EFFECT OF TRAMPOLINE TRAINING ON EXPLOSIVE POWER AND DYNAMIC BALANCE AMONG COLLEGE STUDENTS

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Abstract: The purpose of the study was to find out the improvement in the effect of trampoline training on explosive power and dynamic balance among college students. To achieve the purpose of this study, 24 male Physical Education students were selected as subjects from department of Physical Education and Sports, Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India. Their age ranged from 23 to 27 years. The selected participants were randomly divided into two groups such as group 'A' trampoline training (n=12) and group 'B' acted as control group (n=12). Group 'A' underwent trampoline training for three days per week and each session lasted for forty five to one hour approximately for six weeks. Control group was not exposed to any specific training but they were participated in regular activities. The selected variables explosive power and dynamic balance were measured by sergeant vertical jump test and star excursion balance test respectively. The pre and post-tests data were collected on selected criterion variables prior to and immediately after the training program. The pre and post-test scores were statistically examined by the dependent't' test and Analysis of co-variance (ANCOVA). The level of significant was fixed at 0.05 level. It was concluded that the trampoline training group had shown significantly improved on explosive power and dynamic balance due to the effect of trampoline training. However the control group had not shown any significant improvement on explosive power and dynamic balance.

Index Term: Trampoline Training, Explosive Power, Dynamic Balance

I. INTRODUCTION

Fitness is the ability of an individual to live a full and balanced life. It involves physical, mental, emotional, social and spiritual factors and a capacity for their wholesome expression [1]. Training is an educational process framed by scientific principles, aiming at bringing the sportsperson for elite performance in high level competitions [2]. Training is a systematic process of repetitive, progressive exercise or work involving learning process and acclimatization [3]. The training load should be increased in order to improve the performance load must be increased from time to time for improvement of the continuous performance. Training load can be increased gradually or step by step is result in strong and faster adaptation process and more effective reaction from the organism. Step by step of increase of load gives time to the organism to adapt to the increased demands. Beginning lesser load is greater improvement but latter higher load is necessary to produce even a small increase in performance [4].

Trampoline is a great way to work the muscles and cardiovascular system without being hard on the joints. And trampoline exercises are a fantastic way to improve health, fitness, and well-being for everyone from the beginner to advanced, no matter your age. Today we're going to take you through some of our favourite trampoline exercises for general health and fitness. Trampolines in and of themselves are a recreation and exercise device. People enjoy using trampolines because they get a feeling of euphoria from jumping higher than normal (without hurting themselves), from a temporary feeling of weightlessness, and from the exercise. Jumping-Fitness is a workout in which various slow, fast, and intensive jumps are combined with classical aerobic steps on a mini-trampoline accompanied by music. In contrast to conventional trampoline jumps, here the upper body is bent over and held still, while only the legs carry out the jumping movements. This form of trampoline workout is considered to be gentle on joints with high energy expenditure, and is presumed to be effective for training the abdomen, legs, buttocks, and deep back muscles [5].

Explosive strength, a component of speed strength, refers to acceleration or rate of force development, or "the neuromuscular system's ability to generate high action velocities [6]. Explosive power is the ability to release the maximum muscular force in on explosive manner, in the shortest possible time [7].

II. PURPOSE OF THE STUDY

The purpose of the study was to find out the effect of trampoline training on explosive power and dynamic balance among college students.

III. METHODOLOGY

The purpose of the study was to find out the effect of trampoline training on selected jumping and balancing among college students. To achieve the purpose of this study, 24 male Physical Education students were selected as subjects from Department of Physical Education and Sports, Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, India. Their age ranged from 23 to 27 years. The selected participants were randomly divided into two groups such as group 'A' trampoline training (n=12) and group 'B' acted as control group (n=12). Group 'A' underwent trampoline training for three days per week and each session lasted for forty five to one hour approximately for six weeks. Control group was not exposed to any specific

training but they were participated in regular activities. The selected variables explosive power and dynamic balance were measured by sergeant vertical jump test and star excursion balance test respectively. The pre and post-tests data were collected on selected criterion variables prior to and immediately after the training program. The pre and post-test scores were statistically examined by the dependent't' test and Analysis of co-variance (ANCOVA). The level of significant was fixed at 0.05 level.

IV. RESULT AND FINDINGS

The effect of trampoline training on explosive power and explosive strength were analyzed and presented below.

4.1 Explosive Power

Table 4.1:Computation of 't' - Ratio between Pre and Post Test Means of Experimental and Control Groups on Explosive Power (centimeters)

Tests		Pre Test	Post Test	't' - Value
Experimental Group	Mean	32.0	48.0	12.82*
	SD	05.0	04.0	
Control Group	Mean	33.0	40.0	1.64
	SD	05.0	06.0	

**Significant at 0.05 level. (Table value required for significance at .05 level for 't'-test with df 11 is 2.20)*

The table 4.1 shows that the pre-test mean values of experimental and control groups are 32.0 and 33.0 respectively and the post test means are 48.0 and 40.0 respectively. The obtained dependent t-ratio values between the pre and post test means of experimental and control groups are 12.82 and 1.64 respectively. The table value required for significant difference with df 11 at 0.05 level is 2.20. Since, the obtained 't' ratio value of experimental group was greater than the table value, it was understood that experimental group had significantly improved on explosive power. However, the control group has not improved significantly. The 'obtained t' value is less than the table value, as they were not participated to any specific training.

