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"A COMPARATIVE STUDY OF EFFECT OF SPECIFIC ISOTONIC EXERCISES ON MUSCULAR STRENGTH AMONG 14 TO 16 YEARS BOYS"



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ABSTRACT

The effect of specific isotonic exercises on muscular strength. This study is collected from age group 14 to 16 years boys from Tanwani English School. Researcher has selected 120 samples for this study. Further these 120 samples are randomly classified into three groups namely Experimental group-1(BWG), Experimental group-2(TBG) and Control group with 40 samples in each. The 'Pre-test Post-test equivalent group design' is employed to conduct the experiment. Initially The Researcher used two test items i.e. 1) strength of abdominal plus psoas muscle test 2) strength of upper back muscle test from Kraus-Weber Muscular Strength test used for Pre & post test is conducted for Experimental group-1, Experimental group-2 and Control group. Experimental group-1 and Experimental group-2 are exposed body weight exercise and thera band exercise training programme respectively for six month. Whereas Control group not given any training in this research. Mean, Standard deviation is employed for descriptive statistical analysis. ANCOVA was employed for inferential statistical analysis at .05 level of significance. The research reveals that there was significant difference found in abdominal plus psoas muscle and upper back muscular strength of 14 to 16 years boys.

KEYWORDS :Thera band exercise, body weight exercise and Muscular Strength

INTRODUCTION

Muscular strength is recognized as an important component of health and it may be important for the performance of functional activities and quality of life. Muscular strength and endurance are one of the health-related physical fitness components (ACSM, 2003). The importance of an effective sports training program in a wide range of activities not only for the success in major international competition but also for the development of healthy participants. Muscular strength is one of the part of physical fitness. Muscular strength can provide several health benefits. Good muscle strength can also increase work capacity so that an individual does not tire easily and can improve athletic performance. During an emergency, strong muscles enable an individual to work beyond their normal capacity. Daily tasks, such as lifting heavy items and placing them on shelves can be made easier if an individual has good muscular strength.

Thera band, also known as Resistance bands, are often used in physical therapy or injury rehabilitation. One of the advantages of the Thera band is the targeted muscle or muscle group is under constant resistance throughout the movement. Another benefit is they are small, making them perfect devices for someone who travels a lot or lives in a small apartment. Thera bands can't produce the extreme resistance necessary for muscle growth, or hypertrophy, but they can be effective at strengthening and toning.

It isn't necessary to go out and purchase a lot of expensive equipment to get a good isotonic workout. Gravity can work, too. Body weight exercises, also known as calisthenics, include those exercises you performed in gym class like pushups and sit-ups. One obvious benefit of body weight exercises is no equipment is necessary. Calisthenics can build muscle mass and strength but the experienced body builder may find it difficult to put on a lot of muscle. Calisthenics can, however, be effective for weight loss, increased flexibility and increased strength and muscle tone.

OBJECTIVES OF THE STUDY:

1. To find out the development taking in abdominal muscular strength among the 14 to 16 years boys by using specific isotonic exercises.
2. To compare the rate of development of abdominal muscular strength among the 14 to 16 years boys by using specific isotonic exercises.

HYPOTHESIS:

1. There would be no significant difference in the development of Abdominal Muscles strength between experimental group and control group of 14 to 16 years boys.
2. There would be no significant difference in the development upper back muscle strength between experimental group and control group of 14 to 16 years boys.

METHODS :

SOURCES OF DATA :

Required data for this study was collected from age group 14 to 16 years school boys players from Tanwani English School Aurangabad

SELECTION OF THE SUBJECT

The researcher selected 120 boys players from Tanwani English School by random sampling method aged between 14 to 16 years who participated in games.

METHOD OF SAMPLING

Researcher selected 120 boys players from Tanwani English School, researcher divided the subject in three homogenous groups of 40 players in each named Experimental group-1(BWG) and Experimental group-2,(TBG) and Control group by simple random sampling method.

APPARATUS :

The Researcher used two test items from Kraus-Weber Muscular Strength test.

i.e. 1) strength of abdominal plus psoas muscle test 2) strength of upper back muscle test Following tools were used for the collection of data

1) Electronic Stop Watch, 2) Score Sheet, Pen and Pencil, 3) Mat

PROCEDURE :

By administrating the test researcher recorded all the scores of test. It was the data for the present study. The raw scores of all the test were recorded and processed statically and accordingly conclusions were drawn by comparing the initial data with the final data.

EXPERIMENTAL DESIGN:

For the present study the Pre-Test Post-Test Equivalent Group design is employed. The same is symbolically represented as below:

R O1 X O2
R O3 X O4
R O5 C O6

PRE TEST:

Before beginning of the training program, all the subjects of both groups was given time for practice and then take strength of abdominal plus psoas muscle test.

POST TEST

The researcher was taken post test after six month training on 14 to 16 years boys.

