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RESEARCH ARTICLE

EFFECTIVENESS OF NUTRITION AND COMPLETE LIFESTYLE MODIFICATION PACKAGE ON NUTRITIONAL STATUS OF OVERWEIGHT ADULT PEOPLE

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ABSTRACT

Background: Lifestyle interventions for weight loss are the cornerstone of obesity therapy, yet their optimal design is debated. Lifestyle weight management programmes for overweight or obese adults are multi-component programmes that aim to reduce a person's energy intake and help them to be more physically active by changing their behaviour.

Aim: To find out Effectiveness of nutrition and complete lifestyle modification package on nutritional status of overweight adult people

Materials and Methods: The sample comprised one hundred eighty adult (180) peoples (90 male and 90 female) in the age group of 30-40 year. Participants (body mass index [BMI] ≥ 25 kg/m²; age 30-40 years). We aimed to examine the effectiveness of combined nutrition and complete lifestyle modification package (NCLMP) for overweight adult people. In NCLMP we combined electronic Devices, diet and physical exercise programs with at least 6 months of follow-up, conducted in overweight adults

Results: Although participants view the lifestyle-based, non-medical commercial programme as an appropriate intervention for weight management. Results revealed that in Pre-intervention phase majority of the subjects (75 per cent) were found to be in the category of high risk while minority of the respondents (25 per cent) had normal WHR (< 0.8). The mean WHR was 0.83 ± 0.0 and the fat values exceed the normal range of fat, diet of subjects in comparison to the balanced diet was substantially inadequate in food groups, representing the excess fat deposition in the subjects owing to obesity. Intervention phase results revealed effect of electronic devices, physical exercise and nutritionally balanced weight loss diet on body composition of males were showed body Fat (%) before intervention was 31.10 ± 3.2 and after intervention 29.26 ± 4 and decrease after intervention - 1.84. Effect of nutrition and complete lifestyle modification package on nutritional status of overweight adult people intervention on body composition of females were found body Fat (%) before intervention was 33.83 ± 4.6 and after intervention 32.2 ± 4.5 and decrease after intervention - 1.59.

Conclusion: Our study concludes that weight loss can be brought about by exercise and diet. For sustained weight loss along with exercise and diet behaviour modification is required.

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INTRODUCTION

Obesity is most commonly caused by a combination of excessive food intake, lack of physical activity, and genetic susceptibility. A few cases are caused primarily by genes, endocrine disorders, medications, or mental illness. Evidence to support the view that obese people eat little yet gain weight due to a slow metabolism is not generally supported. On average, obese people have a greater energy expenditure than their thin counterparts due to the energy required to maintain an increased body mass.

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The prevalence of overweight and obesity is reaching epidemic proportions in the world over the past decades. It affects people across gender, racial, and ethnic groups. Demographic shifts, sedentary lifestyle, could be a reason for this health transition. It has numerous negative physical, psychological and financial consequences which affect not only the overweight and obese individual, but also one's social environment. In recent years nutrition and fitness has assumed an increased importance in the management of chronic condition and minimizing risk factors. For this purpose the requirement is to work quita a way to help the population to improve personal and family nutrition in face of economic hand grip. The success rate of conventional weight reduction programmers is extremely low therefore non-conventional methods are subject to worldwide speculation.

The present study is an endeavour to determine "Effectiveness of nutrition and complete lifestyle modification package on nutritional status of overweight adult people weight reduction by using diet, active exercise and electronic exercise". Looking to this need development of Nutrition and Complete Lifestyle Modification Package would be of great help.

Objectives

- To assess the nutritional status of overweight adult people.
- To find out the effectiveness of nutrition and complete lifestyle modification package on nutritional status of overweight adult people.
- To find out the gender difference in the effectiveness of nutrition and complete lifestyle modification package on overweight adult people.

MATERIALS AND METHODS

The study was conducted within the municipal limits of Udaipur City, Rajasthan. For the assessment of overweight and nutritional status of adult people, an interview schedule was developed to collect the information about respondents. Basic anthropometric measurements such as height, waist and hip circumference measurements were taken using standard methods given by Jelliffe (1966). The derived anthropometric measurements viz. body mass index and waist and hip ratio were calculated. Weight and Body composition of the subjects was determined using bioelectrical impedance using Body composition analyzer. In intervention phase subject were divided into 2 group male (90) and Female (90). On the basis of energy requirement of the subject for weight loss diet plan was prepared for one week and then given to the subject. Along this electronic muscle exerciser is used to exercise the muscle by passing an impulse through the muscle, which stimulates the muscle (motor nerves control muscle activity). For active exercise walk and yoga methods was used. In post intervention phase all the nutritional, biochemical and anthropometric factors, that were assured prior to the intervention period were assessed again and recorded.

