Original Research Article

Evaluation of Lung function test in zumba dancers

RUNNING TITLE: Evaluation of lung function test in zumba dancers.

ABSTRACT:

INTRODUCTION: Exercise is very important in each and every individual's life. Zumba exercise is a form of physical exercise that combines all the exercise which is beneficial for the body. The aim of the study is to evaluate the effect of zumba exercise training on pulmonary function tests in individuals.

MATERIALS AND METHODS: This study was carried out among 60 individuals where 30 people belonged to a normal group and 30 people were zumba dancers. The values were recorded through a computerised spirometer. This study was done among zumba dancers in the Chennai region. The results were analysed using SPSS software. unpaired T test was used to analyse the statistical significance. $p<0.05$ was considered significant.

RESULT: The mean values of the lung function test for FVC, FEV1 and FEV1/FVC ratios were 3.73, 2.88 and 82.33% respectively and all the values were statistically not significant.

CONCLUSION: The study showed that pulmonary function tests in zumba dancers were good when compared to the control group.

KEYWORDS: Pulmonary functions, spirometer, physical exercise ,zumba dancers, innovative techniques.

INTRODUCTION: Physical activity and a healthy mind is known to improve physical fitness and good health. Zumba exercise is an important exercise that improves physical fitness which reduces chronic diseases (1). This physical activity improves muscle strength and boosts your endurance. It helps to maintain good health.

Pulmonary functions tests are a group of tests that measure how well your lungs work(2). It measures how much lungs can take up the oxygen from the air. Spirometry is the basic test for lung function. The Average lung capacity is 6 Litres. The normal PFT value in FVC is 80% to 120%. People who do zumba have more lung capacity compared to the control group. This teat s essebtiial for diagnosing and assesing severity of many pulmonary disorders.Spirometry helps to diagnose breathing problems such as asthma and COPD (3). Pulmonary function tests non invasive tests that measure lung volume, lung capacity, rate of flow and gas exchange. PFT can be measured by a mouthpiece attached to a small electronic machine. It gives the perfect values of FVC, FEV and FEV1/ FVC (4).

Zumba dance is a type of physical exercise which helps in physical fitness and good health . There are several kinds of zumba dances like aqua zumba, zumba toning , etc that incorporate weights for calorie burning and strength training (4,5). It contributes to significant improvement in body zumba dance and has become a popular form of exercise among women. Dancing is a fun and interactive form of exercise that improves the attitude towards the exercise (6). Zumba dance is a great way to lose weight and build muscle . It can help lower your risk of heart disease, reduce blood pressure and bad cholesterol and boost your energy (7) . Exercise plays an important role in each person's life and leads to a happy and healthy life. Our team has extensive knowledge and research experience that has translate into high quality publications(6–8),(9–14),(15)(16),(17)(18),(19)(20)(21–25). Therefore , this study was done to assess the lung function test in zumba dancers.

MATERIALS AND METHODS: This study was carried out among 60 individuals which involved zumba dancers (30) cases and control group (30) cases. Individuals are between the ages of 17-40 years. Computerized spirometer is used for this test. Subjects were given instructions before the test. Subjects were advised to block their nose after a deep inspiration and the air expired with a maximum force into the device. Later the values are calculated and graphs

are made with standard deviation. Spirometer is an electronic device which detects the parameters such as FVC, FEV1 and FEV1/FVC and the p-value. The statistic followed in this study is t-test.

INCLUSION CRITERIA:

1. Subjects between the age 17-40 years of any gender
2. For control groups, it includes non-smokers, non-alcoholic, non-asthmatic and individuals who are not undergoing any type of physical activity.
3. Subjects undergoing zumba practice of experience for 3 months.

EXCLUSION CRITERIA:

1. Subjects who are above 40 years.
2. Zumba dancers who have a history of asthma, COPD, Smokers, alcoholic.

STATISTICAL ANALYSIS: The data was analysed using SPSS software. Independent t-test was done to analyse the significance. P value less than 0.05 was considered significant.

