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The Effect of Chairobic Dance Program on Cardiorespiratory Endurance in Faculty of Education Staff, Thaksin University

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Abstract

The COVID-19 pandemic has impacted all aspects of daily life, especially exercise, where restrictions on location, time, and work can make exercise even more difficult. Hence, this study aims to create a Chairobic dance program dancing with a chair that uses few spaces, able to sit and dance in your chair. It was developed from the aerobics dance. In addition, to compare the effect of the Chairobic dance program on Cardiorespiratory endurance before and after training. The target group is 24 staff of the Faculty of Education at Thaksin University. The participants were trained through a Chairobic dance program created by the researcher for eight weeks (3 days/week, i.e., Monday, Wednesday, and Friday). They have to practice 45 minutes a day after work. The Cardiorespiratory endurance was tested using a 3-minute knee-up and down test and compared before and after eight weeks of training by the Pair t-test statistics. The results showed that in the Chairobic dance program created by the researcher, there is an IOC (Index of Item-Objective Congruence) in the range of 0.6 -1.00, which is acceptable and usable. In addition, the target group had better Cardiorespiratory endurance than before training. Therefore, It will be helpful for anyone interested in an alternative to exercise. This is because it takes up less space, is convenient to exercise, fun, and can develop Cardiorespiratory endurance.

Keywords: Cardiorespiratory Endurance, Chairobic Dance Program, Thaksin University

1. Introduction

Worldwide accepted exercising or physical activities results in healthy and able to maintain good physical fitness and prevents diseases caused by lack of exercise, such as obesity, high blood pressure, heart disease, etc. (Stark, 2017). Is the same as Thailand; the government of Thailand supports the people with health care and exercises regularly to healthy and lack disease. However, a previous study reported that in 2011 the rate of exercise or playing sports of Thai people aged 11 years above (a total population of 15,074,213 people) was only 26.1 percent. Specific to the working age range (25-59 years), only 19 percent had regular exercise or sports (National Statistical Office, 2011). This problem may increase the risk factors for ill health and disease related to physical inactivity.

Moreover, the world is facing the coronavirus disease pandemic 2019 (COVID-19). As of August 30, 2022, a report by www.worldometers.info found that approximately 606 million people are infected worldwide. There are also cumulative deaths around the world of more than 6 million people. Also, Thailand has a COVID-19 pandemic disease; the total number of infections is around 4,647,685, and the cumulative death was 32,251 as of the same day. For these reasons, the government strictly controls and prevents the epidemic's spread, which inevitably affects well-being. Getting to places is difficult, and some areas are temporarily closed in order to prevent the spread of this disease, such as sports stadiums (Gazette, 2021). This problem affects most people who want to exercise at the stadium or playing field. Therefore, it may affect the health of people who cannot exercise.

Especially office workers that spend a long time sitting and working in a chair are less likely to have any movement or physical activity while working. In addition, most of the reasons for office workers' lack of exercise are time, no exercise equipment, and no space for movement (Charoenyingpaisan & Santad, 2019). Therefore, this research has come up with a new and alternative exercise method that can solve the problem of not exercising for these people. For the above reason, the researcher has created the Chairobic dance program adapted by aerobic dance, which has music as a rhythm. The practicing Chairobic dance program will be dancing by sitting in a chair only. The Chairobic dance program includes two words: Chair and Aerobic dance. The previous exploration found very few videos regarding dancing with a chair.

Furthermore, there is no empirical evidence involving the effect of dancing with a chair on improving physical fitness. In addition, the results of physical fitness tests in Cardiorespiratory endurance using the 3- minutes knee up and down test found that the staff of the Faculty of Education at Thaksin University is low and very low. Therefore, the researcher is concerned about this issue because it leads to their health and is urgently necessary to develop Cardiorespiratory endurance. For this reason, the researchers are interested in innovating and creating a new exercise program to solve problems for people who have to sit in the office with no time reason and no place to exercise, and to provide an alternative to the general public who want more variety of exercise.

1.1 Objectives of study

1. To create the Chairobic dance program
2. To compare the effect of the Chairobic dance program on Cardiorespiratory endurance between before and after training eight weeks.