RESULTS AND DISCUSSION

The general information of the survey group obtained through a structured questionnaire. Study was conducted in Pre-intervention, intervention and Post-intervention phases so as to accomplish the objectives of the study. One hundred eighty subjects both male and female attending the weight reduction clinic was selected for the present study.

Pre-Intervention phase: Results pertaining to anthropometric measurements as obtained in present study are given below:-

Dietary intake: The nutritional status of any individual is directly affected by his/her food intake. The components of the diet should be chosen judiciously so that it provides all the nutrients in adequate amount and in proper proportion (ICMR, 2010).

Nutrient intake: Life cannot be sustained without adequate nourishment. Man needs sufficient food for growth, development and to lead an active and healthy life (ICMR, 2010).

Physical activity

Physical activity is a key determinant of energy expenditure and thus is fundamental to energy balance and weight control. Therefore, approximate time spent on various physical activities by the subjects was also studied to have an idea about the general lifestyle pattern of the subjects.

Table 1. Anthropometric measurements of the subjects

S. No	Body Measurements	Mean \pm SE	
		Male	Female
1	Weight (kg)	85.6 \pm 9.6	72.83 \pm 11.1
2	Height (cm)	173.2 \pm 6.8	161.72 \pm 6.7
3	BMI (kg/m ²)	28.3 \pm 1.9	28.06 \pm 1.9
4	WHR	0.96 \pm 0.12	0.86 \pm 0.05
5	Body composition		
a)	Fat (%)	33.8 \pm 0.6	39.4 \pm 0.6
b)	Body fat mass(kg)	30.1 \pm 0.8	27.9 \pm 0.9
c)	Total body water(kg)	29.9 \pm 0.9	27.9 \pm 0.9
d)	Fat free mass(kg)	50.5 \pm 0.6	40.6 \pm 0.6

Table 2. Distribution of subjects with respect to grade wise BMI

S. No	Male (90)	Female (90)	Percentage (n=180)
Normal BMI <25.0	(00)	3.3(03)	1.66(03)
Grade 1 BMI 25.0-29.9	61.1 (55)	71.1(64)	66.1(119)
Grade 11 BMI 30.0-39.9	33.3(30)	22.2(20)	27.7(50)
Grade 111 BMI >40.0	5.5 (05)	3.3(03)	3.8(07)

Table 3. Distribution of subjects after treatment with respect to grade wise BMI

S. No	Male (90)	Female (90)	Percentage (n=180)
Normal BMI <25.0	38.8(25)	42.2(38)	40.5(73)
Grade 1 BMI 25.0-29.9	44.4(40)	30(27)	37.7(67)
Grade 11 BMI 30.0-39.9	20(18)	13.3(12)	16.6(30)
Grade 111 BMI >40.0	6.6(06)	4.4(04)	5.5(10)

Table 4. Effect of nutrition and complete lifestyle modification package on body composition of males

Body composition	Mean \pm SE			Paired 't' value
	Before intervention	After intervention	Increase/decrease after intervention	
Body Fat (%)	31.10 \pm 3.2	29.26 \pm 4.1	- 1.84	2.36**
Fat mass (kg)	24.4 \pm 1.5	21.5 \pm 1.4	- 2.9	6.51**
Total body water (kg)	30.9 \pm 0.6	31.2 \pm 0.6	+ 0.3	1.18NS
Fat free mass (kg)	39.9 \pm 1.1	41.1 \pm 1.1	+ 1.2	5.90**

Table 5. Effect of nutritionally balanced weight loss diet intervention on body composition of females

Body composition	Mean \pm SE			Paired 't' value
	Before intervention	After intervention	Increase/decrease after intervention	
Body Fat (%)	33.83 \pm 4.6	32.2 \pm 4.5	- 1.59	3.73
Fat mass (kg)	27.4 \pm 1.5	24.5 \pm 1.4	- 2.9	7.51**
Total body water (kg)	30.9 \pm 0.6	31.2 \pm 0.6	+ 0.3	1.18NS
Fat free mass (kg)	39.9 \pm 1.1	41.1 \pm 1.1	+ 1.2	5.90**

