

EFFECTS OF RESISTANCES TRAINING TO IMPROVE POWER ABILITY AMONG PHYSICAL EDUCATION STUDENTS

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Abstract

Purpose of this research work was to find out the effects the resistance training to improve power ability among physical education students with respects to athletic and work power ability. The 40 male physical education student as a experimental group who were doing M. P. Ed form school of educational science, Swami Ramanand Teeth Marathwada University Nanded and 40 other students as a control group was selected as subject for present study. and their age ranged between 22-30years. Only training was given to the experimental group. Voluntary to participate in the Resistance training programmes. Exclusion criteria were the presence of chronic medical conditions such as asthma, heart disease or any other condition that would put the subjects at risk when performing the experimental tests. The resistance training was planned as 12 weeks 5days a week and 90min. Study was conducted at S.R.T.M. University Nanded. Mean score and standard deviation were taken and paired ANCOVA was applied. The result reveals that there was significant effect of resistance training on Athletic power ($f=97.34$, $p<.05$) and work power ($F=53.76$, $p<0.05$) It is found that resistance training improve the athletic and work power performance on physical education students.

Keywords: Training, Resistance and Power

Introduction

Physical education trends have developed recently (Sinku 2008) to incorporate a greater variety of activities besides typical sports. Introducing students to activities like bowling, walking/hiking, or Frisbee at an early age can help students develop good activity habits that will carry over into adulthood. Studies have shown that physical activities enhance muscular strength and endurance, cardiovascular endurance, and provides many other physical benefits. (Sinku 2013) It also provides psychological benefits such as improving general mental health, concentration, awareness and positive mood. It can be taught to any age student with little or no equipment making it ideal for mixed ability and age classes. Physical activity easily is incorporated into a holistic learning body and mind unit. Teaching non-

traditional sports to students may also provide the necessary motivation for students to increase their activity, and can help students learn about different cultures. Physical education students provides a great opportunity to integrate academic concepts from other subjects as well (social studies from the example above), which may now be required of many Physical education teachers.

Athletic power may be define as the rate at which work can be done. It is the speed at which strength can be applied or the rate at which force can be developed. Resistance training is a modality of exercise that has grown in popularity over the past two decades, particularly for its role in improving power ability like athletic power and work power through muscular strength, power and speed, hypertrophy, local muscular endurance, motor performance, balance, and coordination (Aaberg, 1999; Starkey 1996). The key factor to successful resistance training at any level of fitness or age is appropriate program design. Program design entails proper exercise instruction, goal setting, a method of evaluation of training progress toward training goals, the correct prescription of the acute program variables, and the inclusion of specific methods of progression targeting particular areas of athletic as well as work power. Keeping in the view the investigator attempted to examine the effects of resistance training for improvement of power ability on physical education students.

Materials and Methods

Subjects

The 40 male physical education students as an experimental group who were doing M.P.Ed. in Swami Ramanand Teerth Marathwada University Nanded and 40 other students as a control group would be selected as subject for present study and their age ranged between 22-30years. Only training was given to the experimental groups. Voluntary to participate in the Resistance training programmes. Exclusion criteria were the presence of chronic medical conditions such as asthma, heart disease or any other condition that would

put the subjects at risk when performing the experimental tests. The subjects were free of smoking, alcohol and caffeine consumption, antioxidant supplementation and drugs during the programmes. They completed an informed consent document to participate in the study. The age, height, weights, power ability of all subjects were measured in physical education department laboratory.

Research Design

The design in a research study refers to "the researcher's overall plan for answering the researcher's question or testing the research hypotheses" (Polit et al, 2001, p.167). This study involves the effects of resistance training to improve the Power ability on physical education students in a random group pre and post test experimental design. Ultimately, the findings will increase the awareness of physical education students. Coaches, sports trainers physical educationist and sports person regarding resistance training for power performance.

Training Programme:

The exercise session should consist of the following

A warm-up period of approximately 10 minutes this should combine calisthenics' type stretching exercises and progressive aerobic activity that should increase the heart rate close to the prescribed heart rate for the session. A cool-down period of 5-10 minutes. Training program would be planned as 12 weeks 5 days a week and 90min. Day the level of training intensity is increased from initial 40% to 70% during twelve weeks students were trained according to protocol of three sets, 8-12 repeat and 3-5 minutes break between each set training programs were created in the frame of these criteria.

Parameters Measurements

Power generally measured by two methods Athletic power measured by using the Standing Broad Jump test and work power test would be measured by using the Vertical Power Jump test.

Collection of Data

Data was taken from the 40 physical education students as a experimental group of Swami Ramanand Teerth Marathwada University similarly Pre and Post Test was taken from 40 other students as a control group Resistances training was given to the experimental group. And analysis the data mean, S.D. and analysis of Covariance was utilized the level of significant was set up at 0.05 level.

