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Effect Of Six Weeks Aerobic Dance On Body Composition

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ABSTRACT: Purpose: The main objective of the study was to determine the effect of 6 weeks of aerobic dance on Tribal Men of Arunachal Pradesh. Methods:To find out what physical changes the indigenous men of Arunachal Pradesh experience following six weeks of aerobic exercise, a total of 24 male volunteers were chosen. The subjects ranged in age from 21 to 25 years old. Body mass index and skinfold thickness were the factors chosen. For the present study pre- and post-test randomized group designs which consisted of a control group and an experimental group was used to find out the effects of aerobic dance on indigenous men of Arunachal Pradesh. The experimental groups underwent aerobic dance lessons five days a week for six weeks. The pre-test and post-test measurements for both the experimental and control group were taken before and after the aerobic dance interventions. The collected data was evaluated using the analysis of covariance (ANCOVA). The proposed hypothesis was tested at a value of 0.05 for statistical significance. Findings: The present study showed a significance difference in the body mass index and the skinfold thickness after six weeks of aerobic dance programme.

Keywords: Aerobic, Body composition, Cardiovascular workout, Irish dance, Step aerobics, Body Mass Index, Skinfold Thickness test

Introduction: Aerobics means “with oxygen”, so aerobic exercise is any physical activity that causes your body to receive more oxygen. Muscles need more oxygen to contract for a prolonged period of time when you exercise.
Aerobic dance is a specific type of workout performed in a group exercise environment. Each participant engages in aerobic dancing for a variety of personal goals, including weight loss, muscular toning, improved health, and a more fulfilling life. Dancing-inspired movements are the cornerstone of aerobic dance. It is a group activity putting cardiovascular workout to music. There is no need to memorize the dance steps because choreographers and teachers teach the classes verbally and visually, respectively. When the entire body is engaged rhythmically while performing heavy-duty motions, the classes are deemed to be aerobic dance. According to the Centers for Disease Control and Prevention (CDCP), around 150 minutes a week of moderate-to-vigorous physical activity is the magic number as it can lower anxiety, reduce the risk of various chronic diseases and help with weight loss. But as stated by the CDCP, around 80% of American adults are failing to hit the suggested guidelines for their aerobic and muscle-strengthening activity goals. But that’s where dance can come in. (Shepherds, B 2022)
Aerobic dance exercise is currently one of the most commonly practiced adult fitness activities. The majority of the research pertaining to this form of exercise supports its application as a valid cardiovascular training alternative, especially for adult females if performed according to the American College of Sports Medicine (ACSM) guidelines. If, however, the participant is interested in modifying body composition, training frequency, duration, or efforts toward caloric restriction may need to be increased or altered beyond those employed in the aerobic dance training investigations. The amount of energy expended during a bout of aerobic dance can vary dramatically according to the intensity of the exercise. ‘Low intensity’ dance exercise is usually characterized by less large muscle activity and/or less low extremity impact, and music of slower tempo. Dance exercise representative of this variety requires a cost of approximately 4 to 5 kcal/minute. Several trials, however, have shown that vigorous ‘high intensity’ aerobic dance which entails using the large muscle groups can require 10 to 11 kcal/minute. The associated training outcomes could be affected by such differences in dance exercise intensity and style. When we talk about aerobic dancing, we frequently mean styles like ballet, jazz, Zumba, and many more. Because they are slower-paced than other aerobic exercises, they are known as low impact workouts. They are therefore excellent choices for folks who are expecting, aged, or obese. An aerobic dance doesn't always have to be low impact, though! You can also find some fantastic aerobics videos that encourage your body to work out hard and healthily. It will revive your body, improve blood flow, and give you a positive inside feeling. You can also incorporate step aerobics, country line dancing, Bhangra, Irish dancing, Flamenco dancing, swing dancing and ballet-inspired exercises. You are also not required to stick to just one

type; you are free to mix and match for a workout that is specifically tailored to your requirements. (Williford, HN etal.1989).

Petrofsky, J., etal. (2008) study determined that aerobic dance and a proper diet program there found to be no difference for the control subjects (non-exercising) in blood pressure, heart rate, girth, or body weight over the 10-day period. In contrast, for the group of subjects that exercised, for 7 days, showed a significant difference in weight, girth of waist, heart rate and blood pressure decreased significantly.

Çakmakçı, E., et al.(2011) study assessed the effects of aerobic dance exercise on body composition in sedentary overweight women. Body composition (via skinfolds caliper), waist hip ratio, waist circumference were measured and body fat percentage, Basal Metabolic Rate and Lean Body Mass were calculated at sedentary women. There were significant differences in exercise group for weight, body mass index, waist circumference, waist hip ratio, metabolic and body composition parameters in exercise group while no significant is to be found in control group. As a result, it can be say that aerobic dance exercise at a moderate intensity and duration can improve physical fitness and can decrease body fat percentage, Lean Body Mass and Basal Metabolic Rate during weight loss.

