**INFLUENCE OF 12 WEEKS OF STEP AEROBICS TRAINING ON CARDIO VASCULAR ENDURANCE AND EXPLOSIVE**

**POWER AMONG COLLEGE MEN**

**\* Dr. E. SARAVANAN**

\* Assistant Professor, Faculty of General & Adapted Physical Education and Yoga, Ramakrishna Mission Vivekananda Educational and Research Institute, (Deemed-to-be University) SRKV Post, Peiyanaikkenpalayam, Coimbatore - 641 020, Tamil Nadu, India.

**\*\* Mr. A. CHANDRASEKARAN,**

\*\* Ph.D Scholar, Department of Physical Education, CMS College of Science and Commerce, Chinnavedampatti, Coimbatore – 641 049

**ABSTRACT**

*Aerobics is a form of physical exercise that combines rhythmic aerobic exercise with stretching and strength training routines. The goal is to improve all elements of fitness. The step aerobics is a method which allow us to do aerobics exercises for the purpose of getting a cardio-respiratory reaction from the concept of lifting your body weight. Step aerobics classes are offered at many gyms and fitness centers which have a group exercise program. Step aerobics was innovated by Gin Miller around 1989. Step aerobics can also be involved in dancing games, such as Dance Revolution or In the Groove*. *The purpose study was to investigate the influence on cardiovascular endurance and explosive power by practicing the step aerobics training on college men for the period of 8 weeks. To achieve this purpose 30 college men were randomly selected from Ramakrishna Mission Vivekananda University, Coimbatore as subjects. They were divided into two groups. The group I was considered as experimental group and group II was considered as control group. the experimental group - I was given step aerobics training for five days per week and the control group was not given any exercise. The experimental group was given training for the period of 8 weeks of step aerobics training. The criterion variables were chosen namely cardiovascular endurance and explosive power for this study. All the dependent variables were assessed before and after the training period of 8 weeks. The collected data on selected parameters due to effect of step aerobics training was analyzed in order to find out the significant improvement if any, ‘t’ test was applied. 0.05 level of confidence was fixed to test the level of significance. The results of the study delivered that the cardiovascular endurance and explosive power were significantly improved due to the influence of step aerobics training for the period of 12 weeks.*

*Keywords: Step aerobics training, Cardiovascular endurance and explosive power*

**INTRODUCTION**

Step aerobics (SA) has been viewed a usual and popular workout mode among female on account that the 1980s. Step aerobics training involves stepping up and down on a single bench in choreographed, group-led moves to cadenced musical arrangements. The fine results of SA coaching on body composition have been shown in young (Kravitz, et al , 1993) and older adults (Chien, 2000). Step aerobics has increased lower body strength in older adults, which can be attributed to the repetitive motion of stepping up and down on a bench (Mori et al ,2006)). Step aerobics has increased top body energy as well, due to the fact of its choreographies that involve dynamic actions of the palms (Kravitz, et al, 1993). In addition, improvements in stability and agility have been shown in middle-aged and older adults because of the attribute movements used in SA choreographies (Nnodim, 2006). Improvements in flexibility have been done via the range of movement required to function the actions of SA choreographies and stretching exercises (Nelson, et al 2007). Finally, due to the fact SA is viewed a predominantly cardio exercising modality, the majority of investigations have evaluated and shown its really useful effect on cardiorespiratory fitness (CRF).

Aerobics is a form of physical exercise that combines rhythmic aerobic exercise with stretching and strength training routines. The goal is to improve all elements of fitness. The step aerobics is a method which allow us to do aerobics exercises for the purpose of getting a cardio-respiratory reaction from the concept of lifting your body weight. While this concept has been around since the 1950s, it was not until the 1980s that step aerobics came into being in an organized fitness setting and, thus, mainstream popularity. An entrepreneurial woman by the name of Gin Miller is credited with bringing aerobic step to the masses when she finally succeeded in getting Reebok to listen to her idea of innovating step aerobics. Step aerobics is a form of aerobic exercise that uses a 4- to 12-inch platform or step. It is a low-impact form of exercise that is less stressful on the joints than higher impact exercises such as jogging or running. Today, step aerobics is very popular training method in many fitness centers around the country, and classes for this exercise method are offered where there is a group exercise program.

