



## EFFECTIVENESS OF ZUMBA FITNESS EXERCISE ON BODY FAT PERCENTAGE AND CARDIOVASCULAR ENDURANCE IN OVERWEIGHT YOUNG FEMALES.

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**ABSTRACT** **Background:** Overweight is a serious general health problem in the world and a major problem of sedentary lifestyle, which requires proper measures and treatment. Zumba is a rhythmic aerobic exercise. Very few studies have been done on the effect of Zumba training on cardiovascular endurance in overweight young females.

**Objectives:** To study the effectiveness of Zumba fitness exercises on body fat percentages and cardiovascular endurance in overweight young females over the period of 4 weeks.

**Method:** Total 8 participants were included within the age group of 18-35 years on the basis of inclusion and exclusion criteria of study. Zumba exercises program was given for 45 mins for 3 times in a week for 4 weeks. Pre and post treatment assessment was done by using Skin fold measurements and Bruce protocol.

**Result:** There was significant difference in between pre and post mean values of body fat % and cardiovascular endurance (HR) in overweight young females.

**Conclusion:** In this study Zumba training shows significant decrease in body fat percentage and increase in cardiovascular endurance in overweight young females. The findings of this research indicate that Zumba training can also be used as training method for improving individuals overall performance.

**KEYWORDS :** Zumba exercise program, Overweight females, Body fat %, Bruce Protocol

### INTRODUCTION

According to the WHO overweight and obesity were the fifth most common cause of death in 2004. A sedentary life style can lead to overweight, obesity and an increased risk of developing numerous chronic diseases. Physical activities and proper fitness is therefore crucial for human life and health.<sup>(1)</sup>

Zumba was invented as a rhythmic aerobic exercise<sup>(2)</sup> Zumba is a combination of principles which includes Interval exercises, Aerobic exercises, Stretching exercises, Increase the calorie consumption, Improves cardiovascular system. Zumba exercise is inspired by music and is a combination of movements which includes Warm up, Aerobic exercise, Hip hop, Belly dance, Samba and Cool down. Despite the necessity of a close coordination between rhythm and movements in Zumba, the musical background helps reduce the fatigue and improve memory<sup>(2)</sup>

Aerobic dance exercises have typically been developed as an aerobic exercise to reduce body compositions as well as improve physical fitness and performance. Zumba has been proposed by stern Licht et al. as an alternative to cycling and running for having a proper weight and avoiding diseases<sup>(5)</sup> Moreover Adriana Ljubojevic et al. reported that Zumba is a body building exercise that affects women's body composition. The present study therefore seeks to find whether a Zumba training program can significantly affect body fat % and cardiovascular endurance in overweight young females.

### MATERIAL AND METHOD:

**INCLUSION CRITERIA:** Females with Age group between 18 to 35 years, BMI 25 to 29.9 (i.e. overweight), Females who have not enrolled themselves in any other form of exercise Protocol.

**EXCLUSION CRITERIA :** Females with Recent Fracture of upper limb, lower limb and spine (within 6 month), History of any Cardiovascular, Musculoskeletal, Neurological conditions, Sacroiliac joint dysfunction, Limb Length discrepancy, Endocrinal conditions (hypothyroidism, Hypertension, DM), Congenital deformities.

Total 8 participants were included in the study and informed consent was obtained from them. Pretreatment assessment was done by using Skin fold measurements and Bruce protocol. Zumba exercise program was given for 45 mins per session for 3 times in a week for 4 weeks. After 4 weeks post treatment assessment was done by using Skin fold measurements (Jackson and Pollock's three site formula was used for triceps, suprailiac, thigh sites) and Bruce protocol.

### ZUMBA FITNESS EXERCISE TRAINING:

- 1) Warm up – 5-10 mins of light to moderate intensity (brisk walking, jumping jacks, jogging, marching, skipping, lunges, pushups)
- 2) Zumba exercise training
- 3) Cool down – 5-10 min (stretching exercises)

### OUTCOME MEASURES

- 1) Skin Fold Caliper
- 2) Bruce Protocol

### DATA ANALYSIS AND RESULTS

The data was entered in Excel spread sheet, tabulated and subjected to statistical analysis. The difference between PRE and POST were compared and analyzed using paired 't' test for all the components.

**Table 1: Showing pre and post treatment mean value of body fat % on skin fold caliper in overweight young females.**

|      | PRE    | POST  | t value | p value  |
|------|--------|-------|---------|----------|
| MEAN | 32.3   | 30.96 | 13.0317 | < 0.0001 |
| SD   | 6.0858 | 6.227 |         |          |

**Table 2: Showing pre and post treatment mean value of cardiovascular endurance on Bruce protocol in overweight young females.**

|      | PRE   | POST | t value | p value  |
|------|-------|------|---------|----------|
| MEAN | 94.25 | 89.5 | 19.0000 | < 0.0001 |
| SD   | 3.15  | 3.34 |         |          |

### DISCUSSION:

The present study was done to find the effectiveness of Zumba fitness exercises on body fat percentage and cardiovascular endurance in overweight young females over the period of 4 weeks. In this study total 8 participants were included within the age span of 18-35 years. We found that Zumba training exercises has been effective on Body fat percentage and cardiovascular endurance in overweight young females.

In previous studies in reducing weight, Charles Micallef conducted a study of an 8 week Zumba programme for weight reduction in a group of Maltese overweight and obese women. The study results found that there is loss of weight after completing the program.<sup>(1)</sup> Zoran Milanovic conducted a study in which he described Aerobic training to music has been shown to reduce body mass and increase in muscle mass.<sup>(1)</sup> Zumba has been shown to reduce fat mass and improve aerobic fitness in the setting of a workplace intervention (Barene, S. et. al.; 2014). The study which examined the exercise intensity of Zumba was conducted at Adelphi University (Otto et al.; 2011). It reported caloric expenditure during Zumba to be between 6.6 and 7.4 Kcal-min-1

depending on the particular dance style being performed. Therefore Zumba may be promoted as a lifestyle intervention in reducing weight, BMI and incidence of obesity.<sup>(6)</sup> The decrease in body fat are most probably caused by increased consumption of energy, thus reducing body fat by using it as the primary energy source, which in turn would not be compensated by a further increase in the intake of calories. Aerobic exercise: the health benefits (2010) Strengthening the muscles involved in respiration, to facilitate the flow of air in and out of the lungs. Strengthening and enlarging the heart muscle, to improve its pumping efficiency and reduce the resting heart rate, known as aerobic conditioning. Improving circulation efficiency and reducing blood pressure. High-impact aerobics activities can stimulate bone growth, as well as reduce the risk of osteoporosis for both men and women (Snowling, N. J. ; Hopkins, W. G. .; 2006). Increased storage of energy molecules such as fats and carbohydrates within the muscles, allowing for increased endurance. Improving the ability of muscles to use fats during exercise, preserving intramuscular glycogen.<sup>(2)</sup>

### CONCLUSION:

In this study Zumba training shows significant decrease in body fat percentage and increase in cardiovascular endurance in overweight young females. The findings of this research indicate that Zumba training can also be used as training method for improving individuals overall performance.

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