International Journal of Yoga, Physiotherapy and Physical Education
ISSN: 2456-5067
Impact Factor: RJIF 5.24
www.sportsjournal.in
Volume 3; Issue 2; March 2018; Page No. 158-161

Effect of aerobic dance training on body composition of young women

Tangarani[1], Gajanana Prabhu B[2]
[1] Research Scholar, Department of PG. Studies and Research in Physical Education, Kuvempu University, Shimoga, Karnataka, India
[2] Assistant Professor, Department of PG. Studies and Research in Physical Education, Kuvempu University, Shimoga, Karnataka, India

Abstract
Lack of physical activity and an uncontrolled diet cause excessive weight gain, which leads to obesity and other metabolic disorders. A sedentary lifestyle poses a threat to individuals' health because it can lead to an increase or progression in the risk of hypertension, obesity, muscle weakness, postural defects, and lean body mass. Measurement, assessment and monitoring of BC in humans have been three of the main challenges for health sciences professionals. Effective weight management strategies consider not only weight loss toward but also the maintenance of a healthy body weight over time. The researcher was interested in assessing the effects of twelve weeks' aerobic dance training program on body composition of young women. The body composition was assessed using waist to hip ratio and skinfold. The study was a one group pre-test post-test design with thirty subjects. The subjects selected for the study were post-graduate female students studying during 2017-18 at Kuvempu University, Shankaraghatta. Their age ranged between 20 to 25 years. All the subjects were residents of women's hostel within the main campus. The criterion measures of body composition were waist to hip ratio and skinfold measurements at four sites. Descriptive statistics like mean and standard deviation were employed on the raw scores during pre and post-test situations. The differences between mean scores were calculated using 't' test for paired samples. Findings of the study are discussed in detail. Within the limitations of the present study, it is concluded that the exercise intervention in the form of aerobic dance performed for twelve weeks is effective in reducing body fat in young women.

Keywords: aerobics, dance, body composition, waist circumference, waist to hip ratio

Introduction
Everyday life, daily life or routine life involves the ways in which people typically act, think, and feel on a daily basis. Everyday life may be described as unexciting, routine, natural, habitual, or normal. Human behaviour means most people sleep at last part of the night and are active during daytime. Working time mostly involves a daily schedule, beginning in the morning. Busy in work and everyone avoid their health and unknowingly welcome sedentary life style. Any extended sitting can be considered harmful (Tremblay, et al., 2010) [20]. Lack of physical activity and an uncontrolled diet cause excessive weight gain, which leads to obesity and other metabolic disorders (Melam, et al., 2016) [8]. A sedentary lifestyle poses a threat to individuals' health because it can lead to an increase or progression in the risk of hypertension, obesity, muscle weakness, postural defects, and lean body mass (Pantelic, et al., 2007) [10].

Nowadays, fitness training is often discussed from different points of view, more and more people believe that systematic fitness training is essential in preserving health. In prosperous states it can be observed that systematic fitness training is not only the private property of the younger generation, but also belongs to children and the older generation, who have opportunities to participate in such fitness training, be fitting for their special needs as well as are well organized under expert guidance. As a matter of record, the results of much scientific research studies have already proved that systematic fitness training can serve as an excellent tool to slow down the process of aging and improve the quality of life because it has a positive effect on the weight management, the cardiorespiratory, the neuromuscular, the metabolic and the immune systems as well as on mental health (Jordan, 1993; Shimamoto, Adachi, Takahashi, & Tanaka, 1998) [7, 16]. Exercise is an important component in physical therapy programs and in maintaining a healthy lifestyle. The conditioning effects gained from an exercise program enable an individual to perform daily activities at a higher functioning level. Physical therapists use a wide range of exercise modes to improve cardiorespiratory endurance (Cassady and Nielsen, 1992; Vickery, Cureton, and Langstaff, 1983) [3, 21].

Body composition
Measurement, assessment and monitoring of BC in humans have been three of the main challenges for health sciences professionals. Obesity is defined as an excess of body fat, traditionally classified based on the body mass index (W.H.O., 2000) [23]. Its prevalence nearly doubled from 1980 to 2008, reaching epidemic levels and affecting countries independently of income or developmental levels (W.H.O., 2011) [24]. Central fat accumulation, and in particular intra-abdominal or visceral fat depots, has been identified as an independent risk factor for insulin resistance, Cardio Vascular Diseases and hypertension (Reaven, 1988) [25].