RESULTS: The mean values of lung function tests in zumba dancers were recorded. The mean values of the parameters are FVC-4.30, FEV1-3.34 and FEV1/FVC-78.23% (fig 1-3). The mean values of FVC, FEV1 and FEV1/FVC are not statistically significant because (p= 0.908), (p= 0.560) and (p= 0.363) respectively which is greater than 0.05. Table 1 shows the significance between the zumba dancers and the normal people.

In the present study , we found the lung function test on zumba dancers. There was a significant increase in both the values of FVC, FEV1 (26). Other studies have reported similar improvement in lung function on aerobics practitioners which was done by (27).

Table 1: This table shows the significance in the zumba dancers and control group. In this study there was a significant difference in FEV1/FVC compared to the control group ($p<0.05$).

PARAMETERS	CONTROL GROUP	ZUMBA DANCERS	SIGNIFICANCE
FVC	3.17	4.30	0.908
FEV1	2.42	3.34	0.560

FEV1/FVC(%)	86.43	78.23	0.363

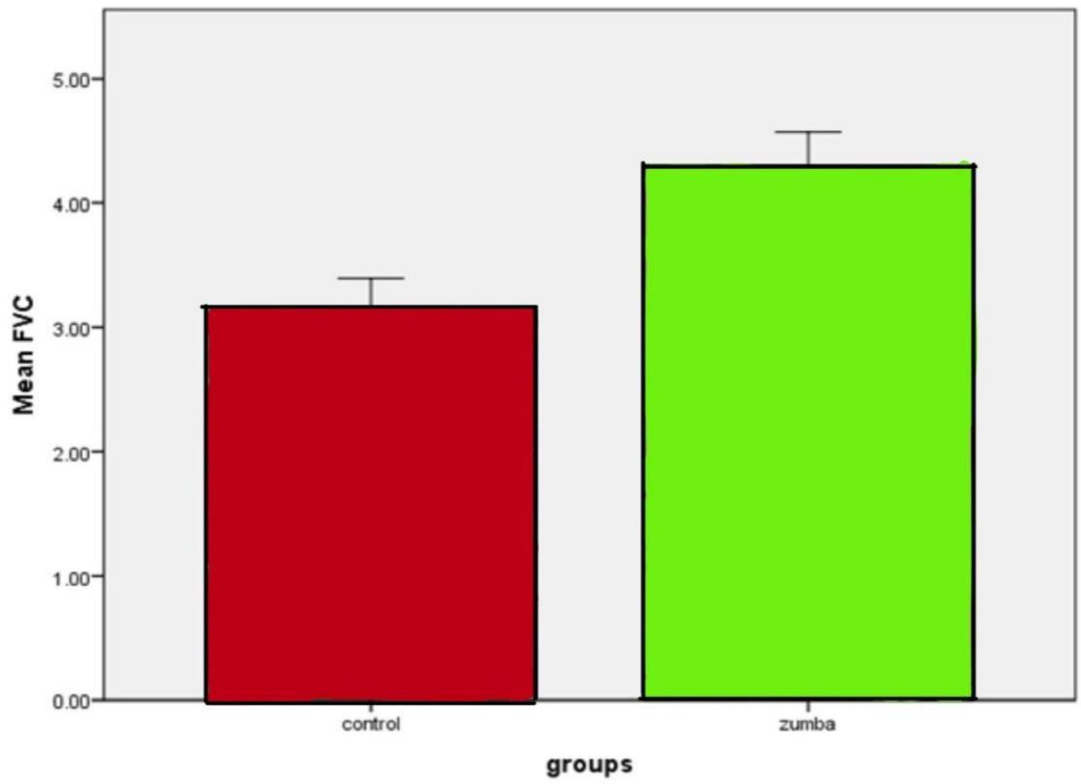

Fig 1: The bar shows the forced vital capacity (FVC) of zumba dancers and control group. X-axis represents the control and study groups and Y-axis represents the mean value of FVC. The red colour denotes the control group and the green colour denotes the zumba dancers. Zumba dancers have greater FVC value compared to the control group. Unpaired t-test was done, the p-value is 0.908 ($p>0.05$) and it was found to be statistically not significant .

