



Effect of Core Training associated with Speed Training on Horizontal and Vertical Explosive Power among College Students

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Abstract

The purpose of the study was to find out the effect core training on horizontal and vertical explosive power among college students. Twenty four college students studying from Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur were selected randomly as subjects. The age of the subjects ranged from 21 to 28 years. The selected subjects were divided into two groups. Group I underwent core training and Group II acted as control. The experimental group (core training) was subjected to the core training for alternative three days for up to four weeks. The core training was selected as independent variable and the criterion variables horizontal and explosive power were selected as dependent variables and the selected dependent variables were assessed by the standardized test items. Horizontal explosive power was assessed by standing broad jump test and the unit of measurement in centimeters, and vertical explosive power was assessed by vertical jump test and the unit of measurement in centimeters. The experimental design selected for this study was pre and post test randomized design. The data were collected from each subject before and after the training period and statistically analyzed by using dependent 't' test and analysis of covariance (ANCOVA). It was found that there was a significant improvement and significant different exist due to the effect of core training on horizontal and explosive power.

Keywords: Core Training, Speed Training, Explosive Power, Horizontal, Vertical.

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Introduction

The "core" of the body is simply what's between the shoulders and hips – basically the trunk and pelvis. Draw an imaginary line around the center of your body, starting at your navel, and most of the muscles bordering that line are your core muscles. (Sara Rose, 2006). Core training is a system of that re-educates your body so that you use it effectively. It's an intelligent workout that strengthens your body from the inside out and is a safe and effective way to exercise. (Sara Rose, 2006).

The core is a crucial group of muscles, not only for sports, but for typical daily activities as well. It's essential that your core is strong because it comes into play just about every time you move. The core acts to produce force, it stabilizes the body to permit other musculature to produce force and it's also called upon to transfer energy. Everyone can benefit from core training, from new exercisers working on their fitness to exercise enthusiasts looking for increased performance. It can help the elderly who wish to remain fit and flexible, and women after pregnancy to get their abdomen and pelvic floor muscles back into shape. (Sara Rose, 2006).

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Core training will also tone your torso and abdominal muscles and improve your posture – if your core is strong, the your lower abdominal muscle will be drawn in toward the spine and help you sit up straight. Your balance and coordination will be improved, and most important of all, core stability will help keep your spine healthy and flexible throughout life. (Sara Rose, 2006)

Methodology

To achieve the purpose, twenty four college students studying from Dr. Sivanthi Aditanar College of Physical Education, Tiruchendur were selected randomly as subjects. The age of the subjects ranged from 21 to 28 years. They were assigned randomly into two groups (group I) underwent core training and (group II) acted as control of twelve subjects each. The experimental group was subjected to the core training during morning hours for three days and group II acted as control. The core training was selected as independent variable and the criterion variables horizontal and vertical explosive power were selected as dependent variables and the selected dependent variable were assessed by the standardized test items. Horizontal explosive power was assessed by standing broad jump test and the unit of measurement in centimeters, and vertical explosive power was assessed by vertical jump test and the unit of measurement in centimeters. The experimental design

selected for this study was pre and post test randomized design. The data were collected from each subject before and after the training period and statistically analyzed by using dependent 't' test and analysis of covariance (ANCOVA).

Results and Discussion

The data pertaining to the variables in this study were examined by using dependent 't' test to find out the

significant improvement and analysis of covariance (ANCOVA) for each variables separately in order to determine the difference and tested at .05 level of significance. The analysis of dependent 't' test on data obtained for horizontal explosive power and vertical explosive power of the pre test and post test means of experimental and control group have been analyzed and presented in Table I.

Table I. Mean and dependent 't' test of experimental and control groups on selected variables

Variables	Mean	Core Training	Control Group
Horizontal Explosive power	Pre test Mean	2.22	2.22
	Post test Mean	2.24	2.22
	't' test	8.86*	1.00
Vertical Explosive Power	Pre test Mean	46.08	45.75
	Post test Mean	48.0	45.67
	't' test	12.89*	1.00

*Significant at 0.05 level of confidence (11) = 2.201

The obtained 't' ratio value on horizontal explosive power and vertical explosive power of experimental groups is higher than the table value, it is understood that the obtained 't' ratio value is less than the table value; because it was not subjected to any specific training. The analysis of covariance on the data obtained on horizontal explosive power and vertical explosive power has made significant improvement on horizontal and vertical explosive power. However, the control group has not made significant improvement as the obtained 't' value is less

Table II. Analysis of covariance of experimental and control groups on selected variables

Variables	Adjusted Post Test Means		Source of Variance	SS	df	Mean Squares	'F'-Ratio
	Core Training	Control Group					
Horizontal Explosive Power	.002	10.0	Between	0.002	1	0.002	66.34*
			Within	.001	21	0.000023	
Vertical Explosive power	47.83	55.84	Between	23.65	1	23.65	136.36*
			Within	3.67	21	0.113	

*Significant at .05 level of confidence, df (1, 21) = 4.32

Table II shows that the obtained 'F' ratio value are 66.34 and 136.36 which are higher than the table value 4.32 with df 1 and 21 required to be significant at 0.05 level. Since the obtained value of 'F' ratio is higher than the table value, it indicates that there is significant difference has made among the adjusted post- test means of core training group and control group on horizontal and vertical explosive power.

The core training may influence the significant difference on horizontal explosive power and vertical explosive power.

Conclusions

1. The core training had significantly improved the horizontal and vertical explosive power.
2. There was significant difference among the adjusted post – test means of core training and control group on horizontal and vertical explosive power.

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