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Effect of isotonic exercises on speed of college going athletes

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Abstract

The purpose of this study was to know the effect of isotonic exercises on speed. Thirty (30) subjects were randomly selected comprising of both male and female athletes for isotonic group (15) and control group (15) belonging to the age group of 22-28 years from College of Physical Education, Institute of Professional Studies, Gwalior. For the purpose of this study and to get valid conclusion, researcher has chosen one variable namely speed as dependent variable and isotonic exercises as independent variable. To know the effect of isotonic exercises on speed Random group Design was used and to analyze the both group (Isotonic and control) "Paired t test" was used at 0.05 level of significance. The Time of performance was recorded to the nearest 1/10 of a second. Finding of the study shows that there is significant effect of isotonic exercises on speed.

Keywords: Isotonic Exercise, Intensity, Time and Speed

Introduction

Scientific truth is not a copy of an image passively received as the fruit of laborious and endless dialogue between thought and reality. At any moment of history; man's practices reflect what he believes to be true at that time, but extent to which these are in accordance with the realities is dependent upon his prowess of observation, his ability to perceive relationships and his capacity for devising theories which account for their relationships. The theories grow out of his observations and each theory he formulates tends to make his observations more acute by establishing a prospective within which they may be more sharply focused, thus enabling him to ask more pointed questions, which will in turn elicit more precise information to be used in testing the theory. As a result of the circular process, he may modify his theories which will then modify his beliefs and practices. This motivates the next phase of the endless dialogue, and so the spiral human knowledge about any area of man's life rises in over-widening cycles of theory and retested by fact.

Strength is the key to the success in modern sports and games. Such a statement may sound extreme, but nevertheless, it is true. Strength, however, is the key element because it is more easily improved than the other elements. It is in fact the only element that can be improved with one hundred percent success. Agreement is unanimous that the good big man will always beat the good little man, i.e., the good strong man will always beat the good weary man. That being the reason, the demand has come for great interest in fitness training method. Weight training is not usually thought of as an end in itself, but as a means to an end – the primary emphasis should be on the power, the muscle exert, not on the form of the lift. In most educational systems, physical education (PE) is a course which promotes physical activity and various sports. The intent is generally to promote fitness and health, as well as the benefits of team-building, teamwork, sportsmanship, and fair play. The definition of physical education is learning in emotional, psychomotor and cognitive ways and the goals of physical education are different depending on the requirements of place and time. The objective of most schools is to provide students with skills, capabilities, values and knowledge together with the interest in maintaining a healthy lifestyle. On the other hand, some schools require physical education to promote weight loss. Activities involved in physical education are designed to develop motor skills and promote physical fitness as well as to understand concepts, rules and strategies. Physical education teaches the students to work as an individual or as part of a team.

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The definition of physical education is the same in different countries in the world in terms of its goals in promoting discipline. Wrestling, martial arts and Pencak Silat are included in physical education classes in some countries to teach self-defense to students. This helps introduce children into fitness, teamwork and sports, which are necessary for their adulthood. Knowing the definition of physical education is important so that students will be able to be more interested with the program and its benefits. In addition, definition of physical education plays a significant function in enlightening the students and providing the students the understanding of its importance. The program provides the students with instructions that are individualized and challenging, which can advance the confidence, skills, motivation and knowledge necessary in life.

A sport is an organized, competitive, entertaining, and skillful activity requiring commitment, strategy, and fair play, in which a winner can be defined by objective means. It is governed by a set of rules or customs. Activities such as card games and board games, are classified as "mind sports" and some are recognized as Olympic sports, requiring primarily mental skills and mental physical involvement. Non-competitive activities, for example as jogging or playing catch are usually classified as forms of recreation.

Physical events such as scoring goals or crossing a line first often define the result of a sport. However, the degree of skill and performance in some sports such as diving, dressage and figure skating is judged according to well-defined criteria. This is in contrast with other judged activities such as beauty pageants and body building, where skill does not have to be shown and the criteria are not as well defined. Isometric exercise is a form of exercise involving the static contraction of a muscle without any visible movement in the angle of the joint. This is reflected in the name; the term "isometric" combines Greek the prefixes "iso" (same) with "metric" (distance), meaning that in these exercises the length of the muscle does not change, as compared to isotonic contractions in which the contraction strength does not change but the joint angle does. The speed of an object is the magnitude of its velocity (the rate of change of its position); it is thus a scalar quantity. The average speed of an object in an interval of time is the distance traveled by the object divided by the duration of the interval; the instantaneous speed is the limit of the average speed as the duration of the time interval approaches zero. Like velocity, speed has the dimensions of a length divided by a time; the SI unit of speed is the meter per second, but the most usual unit of speed in everyday usage is the kilometer per hour or, in the USA and the UK, miles per hour. For air and marine travel the knot is commonly used.

