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Effect Of Sathwik Diet And Fast Food Diet On Lipid Profile Of Obesity Individuals - A Food Comparative Pilot Study

Garima Malani (BNYS,)

Shashikiran H C (BNYS, MD)

Prashanth Shetty (BNYS, Msc, PhD)

Ajith K (Msc)

Abstract:

Background: Lipid profile is the collective term given to the estimation of, typically, total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and triglycerides having a morbid relation with weight. The present study was designed to investigate about the comparative study of lipid profile levels in sathwik diet and person having fast foods.

Materials and methods: A total of 30 obesity subjects within the age of 25 to 40 years were selected for the study. Subjects who had fulfilled the inclusion and exclusion criteria were appraised the purpose of the study and their rights as, research subjects. An informed consent form was administered in English (sample information sheet and consent forms are enclosed as annexure) before the commencement of study. Two groups were made. The first group (group A) was under fast food diet for 10days.The second group (group B) was under sathwik diet for 10days.The assessments were done before and after the intervention.

Results: There is a significant change in the lipid profile of sathwik group compared to the fast food group. The mean values of overall lipid profile are lower in sathwik group than the fast food group.

Conclusion: The present study concludes that there is more changes in the pre and post lipid profile assessments of sathwik food than the fast food group.

Keywords: Sathwik diet, fast food, Lipid profile

I. INTRODUCTION

Diet‖ refers to the foods we eat. ―Nutrition‖ is a term that refers to properly absorbing food and staying healthy. A well-balanced diet with adequate intake of protein, carbohydrates and fat, as well as vitamins and minerals, is necessary for nutrition. This can be achieved by eating a variety of foods from all the food groups. Meat, fish, poultry and dairy products are sources of protein. Bread, cereal, starches, fruits and vegetables are sources of carbohydrates. Butter, margarine and oils are sources of fat [1]. Mitahara or sathwik diet in hatha yoga pradipika is described as sweet food leaving one fourth of the stomach free and eaten as offering to please shiva. Sweet food means fresh, pleasant tasting food not which has extra sugar. Mitahara means sathwik food or light food which is easy to digest. We should eat regular meals with fasting to stimulate the digestive system. The most conductive foods for yogi is good grains, wheat rice, barley, milk, ghee, brown sugar, honey, dry ginger, patola fruit, five vegetables, mung, such pulses, and pure water[2]. Junk food diet or fast food diet refers to food that consists lots of calories and has value. They have low satiation value; these mostly contain high sugar or high fructose corn syrup and white flour or milled corn. Popular snack foods are usually commercially prepared and packaged, like chips, cheese puffs, candy bars, snack cakes, and cookies.

Sathwik diet dates back to a time before recorded history. Many anthropologists believe that early humans ate mainly

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plant foods, being more like gatherers than hunters called as vegetarians. According to them, the natural diet of man consists of fruits, nuts and grains, and not meat [3]. This view is supported by the fact that the human digestive system resembles that of other plant eaters rather than meat eaters [4]. Vegetarianism involves the practice of following a diet that includes fruits, vegetables, cereals and grains, nuts and seeds with or without dairy products [5].

The lipids are a heterogeneous group of compounds including fats, oils, steroids, waxes, and related compounds. Lipids such as cholesterol and triglycerides are essential substrates for many body processes. Cholesterol is a structural component of cell membranes and nerve sheaths and is required for the synthesis of steroid and adrenocortical hormones and bile salts. Triglyceride is required as an energy source, its constituent fatty acids and glycerol either being immediately metabolized or reconstituted into triglycerides and stored to meet future energy needs [6]. A total cholesterol measurement captures cholesterol contained in all lipoprotein fractions. 60 - 70% is carried on LDL, 20- 30% on HDL, and 10- 15% on VLDL. Clinical studies have consistently shown that a high serum cholesterol level is a key cause of CHD, stroke and mortality. Populations that consumed diet high in saturated fatty acids (SFAs) had increased blood cholesterol levels [7]. Hence this study is done to compare the sathwik diet and fast food diet.

