Original Research Paper

VOLUME-6 | ISSUE-2 | FEBRUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

INFLUENCE OF DIFFERENT CONDITIONING PROGRAMME ON PHYSIOLOGICAL FITNESS OF COLLEGE GOING STUDENTS

Physical Education

KEYWORDS: Conditioning Programme, Physiological Fitness, Vital Capacity, Respiratory Rate

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ABSTRACT

To assess the effect of different conditioning programme on physiological fitness 90 student pursuing B.P.Ed courses and 90 student perusing B.A. pass physical education students were randomly assigned to four experimental groups (A – B and D – E) and two control group (C & F) (i.e. from professional courses A & B as experimental group a C as control group, whereas from General courses D & E as experimental group and F as control group) each consisting of 30 subjects. The experimental group was given conditioning programme of continuous and interval methods respectively. The groups C & F will serve as a control group and will continue participating in the normal programme of the college. Descriptive statistics and ANCOVA was computed to compare groups. The result shows that the 6 weeks of conditioning programme may not influence physical and physiological status of professional physical education students.

Introduction

Movement and activity are basic functions needed by human organism to grow, develop, and maintain health. However, physical activity is no longer a natural part of our existence. We live in an automated world where most of the activities that used to require strenuous physical exertion, can be accomplished by machines with the simple pull of a handle or push of a button. For instance, if there is a need to go to a store most of the people drive their automobiles. Similarly, during a normal visit to a multi-level shopping mall, it can easily be observed that almost everyone chooses to ride the escalators instead of taking the stairs. This is accomplished through regular exercise and proper nutrition. Being overweight is associated with many medical problems such as hypertension, diabetes, and heart diseases. Though researches are conducted on different conditioning programme, but the field of body training is still unexplored and enormous work must be done to highlight the scientific facts related to physical, physiological as well as body composition. Thus the scholar found this area to be interesting and thought of to find out effect of different conditioning programme on selected physiological fitness of professional and general physical education college students of West Bengal, which could help the coaches and teachers to come out of the traditional practice.

Methods

Selection of subjects: 90 student pursuing B.P.Ed courses and 90 student perusing B.A. pass physical education in Mugberia Gangadhar Mahavidyalaya and Panskura Banamali Mahavidyalaya, Purba Medinipur of West Bengal was selected as subjects of the study.

All subjects was randomly assigned to four experimental groups (A – B and D – E) and two control group (C & F) (i.e. from professional courses A & B as experimental group a C as control group, whereas from General courses D & E as experimental group and F as control group) each consisting of 30 subjects. The experimental group was given conditioning programme of continuous and interval methods respectively. The groups C & F will serve as a control group and will continue participating in the normal programme of the college.

Selection of Variables: Keeping the feasibility criterion in mind, especially in the case of availability of instruments, the following variables were selected. Physiological fitness components were resting heart rate, Vital Capacity and Respiratory Rate

Experimantal Design

Random group design was adopted for this study as all the subjects was randomly selected and randomly divided into six groups. Further the experimental treatments was also being assigned at random to the four experimental groups i.e. group A & B from professional colleges and group D & E from general colleges and the rest groups i.e. C & F will serve as a control group. The experimental groups will participate in two conditioning programme (continuous method and interval method). The conditioning programme was carried out for a total duration of six weeks.

Data Analysis: In order to study the effects of different conditioning programme on physiological fitness of west Bengal professional college students' descriptive statistics and analysis of Co-Variance was applied at .05 level of confidence.

Result:

Table=1: Mean and Standard Deviation of Physiological Fitness components of college going students of different conditioning programme

	Type of Training	Test	Mean	Std. Dev
Resting Heart Rate (in one minute)	Continuous Training (n=30)	Pre	69.3	1.91455
		Post	67.6	1.10172
	Interval Training (n=30)	Pre	70	1.66091
		Post	67.867	1.85199
	Control Group (n=30)	Pre	68.1	2.8448
		Post	66.333	1.2411
	Total(N=90)	Pre	69.133	2.3136
		Post	67.267	1.5708
Vital capacity(Liters)	Continuous Training (n=30)	Pre	3.24	0.25134
		Post	3.38	0.13746
	Interval Training (n=30)	Pre	3.3033	0.30113
		Post	3.4667	0.14933
	Control Group (n=30)	Pre	3.3033	0.3146
		Post	3.4833	0.1464
	Total(N=90)	Pre	3.2822	0.2886
		Post	3.4433	0.1499
		Post	72.033	7.2785
Resting Respiratory Rate	Continuous Training (n=30)	Pre	18	1.59741
		Post	16.933	0.86834
	Interval Training (n=30)	Pre	17.733	1.76036
		Post	16.833	1.11675
	Control Group (n=30)	Pre	18.733	1.2848
		Post	16.8	0.9248
	Total(N=90)	Pre	18.156	1.5999
		Post	16.856	0.9664