A heart-pumping combination of aerobic and resistance training, Jazzercise has been around since the 1970s and is a popular workout that targets every bulky area of the body. Almost every country offers weekly jazzercise classes, and there are currently over 78,000 jazzercise instructors worldwide. This sort of aerobic dance may lower your risk of heart disease or a heart attack. Excellent for people of any age and fitness level including middle aged men and women, teenagers and adults. The muscles in your glutes, thighs, arms, and abdomen can all be toned by performing this exercise. Ballroom dancing is a moderately high impact aerobic dance form that is well-liked around the world; the only drawback is that you cannot do this dance form alone; a partner is required. With this form of aerobic dance workout, you can burn a lot of calories; a 30-minute session of this workout burns 200–400 calories, depending on the intensity of the workout. This type of workout programme may help you feel happy and confident. A long time ago, countries in the Arab world, including Egypt and Turkey, gave rise to a stunning and exotic dancing style; a solo dance style that requires torso articulation. The art of belly dance itself includes a wide variety of distinctive forms and styles. It is used in many fitness facilities and is classified as aerobic dance. Increases strength and is a fantastic tummy exercise. Masala Bhangra is a dance exercise that has its roots in Punjab, India. India is noted for its unique culture, religion, language, and ethnicity, cuisine, and dance styles. This is a dance exercise regimen inspired by Bollywood. The state dance is known as Bhangra. You can burn roughly 500 calories during an hour-long exercise. The body, especially the bones that support weight and the heart muscles, are strengthened by aerobic dancing exercise. Men and women of all ages enjoy one of the simplest cardio exercises. The exercise improves our heart and lungs and is a fantastic way to relieve tension. Our immune system and mental wellness can both benefit greatly from aerobic dance.

Methodology: A total of 24 male subjects' ages ranging from 21-25 years old were randomly selected. The selected subjects were divided into two groups, Group-A Experimental and Group-B Control with each group consisting of 12 subjects. Group-A underwent a six weeks of aerobic dance program. The selected variables i.e. Body Mass Index (Weighing Machine and Stadiometer) and Skinfold Thickness Test (Measurement Tape and Happenden Skinfold Caliper) were taken before and after the training session. **Statistical Analysis:** The descriptive statistic and analysis of covariance (ANCOVA) was employed at .05 level of significance by using IBM SPSS software.

Results: The findings pertaining to descriptive statistics, mean, standard deviation and Analysis of Covariance (ANCOVA) for the selected variables of 24 tribal male of Arunachal Pradesh have been presented in table no. 1-15.

Table1: Descriptive statistics of experimental and control group on body mass index

Variables	**Group**	**N**	**Mean**	**Std. Deviation**
BMI	Experimental Group	12	22.64	0.94
	Control Group	12	22.59	1.17
	Total	24	22.62	1.04
Skinfold Thickness	Experimental Group	12	11.34	1.71
	Control Group	12	9.89	2.70
	Total	24	10.62	2.33

The above table no.1 shows the descriptive value of mean and standard deviation of experimental and control group body mass index, Skinfold thickness are as follows 22.64±0.94 kg/m^2 and 22.6±1.17 kg/m^2 and skinfold thickness is 11.3±1.7mm and 9.9±2.7mm respectively.

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Table 2: Estimated mean value of experimental and control group on BMI

Variables	Group	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
BMI	Experimental Group	23.198	0.202	22.779	23.618
	Control Group	22.034	0.202	21.615	22.454
Skinfold Thickness	Experimental Group	11.099[a]	0.29	10.49	11.71
	Control Group	10.134[a]	0.29	9.52	10.75

Covariates appearing in the model are evaluated at the following values: PRE_BODY MASS INDEX = 23.4121 and Pre_Skin Fold Thickness Test = 11.2417.

Table 3: Tests of Between- Subjects Effect on BMI

Source		Type I Sum of Squares	df	Mean Square	F	Sig.
Pre_BMI	Hypothesis	10.93	1	10.93	4.0	0.265
	Error	3.24	1.18	2.75		
Group	Hypothesis	5.60	1	5.60	14.1	0.001
	Error	8.36	21	0.40		
Pre Skinfold Thickness	Hypothesis	98.09	1	98.09	89.12	0.000
	Error	23.65	21.49	1.10		
Group	Hypothesis	5.50	1	5.50	5.34	0.031
	Error	21.66	21	1.03		

R Squared of BMI = .664 (Adjusted R Squared = .632), and R Squared of Skinfold Caliper = .827 (Adjusted R Squared = .811)

Table 4: Pairwise comparisons of experimental and control group on BMI

Variables	(I) Group		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
BMI	Experimental Group	Control Group	1.164	0.31	0.001	0.519	1.81
	Control Group	Experimental Group	-1.164	0.31	0.001	-1.81	-0.519
Skinfold Thickness	Experimental Group	Control Group	.965*	0.418	0.031	0.096	1.834
	Control Group	Experimental Group	-.965*	0.418	0.031	-1.834	-0.096

Based on estimated marginal means the mean difference is significant at the 0.05 level and the Adjustment for multiple comparisons: least significant difference (equivalent to no adjustment).