Methodology

Total thirty (30) subjects were randomly selected as subjects, both male and female from College of Physical Education, Institute of Professional Studies, Gwalior (M.P.). These subjects were ranged from 22 to 28 years and were divided into two equal groups, i.e. Isotonic training group as experimental group and another as Control group. To ascertain cooperation from the subject the scholar had an information talk with the subjects explaining to them the requirement of the study in detail. The variable for this study were Isotonic exercises as independent variable whose effect was seen on speed which was the dependent variable. In order to know the effect of isotonic exercises on speed random group design was adopted and equal no of subjects was

assigned at random to two groups of fifteen subjects each. To analyze the collected groups (Isotonic and control) "paired t test" was used and level of significance was set as 0.05.

Table 1: Comparison of Mean Value of Pre and Post-test of Experimental Group

Test	Mean	S.D.	M.D.	S.E.	't'
Pre-test	7.85	1.23		0.32	
			0.60		7.07*
Post-test	7.25	1.00		0.26	

*Significant at 0.05 level Significance; $t_{(0.05)(14)} = 2.15$.

Table no. 1 shows that there is significant difference among pre and post-test of speed of experimental group as calculated t-ratio value 7.07 is greater than tabulated t-value 2.15. Thus it is revealed that eight week isotonic training programme had significant effect on speed.

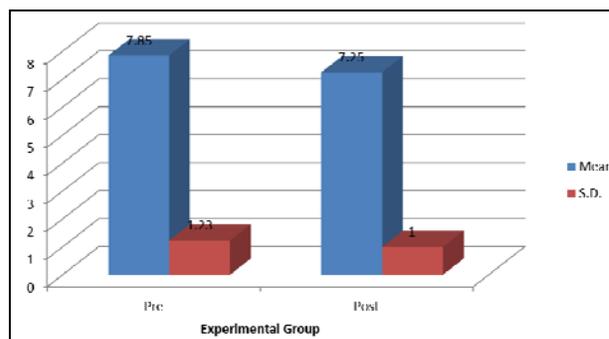


Fig 1: Graphical representation of pre and post Mean and Standard Deviation value of Experimental Group.

Table 2: Comparison of Mean Value of Pre and Post-test of Control Group

Test	Mean	S.D.	M.D.	S.E.	't'
Pre-test	8.47	1.24		0.32	
			0.10		1.24
Post-test	8.37	1.24		0.32	

*Significant at 0.05 level Significance; $t_{(0.05)(14)} = 2.15$.

Table no. 2 shows that there is insignificant difference among pre and post-test of speed of control group as calculated t-ratio value 1.24 is smaller than tabulated t-value 2.15.

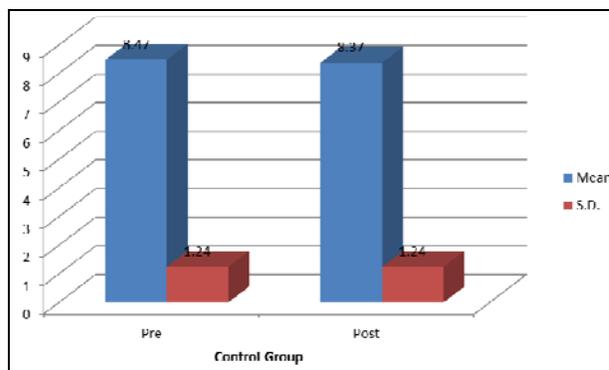


Fig 2: Graphical representation of pre and post Mean and Standard Deviation value of Control Group.

Discussion of Findings

Finding of the study shows that the experimental groups trained by isotonic exercises, showed significant gains in performance(Speed) of the track event (50 m. Run). It may be

because by strength training fat decreases and contractile protein increases. Strength exercises increases muscular strength and contractibility when they adapt an aerobically with higher intensity. During the training the myofibril, protein filament and capillary density increases. Also it increases the muscular endurance when it adapt aerobically. The control group did not show any significant increase in the performance of track event. It is confirmed by the result of the study that resistance training will improve strength when the load, volume and intensity is applied according to the training principles progressively.

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