Weight management techniques encompass long-term lifestyle strategies that promote healthy eating and daily physical

activity (American Dietetic Association, 2009) [11]. Effective weight management strategies consider not only weight loss toward but also the maintenance of a healthy body weight over time. Moreover, weight management involves an understanding of meaningful ways to track weight over time and set ideal body weights for different individuals (Ryan and Kahan 2018) [14]. Weight management does not include fad diets that promote quick, temporary weight loss. It focuses on the long-term results that are achieved through slow weight loss, followed by retention of an ideal body weight for age, sex and height (Tiepkema, 2004) [18].

Aerobic Exercises

Aerobic means "with oxygen," refers to physical exercise to improve cardio respiratory endurance. Aerobic movement is rhythmic and repetitive, engaging the large muscle groups in the arms and legs for at least 20 minutes at each session. The ensuing demand for a continuous supply of oxygen creates the aerobic training effect, physiological changes that enhance the ability of the lungs, heart, and blood vessels to transport oxygen throughout the body. The most beneficial aerobic exercises include cross-country, swimming, running, cycling, walking, and aerobic dance (Cooper, 2009) [4]. Aerobic activities include walking, jogging, bicycling, dancing and swimming etc. anything that involves the large muscle groups, which sustains for thirty minutes or longer, is considered aerobic. It should be done a minimum of five days a week for at least thirty minutes each session (Sunder, 2009) [12].

Aerobic Dance exercises

Aerobic exercise to music or dance aerobics was especially popular during the last few years of the 20th century, primarily among women. A characteristic of this kind of exercise is that all of the people who are participating in the exercise to music program realize certain movements in the same rhythm and tempo, activating different muscle groups at the same time. Aerobic dance exercises have typically been developed as an aerobic exercise to reduce body compositions as well as improve physical fitness and performance (Kimura & Hozumi, 2012).

Dance is a popular activity of people of all ages and is both a physical activity and a performing art that provides participants with an opportunity for aesthetic expression through movement. People dance for a variety of reasons. Dance is used to communicate ideas and feelings and is considered a creative art. The dance is an integral part of educational experience as a form of recreation and it provides opportunities for enjoyment, self-expression, and relaxation. Dance can also be used as a form of therapy providing opportunities for individuals to express their thoughts and feelings. It provides means to cope with various stresses placed on individuals. Dance is increasingly used as a means to develop fitness. There are many forms of dance that are enjoyed by individuals including ballet, ballroom, folk, and clog, modern, square and top. Cultural heritage is reflected in and passed on through dance activities. Within the past two decades aerobic dance provides participants with an opportunity to develop fitness and experience the fun and enjoyment of working out of music (Deborah, 1991) [5].

The aerobic dance is a common craze among most people today. It is one of the best ways to enjoy a fitness program and also a way to achieve better health. The aerobic dance is a feet tapping exercise that is accompanied with musical beats and the signals of an instructor. Aerobic dancing also induces fast breathing for a long period of time by pumping more oxygen into the bloodstream. Also known as “aerobics”, the aerobic dance can be done with hip hop or country folk music. There are different types of aerobics such as dance aerobics, step aerobics, low impact aerobics, High Impact aerobics, Water Aerobics and aerobic kickboxing (fitness. ygoy, 2008) [8].

Regular aerobic exercises will improve cardiovascular and cardio respiratory function (heart and lungs), an increased maximal oxygen consumption (VO2max), maximal cardiac output (amount of blood pumped every minute), maximal stroke volume (amount of blood pumped with each beat) and blood volume and ability to carry oxygen. Reduced workload on the heart (myocardial oxygen consumption) for any given sub maximal exercise intensity, increased blood supply to muscles and ability to use oxygen. Lower heart rate and blood pressure at any level of sub maximal exercise, beginning for lactic acid accumulation. Lower resting systolic and diastolic blood pressure in people with high blood pressure, increased high density lipoprotein Cholesterol (the good cholesterol), Decreased blood triglycerides reduced body fat and improved weight control Improved glucose tolerance and reduced insulin resistance (fitness. ygoy, 2008) [8].

The statement of the problem

The researcher was interested in assessing the effects of twelve weeks’ aerobic dance training program on body composition of young women. The body composition was assessed using waist to hip ratio and skinfold.