However, there have been few reports that have examined the influence of aerobic training on motor fitness parameters of college men. We developed aerobics training program for college men using a bench stepping exercise. The bench stepping exercise is a cost-effective, user-friendly and practical exercise mode. We have already confirmed that this exercise program can improve the physical fitness levels and the health outcomes in the players representing various sports and games. We therefore hypothesized that this bench stepping exercise program can improve the cardio vascular endurance and explosive power of college men.

**METHODOLOGY**

To achieve this purpose 30 college men were randomly selected from RVS College of Arts Science, Coimbatore as subjects. They were divided into two groups. The group I was considered as experimental group and group II was considered as control group. The investigator did not make any attempt to equate the group. The control group was not given any exercise and the experimental group was given step aerobics training for five days per week. The experimental group was given training for the period of 12weeks of step aerobics training. They understood the purpose of study, all procedures involved, voluntarily accepted to undergo all the training procedures.

The evaluated parameters were cardiovascular endurance (Cooper’s 12 min run and walk), and explosive power (standing broad jump). The parameters were measured before and after the step aerobics training program. The effects of training program were examined.

**TRAINING PROGRAMME**

The training program was lasted for 45 minutes per session in a day, 5 days in a week for a period of eight weeks duration. These 45 minutes included 5 minutes warm up and 5 minutes warm down remaining 35 minutes allotted for training programme. Every two weeks of training 5% of intensity was increased from 65% to 80% of work load. The training load was increased from the maximum working capacity of the subjects during the pilot study.

|  |  |  |  |
| --- | --- | --- | --- |
| **0Week** | **Step aerobics exercise** | **Reps and sets** | **Intensity in**  **MHR** |
| Week 1 | Basic step, Corner knee  Repeater knee, t-step, over the top | 2\*2 | 65% |
| Week 2 | Repeater knee, v-step  straddle down, i-step, split step, | 2\*3 | 65% |
| Week 3 | Corner knee, Lunges  Over the top, t-step, repeater knee | 2\*4 | 70% |
| Week 4 | Split step, I-step  t-step, straddle down, lunges | 2\*4 | 70% |
| Week 5 | Corner knee, v-step, repeater knee,  over the top, split step | 3\*5 | 75% |
| Week 6 | Lunges, Straddle down, Corner knee,  t-step, L-step | 3\*5 | 75% |
| Week 7 | Repeater knee, v-step, straddle down,  i-step, split step | 4\*5 | 80% |
| Week 8 | Lunges, Straddle down  Corner knee, t-step, L-step | 3\*5 | 75% |

**Data Analysis and Results of the Study**

The collected data on selected fitness parameters due to effect of step aerobics training was analyzed by computing mean and standard deviation. In order to find out the significant improvement if any, ‘t’ test was applied. 0.05 level of confidence was fixed to test the level of significance.

**Summary of mean and ‘t’ test for the pre and post tests on cardiovascular endurance and explosive power of control and experimental groups**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | Groups | Test | Mean | Standard deviation | Mean difference | ‘t’ RATIO |
| Cardiovascular  Endurance | Control group | Pre | 2142.26 | 395.33 | 0.01 | 0.75 |
| Post | 2142.73 | 395.45 |
| Experimental group | Pre | 2344.27 | 354.01 | 0.64 | 16.23\* |
| Post | 2500.07 | 353.01 |
| Explosive power | Control group | Pre | 2.066 | 0.186 | 10.47 | 0.52 |
| Post | 2.068 | 0.186 |
| Experimental group | Pre | 2.21 | 0.255 | 8.67 | 26.71\* |
| Post | 2.33 | 0.260 |

\*Significant at 0.05 level of confidence for the degrees of freedom (1, 14), 2.145

The above table -1 reveals the computation of ‘t’ ratio between mean of pretest and posttest of control and experimental groups on cardiovascular endurance and explosive power of college men. The mean values of pre and posttest of cardiovascular endurance and explosive power for control group were 2142.26 and 2142.73 and 2.066 and 2.068 respectively. Since the obtained ‘t’ ratio 0.75 and 0.52 were lesser than the required table value 2.145. It was found statistically not significant for the degree of freedom 1, and 14 at 0.05 level of confidence.