2. Method

The experimental method was to collect data in this study. The target group is 24 Faculty of Education at Thaksin University staff willing to participate in this study. The experimental process was carried out through the training of a Chairobic dance program created by the researcher for eight weeks (3 days/week, i.e., Monday, Wednesday, and Friday). The training period a day is after work from 4.00 – 5.00 p.m.

In this study, two instruments were used: the 3-minute knee-up and down test for assessment of Cardiorespiratory endurance and the Chairobic dance program created by the researcher, which includes 14 feet and 16-hand steps. This program is separated into three steps; the first step is warm up for five minutes, the second step is to work out for 35 minutes, and the last five minutes is to spend time for the cool down. In addition, for the intensity progressive of this program, the researcher used a speed song of 140 beats per minute (bpm). During 1-4 weeks of training. Then, speed song 160 bpm. was used in 5-8 weeks of training.

Data analysis used the Index of Item-Objective Congruence (IOC) to assess the Chairobic dance program's content validity through five experts. Furthermore, a Pair t-test was used to compare the pre-test and post-test after eight weeks.

3. Results

To achieve the purpose of the study, the researcher has to report the results through objectives as follows; 1. to create the Chairobic dance program, the result found that it is high quality and can be real exercise. This is because five experts examined the Chairobic dance program and IOC values (Index of Item-Objective Congruence) in the range of 0.6 -1.00 which are accepted.

Table 1: Show the Index of Item-Objective Congruence (IOC) of Chairobic dance program

Chairobic dance program	Assessment of Five Experts					IOC Values	Finding
	1	2	3	4	5		
1. Marching is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
2. Forward V-Step is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
3. Mambo is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
4. Step Touch is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
5. Double Step Touch is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
6. Step Tap is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
7. Double Step Tap is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
8. Knee Up is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
9. Double Knee Up is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
10. Heel Touch is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
11. Double Heel Touch is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
12. Front Kick is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
13. Double Front Kick is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
14. 1 Hand up is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
15. 2 Hands up together is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
16. 1 hand front punch is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
17. 2 hands front punch together is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
18. 1 Hand up 45 degree angle is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
19. 2 Hands up together 45 degree angle is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
20. 1 Hand down 45 degree angle is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
21. 2 Hands down together 45 degree angle is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
22. 1 hand up side of the body 90 degree angle is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
23. 2 hands up side of the body together 90 degree angle is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
24. 1 elbow back is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
25. 2 elbow back together is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
26. 1 arm curl is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
27. 2 arms curl together is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted

Chairobic dance program	Assessment of Five Experts					IOC Values	Finding
	1	2	3	4	5		
28. 1 hand up parallel to the horizon is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
29. 2 hands up parallel together to the horizon is suitable for training	+1	+1	+1	+1	+1	1.00	Accepted
30. Warm – Ups 5 minutes	+1	+1	+1	+1	0	0.8	Accepted
31. Cool Down 5 minutes	+1	+1	+1	+1	0	0.8	Accepted
32. 20 positions (15 second each position) of warm up and cool down	+1	+1	+1	+1	0	0.8	Accepted
33. Workout 35 minutes	+1	+1	+1	+1	0	0.8	Accepted
34. Workout 8 weeks	+1	+1	+1	+1	+1	1.00	Accepted
35. Frequency on 3 day/week	+1	+1	+1	+1	+1	1.00	Accepted
36. Intensity of Training	+1	0	+1	0	+1	0.6	Accepted
- Week 1-4 of training 140 bpm/minutes in speed song							
- Week 5-8 of training 160 bpm/minutes in speed song							

2. To compare the effect of the Chairobic dance program on Cardiorespiratory endurance before and after training for eight weeks. This objective was examined by Pair t-test as follows the Table 2.

Table 2: Show the Mean, *SD*, and *P* value of pretest and posttest scores

Target Group	N	Mean	<i>SD</i>	t	<i>P</i>
Pre Test	24	111.41	17.98	-5.839	.001**
Post Test	24	140.41	26.31		

** $p < .01$

Table 2 demonstrated that the effect of the Chairobic dance program after eight weeks of training had better Cardiorespiratory endurance than before training ($p < .01$).

