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Role of Functional Foods in Reducing Obesity and Related Complications

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Abstract: Today's world is running with newer kind of diseases Some are acute and some are chronic in nature. For optimal health we consider that food must be safe, containing macronutrients and micronutrients but it is now replaced by the fact that it is necessary to examine the role of diet, especially its non nutritive components in reducing chronic diseases. The new wave of diet based disease prevention is on the rise and hence, some knowledge of this new front of nutrition is necessary. Foods contain nutrients that work as "Nutraceuticals" are substances that may be considered as food or part of a food and provides medical or health benefits, including the prevention and treatment of diseases. Since 1989, this field has been grown rapidly as well as the terms used to describe it, namely, pharmafoods, smart foods, phytofoods, therapeutic foods, genetically engineered foods and functional Foods. The role of functional foods was studied in reducing obesity and found that fibers and fruits containing antioxidant were successful in reducing obesity
Key words-functional foods, neutraceuticals, pharmafoods, phytofoods

Good health and positive mind is a primary goal of every country. A country runs lot of progamme to attain. Earlier for optimal health- food that contains macronutrients and micronutrients is considered is now replaced by the fact that it is necessary to examine the role of diet, especially its non nutritive components in reducing chronic diseases. In India we have been blessed with Ayurveda, unani and such traditional medicines which were the backbone of medical practice and primary health care before the advent of allopathy. India has been blessed with a wealth of herbs and spices and their use needs to be optimized in maintaining the overall health. But it appears that we have lost our faith in this traditional form of prevention and cure.

Functional foods is a new wave of diet based disease prevention.. In 1989, Dr Stephen Defelince coined the term "Nutraceuticals" to refer to any substance that may be considered as food or part of a food and provides medical or health benefits, including the prevention and treatment of diseases. Since 1989, this field has been rising rapidly .The terms used to describe it, are, pharma foods, phyto foods, smart foods, therapeutic foods, genetically engineered foods and Functional Foods. This study was based on functional foods and its role in reducing obesity and related complications in different age.

I. METHODS AND MATERIALS

To know the effect of different Functional foods on obesity and it's complications a study was carried out in Diabesity center of Arera Colony in Bhopal city of Madhya Pradesh in India.50 obese patients of age between 30 -50 year were chosen as respondents ,who are agree to take prescribed diet. The prescribed diet was given for three months and data was collected after necessary examination. . Data was collected through dietary recall and laboratory examination. The samples of random blood sugar ,total cholesterol, HbAIc were recorded and analyzed. For study five groups of functional foods were made and each group was given to ten respondents of different age group..

Group1.(Dietary fiber rich foods)- The foods rich in fiber were selected such as oats wheat bran, jowar, ragi and apple. This diet prescribed 30 gram fiber for 10 patients of each age group.

Group2.(omega -3 rich foods)-nuts which are rich in omega -3 and 6 fatty acids were included. Walnuts ,flex seeds, almonds soy oil were grouped were given to ten another selected respondents from each age group. This diet contains 20 grams flex seeds,40 gram walnuts,30 gram almonds per day in different recopies in whole day.

Group3.(antioxidant rich foods) antioxidant containing veges and fruits were selected. Orange, grapes, green tea, carrot pumpkin, were selected. The antioxidants taken for study were Flavnoids, Lycopene, β carotene, zeaxanthin, Vitamin E. This diet was given another ten respondents of each age group. This diet contains 250 gram of flavinoid rich foods and 300gram of lycopene rich foods per day.

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Group 4.(Protein rich food)-These products are rich in protein and protein itself a functional food so Soya flour, soy milk, tofu, soya curd soya granules and soya nuggets et care subjected to fourth group of functional foods. This diet contains 150-200 grams soy products daily.

Group 5(vitamin rich foods) – this group contains foods that are basically rich in vitamin A, vitamin B1 (thiamine), vitamin B2(riboflavin), vitamin B3 (niacin), vitamin C. This group mainly contains, milk, egg, carrot, spinach, sweet potato ,lentils, peas, brown rice, pistachios, , green leafy vegetables, nuts, fish, amla, guava, kiwi, strawberries, red and green bell pepper & all citrus fruits. These foods are termed as group 5 foods and are included in the diet regime of last 10 remaining respondents. This diet contains 400grams vitamin rich foods.