Results of the Study

As the primary aim of the study was to statistically effects of Resistance training to improve power ability

on physical education students. With the help of mean Standard Deviations & analysis of co-variance

Table-1
MEAN SCORES AND STANDARD DEVIATIONS OF PRE AND POST-TEST OF WORK POWER AMONG CONTROL AND EXPERIMENTAL GROUP

Group	Test	Mean	Standard Deviation
Control Group	Pre Test	41.4	3.29
	Post Test	40.77	2.97
Exp. Group	Pre Test	42.4	3.68
	Post Test	47.3	4.41

As per Table-1, illustrates the mean scores and standard deviations of work Power ability using through Vertical Jump test among Control and Experimental group. The mean scores obtained from Table 1, the mean score of Pre- test was 41.4, (42.4) and the post test was 40.77, (47.3) respectively of work Power ability among control and Experimental group. Mean while the standard deviations of Pre-test were 3.29, (3.68) and the post test was 2.97, (4.41) respectively of work Power ability among control and Experimental group.

Table-2
ANALYSIS OF COVARIANCE EFFECTS OF RESISTANCE TRAINING ON WORK POWER AMONG PHYSICAL EDUCATION STUDENTS

Source of Variation	SSX	SSY	SSXY	SSYX	MSSYX	F-ratio
Treatment Group	20	851.51	130.5	633.54	633.54	53.76*
Errors Group	953.2	1105.37	798.8	435.96	11.78	

* Significant at 0.05 level of Significance ($F = 53.76 P < 0.05$)

Table-3, illustrates the statistical information of Analysis of Co- Variance of effects of resistance training on work Power ability among physical education students. Above table indicates that statistically significant effects of resistance training on work power ability of physical education students was found as above observed in F-ratio was 53.76 which is required to be 3.98 at 1,77df at .05 level of significant . This means that Twelve weeks Resistance training programme has improved work power performance among physical education students.

Table-3
MEAN SCORES AND STANDARD DEVIATIONS OF PRE AND POST-TEST OF ATHLETIC POWER AMONG CONTROL GROUP

Groups	Test	Mean	Standard Deviation
Control Group	Pre Test	221.3	13.25
	Post Test	217.4	13.29
Exp. Group	Pre Test	229.82	12.40
	Post Test	240.95	12.56

As per Table-3, illustrates the mean scores and standard deviations of Athletic power ability using through Standing Broad Jump test among Control and Experimental group. The mean scores obtained from

Table 3, the mean score of Pre-test was 221.3 (229.82) and the post test was 217.40(240.95) respectively of Athletic power among Control and Experimental group. Mean which the standard deviations of Pre-test were 13.25(12.40) and the post test was 13.29 (12.56) respectively of Athletic power ability among Control and Experimental group.

Table-4
ANALYSIS OF COVARIANCE EFFECTS OF RESISTANCE TRAINING ON OF ATHLETIC POWER AMONG PHYSICAL EDUCATION STUDENTS

Source of Variation	SSX	SSY	SSXY	SSYX	MSSYX	F-ratio
Treatment Group	1445	10580	3910	4096.2	4096.2	97.34*
Errors Group	1284.5	1267.7	1194.7	1556.9	42.07	

* Significant at 0.05 level (F = 97.34 P<.05).

Table-4, illustrates the statistical information of Analysis of Co-Variance of effects of resistance training on Athletic power among physical education students. Above table indicates that statistically significant effects of resistance training on Athletic power ability of physical education students was found as above observed in F-ratio was 97.34 which is required to be 3.98 at 1,77df at .05 level of significant. This means Twelve weeks Resistance training programme has improved Athletic power performance among physical education students.

Discussion of Findings

The results reveal that there was a significant effect of Resistance training was found out on Athletic power among physical education students. Athletic performance in many sports demands the development of muscle strength, which is required for other performance related characteristics, notably speed and power. Muscle strength is routinely developed through prolonged participation in a structured resistance exercise programmes (Andrea, 2007; B.Sankarmani, 2012). It is well recognized that athletic power is very important because poor physical capacity limits the ability to play at a higher level. Ideally, athletes should be selected at a young age then given correct coaching in skills and tactics, as well as a progressive conditioning programme to enable them to perform at high intensities throughout matches. Several male athletes have some conditioning background and whether this is correct or not, they usually see the benefits of strength training for their sport (Poiss, 2004; Dorgo&Dalgas,2009)Physical education students were found to have got strong than other students. This results supported Sinku (2011) compared physical education and non physical education students. The results reveal that there was a

significant effect of Resistance training was found out on physical fitness components with respect to work power among physical education students. Jump performance has been a standard assessment of athletic strength and power in the lower body (Anderst, 1994; Duke, 1992; Fatourous, 2000). Coaches and athletes have looked on this test as a predictor for athletic potential in many sports including weightlifting, football, basketball, volleyball, and track. Low strength attributable to poor muscular development hinders athletic performance including vertical jump and should be the primary training objective for the less-trained individual (Maffiuletti, 2002; Brown, 1986). resistance training has been shown to improve vertical jump performance as much as 2–8 cm or 5–15%, it seems that lighter, more explosive lifts may be more effective than heavier lifts that are performed at lower velocities (Holcomb,1996;Umesh,2010; Fatouruus,2000). As a result, when training for explosive movements, relatively light ballistic resistance exercises may be the most appropriate training model and offer the greatest potential for improvement in vertical jump performance (Anderst,1994, Poole,1987)

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