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Effect of Zumba Fitness Programme on Skinfold Measurement and Body Weight in Females of Keshar Apartments, Gwalior

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Abstract – The aim of this research was to determine the effects of Zumba Fitness Programme on Skinfold Measurement and Body Weight in Females of Keshar Aprtment, Gwalior. Twenty females aged 25-35 participated in the research. The Zumba Fitness Programme was scheduled for eight weeks of exercise, total 40 training sessions. Triceps, subscapular, abdomen and thigh four sites were chosen for skin fold measurement. Training effect was also seen in body weight. The selected skinfold sites and body weight were measured at the beginning and at the end of the research. The effects of Zumba training were analyzed by using one sample T test. The obtained result showed that Zumba fitness programme achieved statistically significant improvement in abdomen (p=.048) and body weight (p=0.021). The increased values of triceps (p=1), subscapular (p=.931), thigh (p=.351) were not statistically significant. The study results clearly indicated that the Zumba fitness exercise can be used as effective group fitness exercise for body weight reduction and abdomen skinfold of women.

Key Words – Zumba Fitness, Body Composition, the Effects of Exercise

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INTRODUCTION

Skinfold measurement is an indicator of body composition, which is an essential component of health-related fitness. Body composition measurements indicate how much fat a person has against how much lean tissue he or she has. Body composition may be measured in a variety of ways; however, not all procedures are feasible for the ordinary health club or fitness centre. Field exams are utilised in common contexts such as YMCAs, health clubs, schools, and physical activity centres (Golding et al., 1998). One commonly used field test involves measuring skinfold (SKF) thickness using calipers. Skinfold measurement indirectly assesses body composition by establishing the assumption of a moderate to high relationship between the SKF thickness and total body fatness. Skinfold measurement is popular due to its minimal cost and ease of administration. Protocols for measuring skinfold thickness recommend that measurements should not be taken after exercise (Heyward and Stolarczyk, 1996; Heyward, 2002; Earle and Baechle, 2004; Clark et al., 2008). This recommendation is based on the hypothesis that post-exercise measurements are larger due to increased extracellular water in the subcutaneous tissue caused by peripheral vasodilation, thereby making the skinfold values inaccurate (Keys and Brozek, 1953; Heyward and Stolarczyk, 1996; Ward et al., 1999). This error could mistakenly place a person into a higher health risk category.

Taking skinfold measurements is a common method for determining body fat composition. Calipers are used to measure the thickness of the skin at a range of sites around the body. Accurate measurement technique is important. Skinfold measurement can use from 3 to 9 different standard anatomical sites around the body. The right side is usually only measured (for consistency). The tester pinches the skin at the appropriate site to raise a double layer of skin and the underlying adipose tissue, but not the muscle. The calipers are then applied 1 cm below and at right angles to the pinch, and a reading in millimeters (mm) taken two seconds later. The mean of two measurements should be taken. If the two measurements differ greatly, a third should then be done, then the median value taken.

Since use of skinfold thickness tests are popular in the health and fitness industry, it is important to determine how much error, if any, is associated with exercising prior to the test administration and to establish the reliability of skinfold measurement after different exercise conditions.

Fig: 1 Harpenden Skinfold Caliper

Group fitness exercises represent the form of programmed physical activity to improve health and change body shape. The zumba fitness is a new kind of dance workout, inspired by Latin American music and Latin American dances. The exercise combines the basic of dance merengue, salsa, samba, cumbia, reggeaton and other Latin American dances, uses basic aerobic steps, but also enriches their composition of the other dance like hip-hop, belly dancing, Indian, African dance, etc. The aim of this research is to reveal the effects of Zumba fitness programme on skinfold measurement and body weight changes in females of Keshar Apartment.

METHODS:

Selection of the Participants

The study was conducted on a total of 20 sample females aged between 25 to 35 years. The participants were the residents of Kesar Apartment, Gwalior. All participant undergone all 40 training sessions of eight week Zumba Fitness programme. During this research (Jan. & Feb. 2021) they did not practice any other kind of physical exercises. They were tested before and after the implementation of Zumba fitness programme. Testing was performed at Club House of Keshar Apartments. All Zumba trainings were performed under the supervision of the researcher.

Zumba Fitness Programme

Zumba fitness programme was perfomed five times per week in the evening time. Each zumba training (60 minutes) contained basic principles of zumba excercise: warm-up, main part of the workout (zumba party section), cool down and streching (Perez and Greenwood-Robinson, 2009). Exercise intensity is determined by the tempo of the music that changed during training sections. Warm up contained basic dance steps (march, step touch, side to side etc.) with gradually accelerating tempo of music (120-135 bpm), without leaps and jumps. In the second part of the warm-up the muscle toning exercises were performed with soft intensity through dance variations, slightly squats were allowed (tempo 125-140 bpm). The goal of warming up was to increase body temperature, muscle blood flow, joint mobilization and the psychological preparation, as well. Total warm-up time was 8-10 minutes (tempo 120-140 bpm). The main part of the Zumba training was performed with 8-10 original Zumba fitness songs. The dance choreographies and movements intensity was created in accordance with tempo changing of music (tempo between 140-160 bpm). Each dance last 3-5 minutes, with pause 15-30 sec. The aim of the main part of the training is that trainees enjoy the music and dance at the same time practicing. Cool down as the final part of the training contained easy dance movement with soft music with mental and physical relaxing purpose. Stretching was performed for muscle relaxes and to prevent muscle soreness, and to increase body flexibility, too. There were not any jumps or squats allowed, and all the movements were performed in lying or standing position (tempo of music -100 bpm). When program was constructed it was considered that intensity of exercising can be changed according to previous adaptability.