4. Discussion

The first objective of this study found that the Chairobic dance program is high quality and can exercise. This is because five experts judged the Chairobic dance program and there is an IOC value (Index of Item-Objective Congruence) in the range of 0.6 -1.00 which is accepted. Pusee-On (2015) stated that the IOC value should be more than .50. Moreover, it was tried out after improvement based on five experts with a sample group that was not staff of the Faculty of Education to explore the barrier or problems and improve it before actually collecting data. Taherdoost (2016) confirms that the instrument's validity is important in developing the research instruments. Validity means validly verifying. In the context of research, validity refers to the Chairobic dance program's improvement in Cardiorespiratory endurance. Generally, an instrument created by the researcher with a high degree of validity implies that the findings are based on facts or evidence capable of providing justification (Mohajan, 2017). Content Validity (CV) is the minimum quality requirement for an instrument at the item development stage (Ismail, & Zubairi, 2022; Halek, Holle, & Bartholomeyczik, 2017). CV means "the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose" (Haynes, Richard & Kubany, 1995, p.238). Generally, it can be referred to that a test should be able to measure what it intends to measure as it has been highlighted by Turner and Carlson (2003, p. 164) that "An important component in test development is providing evidence that the items created are measuring the content or construct they are defined to measure." CV is done through expert judgment. In other

word, it can be obtained through the involvement of a group of subject matter experts thinking about the significance of individual items within an instrument (Creswell, 2012).

The study's second objective found that the Chairobic dance program after eight weeks had better Cardiorespiratory endurance than before training. This is because the Chairobic dance program created by the researcher is based on frequency, intensity, time, and type (F.I.T.T.) Fahey et al. (2019); Powers and Dodd (2020) stated that training or exercise that can develop physical fitness should be based on the F.I.T.T. principles. They confirm that training frequency with those who want to exercise or improve physical fitness must be practiced at least three days a week. Regarding the above matter, the researcher has created the Chairobic dance program based on frequency (F), which has been practiced three days a week (Monday, Wednesday, and Friday). Saratee's (2021) study regarding the interval training programs at different rest levels on the Cardiorespiratory endurance of male students in lower secondary schools. His study found that after training three days a week for eight weeks, the Cardiorespiratory endurance of participants was better than before training.

Moreover, the Chairobic dance program has increased the progressive intensity of training (I). The researcher designed the speed song during training at around 140 beats per minute (bpm) in 1-4 weeks. At the same time, training in 5-8 weeks increased the speed song to around 160 bpm. According to Fahey et al. (2019); Powers and Dodd (2020), if they want to improve their Cardiorespiratory endurance, their heart rate should be between 120-160 bpm. Also, the target heart rate can be calculated to be 60-80% of the maximum heart rate by the formula (220-age). In addition, the Chairobic dance program has continuously trained for 45 minutes (T), resulting in Cardiorespiratory endurance greater than before training. According to Sangkaew, Methethammawat, & Suppakannoraset's (2022) study of the effects of moderate intensity exercise on visceral fat among the Faculty of education staff at Thaksin university. The participants in his study will have to exercise 45 minutes per day, three days a week for 12 weeks. His research found that the visceral fat significantly differed before and after 12 weeks of a moderate-intensity exercise program $p < 0.05$. Fahey et al. (2019) confirm that continuous exercise for 30 minutes or above is aerobic exercise or continuous breathing exercise while exercising. It will help develop Cardiorespiratory endurance.

Furthermore, the type of exercise (T) in the Chairobic dance program helps to support and develop Cardiorespiratory endurance. This is because continuous dancing body movement for at least 30 minutes and the body's use of oxygen to burn energy will help to develop Cardiorespiratory endurance (Powers & Dodd, 2020). Cheng, Sun & Yeh's (2017) research studies the effects of an 8-Week Aerobic Dance Program on Health-Related Fitness in Patients With Schizophrenia. The study found a significant post-test value between the experimental and control groups.

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