Table-4.2:Analysis of Covariance on Explosive Power of Experimental and Control Groups

Adjusted Post Test Means		Source of variance	Sum of squares	df	Mean square	F–ratio
Experimental Group	Control Group					
49.0	40.0	Between	0.27	1	0.27	135.60*
		Within	0.03	21	.002	

* Significant at 0.05 level. Table value for df 1, 21 was 4.32

Table 4.2 shows that the adjusted post test means values on explosive power. The obtained f- ratio of 135.60 for adjusted post test mean is greater than the table value 4.32 with df 1 and 21 required for significance at 0.05 level of confidence. The results of the study indicate that there was a significant mean difference exist between the adjusted post test means of experimental and control groups on explosive power.

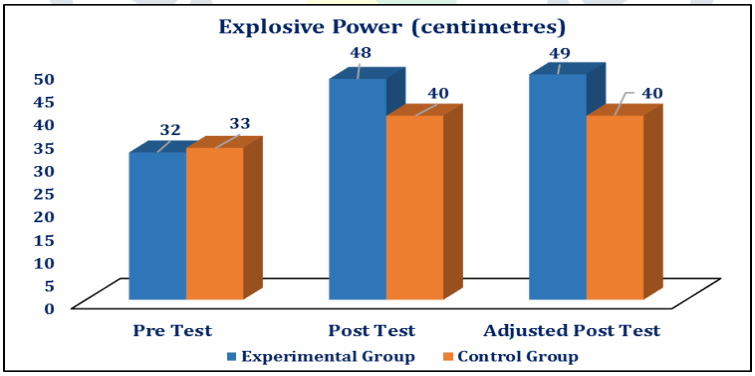

Figure 4.1: Pre, post and adjusted post tests mean values of altitude training and control groups on explosive power.

4.2 Dynamic Balance

Table 4.3: Computation of 't' - ratio between pre and post test means of experimental and control groups on dynamic balance (centimeters)

Tests		Pre Test	Post Test	't' - Value
Experimental Group	Mean	86.89	91.96	11.34*
	SD	2.72	2.97	
Control Group	Mean	85.87	86.06	0.27
	SD	4.25	3.51	

**Significant at 0.05 level. (Table value required for significance at .05 level for 't'-test with df 11is 2.20)*

The table 4.3 shows that the pre-test mean values of experimental and control groups are 86.89 and 85.87 respectively and the post test means are 91.96 and 86.06 respectively. The obtained dependent t-ratio values between the pre and post test means of experimental and control groups are 11.34 and 0.27 respectively. The table value required for significant difference with df 11 at 0.05 level is 2.20. Since, the obtained 't' ratio value of experimental group was greater than the table value, it was understood that experimental group had significantly improved on dynamic balance. However, the control group has not improved significantly. The 'obtained t' value is less than the table value, as they were not participated to any specific training.

Table 4.4:Analysis of covariance on dynamic balance of experimental and control groups

Adjusted Post Test Means		Source of variance	Sum of squares	df	Mean square	F–ratio
Experimental Group	Control Group					
92.40	86.35	Between	167.91	1	167.91	17.31*
		Within	164.9	21	9.70	

** Significant at 0.05 level. Table value for df 1, 21 was 4.32*

Table 4.4 shows that the adjusted post test means values on dynamic balance. The obtained f- ratio of 17.31 for adjusted post test mean is greater than the table value 4.32 with df 1 and 21 required for significance at 0.05 level of confidence. The results of the study indicate that there was a significant mean difference exist between the adjusted post test means of experimental and control groups on dynamic balance.

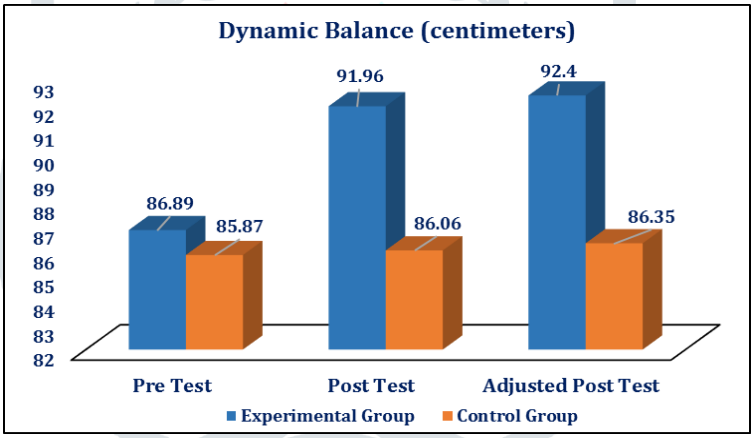

Figure 4.2: Pre, post and adjusted post tests mean values of altitude training and control groups on explosive strength.

V. DISCUSSION ON FINDINGS

The present studies found statistically significant improvement on explosive power and dynamic balance, which showed that positive effect of practicing of Trampoline training. The findings of the study were also agreed with the following findings, Jensen, Scott, Krustrup & Mohr (2013) [8], Cankaya, Soner, Basri Gokmen, Mehmet Yalcin Tasmektepligil, & Musa Con (2015) [9], Miklitsch, Krewer, Freivogel, & Steub, (2013) [10], Arumugam, (2018)[11].

VI. CONCLUSIONS

1. There was significant improvement on explosive power and dynamic balance due to the effect of Trampoline training among college students.
2. There was significant difference on experimental and control group on explosive power and dynamic balance due to the effect of Trampoline training among college students.
3. However the control group had not shown any significant improvement on any of the selected variables.

VII. REFERENCES

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