



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2020; 7(6): 333-335
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www.kheljournal.com
Received: 18-09-2020
Accepted: 30-10-2020

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Assessment study on the impact of step aerobic training programme on leg strength and agility

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Abstract

The purpose of the study was to find out the effect of step aerobic programme on leg strength and agility among women students. To achieve this purpose, 20 women students were randomly selected as subjects from the Department of Physical Education and Sports Sciences, RTM Nagpur University, Nagpur, Maharashtra, studying in various classes. The age of the subjects were ranged from 18 to 23 years. The subjects were further classified at random into two equal groups of 10 subjects each in which group - I underwent step aerobic programme for three days per week for eight weeks and group - II acted as control who were not undergo any special training programme. The selected criterion variables such as leg strength and agility were assessed before and after the training period. The collected data were statistically analysed by using Analysis of Covariance (ANCOVA). From the results of the study it was found that there was a significant improvement on leg strength and agility for step aerobic group when compared with the control group.

Keywords: Step aerobics, leg strength and agility

Introduction

In sports the word "Training" is generally understood to be a synonym of doing physical exercises. In a narrow sense, training is doing physical exercises for the improvement of performance. Sports training is a scientifically based and pedagogically organized process which through planned and systematic effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as at the contest in sports competition. Step aerobics is distinguished from other forms of aerobic exercise by its use of an elevated platform (the step). The height can be tailored to individual needs by inserting risers under the step. Step aerobics classes are offered at many gyms and fitness centers which have a group exercise program. In sports the term training is often used by the players, coaches and scientists but there are some disagreement among the coaches and scientists regarding the exact meaning of this term, because the experts those who belong to sports medicine are in the opinion that sports training is simply a doing of physical exercise, Where as some other experts understood the meaning of the word in the form of interval training, strength training, technical training and tactical training. Sports' training is not merely concerned with physical activities which involve the physical movements. The various activities like dance, play and various fields i.e. industries and factories also involve physical movements. Those activities or areas can not be considered the sports training because sports' training has some essential features which are observed in all kinds of physical culture and which are particularly more prominent in competitive Sports training.

Strength is a vital factor on which the sports performance depends. Depending upon the magnitude and type of resistance to be tackled in various sports, the sportsman of different sports and different level and type of strength to achieve good performance.

Agility is generally defined as the ability to change the direction quickly and effectively while moving as nearly as possible at full speed. It is depended primarily on strength, reaction time, speed of movement and specific muscle co-ordination.

Sports training is an integral part of sports and hence it is considered as goal-oriented and purposeful human activity. The utmost principle of sports training is to develop a sportsman for his sports performance. Sports training is a long-term process and in order to get the best results it should be regulated and controlled.

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In any sports or games, the better results may be achieved only by effective control of sports training. In order to control of sports training the following activities may be essential to perform:

- 1) Training has to be carried out according to the plans and a detailed record of the same has to be maintained.
- 2) The Training has to be properly planned.
- 3) Training and performance analysis has to be done to derive conclusions and guidelines for refining and adjustment of current and future plans.
- 4) Effects of training on personality, performance and performance factors have to be assessed. Control of sports training is essential because different individuals respond differently to training. Moreover there are so many other factors which can influence sports training and the process of performance and personality development. It is, therefore, impossible to accurately predict or foresee the effect of training. Therefore, it becomes essential to continuously monitor the effects of training on performance and personality and keep on readjusting the training process for achieving the desired goal.

The control of sports training takes place at two levels. At the lowest level the training is controlled by the coach or sports teacher. At higher levels the training is controlled by the federation/association or government bodies. The control of training at both the levels must be complimentary to each

other. In the present text the control of training by the coach is discussed.

Methodology

The purpose of this study was to find out the effect of step aerobic on leg strength and agility. To achieve the purpose of this study 20 college women students who were studying in the Department of Physical Education and Sports Sciences, RTM Nagpur University, Nagpur, Maharashtra during the academic year 2018-2019 were randomly selected as subjects. The age of the subjects were ranged from 18 to 23 years. The selected subjects were divided into two groups of ten subjects each. Group I considered as experimental group who underwent step aerobic training and Group II considered as control that did not undergo any special training programme. The experimental group underwent step aerobic programme for 3 days per week for 8 weeks. The control group did not participate in any special training programme on strenuous physical activities apart from their day to day activities. The experimental group underwent their step aerobic under the instruction and supervision of the investigators. The data were collected on selected criterion variables such as leg strength and agility were measured by using leg lift with the dynamometer and shuttle run at before and after the eight weeks of step aerobic as pre and post test. Analysis of covariance (ANACOVA) was applied to find out significant difference if any between the experimental and control group.

Table 1: Analysis of Covariance for Leg Strength and Agility for Step Aerobic Training Group and Control Group

Variable Name	Group Name	Step Aerobic Group	Control Group	'F' Ratio
Leg Strength (in Kilograms)	Pre-test Mean± S.D	55.67 ± 1.35	55.93 ± 1.45	0.265
	Post-test Mean ± S.D.	58.13 ± 1.41	55.87 ± 1.51	18.14*
	Adj. Post-test Mean	58.23	55.77	38.12*
Agility (in Seconds)	Pre-test Mean ± S.D	11.67 ± 0.035	11.90 ± 0.013	0.54
	Post-test Mean ± S.D.	11.07 ± 0.022	11.93 ± 0.091	4.66*
	Adj. Post-test Mean	11.01	11.901	5.01*

* Significant at 0.05 level of confidence.

(The table values required for significance at 0.05 level of confidence for 1 and 18 & 1 and 17 are 4.41 and 4.45 respectively)

Results

Table 1 showed that the results of the study there was a significant difference between step aerobic training group and control group on leg strength and agility. Further the results of the study showed that there was a significant improvement in leg strength and agility after eight weeks of step aerobic training programme. However the improvement was in favour of experimental group.

Conclusions

1. There was a significant improvement in the performances of leg strength and agility. However this improvement was in favour of experimental group due to eight weeks of step aerobic programme.
2. There was a significant difference between experimental and control groups on leg strength and agility

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