** = Significant at 1% Level

NS- Non-Significant

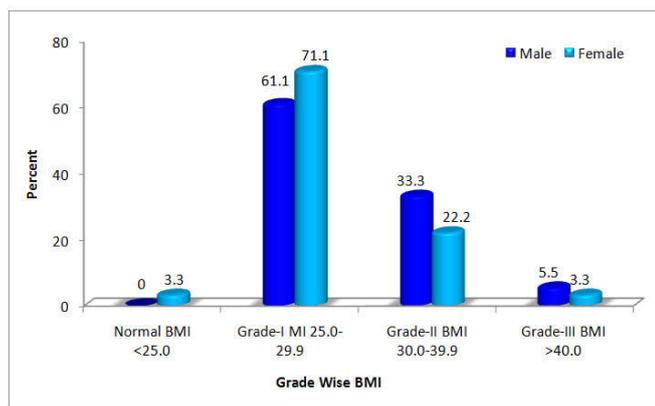


Fig. 1. Distribution of subjects with respect to grade wise BMI

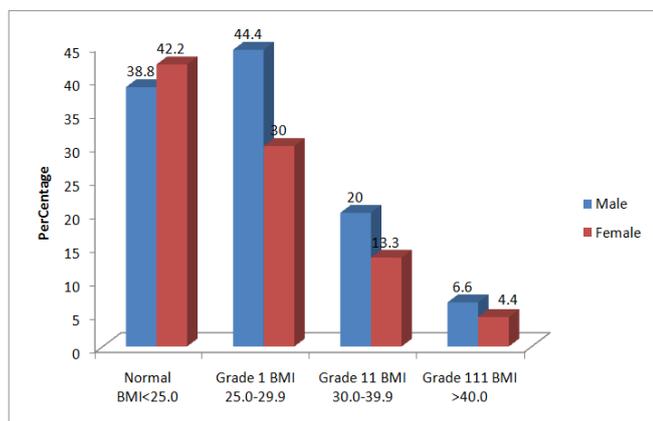


Fig. 2. Distribution of subjects after treatment with respect to grade wise BMI

Intervention and post intervention phase

This phase was fundamentally the execution phase in which the nutritionally balanced weight loss diet (personalized plan) were given to the subjects. It provides enough energy to meet the person's metabolic needs and activity level. It includes a balanced variety of foods, but limits of carbohydrates and fat. A Nutritionally balanced weight loss diet helps to reduce half to one kg weight per week. In the present study, diet plans were prepared for one week according to the energy requirement of the subjects for weight loss and then given to the subjects. Results revealed that greater percent of the subjects (70 per cent) lost half kg weight in the first week, so similar diet plan was given for next week whereas 30 per cent subjects did not lose weight, Table 3 presents the grades of obesity in male and female subjects after treatment. It was observed that the number of male subjects with normal BMI increased 38.8% and female subjects with normal BMI increased to 42.2% as compared to 3.3% before treatment. Similarly subjects in Grade 1 were 37.7% as compared to 66.1% before treatment. On the other hand percent of subjects suffering from Grade 11 obesity fell from 27.7% to 16.6% after treatment, also in Grade 111 from 3.8% to 5.5%. Electronic muscle exerciser was also used to exercise the muscle by passing an impulse through the muscle, which stimulates the muscle (motor nerves control muscle activity). Results pertaining to effect of nutrition complete life style modification programme as obtained in present study are given above:

Table's exhibits that fat free mass of the male subjects increased from 39.9 ± 1.1 at pre intervention to 41.1 ± 1.0 kg and female subjects increased from 37.9 ± 1.1 at pre intervention to 39.1 ± 1.1 at the end of the study. Thus, in the present investigation, there was an increase in the fat free mass with the subsequent decline in the body fat, as a beneficial impact of electronic muscles exercise and nutritional balanced weight loss diet. Results of fat mass of the male subjects decreased from 24.5 ± 1.5 at pre intervention to 21.5 ± 1.4 kg and fat mass of the female subjects decreased from 27.4 ± 1.5 at pre intervention to 24.5 ± 1.4 kg. Results of TBW of the subjects calculated before and after the intervention showed slightly higher value in both subjects 31.2 ± 0.6 kg were found at the end of the intervention.

Conclusion

The findings of this study demonstrate that effectiveness of nutrition and complete lifestyle modification package on nutritional status of overweight adult people weight reduction by using diet, active exercise and electronic exercise has a positive effect on body weight in people with overweight and obesity. Although exercise alone improved weight loss only marginally, when combined with nutrition and complete lifestyle modification programme the amount of weight loss achieved with exercise increased substantially. The diet and exercise programs produce a 3-5 fold greater change in body composition than exercise program. It can be thus concluded that weight loss can be brought about by exercise and diet. For sustained weight loss along with exercise and diet behaviour modification is required.

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