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Effects of Exercise and Restricted Diet in Obese Women

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KEYWORD Body Mass Index. Bioelectrical Impendence Analysis. Body Fat Percent. Obesity

ABSTRACT Obesity is primary risk factor for life threatening diseases. The purpose of this study was the find the impact of intervention, that is, a diet and exercise program on obese women. The study used purposive sampling, and an experimental pre and post design. A total of twenty obese females between the age group of 25 to 40 years were chosen. They were assigned purposively into two study groups. Group I received the diet and exercise plan while group II did not received any guidance. The sample was drawn from a health club of Raipur city Chhattisgarh. Height and weight measurements were taken using standard methodology and body fat percent was estimated using the Body Composition Analyzer. The trial period was of 4 weeks. The significant differences were observed in both groups' pre and post treatment mean value. Based on the obtained results, it can be concluded that diet and exercise is an effective intervention for obese women.

INTRODUCTION

The global estimate by the WHO in 2005 was that out of about 1.6 billion overweight persons aged 15 years and above, 400 million adults were obese. Gribovskaja-Rupp (2011), Giles (2012), Allott (2012) and Aleksandrova (2013) stated that obesity significantly increases the risk of diseases such as high blood pressure, arthritis, breast cancer, and pancreatic and colon cancer. Woodward (2004) studied that excess body weight shortens the life span by an average of eight to ten years at normal weight. Management of obesity is diet, physical activity and behavior modification. Some patients require pharmaceutical therapy. Physical exercise play in important role in prevention and treatment of obesity. King et al. (2012) stated that physical activity is protecting the individual from the development of obesity through several mechanisms. The energy balance when caloric intake equals the calorie expenditure the effective weight loss program (Bjorntorp 2001; Aoki 2007; Apostolopoulou 2012; Begg 2012). Goodenough et al. (2015) examined 10 weeks of circuit training exercise combined with 1600 kcal diet in obese women. Results found a combined structured exercise program on metabolic syndrome prevalence in women. The present study focuses on the effects of restricted diet combination with an exercise program in obese women.

METHODOLOGY

Purposive sampling technique was used for data collection. A total of twenty obese women were collected from a health club in Raipur city, Chattisgarh. The age group of females was 25 to 40 years. All the subjects were apparently healthy. Only those subjects who gave written consent were included in this study. The study protocol was approved by the Institution Ethical Review Committee of the Department of Home Science. The participants were assigned purposively into two study groups. Group I received a diet and exercise plan while group II did not received any guidance. Anthropometric measurements of height and weight were taken using standard method and body fat percent estimated by the Body Composition Analyzer. The trial period was of 4 weeks. The statistics used were in the form of mean and standard deviation (SD) of all measuring variables in between both groups.

Diet

All subjects were studied for one week on a maintenance diet and for three weeks on 1200 kcal/d. The maintenance diet estimated daily energy requirement. The diet was provided as a restricted diet formula (25% high biological value protein, 55% carbohydrate, and 20% fat). The diet was divided into five to six equal servings per day during the maintenance week and four servings per day of 300 kcal each meal during weeks. Subjects were also offered some non-caffeinated and less caloric beverages throughout the day.

Exercise Program

After the maintenance week, the 10 subjects assigned to the exercise group consisted of walk-

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ing on treadmills 5 days per week. Subjects were daily supervised during the progressive walking program. The general patterns of the subject walk 1.6 km with gradual increases every 3 days until 5.6 km was reached. The subject then maintained this level through the remainder of stay. The exercise session was about the same time every day. After the warm-up the subject was encouraged to walk briskly. After the cool-down the subject engaged in light upper-body exercises with the staff member. The subjects' heart rate, walking distance, timing and general feelings were recorded daily.

RESULTS

The women's characteristics are presented in Table 1. It is apparent from this data that there is wide variation in minimum and maximum values of the studies. Table 2 shows that the obtained results in this study revealed statistically significant differences when comparing pre and post treatment. Mean value and standard deviations of weight, BMI, and Fat percent in both groups are presented in the table. In Table 3 there was a significant improvement in the walking speed of the exercise group from the previous week in terms of the treadmill speed and distance as work out, which can increase motivation and efficiency in exercising speed. The results of this study demonstrate that in addition to greater improvements in walking speed, faster treadmill walking was also noticed (Sullivan et al. 2002).

Table 1: Basic characteristics of the female

Variable	*Mean N=20*	*SD*	*Minimum*	*Maximum*
Age(yrs)	34.05	4.16	25.0	39.0
Height(cm)	162.35	5.19	152.0	170.0
Weight(kg)	80.65	6.58	70.0	95.0
BMI	30.69	2.12	25.7	34.0
PBF(%)	40.16	3.44	39.4	50.5

DISCUSSION

This is supported by Lemoine et al.'s (2007) examination on obese women in a short-term weight reducing program combined with caloric restriction and physical activity and concluded a favorable impact on women body composition. Hutchesson et al. (2013) evaluated weight management with three interventions in especially young women and reported significant difference in weight. Stehr et al. (2012) stated that role of exercise and physical activity is very effective in adult and post-menopausal women. However, numerous studies evaluated and supported by Jakicic et al. (2001) and Lau et al. (2007) concluded that regular aerobic exercise and low caloric diet effective treatment of abdominal obesity and increasing physical activity time work as an overall obesity treatment program. Lichtenstein et al. (2006) and Souza et al. (2008) concluded that these are successful in causing weight loss and can emphasize a compositions of fat, protein, and carbohydrate that are also have beneficial effects on cardiovascular disease and diabetes. Booth et al. (2002) suggested that for humans to be active, and in 2002, the Institute of Medicine recommended one hour of moderate physical activity daily.

Table 3: Weekly progression of distance walked

Exercise	*2nd week km/d*	*4 week km/d*
1	3.2	5.4
2	2.1	4.5
3	1.8	4.0
4	2.1	4.6
5	2.2	4.6
6	3.1	5.1
7	2.2	4.5
8	2.1	4.6
9	2.2	4.5
10	2.0	4.2
x	2.3	4.6

CONCLUSION

In conclusion, the finding shows that diet and exercise intervention benefits for weight loss. The purpose of this study was to understand the role of diet and activity in obesity be-

Table 2: Pre and Post treatment for both groups

	Experimental group N=10			*Control group N=10*		
	Weight	*BMI*	*Fat %*	*Weight*	*BMI*	*Fat %*
Pre	81.00 ± 5.33	31.22 ± 1.70	46.5 ± 3.01	78.6 ± 6.39	30.17 ± 2.44	43.82 ± 3.45
Post	74.67 ± 5.39	27.86 ± 1.39	43.42 ± 3.07	78.62 ± 6.70	30.67 ± 2.56	44.73 ± 3.43

cause it is the root of various diseases for adults in life.

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