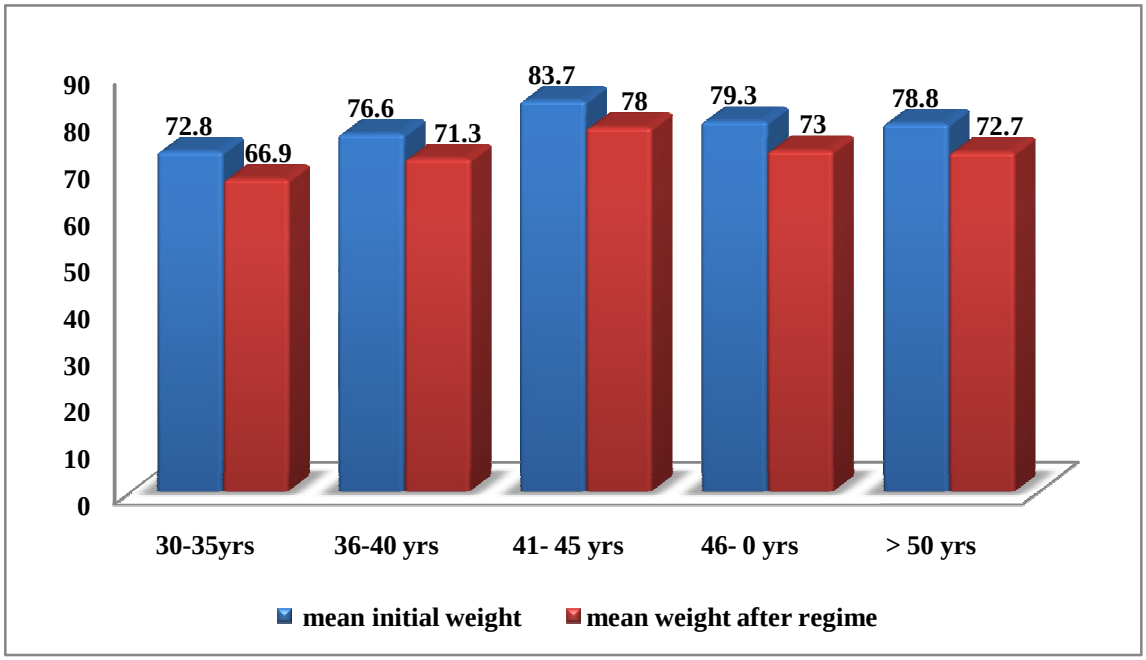
II. RESULT AND DISSCUSION

Data was collected before the prescribed diet .The diet was given for three months .After that assessment was done. The results were found as follows.

Table No.1. – Mean weight loss achieved by the obese respondents

Age group	Mean initial weight(Kg)	Mean weight after prescribed diet regime(Kg)	Weight loss achieved (Kg)
30 yrs – 35 yrs	72.8	66.9	5.9
36 yrs – 40 yrs	76.6	71.3	5.3
41 yrs – 45 yrs	83.7	78.0	5.7
46 yrs – 50 yrs	79.3	73	6.3
➢ 50 yrs	78.8	72.7	6.1

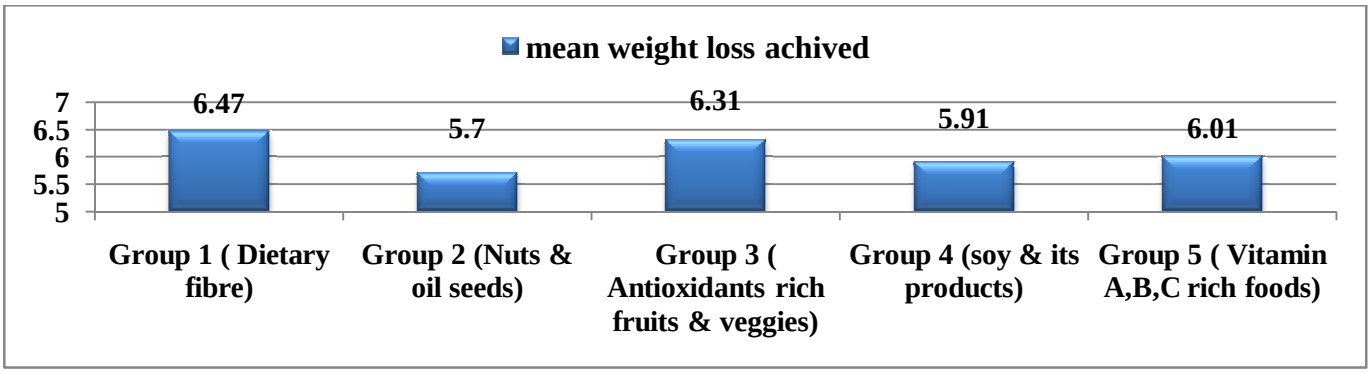
Chart no. 1-Difference in mean weight loss



The maximum weight reduction was recorded in 46-50 year age group, followed by greater than 50 years age group. The minimum weight reduction was recorded In 36-40 year age group .

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Chart2. Effect of food groups in reducing weight.



