

# Effectiveness of naturopathic diet in weight reduction among obese women

**Bhagya D**

Received: 11 May 2014 / Received in revised form: 21 January 2015, Accepted: 22 January 2015, Published online: 29 June 2015  
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## Abstract

Weight gain and obesity are posing a great threat to the health of women giving rise to various complications; hence ways and means of reducing the occurrence of obesity needs to be explored. Naturopathy is one of the systems that provide a positive solution for obesity. One hundred obese women in the age group of 25-50 years were selected by random sampling from naturopathic hospitals in Trivandrum district. Naturopathic dietary regimen comprised of three phases- fasting phase, fast breaking phase II and III respectively. The naturopathic treatment rendered to obese volunteers brought about significant changes in anthropometric indices as well as biochemical parameters viz blood glucose, total cholesterol, HDL and LDL which was found to be significant at 1% level using t test. The vegetarian diet seems to have positive influence on health, nutritional status, life expectancy and morbidity rate.

**Key words:** Naturopathy, Weight reduction, BMI, lipid profile, vegetarian diet

## Introduction

Obesity is a global health concern associated with high morbidity and mortality in adults. Obesity is related to life style diseases, endocrine and metabolic diseases as well as psychological issues (Sanjay and Unnikrishnan 2012). Being overweight is a cosmetic issue, a major health risk factor and may decrease life expectancy (Imperial college London 2014; Koithan 2009). A proliferation of high cost anti-obesity products is in the market which may exhibit side effects. Nature cure is just a way of life and a drugless treatment method without any side effects. Naturopathy considers obesity to be less about diet and more about correcting underlying imbalance through life style change that supports long term sustainable health optimization through six fundamental principles viz let nature heal, identify and treat cause first, do no harm,

## Bhagya D\*

Dept. of Home Science, St. Joseph's College for Women,  
Alappuzha, Kerala, India-688 001

\*E- mail: bhagyadp81@gmail.com

educate and treat the whole person and prevent illness. Naturopathic treatment is oriented to facilitate patient self-healing and guide patients to develop a healthier life style. Natural ingredients and medicinal plant preparations may enhance satiety, boost metabolism and speed up weight loss (Mahnaz et al. 2012). Therefore this study was carried out to find the effectiveness of the naturopathic diet among obese volunteers.

## Materials and Methods

The study was carried in selected naturopathic hospitals in Trivandrum district in Kerala state in India. The samples selected for the present study include obese women who were planning to undertake nature cure treatment for 35 days. Ethical clearance was obtained from the institutional ethics committee. Informed consent was obtained from the obese volunteers. Hundred obese women between the age group of 25-50 years were selected. The samples were sub-sampled to 20 for biochemical assessment by means of random sampling method. Interview schedule was selected as the tool. A pilot study was conducted to check the effectiveness and feasibility of the tool. Interview schedule was used to collect the information on foods habits, health status, anthropometric measurements and diet survey. The methods selected for the present study were Anthropometric measurements, biochemical methods and 24-hour recall method. Anthropometric measurements such as height, weight, W/H ratio, MAC and BMI of obese women before and after nature cure treatment were measured. The height was measured in centimeters and weight was measured using standard weighing balance. The waist circumference, hip circumference and mid arm circumference was measured using a measuring tape.

For the biochemical estimation 3 ml of the fasting blood from each subject was collected. Anticoagulants were added. The serum was separated by keeping the blood samples at room temperature then centrifuged for 10 minutes. Serum was separated using a pipette. Blood parameters like blood glucose (Asatoor and King method 1954), total cholesterol (Zaks method 1954; Shankara 2008) HDL and LDL cholesterol (Varley 1980) were analyzed. In 24-hour recall method

standard cups, spoons and glasses were used. The quantities of food consumed were recalled. The nutrient intake during the fasting phase (six days), fast breaking phase (12 days) and third phase (17days)of dietary treatment was studied. To study the impact of naturopathic treatment on anthropometric parameters, biochemical parameters and nutrient intake t-test was employed at  $P < 0.01$ . Correlation was used to find the effects of nutrient intake on BMI.

## Results and Discussion

Naturopathic medicine is a philosophy-based, whole medical system. The naturopathic treatment approach frequently includes important dietary and lifestyle recommendations included in current medical treatment guidelines for diabetes and hyperlipidemia, although improvements can be made on the precision of recommendations. Nutritional and botanical supplements are frequently prescribed, and evidence is growing for their value in treatment (Ryan 2006).

Table 1: Mean BMI of obese women before and after naturopathic treatment

Parameters	Before		After		t
	Mean	SD	Mean	SD	
Height (cm)	156.04	-	-	-	-
Weight (Kg)	78.34	10.29	69.23	7.76	7.03
BMI(Kg/m <sup>2</sup> )	32.12	3.84	28.26	2.79	8.08

$P < 0.01$

Naturopathic diet was found to be beneficial in exerting a significant decrease in BMI from 32.12 to 28.26 thereby reducing the morbid obesity (Table 1). This may be due to the increased thermogenesis and increased BMR due to the intake of natural products (Koithan 2009).

The body fat distribution was also decreased indicated by the decrease in waist to hip ratio and MAC which indicates the therapeutic and nutraceutical effects of weight reducing foods used in the treatment phases shown in Table 2. The mean value of W/H ratio was reduced from 0.84 to 0.81 after nature cure treatment. The MAC also showed significant decrease from 30.56 to 27.78cm which indicates positives effects of nature cure treatment on adiposity.