Materials and methods

The study was a one group pre-test post-test design with thirty subjects. The subjects selected for the study were post-graduate female students studying during 2017-18 at Kuvempu University, Shankaraghatta. Their age ranged between 20 to 25 years. All the subjects were residents of women’s hostel within the main campus. The criterion measures of body composition were waist to hip ratio and skinfold measurements at four sites. The free time of the subjects were made known and necessary data was collected. The experimental protocol designed by the researcher on the basis of reviews gone through and insight of the researcher was implemented for twelve weeks. Selected aerobic dance steps were carefully and systematically performed by the subjects up to twelve weeks. The exercises were performed in simple to complex method thrice a week for one hour a day. Systematic warmup preceded exercise intervention in each class followed by a warm down session. Descriptive statistics like mean and standard deviation were employed on the raw scores during pre and post-test situations. The differences between mean scores were calculated using ‘t’ test for paired samples.

Findings

The raw data on body composition measured in terms of waist to hip ratio and percent body fat by skinfold measurements was subjected to intended statistical techniques and the results

are given in table 1.

Table 1: Summary of 't' test on body composition variables of young women during pre-test and post-test

	Mean ± SD	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Mean ± SD
Waist to Hip ratio (in cms)	Pre test	.97±.22	3.165	.002	.14467	.04571
	Post test	.82±.12				
Skinfold measurements (in % fat)	Pre test	24.70±6.40	2.342	.023	3.46667	1.48001
	Post test	21.23±4.98				

From table 1, it is clear that there is significant difference in waist to hip ratio and percent body fat between pre and post test scores of young women. The results clearly point out that the practice of aerobic dance has significant effect on body composition of young women. Following figures provide graphical representation of results derived from the present analysis.

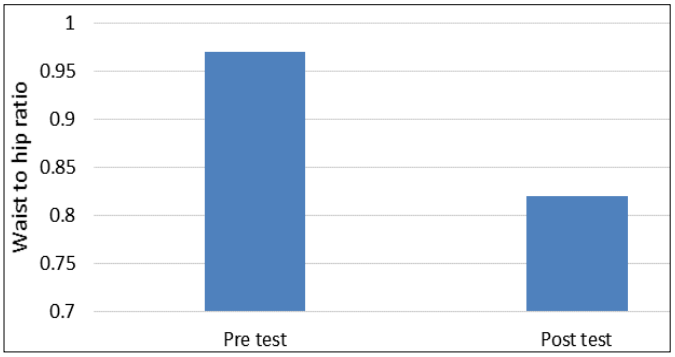

Fig 1: Differences in waist to hip ratio of young female during pre and post test

From figure 1 it is clear that the waist to hip ratio considerably reduced during post-test situation in young female who has undergone aerobic dance training.

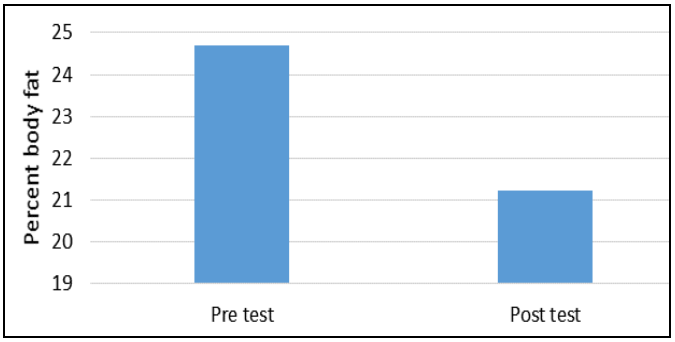

Fig 2: Differences in percent body fat of young female during pre and post test

Figure 2 makes it clear that the percent body fat considerably reduced during post-test situation in young female who has undergone aerobic dance training.

Discussion

The best way to mobilize body fat is to follow the approach in which aerobic activities are systematically planned (Toy, 2008) [19]. Although there are various other factors influencing the reduction of fat including genetics, food and gender, physical activities including aerobic dance is considered useful in dealing excess body fat (Abe, 1997) [1]. Shaw, et al., (2012) [5] support the use of exercise as a weight loss intervention. In a similar study, the results of the research of the effects of dance aerobics on body composition in young people show that the application of the appropriate dance aerobics models can affect body composition in terms of reducing the body weight, body fat percentage and visceral fat (Stosic, 2015) [17]. The results are supported by Jaywant (2013) [6] in which he indicates aerobics as highly effective in weight loss.

Conclusion

Within the limitations of the present study, it is concluded that the exercise intervention in the form of aerobic dance performed for twelve weeks is effective in reducing body fat in young women.

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