Table: 2: Analysis of Co-Variance of the Means of Two Experimental Group and a Control Group in relation to Resting Heart rate (in one minute); Vital Capacity (milliliters) and Resting respiratory rate (in one minute)

Variables		Groups				F-ratio
		Continuous Training	Interval Training	Control Group		
Resting Heart rate (in one minute);	Pre-test Means	69.3	70	68.1	A	5.724
					W	
	Post-test Means	67.6	67.867	66.333	A	9.767
					W	
	Adjusted post test means	67.548	67.598	66.654	A	4.698
					W	

Vital capacity (Liters)	Pre-test Means	3.24	3.3033	3.3033	A	0.476
					W	
	Post-test Means	3.38	3.4667	3.4833	A	4.423 *
	Adjusted post test means	3.397	3.458	3.475	A	7.363
					W	
Resting respiratory rate (in one minute)	Pre-test Means	18	17.733	18.733	A	3.305
					W	
	Post-test Means	16.933	16.833	16.8	A	0.152
					W	
	Adjusted post test means	17.002	17.021	16.543	A	4.293

* Significant at 0.05 level of significance
A = Among Means variance
W = With in Group variance
F = Ratio needed for significance at 0.05 level of significance = df(2, 87)=3.09 df(2,86) = 3.09

The analysis of co-variance was insignificant in case of pre-test means from which it is clear that the pre-test mean does not differ significantly and that the random assignment of subjects to all the groups was quite successful. The post-test means of all the four groups yielded a F-ratio of 9.767 which was also significant at 0.05 level of confidence. The difference between the adjusted post means was found significant as the obtained F-ratio was 4.698. The F-ratio needed for significance at 0.05 level of confidence was 3.09.

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Group (Bachelor Degree students) in relation to Vital Capacity (milliliters)

Continuous Training	Interval Training	Control Group	Mean Difference	C.D
3.397	3.458		-0.061*	0.042773
3.397		3.475	-0.078*	
	3.458	3.475	-0.017	

The above table reveals that significant difference was found in case of continuous training and interval training, continuous training and control group as the mean difference was greater than the critical difference. Further, no significant difference was found in case of interval training and control group as the mean difference was less than the critical difference at 0.05 level of significance.

Discussion:

Endurance training produces large increases in the activities of the oxidative enzymes of skeletal muscle. There is little or no effect on the enzymes of the glycolytic pathway (Gollnick, P. D., Sembrowich, W. L.,1977.). Saltin & Rowell (1980) and Gollnick & Saltin (1982) have reviewed physiological implications of these metabolic adaptations. They noted that both longitudinal and cross-sectional studies on endurance training have demonstrated much larger and more rapid effects on the oxidative enzymes than on maximal oxygen uptake.

Previous exercise conditioning studies done with men and women have reported reductions in resting HR and increased R-R interval which indicate improved parasympathetic modulation of the heart (Amano, Kanda, Ue & Moritani, 2001; Antelmi, et al., 2004). The present study did not find a significant change in HR or R- which were not detected in earlier studies. This study focused on women exclusively and the results reflect previous research. Hua et al. (in press) implemented the same low-intensity walking program with a sample of hypertensive men and women. They reported a decrease in resting HR in men but not women and an increased R-R interval in both sexes. This is further supported by Gregoire, Tuck, Yamamoto and Hughson (1996) and Ueno & Moritani, (2003), who affirm that men experience a significantly greater mean R-R interval than women after an exercise conditioning program. However, these studies are in contrast to those that report greater parasympathetic activity in normotensive women compared to men (Carter et al., 2003; Kuo et al., 1999).

Conclusion:

Within the limitation of the study it was concluded that six weeks of conditioning programme may not influence physical and physiological status of professional physical education students.

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