PUNE RESEARCH TIMES ISSN 2456-0960
AN INTERNATIONAL JOURNAL OF CONTEMPORARY STUDIES VOL 2, ISSUE 1

EFFECT OF ISOTONIC AND ISOMETRIC TRAINING ON THE PERFORMANCE OF COLLEGE GOING GIRLS

SUNIL A. DAMBHARE,
Director of Physical Education,
Mungsaji Maharaj Mahavidyalaya.
Darwha. **(MS) INDIA**

ABSTRACT

Many people participate in sports and games for fun, happiness, pleasure for health and fitness. Increased participation in sports has resulted in competition which has become an important element of modern life. Competition provides the means by which one can show one's worth by competing successfully. For top level performance, it is very important to spot, select and nurture a budding sportsman as it is recognized by all that athletes must possess some inherent qualities, which can be developed by means of systematized and scientific training.

INTRODUCTION

Now day's sports become a part and parcel of life. Millions of fans follow different sports events all over the world with an enthusiasm boarding in devotion. Many people participate in sports and game of happiness, pleasure, competition which has become an important element in modern life.

Isotonic Exercise

Many athletes who work out regularly are not familiar with the technical term, but most of them are familiar with the actual practice of isotonic and isometric exercise. Isotonic and isometric exercise is when the muscle carries a static weight limit over a specific rang of motion. In common terms, this means moving a free weight of fixed weight as part of common weight training. A bicep curl is a classic example of isotonic exercise, where the muscle has to work against a set resistance through the entire curl, which is the range of motion.

Isotonic exercise is very useful, not only in helping participants bulk up, but in providing specific muscle responses that will be useful in range of athletic and recreational activities.

One of the main benefits of isotonic exercise is that it doesn't require extensive equipment. Benefits of isotonic exercise are that it doesn't require extensive equipment. Portable items like dumbbells, kettle bells, medicine balls and other similar tools are all ways to fit isotonic exercise into any space of environment. More of the benefits and isometric exercise are related to the use of resistance. The weight of the above fitness tools provides resistance that the body has to work against. This helps strengthen muscles in several ways.

Isometric Exercise

Isometric exercise involves no joint movement, shortening or lengthening of a muscle. Some examples of isometric exercise include pushing or pulling against an immoveable object, working one muscle against another muscle, and holding yourself in a static pose for as long as you can. This form of exercise will increase your muscles strength and endurance but only in the pose that is being held. Isometric exercise are contractions of a particular muscle or group of muscles. During isometric exercises, the muscle doesn't noticeably change length and the affected joint doesn't move. Isometric exercises don't effectively build strength but can help maintain muscle strength most often in rehabilitative setting. Because isometric exercises are done in one position without movement, they'll improve strength in only one particular position. You'd have to do various isometric exercises through your limb's whole range of motion to improve muscle strength across the range. In addition, since isometric exercises are done in a static position, they won't help improve speed or athletic performance.

Purpose of the Study

The main purpose of present this paper is to determine the effect of Isotonic and Isometric Training on the performance of college going girls.

Objectives

The main objectives of present this paper is to

i. Find out the effect of Isotonic Training on the cardio-vascular endurance performance of college girls.
ii. Find out the effect of Isometric Training on the cardio-vascular endurance performance of college girls.

Methodology

Selection of Test and Criterion Measure

1. 12 Minute run/walk test

Administration of tests

Cardio-Vascular Efficiency : (Coopers 12 minute and walk)

Purpose – To Measure the cardio-vascular endurance.

Equipment – Stopwatch or clock with sweep second hand.

Producer

The subjects stood behind the starting line of the running space on 400 mts. Track. The running space was divided in sixteen equal parts to facilitate measuring the distance run by the subjects. The subjects were divided into two groups and each one is having one partner from another group. The subjects were made to run in their respective groups and the partner of each student from other group recorded the distance covered by their partners in 12 minute run/walk. They were given standing start and the race started on the sound on the clapper. The subjects ran/walked to their best, for 12 minutes on the said track and at the end of 12th minute a long whistle was blown which would the indication to stop where ever they were then. The distances were measured accordingly in mts. The same procedures were adopted for the next group subjects too.

Collection of Data

For data collection two test was conducted as given below, administration of the test 1) Pre-test: A Ore-test was conducted for knowing the equal distribution of both the group ie. Two Experimental groups and control group. 2) Post-test: After six weeks training programmed final test was conducted for the final result collected pre-test and post test data was further put for analysis.

Analysis and Interpretation

The researcher conducted and research paper on effect of Isotonic and Isometric exercises on cardio-vascular endurance performance of college girls. For the purpose of this study the researcher collected data on 60 college girls of Yavatmal city.

Analysis of Data

To determine the significant difference in the means of Cardio-Vascular endurance of college girls between the three groups as well as between the pre-test and post test means of two experimental and control group t-test was employed.

Level of Significance

To find out the significance difference, level of significance was set at 0.05 level of confidence.

Findings of the statistical analysis have been shown in the following tables.

Summary of Mean, Standard Deviation and t-ratio for the Data on 12 min Run/ Walk Test Between the Means of Pre and Post-tests of Control Group

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Pre-test	1465.750	70.174	10.500	22.080	0.476@
Post-test	1476.250	69.469			

@ Not significant at 0.05 level Tabulated t0.05(19)= 2.093

The above Table 1 show that, 12 min run/walk test mean difference between the pre-test and post test of control group is not significant, because the calculated t-value of 0.476 is less than the tabulated t-value of 2.093 at 0.05 level of confidence of 19 degree of freedom.