II. METHODOLOGY

Thirty healthy subjects (male-7 and female-23) from SDM Nature cure hospital, Ujire, Karnataka were recruited for the study.

Criteria for diagnosis

Since the study involved healthy obesity volunteers having BMI more than 25, age group between 25 to 40 years, both the genders in inclusion criteria and smokers, alcoholic, diabetes mellitus, familial hyperlipidemia are excluded.

Ethical consideration**:** The information sheet having details of the study being conducted was given to the subjects. They were allowed to ask free questions about the study. After their willingness to undergo the experiment, they were asked to sign the informed consent form. The study protocol was approved by the institutional ethical committee of Sri Dharmasthala Manjunatheshwara College of Naturopathy and Yogic Sciences (SDMCNYS), Ujire.

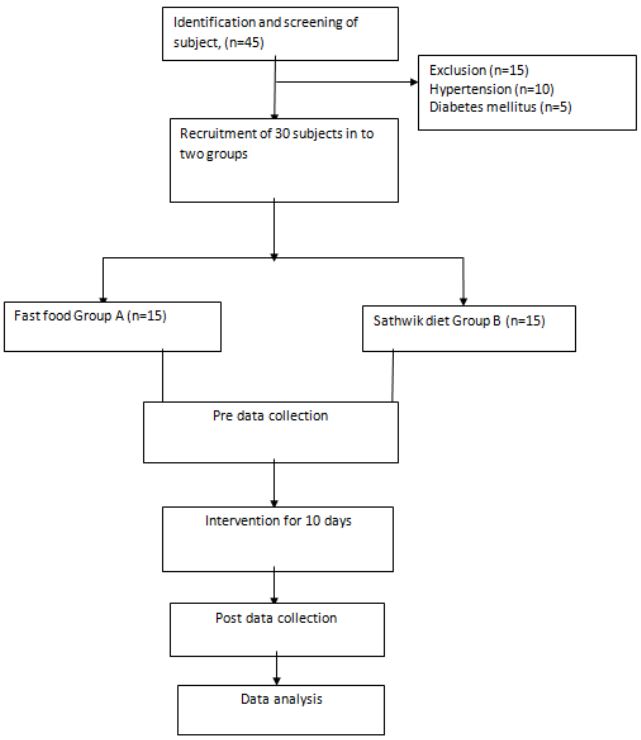
Setting for intervention and assessment

The first group (n=15) was given only vegetarian diet for 10 days in SDM Nature cure hospital, Shantivana and the second group (n=15) was given fast food diet for 10 days in Prakruthi ladies hostel. Pre assessment and post assessment were taken in Research laboratory, of the SDM Nature cure hospital. The pre assessment was taken before the intervention on the first day and post assessment was taken at the end of the tenth day.

Study design

The patients from SDM Nature cure hospital were screened for the study. After the clinical assessment, thirty subjects who fell under inclusion criteria were selected for the study. Thirty subjects were allocated then divided into two groups (group A=15 and group B=15).Group A subjects were given fast food and group B subjects were given vegetarian foods for 10 days.

Illustration of Study Plan:



INTERVENTION

Diet intervention: Group A (n=15) subjects were under fast food diet for 10days and group B (n=15) were under sathwik diet for 10days.

ASSESSMENT

Lipid profile test

Lipid profile is a group of blood tests which are carried out to determine the risk of coronary artery diseases (CAD).Results of lipid profile are considered as good indicators of whether someone is prone to develop stroke or heart attack, caused by atherosclerosis. In order to plan the course of treatment, the results of the lipid profile are correlated with age, sex and other risk factors of heart disease.

Tests included in lipid profile are total cholesterol, triglyceride, HDL, LDL, VLDL and total cholesterol-HDL ratio.