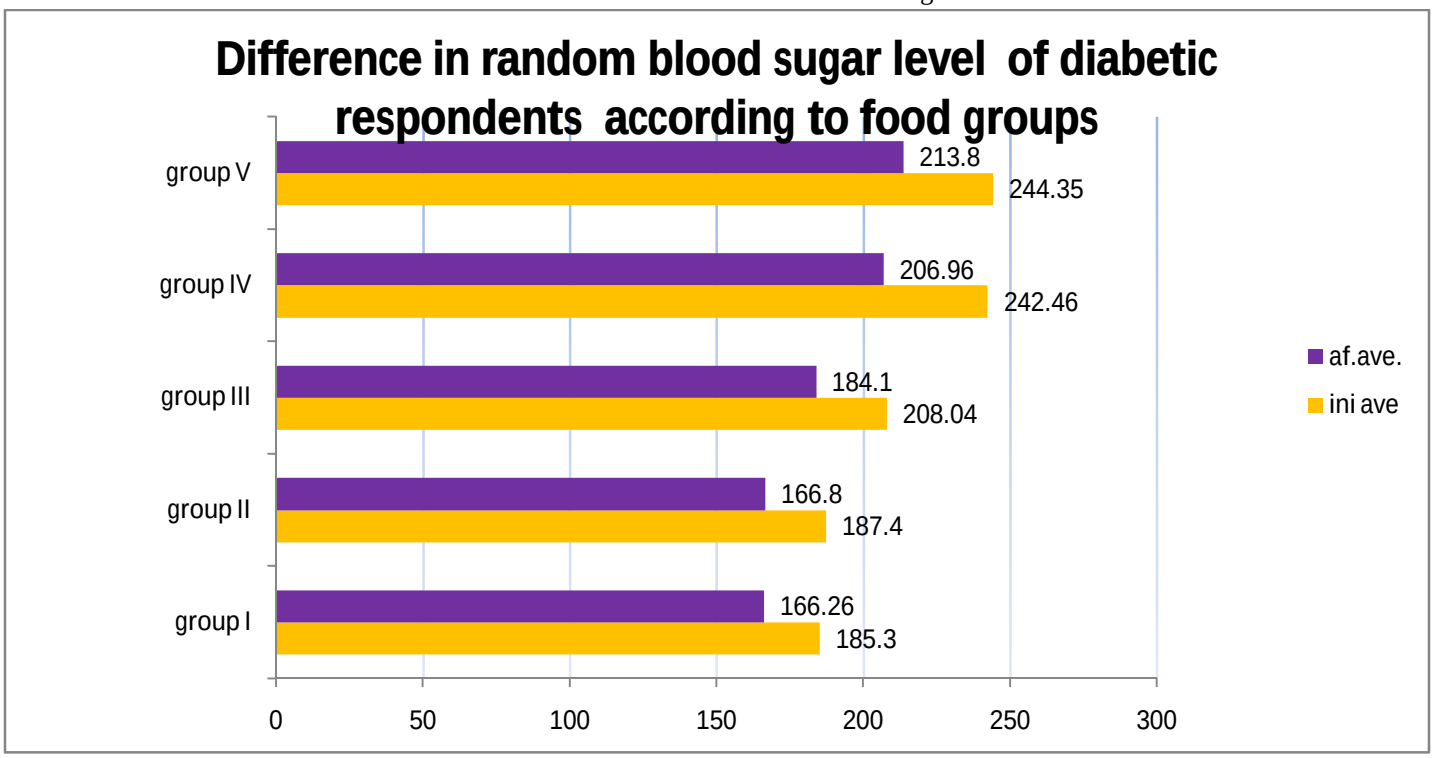
It was recorded that maximum weight loss was recorded in respondents having food group I i.e.6.47Kgs followed by group III i.e.6.31Kgs. The minimum weight reduction was recorded in group II i.e. 5.7 kgs.

Table no 2- Age group wise reduction in random blood sugar level of diabetic obese.

Age group	Mean initial RBS	Mean RBS after following prescribed diet
30 yrs – 35 yrs (4)	182.6	164.75
36 yrs – 40 yrs (2)	189.5	167.5
41 yrs – 45 yrs (5)	221.3	186.8
46 yrs – 50 yrs (3)	211	190.4
➢ 50 yrs (6)	214.3	189.8

Ttwenty respondents were recorded diabetes with obesity. The change in random blood sugar level was studied. It was found that maximum reduction of RBS was recorded in 41-45age group followed by 46-50 age group.