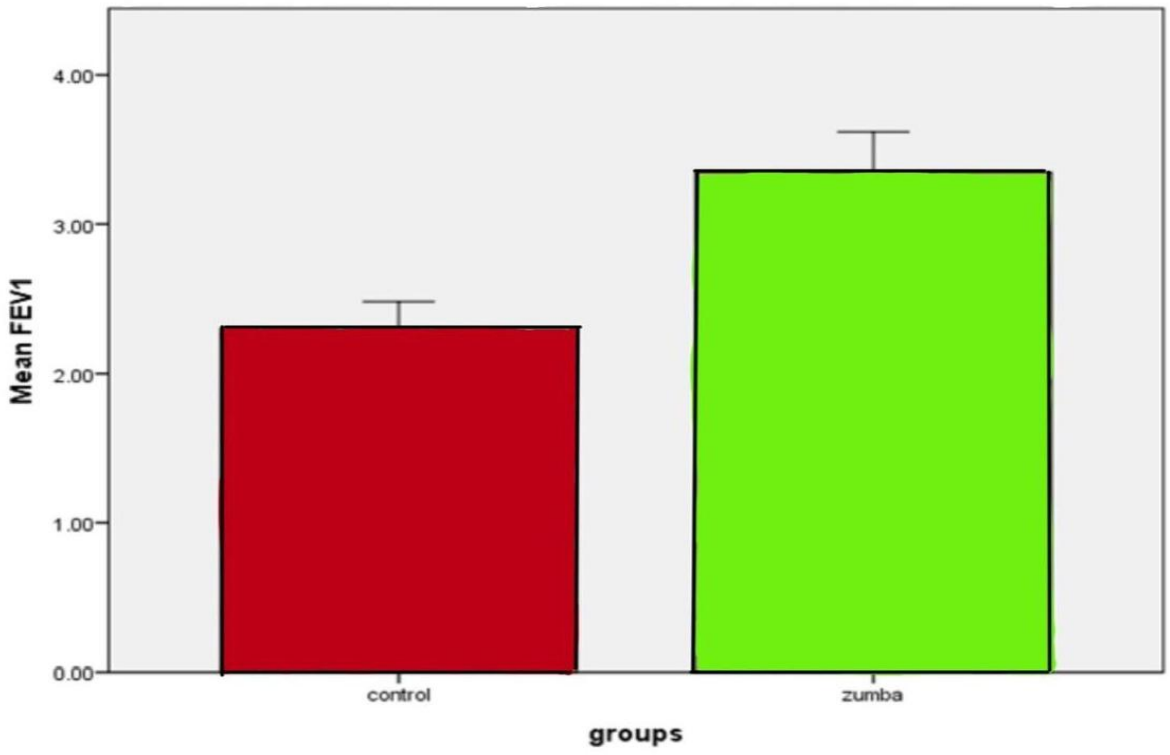

Fig 2: The bar shows the forced expiratory volume (FEV1) of zumba dancers and control group. X-axis represents the control and study groups which are compared and Y-axis represents the mean value of FEV1. The red colour denotes the control group and the green colour denotes the zumba dancers. Zumba dancers have greater value of FEV1 compared to control groups. Unpaired t-test was done and it was found to be statistically not significant, p-value is 0.560 ($p>0.05$).

