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Effects of aerobic and zumba training on cardiovascular endurance among middle aged women

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Abstract
The aerobic and zumba training is a dance fitness training that incorporates some of the basic principles of interval, resistances, plyometric training to maximize caloric output and improve cardiovascular endurance. Now a days aerobic and zumba becoming a popular mode of exercise especially among women due to its dance steps and mind relaxing catchy music background. This study intend to prove twelve weeks of aerobic and zumba training will shows impact on cardiovascular endurance among middle aged women which was held in step up fitness center. To achieve the purpose of the study thirty subjects were selected and divided into two equal group namely zumba training (ZT) and aerobic training (AT). Their age ranged between (30-40) and subjects were asked to do training for one hour for five days in a row as for the outcome 12-minutes cooper run and walk test was used to measure cardiovascular endurance. ANCOVA was used to find out the significant differences between the groups. The 0.05 level of confidence was fixed as the level of significance, which was considered as an appropriate. The result of the study revealed that there was a significant difference in cardiorespiratory endurance in zumba and aerobic training group.

Keywords: aerobic and zumba, cardiovascular, women, middle aged women, cardiorespiratory

Introduction
Physical fitness can be defined as a set of attributes that people have or achieve which can be divided into health-related fitness and skill related fitness. Being physically fit has been characterized as the capacity to complete everyday tasks with life and readiness, without undue fatigue and with plentiful vitality to appreciate relaxation time interests and to meet unforeseen crises, while physical activity can be defined as any movement created by skeletal muscles where energy is produced [1]. There are various types of physical activities that human beings can benefit from. It can be categorized into sports, conditioning, occupational, housework, or any other exercise, and also need to be structured, arranged, and organized in such a way that it would well serve the health purpose. There are activities that would rely on environmental setting and weather conditions namely biking, cross-country running and swimming. A rather interesting recreational form that is well-known among females is the aerobic dance, where participants can work out while socializing and having fun. According to [2], in Advanced Fitness Assessment and Exercise Prescription aerobic dance can be defined as a popular mode of exercise for improving and maintaining cardiorespiratory fitness followed by the target intensities. Aerobic dance can also be an effective workout to inhibit falls because of its benefits associated with kinesiology factors and a low rate of injuries. The step and choreography in dance incorporated the sagittal step and straddling step, which include balance and agility. Dancing is a mode of physical activity that may allow older adults to improve their physical function, health and well-being [3]. Zumba fitness is an effective interval-style, full-body dance workout with built-in variety because every class and every instructor is slightly different. Equally important is the notion that Zumba classes are entertaining which means exercisers are busy burning calories and getting fit while enjoying the fun of Latin dancing [4]. One of the most desired and desirable physical activities for women are aerobic dance, which can have a positive influence on aerobic power similarly to walking or jogging [5]. In addition, aerobic dance in Thailand is a popular activity and performed by small groups of middle-aged women rather than men [6].

Statement of the problem
The purpose of the study was to look into the outcome of the aerobic and zumba training program will enhance or improve cardiovascular endurance among middle aged women.

Hyopothesis
It was hypotheses that aerobic training would produce significant improvement on cardiovascular endurance among middle-aged women.
It was hypotheses that zumba training would produce significant improvement on cardiovascular endurance among middle-aged women.

Methodology
This study intend to prove twelve weeks of aerobic and zumba training will shows impact on cardiovascular endurance among middle aged women which was held in step up fitness center. To achieve the purpose of the study thirty subjects were selected and divided into two equal group namely zumba training (ZT) and aerobic training (AT). Their age ranged within 30-40 and subjects were asked to do training for one hour for five days in a row. As for the outcome 12-minutes cooper run and walk test was used to measure cardiovascular

endurance. ANCOVA was used to find out the significant differences between the groups. The 0.05 level of confidence was fixed as the level of significance, which was considered as an appropriate.

Findings and Discussion

Table 1: Analysis of covariance on cardiorespiratory endurance for pre post and adjusted post-test means of aerobic training and zumba training 12-minutes cooper run and walk test

Test	Aerobic training	Zumba training	Source of variance	Sum of squares	D f	Mean square	'f' ratio
Pre- test means	1536	1539	B/g	201.07	1	100	0.17
			W/g	2309.3	28	549.4	
Post -test means	1564	1558	B/g	362.07	1	1812.5	4.30
			W/g	2270.2	28	541.0	
Adjusted post-test means	1563.99	1550.3	B/g	530.2	1	2649.0	39.8
			W/g	2537.4	27	68.68	

An examination of table - I indicated that the results of ANCOVA aerobic training and zumba training.

