

Outcomes of anaerobic training, skill related and combined training on selected physiological variables among women basketball players

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Abstract

Anaerobic and Skill related training is a deliberate attempt to enhance physical capability in known fitness domains. Sportsmen can come up with an exercise routine that will help you target the muscles you wish to develop. The objective of these exercises can be described as getting bigger, faster, and stronger. The exercise exerts fast-twitch skeletal muscles that naturally display anaerobic metabolic characteristics. Thus, manipulating highly relevant combined training is the motto of the study. This research aims to assess the effect of 12 weeks Anaerobic Training, Skill Related and Combined Training on Selected Physiological Variables Among Women Basketball Players. To accomplish the purpose of the current study sixty women basketball players who were active in-game age ranged from 17 to 25 years old randomly selected from University of Madras, Chennai. They are randomly divided and employed into four equal groups, consist of 15 members each. Group-I underwent Anaerobic Training, Group II underwent skill related training, group III underwent combined Training and group IV acted as Control Group. The anaerobic training, skill related training and combined training has selected as the independent variable. Vital Capacity and Breathe holding time have chosen as dependent variables, and all dependent variables measured by standardized test item as wet spirometer and Nose clip. Analysis of Covariance (ANCOVA) would be applied to find out the significant mean differences. In all the cases, the 0.05 level of significance has fixed to test the Alpha level. The results of the study exposed that the experimental group III had finished a significant difference in all the selected variables such as Vital Capacity and Breathe holding time to compare the experimental and control groups.

Keywords: anaerobic training, skill related training, combined training, vital capacity, breathe holding time

1. Introduction

Sport Training

Training Method For most sports, training probably has a greater effect on performance than nutrition, equipment, psychological state or any other modifiable factor. Training is a complex behavior, mainly because it is performed in a time frame that range from seconds to years. Sports people use numerous terms to describe the characteristic so this temporal dimension of training. Single human movements, which occur in a second or two are combined and repeated to make a training bout or workout, a period of more-or-less uninterrupted physical activity. Workouts many occupy a few minutes or hours and may be continuous exercises, a set of reps or repeated movements, or a set of sat. A complete training session usually lasts an hour or two and consists of one or more workouts (Satpathy, 2005) [5].

2. Combination of Training

Combined training is an association of two or more trainings united for the furtherance of performance. Combined training also aims to expose the unexposed area of an isolated training. Further, it acts as to counterbalance or compensate a training programme to become a wholesome training regime.

Anaerobic Training

Anaerobic exercise is a form of exercise in which energy for

the activities performed comes from the sugars present in the muscle cells and not from oxygen in the blood. In fact, anaerobic means “in the absence of oxygen”. Such exercises are basically of short duration and intense. Examples of anaerobic exercise include sprinting and weight training. Because the effort required for such exercise is intense, it cannot be sustained for long. There are many factors that contribute to muscle fatigue during anaerobic exercise, chief amongst them is the production of lactic acid when sugars are broken down. The accumulation of lactic acid in the blood is a limiting factor to the extent we can carry out high-intensity activity without oxygen.

3. Methodology

3.1 Subjects

For the achievement of the objective of the current study, the investigator selected a total number of sixty (N=60) Women Basketball players had been chosen randomly from University of Madras, Chennai. The participants' age ranged from 17 to 25 years. The subjects were voluntarily participated to conduct the study. They were simplified into four groups. Each group consists of 15participants, which were assumed to be apt for the study.

3.2 Selection of Variables and Tests

Anaerobic training profoundly influenced by physiological

aspects. It had found from the literature that these variables might have a significant effect on Anaerobic training. Hence, the investigator seriously got interested to know whether there was any significant enhancement or not in the following variables:

Table 1: Selection of Tests

Variables	Test
Vital Capacity	Wet Spirometer
Breathe Holding Time	Nose Clip

3.3 Experimental design

The experimental treatment of Anaerobic Training, Skill Related and Combined Training allocated to the experimental groups. The experimental method used for this study was pre-test and post-test random group design in the present study. The selected subjects randomly assigned to experimental and control groups of 15 each. Group-I underwent Anaerobic Training, Group II underwent skill related training, group III underwent combined Training and group IV acted as Control Group. The groups tested on selected criterion variables Vital capacity and Breathe holding time before and after the training programme.

3.4 Treatment

Throughout the training period, the experimental groups

underwent Anaerobic Training, skill related training and combined Training respectively for five days per week for twelve weeks. The workout lasted to 60 minutes/session including dynamic warming up, Basketball-specific training and warming down periods. Control group were instructed not to participate in any strenuous physical exercise and specialized training throughout the training programme.

3.5 Statistical Procedure

The pre-test and post-test random group design used in the present study. The data collected from groups before and after completion of the training period on selected criterion variables. The selected variables were statistically examined for significant differences if any, by applying the analysis of covariance (ANCOVA). To find the significance 0.05 level Alpha fixed.

4. Results

The subjects were tested on selected criterion variables such as Vital capacity and Breathe holding time at before and immediately after the training period. The analysis of covariance on Vital capacity and Breathe holding time of Anaerobic Training, skill related training and combined Training and control groups are analyzed and presented in given below tables respectively.

