



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2020; 7(5): 295-296
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www.kheljournal.com
Received: 16-07-2020
Accepted: 18-08-2020

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Effect of isotonic exercises on vital capacity of rural school boys

Ashish Rai

Abstract

Purpose: The present study has been designed to explore the effects of 4 months training of isotonic exercises on shoulder strength of the school boys. Isotonic exercises are designed to tone and strengthen muscle, and to promote general fitness.

Design of the Study: Pre-posttest experimental design was used to in this study

Methodology: For accomplish of the present study only 20 boys students of rural area's high school of Haryana state will be selected. 20 fresh students would be included in the isotonic exercises experimental group. Age group of the samples will be "14 to 16" years boys of high school. Selected isotonic exercises will be provided to isotonic experimental group only. The domain of the study will be delimited to rural high school boys of Haryana state. Experimental isotonic group (14 to 16 years) (pre) v/s isotonic experimental group (14 to 16 years) (post).

Result: A significant effect of calisthenics exercises was observed on the **vital capacity** of rural school boys.

Keywords: Isotonic exercises, vital capacity

Introduction

The word isotonic comes from the Greek "Iso" equal" + "tones" – tone = maintaining equal (muscles) tone and roughly translates to same tone. According to a medicine.net article, the muscle maintains equal tone while shortening during isotonic exercise. That means your muscles maintain the same tension throughout the exercise. Examples of isotonic exercise include squats, stair climbing, bicep curls and push-up. Isotonic work with weight, used progressively, does lead not only to increase in muscular strength, muscular endurance and muscular power, but also to increased heart and lung efficiency. This type of training need to be done three times in a week for an hour or more to be effective.

Objective of the study

To find out the effect of isotonic exercises on Vital Capacity of the school boys.

Hypotheses

There will be significant difference with in the isotonic experimental group in the age 14 to 16 years.

Methodology

Only 20 boy students of rural area high school of Haryana state will be selected for the present study. 20 fresh students would be included in the isotonic exercises experimental group. Age group of the samples will be "14 to 16" years boys of high school. Selected isotonic exercises will be provided to isotonic experimental group only. The domain of the study will be delimited to rural high school boys of Haryana state. Experimental Group (14 to 16 years) (pre) v/s experimental Group (14 to 16 years) (post).

Training Program

10 min – General Warming-up, 40 min – Isotonic exercises workout, Running, Sprinting, Jumping rope, Long jump, Frog squat jump, Jump squat, Pull-ups, Chin-ups, Push-up,

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High knees, Sit-ups, Triceps dips, Right and left lags step ups, Toe touching, Butterflies, Stand and reach, Straddle stretches, Lunge, Arm rotation, 10 min – Cooling down

Tools and technique used

Purpose: To measure the maximum amount of air exhalation after deep inhalation.

Equipment: Wet Spiro meter, Nose clip

Administration: Procedure: The measurement was taken

with the subject in a standing position. The tester ensures that when the subject holds the instrument in their hand it was correctly held and Spiro meter was brought in to zero position, the subject performed maximum inspiration and after clipping the nose, the air was blown out as intensely as possible in the mouth piece.

Scoring: The amount of expired air was read directly from the calibrated scale and that was the score of vital capacity in liters.

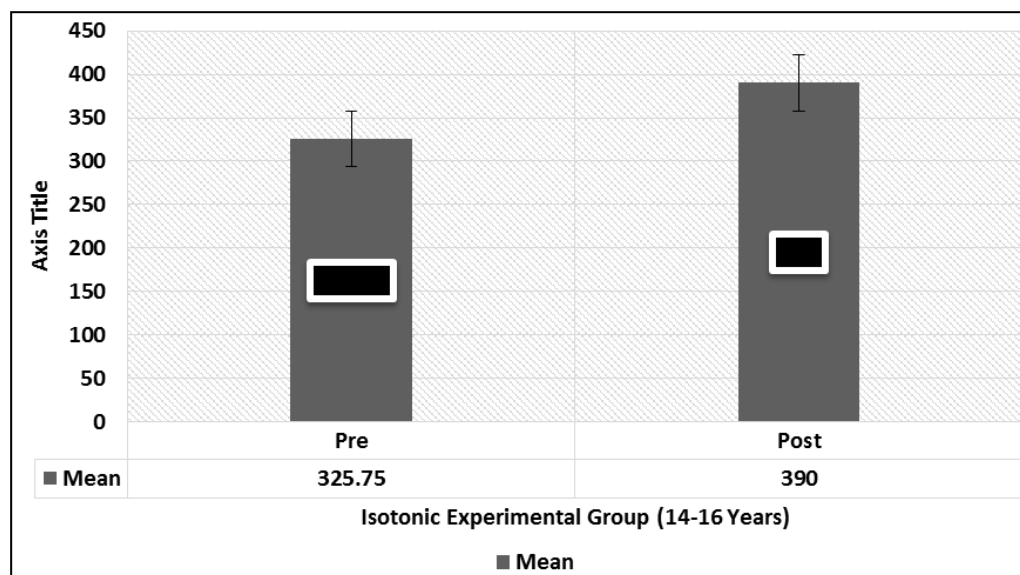
Table 1: Comparison of Pre and Post Phase Means of Isotonic Experimental (14-16 Years) Age Group in their Peak Expiratory Flow Vital Capacity using 'T' Test.

Variable	Groups	Phase	N	Mean	SD	(df)	('t'-value)	Sig.
Peak Expiratory Flow	Isotonic Experimental (14-16) Years	Pre	20	325.75	37.25	19	-16.497	.000
		Post	20	390	35.54			

Table value: ± 2.093 , with df 19, $\alpha=0.05$ (Two Tailed), $p<0.05$

The table 1: depicts the paired sample 't' statistics of Isotonic Experimental Group. The mean and SD of pre-test was 325.75 ± 37.25 and post-test was 390 ± 35.54 . The calculated value of paired 't' was -16.497 which was significant at 0.05

level of alpha ($p<0.05$). While, a significant difference was seen between the means of pre-test and post-test phases of isotonic experimental (14-16 years) group in their Peak Expiratory Flow. That is why, hypothesis is accepted.



Graph 1: Graphical Representation of Mean Scores of Isotonic Experimental Group (14-16 Years) in their Peak Expiratory Flow

Conclusions

After observed the outcomes given in above table it was taken into notice that mean and standard deviation of isotonic experimental group at their pre phase was 325.75 ± 37.25 and isotonic experimental group at their post phase was 390 ± 32.54 as per the obtained outcomes. The calculated value of 't' was -16.497 respectively which was significantly considerable at 0.05 alpha level. Therefore, it was observed that a significant effect of training was observed on the vital capacity of respondents.

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