Table 5: Univariate value of BMI

Variables		Sum of Squares	df	Mean Square	F	Sig.
BMI	Contrast	5.602	1	5.60	14.07	0.001
	Error	8.362	21	0.40		
Skinfold Thickness	Contrast	5.503	1	5.50	5.34	0.031
	Error	21.658	21	1.03		

The F tests the effect of Group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

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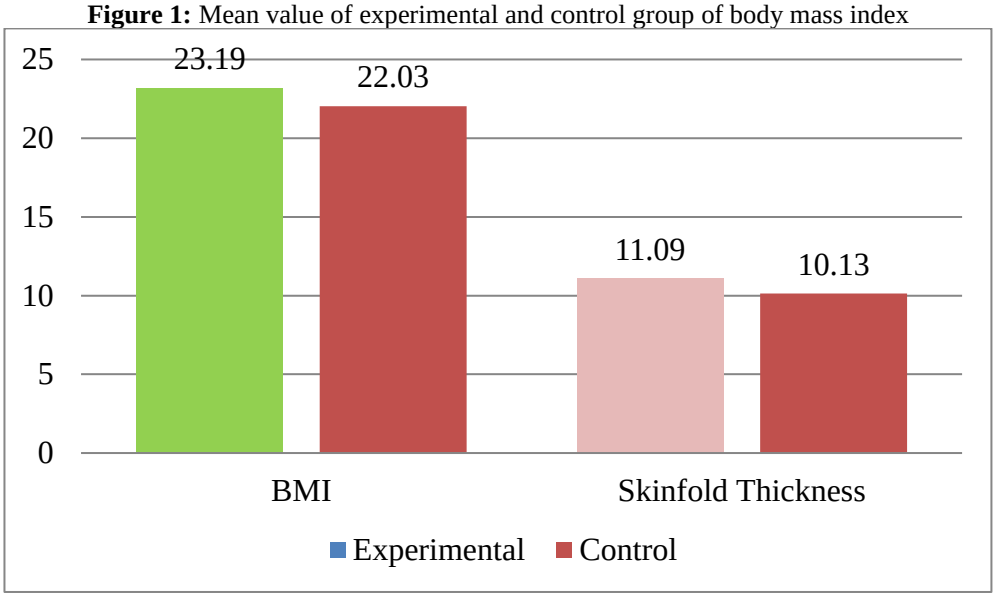
Table no.5 shows that there exist significant difference between experimental and control group in BMI (0.010) and skinfold thickness (0.031) as the calculated "F" values (14.06) and (5.335) are greater than the tabulated "F" value of (21,1=4.451) at 0.05 level of significance.

Figure 1: Mean value of experimental and control group of body mass index



The above graph shows the posts mean of experimental and control group on body mass index and skinfold thickness are 22.03kg/m^2 and 23.19kg/m^2 and 11.1mm and 10.13 mm respectively.

Discussion and Findings

The finding of the study strongly indicates that the aerobic dance program has a positive effect on the body mass index, waist-hip ratio and the skinfold thickness.

Williams, L, & Morton, A.(1986) found that the experimental group also had significant gains in lean body mass and body density, as well as reductions in body fat percentage and the average thickness of the four skinfolds. The control group showed no discernible advancements in any of these metrics. The 12-week aerobic dance curriculum was found to be effective in creating positive changes in body composition and Cardiorespiratory fitness. Choe, M.A.(1988) study examined that there is a significant difference in skinfold thickness and body fat content. McCord, P., etal., (1989) research showed a significant change in body fat content, a rise in VO2max and Submaximal heart rates significantly. Ahmad et.al, (2007) study concluded a significant difference for weight loss and cardiovascular fitness.Petrofsky,J.,etal.(2008) research showed that with a proper diet plan and exercise there is a significant reduction of body weight and waist girth of the subjects. Çakmakçı, etal.(2011) significant changes were seen in the exercise group's weight, body mass index, waist circumference, waist hip ratio, metabolic, and body composition parameters between the pretest and posttest. Additionally, there was a significant decrease in body weight, lean body mass, basal metabolic rate, and fat percentage.

Fatma Arslan (1 Jan 2011) the study showed that after eight weeks of the step-aerobic dance exercise programme, there were significant differences in the subjects' weight, BMI, body composition parameters, waist-hip ratio (WHR), waist circumference (WC), fat percentage, lean body mass (LBM), and basal metabolic rate (BMR) in the experimental group. The step aerobic dance programme was successful in improving body composition and lowering body fat in sedentary obese women of turkey.

Rahmat.et al,(2012) the findings of this study showed that aerobic dance training for six weeks significantly improved the cardiovascular health and body composition of the subjects. Compared to subjects in control group (who did not participate), the subjects in experimental group (who participated) improved their VO_2max, decrease their body mass index and waist-hip ratio reading and body fat percent. P J Jaywant(2013) the study indicated that aerobic dance is highly effective in weightloss, lowers fat percent. İŞLEYEN, etal.(2020) concluded that aerobic dance exercises showed a statistically significant improvements in body weight, body mass index and body fat percent. Octaviana, etal. (2020) in the study used a skinfold caliper to gauge the thickness of the body's fat layer. In the findings it was concluded that aerobic dance was effective in reducing body fat percentage in women with mild and severe levels of obesity.

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