Table 2: Computation of Analysis of Covariance on Vital Capacity (Scores In Milliliters)

Test	Anaerobic training	Skill related training	Combined training	Control group	SV	Sum of square	Df	Mean square	“F”
Pre	3932.52	3951.35	3929.92	3976.92	B	21235.623	3	7078.541	1.29
					W	306675.779	56	5476.353	
Post	4569.63	4505.26	4667.72	4078.66	B	3038241.596	3	1012747.1	32.01
					W	1771231.754	56	31629.138	
Adjusted	4567.58	4505.76	4665.31	4083.62	B	2793059.726	3	931019.90	35.65
					W	1765597.043	55	32101.76	

Table F-ratio at 0.05 level of significance for 3, 56 and 3, 55 (df) =2.77

*Significant

Table -2 shows that the pretest means scores of vital capacity anaerobic training was 3932.52 milliliters, skill related training group was 3951.35 milliliters, combined group was 3929.92 milliliters and control group was 3976.92 milliliters. The posttest means showed differences due to experimental training and mean values recorded were 4569.63, 4505.26, 4667.72 and 4078.66 milliliters respectively.

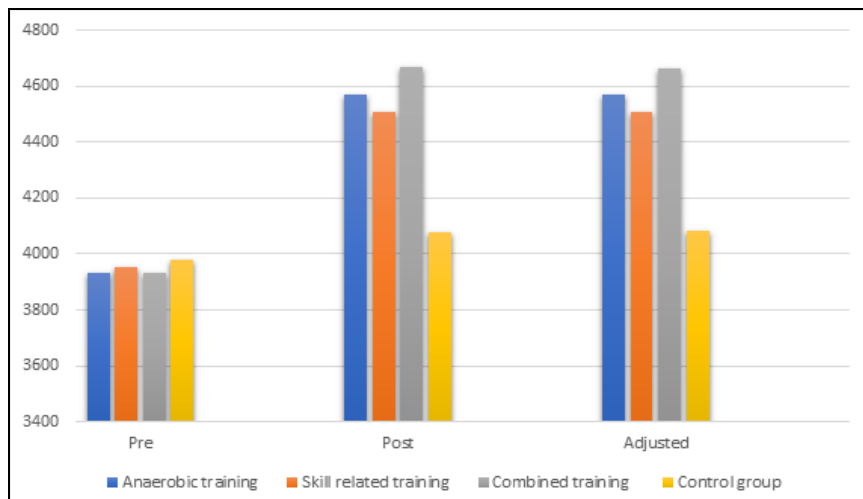
The obtained F value on pre-test scores 1.29 was less than the required F value of 2.77 to be significant at 0.05 level. This proved that there was no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that there was significant

difference between the groups, as they obtained F value 32.01 was greater than the required F value of 2.77. This proved that the differences between the posttest means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 35.65 was greater than the required F value of 2.77. This proved that there was a significant difference among the means due to the experimental trainings on vital capacity.

The results clearly indicating that combined anaerobic and skill related training was significantly better than the anaerobic training, skill related training in improving the vital capacity of the women basketball players.



Scores: in milliliters

Fig 1: Bar Diagram on Ordered Means of Vital Capacity

Table 3: Computation of Analysis of Covariance on Breath Holding Time (Scores In Seconds)

Test	Anaerobic training	Skill related training	Combined training	Control group	Source of variance	Sum of square	Df	Mean square	“F”
Pre	35.70	36.88	35.71	35.91	B	1.565	3	1.188	1.72
					W	146.346	56	2.613	
Post	41.50	39.98	45.94	37.38	B	579.571	3	193.190	60.83*
					W	82.687	56	1.477	
Adjusted	41.50	39.98	45.91	37.42	B	577.171	3	192.390	64.18*
					W	82.549	55	1.501	

Table F-ratio at 0.05 level of significance for 3, 56 and 3, 55 (df) =2.77

*Significant

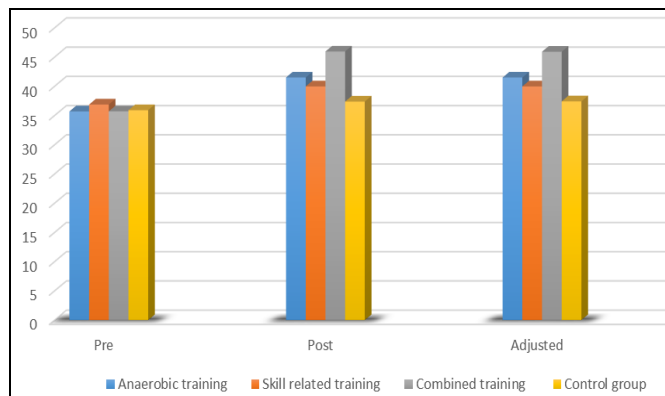
Table -3 shows that the pretest means scores of breath holding time anaerobic training was 35.70 seconds, skill related training group was 36.88 seconds, combined group was 35.71 seconds and control group was 35.91 seconds. The posttest means showed differences due to experimental training and mean values recorded were 41.50, 39.98, 45.94 and 37.38 seconds respectively.

The obtained F value on pre-test scores 1.72 was less than the required F value of 2.77 to be significant at 0.05 level. This proved that there was no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that there was significant difference between the groups, as they obtained F value 60.83 was greater than the required F value of 2.77. This proved that the differences between the posttest means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 64.18 was greater than the required F value of 2.77. This proved that there was a significant difference among the means due to the experimental trainings on breath holding time.

The results of the study clearly indicating that combined anaerobic and skill related training was significantly better than the anaerobic training, skill related training in improving the breath holding time of the women basketball players.



Scores: in seconds

Fig 2: Bar Diagram on Ordered Means of Breath Holding Time

5. Conclusion

By results and findings, it has concluded that twelve weeks Anaerobic Training, skill related training and combined Training improved vital capacity and breathe holding time among basketball women players. The results of the study concluded that the combined training had significant improvement when compared to skill related training and control groups.

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