The mean values of pre and posttest of cardiovascular endurance and explosive power for experimental group were 2344.27 and 2500.07, and 2.21 and 2.33 respectively. Since the obtained ‘t’ ratio 16.23 and 26.71 were greater than the required table value 2.145. It was found statistically significant for the degree of freedom 1 and 14 at 0.05 level of confidence.

The results clearly indicated that the cardiovascular endurance and explosive power of experimental group improved due to the influence of 12 weeks of step aerobics training programme. The same was represented as in graphical.

**Discussions on Findings**

The present study experimented the effect of step aerobics training on cardiovascular endurance and explosive power of college men. . The result of this study indicated that the step aerobics training improved the cardiovascular endurance and explosive power. The findings of the present study had similarity with the findings of the investigations referred in this study. Kostic, *et.al,* (2005) indicated that cardio vascular fitness was improved by step aerobic dance program. Further they suggested that if aerobic dance practiced over a longer period of time with training sessions three times a week for shorter period of time on condition that the intensity of the exercise remains the same.

Peschar, *et.al,* (1991) suggested that individuals can improve their muscular strength through aerobic dance programme. Arslan (2011) reported that the step aerobic dance programme proved to be a useful exercise modality for weight loss and in terms of body composition. Williams, *et.al,* (1986) reported that the 12 weeks aerobic dance programme was successful in promptly beneficial changes in cardio respiratory fitness and body composition. The results of the present study indicated that the step aerobics training programme is effective method to improve cardiovascular endurance and explosive power of college men.

**CONCLUSIONS**

In light of the results of the study and the limits of the sample and the framework of statistical treatments used, the following conclusions were made. It was concluded that eight weeks of step aerobics training program produced significant improvement in cardiovascular endurance of college men. The eight weeks of step aerobics training programme produced significant improvement in explosive power of college men.

**REFERENCES**

Arslan Dr Fatma, **(**2011) **The effects of an eight-week step-aerobic dance exercise programme on body composition parameters in middle-aged sedentary obese women** Vol.12 No.4, pp. 160-168.

Pechar S Gary **(**1991) **An evaluation of the physical fitness effects of a high school aerobic dance curriculum**, Slippery Rock University, Baldwin, 77

Williams LD (1986) **Changes in selected cardio respiratory responses to exercise and in body composition following a 12-week aerobic dance programme.** Winter; P.NO 189-99.

Koening, JM, Jahn, DM, Dohmeier, TE, and Cleland, JW. **The effect of bench step aerobics on muscular strength, power, and endurance**. J Strength Cond Res 9: 43–46, 1995.

Kravitz, L, Cisar, CJ, Christensen, CL, and Setterlund, SS. **The physiological effects of step training with and without hand weights.** J Sports Med Phys Fitness 33: 348–358, 1993.

Mori, Y, Ayabe, M, Yahiro, T, Tobina, T, Kiyonaga, A, Shindo, M, Yamada, T, and Tanaka, H. **The effects of home-based bench step exercise on aerobic capacity, lower extremity power and static balance in older adults**. Int J Sport Health Sci 4: 570–576, 2006.

Nelson, ME, Rejeski, WJ, Blair, SN, Duncan, PW, Judge, JO, King, AC, Macera, CA, and Castaneda-Sceppa, C. **Physical activity and public health in older adults: Recommendation from the American College of Sports Medicine and the American Heart Association.** Med Sci Sports Exerc 39: 1435–1445, 2007.

Nnodim, JO, Strasburg, D, Nabozny, M, Nyquist, L, Galecki, A, Chen, S, and Alexander, NB. **Dynamic balance and stepping versus Tai Chi training to improve balance and stepping in at-risk older adults.** J Am Geriatr Soc 54: 1825–1831, 2006.

Chien, WY, Wu, YT, Hsu, AT, Yang, RS, and Lai, JS. **Efficacy of a 24-week aerobic exercise program for osteopenic postmenopausal women**. Calcif Tissue Int 67: 443–448, 2000.