TRAINING SCHEDULE

Researcher conducted the training program in the ground of Tanwani English School. In the first stage the time duration of the training program was one hour in the morning and only three days in a week during school timing up to six months. In one hour 20 minutes warm up, 25 minutes exercises with Red color thera band and 15 minutes cool down exercises. The thera band exercises are given to the subjects including pelvic lift, bridge lift, pelvic tilt, curl up for experimental group 1 and In one hour 20 minutes warm up, 25 minutes exercises with Red color thera band and 15 minutes cool down exercises. The body weight exercises are given to the subjects including pelvic lift, bridge lift, pelvic lift, curl up for experimental group 2. Control group not given any training in this research.

STATISTICAL METHODS:

The following statistical variables selected for comparing, analyzing and interpretation of numerical values and being on which the findings will discuss.

1. Mean, Standard deviation was employed for descriptive statistical analysis.

2. ANCOVA was employed for inferential statistical analysis used at significance of .05 levels.

ANALYSIS AND INTERPRETATION OF THE DATA

1. TABLE SHOWING THE COMPUTATION OF ANALYSIS OF COVARIANCE FOR STRENGTH OF ABDOMINAL PLUS PSOAS MUSCLE TEST BETWEEN EXPERIMENTAL GROUP-1, EXPERIMENTAL GROUP-2 AND CONTROL GROUP:

Means	Experimental group-1	Experimental group-2	Control group		s.s	df	m.s	f-value
Pre test	3.25	4.00	2.75	Between	31.66	2	15.83	0.703
				within	2635	117	22.52	
Post test	8.50	10.00	5.00	Between	526.66	2	263.33	20.40*
				within	1510	117	12.906	
Adjusted post test	8.517	9.862	5.121	Between	472.73	2	236.36	19.62*
				within	1397.27	116	12.04	

INTERPRETATION:

1. The pre test mean of Experimental group-1, Experimental group-2 and Control group was 3.25, 4.00 and 2.75 respectively. The obtained f-value 0.703 for 2,117 degree of freedom is not significant at 0.05 level of significance. This confirms that there was no difference in the abdominal muscular strength plus psoas of the players of the said three groups at Pre-test.

2. The post test mean of Experimental group-1, Experimental group-2 and control group was 8.50, 10.00 and 5.00 respectively. The obtained f-value 20.40 for 2, 117 degree of freedom was significant at 0.05 level of significance. This confirms that significant difference exists in the strength of abdominal plus psoas muscle of the players of the said three groups at post test.

3. The adjusted post test mean of Experimental group-1, Experimental group-2 and Control group is 8.517, 9.862, and 5.121 respectively. The obtained f-value for adjusted Post test mean is 19.62 at 2, 116 degree of freedom was significant at 0.05 level of significance. This confirms that significant difference exists in the adjusted post test mean for strength of abdominal plus psoas muscle ability of the players of the said three group.

TABLE SHOWING THE COMPUTATION OF ANALYSIS OF COVARIANCE FOR STRENGTH OF UPPER BACK MUSCLE TEST BETWEEN EXPERIMENTAL GROUP-1, EXPERIMENTAL GROUP-2 AND CONTROL GROUP:

Means	Experimental group-1	Experimental group-2	Control group		s.s	df	m.s	f-value
Pre test	3.60	3.92	4.02	Between	3.95	2	1.97	.905
				within	255.35	117	2.18	
Post test	7.92	9.80	4.27	Between	631.51	2	315.75	131.40*
				within	281.15	117	2.40	
Adjusted post test	8.00	9.77	4.21	Between	643.30	2	321.65	147.14*
				within	253.56	116	2.18	

INTERPRETATION:

1.The pre test mean of Experimental group-1, Experimental group-2 and Control group was 3.60, 3.92 and 4.02 respectively. The obtained f-value .905 for 2,117 degree of freedom was not significant at 0.05 level of significance. This confirms that there was no difference in the strength of upper back muscle of the players of the said three groups at Pre-test.

2.The post test mean of Experimental group-1, Experimental group-2 and control group was 7.92, 9.80 and 4.27 respectively. The obtained f-value 131.40. for 2, 117 degree of freedom was significant at 0.05 level of significance. This confirms that significant difference exists in the strength of upper back muscle of the players of the said three groups at post test.

3.The adjusted post test mean of Experimental group-1, Experimental group-2 and Control group was 8.00, 9.77, and 4.21 respectively. The obtained f-value for adjusted Post test mean is 147.14 at 2, 116 degree of freedom was significant at 0.05 level of significance. This confirms that significant difference exists in the adjusted post test mean for strength of upper back muscle ability of the players of the said three groups

CONCLUSION:

1.There would be significant difference between pre and post test of abdominal plus psoas muscle strength between experimental group and control group of 14 to 16 years boys.

2.There would be significant difference between pre and post test of upper back muscle strength between experimental group and control group of 14 to 16 years boys.

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