The obtained F ratio for the pre-test was 0.17. It was found to be lesser than the required F ratio of 4.20 for the degrees of freedom 1 and 28. By this, it was inferred that the mean difference among the groups at Pre-test on cardiovascular endurance was statistically insignificant at 0.05 level of confidence. In the Post-test data analysis, the 'F' test was applied to test the significance of mean difference among aerobic training and zumba training. The obtained F ratio for the post-test was 4.30. The F ratio needed for the significant differences on the mean, for degrees of freedom 1, 28 was 4.20 at 0.05 level of confidence. Since the observed F ratio on cardiovascular endurance was found to be greater than the F ratio needed for significance, it was inferred that the mean differences among groups on cardiovascular endurance used in this study at the end of the treatment period was statistically significant.

The preliminary aim of the analysis of co – variance is adjusting post-test means for the differences in the pre-test means and adjusted means are tested for significance. The F ratio obtained from testing the adjusted post-test means among the groups on cardiovascular endurance was 39.8. The obtained F ratio on cardiovascular endurance among groups was statistically significant. Since they exceeded the needed F ratio (4.22) for degree of freedom (1, 27) and 0.05 at level of confidence.

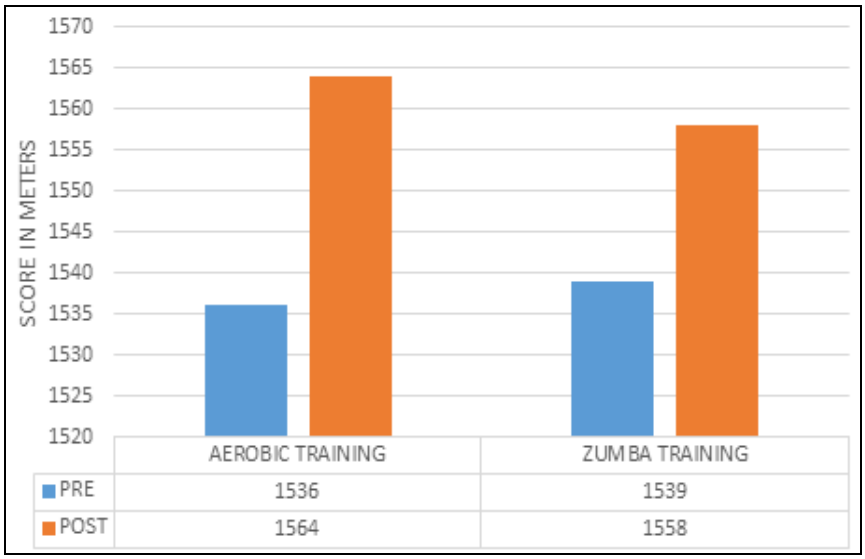

Fig 1: cardiovascular endurance

The outcome definitely shows endurance performances of the subjects were improved because of the impact of twelve week of zumba and aerobic training. Furthermore, this study also found that there is a significant difference of improvement in cardiovascular system and give better effect towards fitness level after followed the training program. Another study states that, after seven days of aerobic dance, the average heart rate of a person will reduced by 10.0 ± 13.4 beats per minute, means a significant reduction form rest. Among 20% of the subjects, their heart rate was deducted to 29.8 ± 11.4 beats per minute. If we they do this exercise in 10 days, the heart rate will reduced by 13.6 ± 14.3 beats per minute. It means a significant reduction from rest. Furthermore, the is a little improvement values of VO2max in the aerobic dancers due to decreased peripheral resistance, increased cross sectional diameter of the coronary arteries, and enhanced tone of the ventilatory musculature According to [8], if we only used moderate intensity exercise, the intention to treat analysis may

unsuccessful to find that the physical training enhanced cardiovascular fitness. Cardiovascular fitness was significantly linked with time spent in physical activity but not with moderate exercise only. This is consistent with the research finding that the high intensity exercise, but not the moderate intensity exercise that created significant changes in cardiovascular fitness. That is why Zumba fitness is a suitable dance program because it represented moderate to high intensity exercise or known as interval training.

Conclusion

Based on the finding of this study, aerobic and zumba training program is recognized to be an effective way in promoting cardiovascular endurance. There are also other alternatives in enhancing endurance performances and losing fat. This kind of dance program can be one of the ideal types of exercise especially for those people who are beginner and want to develop fitness level gradually and safe. This exercise is safer and less risk of injury because requires only moderate and steady state exertion. Therefore, the possibility of getting injuries is smaller for inactive or untrained people, as well suited to those who have sedentary lifestyle and older people. This test also has low intensity and less duration compared to others. Hence, the hypothesis in this study is about significant improvement in cardiovascular endurance after followed twelve-week of Zumba and aerobic training program among middle aged women as a conclusion, it is an appropriate training protocol to bring out desirable changes over cardiovascular endurance. It acts as a useful and effective exercise to be practiced among youth and older people. It is beneficial to people that in searched for healthy lifestyle.

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