Summary of Mean, Standard Deviation and t-ratio for the Data on 12 Min Run/Walk Test Between the Means of Pre and Post-tests of Isotonic Group

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Pre-test	1466.00	71.393	74.00	22.579	3.277*
Post-test	1540.00	70.859			

* Significant at 0.05 level Tabulated t0.05(19)= 2.093

The above Table 2 show that, 12 min run/walk test mean difference between the pre-test and post test of Isotonic group is significant, because the calculated t-value of 3.277 is greater than the tabulated t-value of 2.093 at 0.05 level of confidence of 19 degree of freedom.

Summary of Mean, Standard Deviation and t-ratio for the Data on 12 Min Run/Walk Test Between the Means of Pre and Post-tests of Isometric Group

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Pre-test	1465.00	76.466	79.500	25.162	3.159*
Post-test	1545.00	82.558			

* Significant at 0.05 level Tabulated t0.05(19)= 2.093

The above Table 3 show that, 12 min run/walk test mean difference between the pre-test and post test of Isometric group is significant, because the calculated t-value of 3.159 is greater than the tabulated t-value of 2.093 at 0.05 level of confidence of 19 degree of freedom.

Summary of Mean, Standard Deviation and t-ratio for the Data on 12 Min Run/Walk Test Performance Between the Means of Post-tests of Isotonic and Control Groups

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Isotonic	1540.00	70.859	63.750	22.189	2.873*
Control	1476.250	69.469			

* Significant at 0.05 level Tabulated t0.05(38)= 2.024

The above Table 4 show that, 12 min run/walk test mean difference between the post test of Isotonic and Control group is significant, because the calculated t-value of 2.873 is greater than the tabulated t-value of 2.024 at 0.05 level of confidence of 38 degree of freedom.

Summary of Mean, Standard Deviation and t-ratio for the Data on 12 Min Run/Walk Test Between the Means of Post-tests of Isometric and Control Groups

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Isotonic	1540.00	82.558	68.750	24.127	2.850*
Control	1476.250	69.469			

* Significant at 0.05 level Tabulated t0.05(38)= 2.024

The above Table 5 show that, 12 min run/walk test mean difference between the post test of Isometric and Control group is significant, because the calculated t-value of 2.850 is greater than the tabulated t-value of 2.024 at 0.05 level of confidence of 38 degree of freedom.

Summary of Mean, Standard Deviation and t-ratio for the Data on 12 Min Run/Walk Test Between the Means of Post-tests of Isometric and Isometric Groups

Test	Mean	Standard Deviation	Mean Difference	Standard Error	t-ratio
Isotonic	1540.00	70.859	5.00	24.328	0.206@
Isometric	1545.00	82.558			

@ Not Significant at 0.05 level Tabulated t0.05(38)= 2.024

The above Table 6 show that, 12 min run/walk test mean difference between the post test of Isometric and Isometric groups is not significant, because the calculated t-value of 0.206 is less than the tabulated t-value of 2.024 at 0.05 level of confidence of 38 degree of freedom.

Discussion on Findings

- Insignificant difference in pre test and post test of control group in12 min Run/Walk Test (t= 0.476) is less than the tabulated t-value of 2.093 at 0.05 level of confidence of 19 degree of freedom and in Isotonic and Isometric groups (t = 0.206) is less than the tabulated t-value of 2.024 at 0.05 level of confidence of 38 degree of freedom.
- Significant difference in pre test and post test of Isotonic group in 12 min Run / Walk test (t = 3.277), is greater than the tabulated t-value of 2.093 at 0.05 level of confidence of 19 degree of freedom.
- Also significant difference in post test of Isotonic – Control Groups (t = 2.873)and Isometric- Control groups (t = 2.850)in 12 min Run / walk test, are greater than the tabulated t-value of 2.024 at 0.05 level of confidence of 38 degree of freedom.

Justification of Hypothesis

Research hypothesized that; there would be significant effect of isotonic and isometric training on the cardio-vascular endurance performance o college girls.

From the above finding there was significant difference found in pre-test and post-test in Isotonic and Isometric groups also in post test of Isotonic-Control and Isometric-Control groups in 12 min run /walk test, hence researcher hypothesis was accepted.

Conclusion

In the conclusion the effect of Isotonic and Isometric exercise on college girls on the cardio-vascular endurance following conclusion was drawn.

- Insignificant difference in pre-test and post-test of control group and Isotonic-Isometric groups in 12 min Run/walk Test.
- Significant difference observed in pre test and post test of Isotonic group in 12 min Run/Walk test.
- Also significant difference found in pre test and post test of Isometric group in 12 min Run/walk test.
- Also significant difference in post test of Isotoni9c- Control groups and Isometric-Control groups in 12 min Run/walk test.
- Because of Isotonic and Isometric training cardio-vascular endurance of the college girls increases hence showed the significant.

REFERENCES

1. Barker J. W., "Effects of and Isotonic and a combination Isometric-Isotonic Exercise programme upon Push-up Performance." British Journal of Sports Medicine, 1972, Volume 6, Issue 3-4 pp. 138-141
2. Clarey Christopher (28 August 2011). "Who can Beat Bolt in the 100? Himself." The New York Times. Retrieved 28 August 2011.
3. Crawford M.H., Petru M.A. and Rabinowitz C., "Effect of Isotonic axercise training on left ventricular volume during upright exercise," Circulation. 1985;72: 1237-1243 doi: 10.1161/01. CIR. 72.6.1237
4. Dehganpoori Mohammad, Poor Habib Mohammad, Ali Ojaghi, localized Isotonic exercises on under fat skin". Annals of Biological Rsearch, 2012, Vol. 3, No. 1 pp. 349-352, ISSN 0976-1233.
5. http://www.fitday.com/fitness-articles/fitness/exercises/the-benefits-of-isotonic-exercise.html