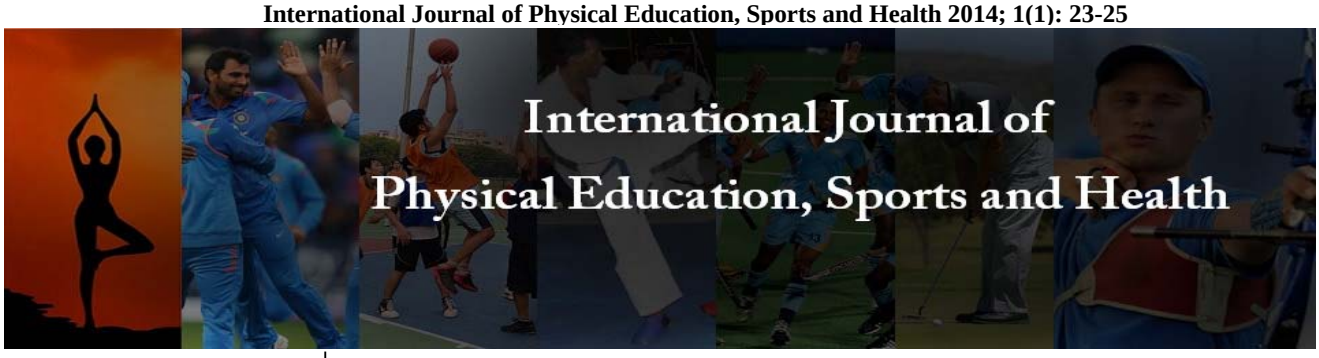

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Effect of conventional resistance training on selected Motor components among University Athletes

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Abstract
The purpose of this study was to examine the effect of conventional resistance training on enhancing the quality of performance in motor fitness components such as muscular strength, explosive power and cardio respiratory endurance. For this purpose 30 university athletes, aged 18 to 22 years took part in the study. Subjects were randomly assigned to either conventional resistance training (n=15) or control (n=15) group. The training regimen lasted for eight weeks. The selected criterion variables were assessed using standard tests and procedures, before and after the training regimen. Analysis of covariance was used to determine the significant difference existing between pretest and posttest on selected criterion variables. The analysis of data revealed that eight weeks of conventional resistance training had an impact of 13.91% on muscular strength, 25.57% on explosive power and 18.23% on cardiorespiratory endurance. These results suggest that conventional resistance training has significant influence in improving selected dependent variables.

Keywords: conventional resistance training, motor fitness components, muscular strength, explosive power and cardio respiratory endurance.

1. Introduction
The conventional resistance was originally designed for outdoor interval training to accommodate broad scale community or group fitness. It is also an excellent decorative enhancement with its natural timber form construction. The individual exercise stations are usually installed at fixed intervals several hundred feet apart in a linear or looping circuit so that participants can walk or jog from one station to the next where they can perform a variety of designated exercises involving stretching, balance, agility, and strength. Some stations might feature a simple freestanding calisthentic or stretching movement while others might feature a specific exercise on the timberform apparatus. The exercises are easily adaptable for all ages and can be modified to accommodate individual fitness levels and physical limitations. Equipment exists to provide specific forms of physiological exercise, and can consist of natural features including climbable rocks, trees, and river embankments, or manufactured products (*stepping posts*, *chin-up and climbing bars*) designed to provide similar physical challenges. The degree of difficulty of a course is determined by terrain slope, trail surface (*dirt, grass, gravel, etc*.), obstacle height (*walls*) or length (*crawls*) and other features. To improve or maintain a desired level of physical fitness, there is a need to constantly administer an adequate training intensity while exercising. Conventional Resistance training is one of the effective means to improve all round physical and cardiovascular fitness.

2. Methodology
2.1 Subjects and Variables
The purpose of this study was to examine the effect of conventional resistance training on enhancing the quality of performance in motor fitness components such as leg strength, muscular strength, explosive power and anaerobic power. For this purpose 30 university athletes, aged 18 to 22 years took part in the study. Subjects were randomly assigned to either conventional resistance training (n=15) or control (n=15) group. The selected criterion variables were assessed using standard tests and procedures, before and after the training regimen. The variables and tests used are presented in table-1.

Table 1: Dependent Variables and Test

Sl. No.	Variables	Tests / Instruments	Unit of Measurement
1.	Muscular Strength	Bent Knee sit-ups	Numbers
2.	Explosive power	Sarjent Jump test	Centimeter
3.	Cardiorespiratory endurance	Cooper's 12 minutes R/W test	Meters

2.2 Training protocol

The experimental group subjects underwent Conventional Resistance training programme for three days a week for eight weeks. In the Conventional Resistance training regimens, a serious of eight exercise stations were formed in a standard 400 meters track. The subjects moved from one station to another, by jogging. The number of repetition for each exercises varied from ten to sixteen. The number of circuits varied between two-and-three for eight weeks, with a recovery interval of five minutes was given between circuits. The number of repetition was progressively increased once in two weeks.