Measurements and Blood Collection

A total of 30 samples i.e. Blood (in sterile sample bottles) were collected. Subject need to fast for 9-12 hours before having the blood drawn; only water is permitted. For the estimation of biochemical parameters 5 ml of fasting venous blood was drawn from the respondents by a trained lab technician. The blood drawn was allowed to coagulate, the serum was extracted by centrifuging and used for biochemical estimation.

The pre and post data were collected after lipid profile assessment. The assessments were done before and after the intervention. The data later were arranged in Microsoft Excel sheets for statistical analysis. The statistical analysis of the data was done with the use of Statistical Package for Social sciences (SPSS) version 16.

III. RESULT

All the values are expressed as Mean±Std, p-value obtained from t test. The results of the pre-post comparisons for the groups are detailed below:

PARAMETERS	Mean value ± Std. Dev (pre)	Mean value ± Std. Dev (post)	p-value
T. Cholesterol	163±25.91	162±27.71	0.91
Triglyceride	83.86±19.40	83.53±11.23	0.96
HDL	54.93±11.42	57.733±11.84	0.5
LDL	90.66±22.61	86.4±21.9	0.6
VLDL	16.7±3.87	16.69±4.208	0.9

Table 1: Baseline assessment and post assessment of group A (fast food diet)

PARAMETERS	Mean value ± Std. Dev(pre)	Mean value ± Std. Dev (post)	p-value
T.Cholesterol	171.86±33.16	159.66±26.13	0.2
Triglyceride	138.2±52.70	124.66±58.55	0.5
HDL	41.26±8.58	38.86±9.61	0.4
LDL	103.4±35.54	96.33±28.35	0.5
VLDL	27.66±10.58	25±11.74	0.5

Table 2: Baseline assessment and post assessment of group B (sattwic diet)

IV. DISCUSSION

Present study showed some differences in lipid profile (Total cholesterol, Serum triglyceride, Serum HDL, Serum LDL, and Serum VLDL) between sathwik diet and fast food diet people. However, it should be noted that while screening, few subjects included in the study were vegetarians and were at a risk of being overweight or obese than fast food people.

In addition, there were larger number of females than males in the study. The mean score of the pre and post intervention assessments showed some changes. The post assessment of total cholesterol, Serum triglyceride, Serum HDL, Serum LDL, and Serum VLDL were lower as compared to pre assessment in case of vegetarian group. The post assessment of Serum HDL and Serum VLDL of sathwik diet became non significant than the pre assessment but Total cholesterol, Serum triglyceride, Serum LDL are lower in post assessment than the pre assessment. There are more significant changes in vegetarian group than the fast food diet. It is found that the vegetarian group had lower post mean total cholesterol than the fast food diet group. Most epidemiological studies on the lipid profile of vegetarians and fast food diet concluded that vegetarians had a favorable lipid profile than non-vegetarians [8, 9]. This study hypothesized that there will be no significant difference between lipid profile of vegetarians and fast food diet. Results from the present study support the hypothesis Consumption of fruits and vegetables has consistently been inversely associated with risk of CVD and this has been confirmed by meta analyses [10, 11, 12]. The life style incorporating exercise and stress management training, targets the elevated lipid through integrated approaches resulting in improved lipid profiles [50]. Dietary modification is essential for controlling elevated cholesterol levels. Reduction in the overall intake of fats from red meat, dairy products and processed foods remain important in controlling cholesterol and triglycerides [51]. The overall results have shown that sathwik diet is a very safe and beneficial tool in helping patients to improve their lipid profile.

V. LIMITATIONS OF THE STUDY

Larger sample size would have given more authenticated results and limited duration of the study and this study did not involve a strictly-controlled diet analysis (Food record). A well conducted diet analysis would have provided a representation of the amount, type, and composition of nutrients (proteins, fats, and carbohydrates) consumed by the subjects and there is no conflict of interest.

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