Table 2: Mean values of W/H ratio and MAC among obese women before and after naturopathic treatment

Parameters	Before		After		t
	Mean	SD	Mean	SD	
Waist to hip ratio	0.84	0.02	0.81	0.01	9.252
Mid arm circumference(cm)	30.56	2.01	27.78	1.91	9.992

$P < 0.01$

Before nature cure treatment the blood glucose and LDL cholesterol was found to be significantly higher 115.95mg/dl and 235.95mg/dl respectively. After the nature cure treatment the blood glucose, serum cholesterol and LDL levels were significantly restored to normal (Oberg et al. 2012) and HDL levels were increased as shown in Table 3 which indicates the reduction in complications associated with obesity indicating improved insulin sensitivity. The vegetarian diet seems to exert a positive influence on lipid profile especially by increasing the levels of good cholesterol and decreasing the bad cholesterol significantly by fat oxidation.

Table 4 shows the dietary regimen during treatment phase and mean nutrient intake of obese women before and after nature cure treatment. The dietary regimen consisted of three phases. It was found that the low calorie diet was gradually modified in

consistency as well as nutrient content to meet the changed metabolic demand and subject tolerance.

Table 3: Mean values of biochemical parameters of obese women before and after naturopathic treatment

Parameters	Before		After		t
	Mean	SD	Mean	SD	
Blood Glucose (mg/100ml)	115.95	12.13	97.16	10.99	11.423
Serum Cholesterol (mg/100 ml)	278.95	7.72	173.29	13.79	66.51
HDL (mg/100ml)	43	2.20	59.65	5.56	27.72
LDL(mg/100ml)	235.95	7.88	193.64	12.19	82.83

$P < 0.01$

Table 4: Mean nutrient intake of obese women before and during treatment phase

Nutrients	Mean Nutrient Intake			
	Before	After		
		Initial Phase	Middle Phase II	Final Phase III
Calorie(Kcal)	2467.06	468	689	1012
Protein(g)	72.72	8.0	20	37
Fat(g)	48.50	9.4	12.6	16.3
<i>Sugars</i>				
Carbohydrate(g)	518	160	209	365
Fibre(g)	11.18	9.6	11.2	14.6
Calcium(mg)	454.10	420	560	898
Iron(mg)	23.13	12.5	14.73	29.6
Betacarotene(μg)	1706.38	1720	1850	2430
Thiamine (mg)	1.30	0.7	0.9	1.1
Riboflavin(mg)	1.19	0.3	0.6	1.0
Niacin(mg)	2.78	1.5	8.7	13.3
Vitamin C(mg)	68.84	95	148	293

The dietary treatment commenced with a fasting regime which consisted of fluid diet which was given mainly to eliminate the extra sodium retained in the body. During the fasting phase, a juice fast diet comprising of 300 ml fruit juice/ vegetable juice/buttermilk were consumed by obese women per meal. There was no cereal, pulse, flesh foods, roots and tubers, leafy vegetables, fats and oils and sugar intake. Ash gourd was used during fasting phase since it was found to be effective in reducing discomforts in the digestive system and in the elimination of toxins through urine since it is alkali forming. Honey, Pineapple and lime were found to be anti-inflammatory. Honey and coconut water were used daily during this phase since they are effective diuretic agents. The grapes contain antioxidant quercetin, effective in reducing blood glucose level. Carrot juice was found to be effective in reducing fat since it is reported to have cholesterol lowering effect.

During phase II, in addition to the liquid foods offered during first phase, boiled vegetables (300g/ meal), leafy vegetables (50g/meal) and sprouted gram (50g /meal) were included. During fast breaking phase II, the diet had additional bulk which has a feeling of fullness to the obese women. According to Bakhru (2004) carrot juice, banana stem, banana flower juice, lime juice mixed with honey, fennel, tomato, sprouted gram containing lecithin, cabbage containing tarttronic acid which inhibits the conversion of sugar into fat and gefarnate content which is antiulcer drug were found to be weight reducing foods. Before treatment phase, the mean nutrient intake of calories, carbohydrate and fat was found to be high and the fibre, iron and beta-carotene intake was found to be less which was reversed after the treatment phase which

indicates a change in the life style and inculcation of healthy eating habits among the obese women. During third phase of treatment, in addition to the foods included in the first and second phase 250g of cereals were also included. The diet was almost normal but low in calories. According to Shelton (1995) the kuthari rice (rice rich in bran) was found to be low in fat, cholesterol and salt content. During the treatment phase beverages, flesh foods, sugar, salt, oil and appetizers like tamarind, chillies, pepper, onion and asafoetida were not used since the natural taste of wholesome foods are obscured and they are considered as tamasic foods. Sprouted pulses were used by all subjects other than the fasting phase instead of whole pulses since they were found to be greater in all B vitamins, minerals and fibre.

The body mass index was found to be positively correlated with calories ( $r = +0.168$ ) and fat ( $r = 0.046$ ) and negatively correlated with fibre ( $r = -0.033$ ). The main aim of the treatment was to cut down the calories and to promote good health. The high fibre diet was found to exert a beneficial effect on weight reduction and ameliorating associated complications.

### Conclusion and recommendations

The naturopathic diet rendered to the obese subjects have brought about significant changes in the BMI, W/H ratio, MAC as well as biochemical parameters viz blood glucose, serum cholesterol, LDL and HDL. The diet seems to exert a positive influence on weight reduction, lipid profile and ameliorating associated complications. The beneficial role of naturopathic diet in weight reduction may be due to proposed mechanisms viz improving insulin sensitivity, boosting the BMR and stimulating thermogenesis which speed up the weight loss. The weight reducing foods used in the dietary intervention have shown therapeutic effects. Thus the weight reduction achieved through the naturopathic diet paved a way for weight reduction and the risk of associated diseases when followed meticulously.

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