2.3 Experimental design and statistical procedure

The experimental design used for the study was random group design involving thirty subjects, who were divided at random into two groups such Conventional Resistance training group and control group of fifteen each. The data collected from the two groups prior to and after experimentation on muscular strength, explosive power and cardiorespiratory endurance were statistically examined for significant differences, if any, by applying the analysis of covariance (ANCOVA) with the help of SPSS package. In determining the significance of 'F' ratio the confidence interval was fixed at 0.05 level.

3. Results

The descriptive analysis of data collected on selected bio-motor abilities before and after eight weeks of Conventional Resistance training is presented in table-2.

Table 2: Computation of Mean and Standard Deviation on Selected Motor Fitness Components

Variables	Groups	Pretest		Posttest	
		$\bar{X}$	σ	$\bar{X}$	σ
Muscular Strength	Conventional Resistance Training	24.87	2.29	28.33	3.68
	Control	24.67	2.28	25.07	3.08
Explosive Power	Conventional Resistance Training	45.68	2.68	57.36	3.71
	Control	46.73	2.78	48.13	2.18
Cardiorespiratory Endurance	Conventional Resistance Training	2449.33	115.17	2647.33	84.55
	Control	2454.67	93.42	2497.33	65.63

The data collected from the two groups prior to and after experimentation on muscular strength, explosive power and cardiorespiratory endurance were statistically examined for significant differences, if any, by applying the analysis of covariance (ANCOVA) with the help of SPSS package and it is presented in table-3.

Table 3: Analysis of Covariance on Selected Motor Fitness Components of Conventional Resistance Training and Control Groups

Variables	Groups	Adjusted Mean	SOV	Sum of Squares	df	Mean Square	'F' ratio
Muscular Strength	Conventional Resistance Training	28.13	B	248.83	1	248.83	45.57*
	Control	24.93	W	147.47	27	5.46	
Explosive power	Conventional Resistance Training	55.42	B	332.62	1	332.62	156.16*
	Control	47.69	W	57.46	27	2.13	
Cardiorespiratory Endurance	Conventional Resistance Training	2618.66	B	171153.3	1	171153.3	31.46*
	Control	2487.33	W	146890.3	27	5440.38	

Required table value for significance at 0.05 level of confidence for df of 1 and 27 is 4.21. * Significant at 0.05 level.

The findings of the study shows that significant difference existing between Conventional Resistance training and control group on muscular strength, explosive power and cardiorespiratory endurance, since the obtained 'F' ratio of 45.57, 156.16 and 31.46 respectively were greater than the required table value of 4.21 for significance at 0.05 level of confidence for df of 1 and 27.

4. Discussion

The literature thoroughly supports the evidence that a higher dose of Conventional Resistance training produces greater increases in bio-motor abilities. Studies have shown improvement in aerobic capacity from participation in circuit training (Kass & Castriotta, 1994; Peterson, Miller, Quinney, & Wenger, 1988). Kaikkonen and others (2000) observed significant improvement on cardiovascular and muscular fitness due to the effect of a 12-week low resistance circuit weight training. Gettman and others (1978) conducted a study to determine the changes elicited by circuit weight training and running (RN) programs conducted 3 days per week for 20 weeks. It was concluded that the circuit weight training program was most specific in improving strength and changing body composition and aerobic capacity.

5. Conclusion

The result of this study demonstrated that, Conventional Resistance training with repeated bouts of a combination of physical exercise has significant impact on muscular strength, explosive power and cardiorespiratory endurance among university athletes.

6. References

1. Gettman, LR. "The Effect of Circuit Weight Training on Strength, Cardio Respiratory Function and Body Composition Adult Men. Med Sci Sports, 1978; 10:3, 171-6.

2. Kaikkonen H. The Effect of Heart Rate Controlled Low Resistance Circuit Weight Training and Endurance Training on Maximal Aerobic Power in Sedentary Adults. Scand Journal Med Sci Sports, 2000; 10:4, 211-5.
3. Kass JE, Castriotta RJ. The Effect of Circuit Weight Training on Cardiovascular Function in Healthy Sedentary Males. Journal of Cardiopulmonary Rehabilitation, 1994; 14:378-383.
4. Peterson SR. The Influence of High-velocity Resistance Circuit Training on Aerobic Power. Journal of Orthopedic and Sports Physical Therapy, 1988; 9:339-344.