37. The improvement in abdominal strength endurance was better among General control group in comparison to Rajbangsi control group.

38. Sprinting speed of Rajbangsi experimental group was significantly improved due to weight training programme.

39. There was no significant improved found in sprinting speed among Rajbangsi control group.

40. Sprinting speed of General experimental group was significantly improved following weight training programme.

41. There was no significant improvement found in sprinting speed among General control group.

42. The improvement in sprinting speed was better among Rajbangsi experimental group in comparison to General experimental group.

43. There was no significant differences exist in sprinting speed between Rajbangsi control group and General control group.

Relation between thigh girth, calf girth and performance in 50mt dash.
44. Significant relationship (r = -.4555) exists between thigh girth and performance in 50mt dash among Rajbangsi experimental group.

45. Significant relationship (r = -.4155) exists between calf girth and performance in 50mt dash among Rajbangsi experimental group.

46. There was no significant relationship exist between thigh girth and 50mt dash among General experimental group.

47. There was no significant relationship exist between calf girth and 50mt dash among General experiment group.

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Signature of Supervisor       Signature of Scholar