Measurement Description:

All skinfold parameters were measured by Harpenden Skinfold Caliper and body weight was measured through body weight machine. Participants were tested in sports equipment, barefoot, in fitness attire.

Analysis of Data:

Data gathered during this research were analyzed using statistic programme for personal computers IBM SPSS 20.0. for Windows. Data was collected before the eight week of Zumba training programme and after eight week of Zumba training programme. For data analysis one sample t-test was used. Level of significance was set at .05.

RESULTS:

Table 1. Mean, Standard Deviation and Test Result of Zumba Fitness Program on Skinfold Measurement and Weight Control

	Before Treatment n=20	After Treatment n=20	p-value
Triceps(mm)	17±5.5	17.6±5.6	1
Subscapular (mm)	22.9±8.6	22.3±7.7	0.321
Abdomen(mm)	27.6±7.9	26.6±7.4	0.048*
Thigh(mm)	25.4±7.7	25.5±7.8	0.916
Body Weight	65.100±5	60.200±3	.021*

Table-1 showed descriptive results mean and standard deviation before treatment for triceps (17±5.5), subscapular (22.9±8.6), abdomen (27.6±7.9), thigh (25.4±7.7) and body weight (65.100±5) and after treatment for triceps (17.6±5.6), subscapular (22.3±7.7), abdomen (26.6±7.4), thigh (25.5±7.8) and body weight (60.200±3). The obtained p-value for triceps (p-1), subscapular (p-0.321), abdomen (p-0.048), thigh (p-0.916) and body weight (p-0.021).

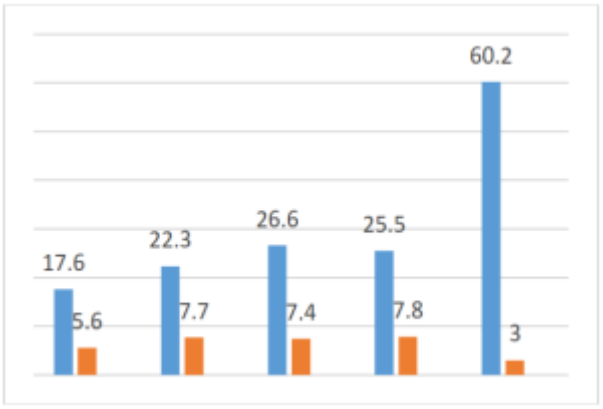

Fig.1 Before treatment

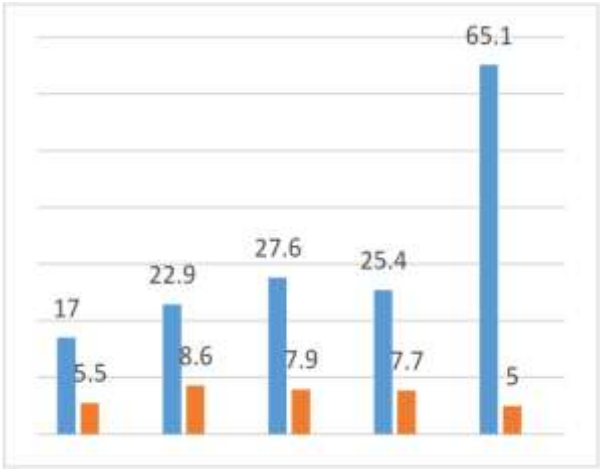

Fig. 2 After Treatment

DISCUSSION

Obviously, applied Zumba Fitness Program has caused statistically significant changes in females' abdomen skinfold measurement and body weight. Similar results were obtained in the studies of Barene, Krustrup, Jackman, Brekke, and Holtermann, (2013) who investigated the effects of twelve-week Zumba fitness programme at the percentage of fat mass and the total amount of fat mass, in a sample of women employed in the health sector. They practiced 2 to 3 hours a day. The results showed that the group that exercised Zumba fitness reduced total body fat mass (-0.6kg; P<0.05) in comparison to the control group. In generally, Zumba fitness training programme outside of working hours can lead to certain health benefits for women employed in health care. The Zumba fitness exercise, among other things, is based on the variety of Zumba programs (Zumba classic, Zumba gold, Zumba toning, Zumba sentao, Zumba kids, etc.) in which the complexity of dance choreographies and intensity of exercise are adapted to age and the goals that wanted to be achieved by practicing. In particular, it should be stressed that the conducted research on the effects of Zumba fitness programme in a relatively short time period of eight weeks caused a significant change in the physical parameters of women, which is not negligible if we know that the most common motive of the individual trainees to join the group fitness programs is just reduction of fat mass and weight loss.

CONCLUSION

The research of eight-week Zumba fitness programme on a sample of 20 females showed statistically significant effects on changes in abdomen skinfold and body weight of females of Keshar Apartment, Gwalior. The research showed high efficiency of Zumba fitness training programme on the reduction of body weight, which is very important since it is the common motive for joining group fitness programs. It should be noted that researches about the effects of Zumba fitness exercise are rare compared to studies of other aerobic exercise researches. This is because the Zumba fitness is the latest "hit" that appeared in the domain of aerobic exercise and that its actual effects on different populations and for different purposes are yet to be examined. This paper is a contribution to the clarification of its actual effectiveness in the changes of physical parameters of females.

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