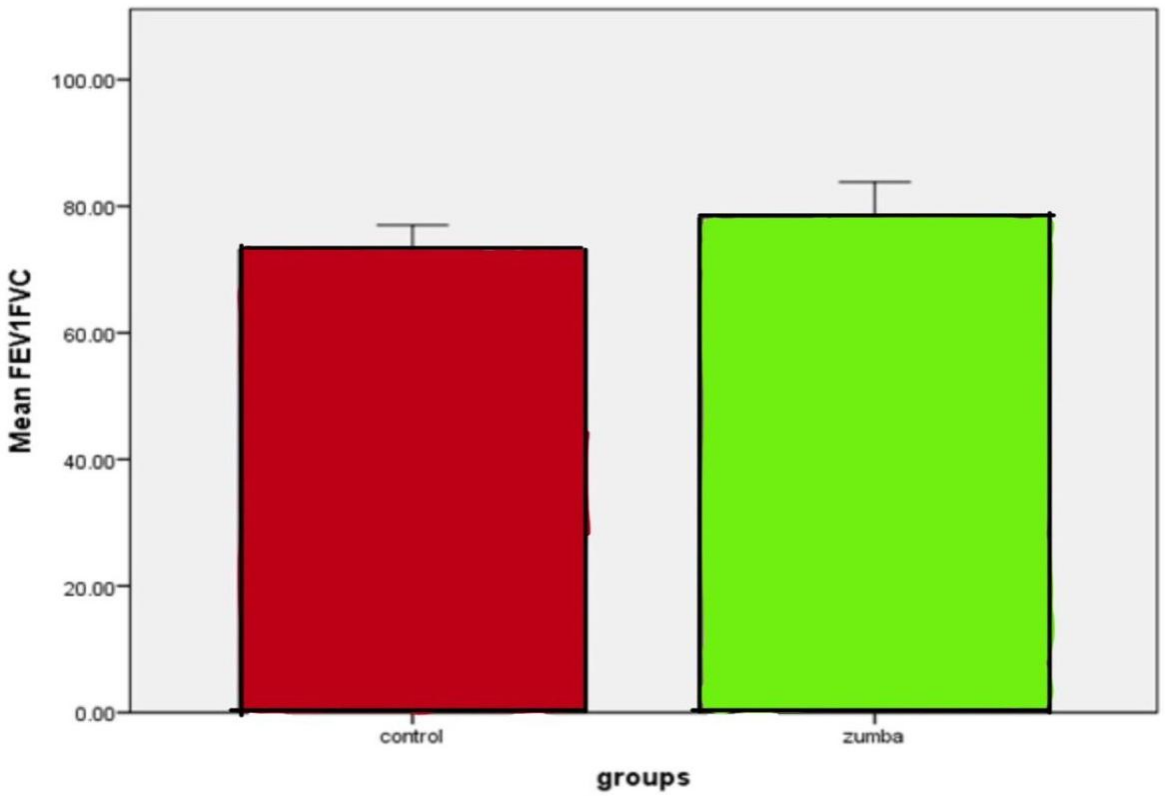

Fig 3: The bar represents the ratio of FEV1/FVC% of zumba dancers and control group. X-axis represents the control and study groups and Y-axis represents the mean value of FVC. The red colour denotes the control group and the green colour denotes the zumba dancers. Control group has greater value of FEV1/FVC% compared to zumba dancers. Unpaired t-test was done and it was found to be statistically significant, p-value is 0.363 ($p<0.05$).

DISCUSSION: In the context, we studied the effects of zumba on respiratory parameters like FVC, FEV and FEV1/FVC in the result found that both the parameters are highly significant. Other studies have also reported similar improvement in lung function tests in athletes, aerobic exercise, pulmonary fibrosis patients, etc (28). This study showed that the lung function test in Zumba dancers is more significant than compared to the control group. Other related studies include moderate intensity Aerobic training improves pulmonary function in young Indian men (29, 30). This data was analysed by t test. There was no significant change in FEV1/FVC Ratio and not serious adverse events during the study. There is a significant positive relationship between aerobic training and pulmonary function in healthy young men.

The FVC, FRV and FEV1/FVC ratio were higher in athletes than in normal sedentary control individuals. This study suggests that regular exercise has an important role in determining and improving lung function (10, 15). Standard test for lung volumes at real oxygen tension gas exchange at rest and during cycling showed a reduced total and capacity (31). Non-influencing factors were gender, parameters of gas exchange at rest. The limitation of the study includes less number of study participants and control groups.

CONCLUSION: The study showed that the pulmonary function test in zumba dancers was good when compared to the control group. Thus the present study showed that the zumba dance has a positive effect on lung function.

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AUTHOR'S CONTRIBUTION:
Prateeksha- Literature collection
Preetha- Framing the manuscript, Statistics approval, approval of the manuscript.
Sridevi and Lavanya Prathap- Final approval of the manuscript.

CONFLICT OF INTEREST: Nil

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