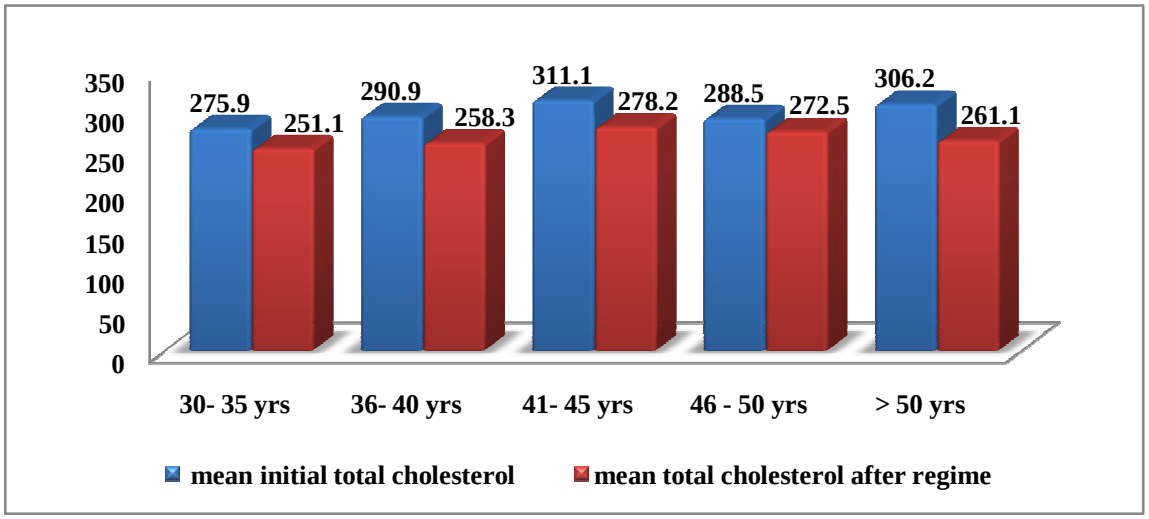
Chart no. 3 –Effect of functional foods on Random Blood Sugar level of Diebetics



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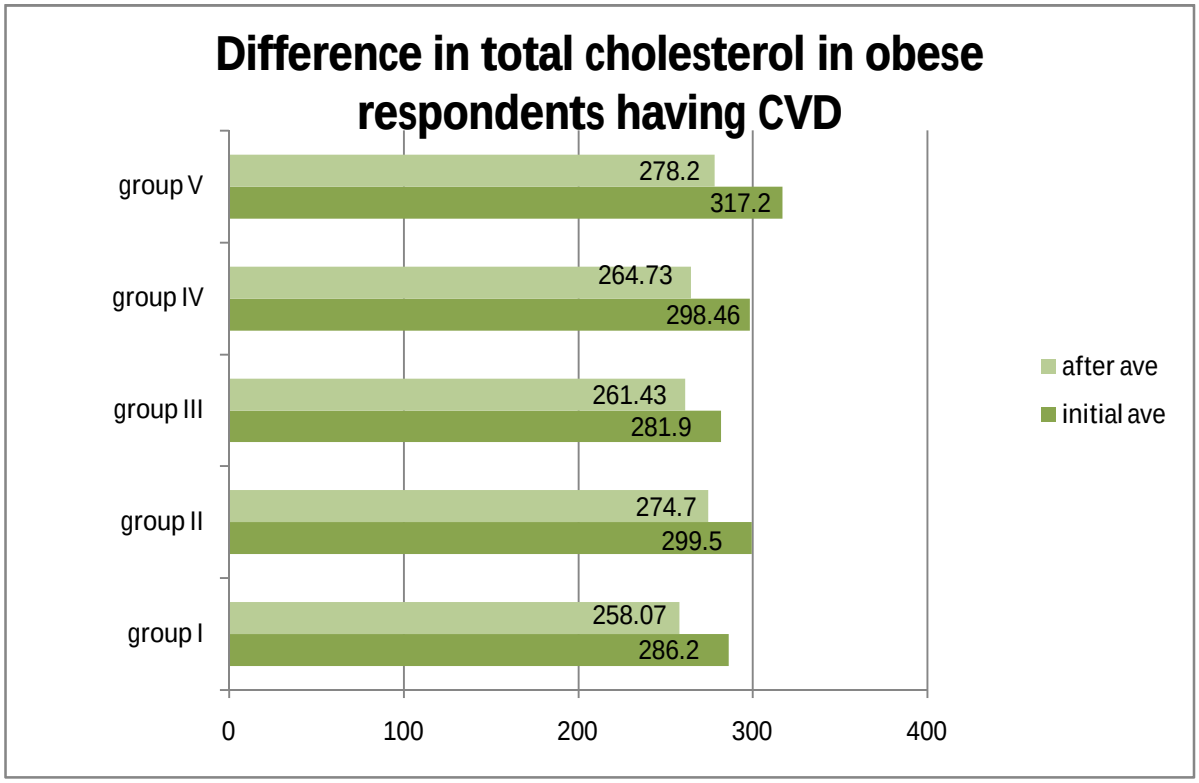
The effect of Functional foods was studied on Random Blood Sugar Level of diabetic respondents. Maximum reduction in Random blood sugar was recorded in respondents taking group IV functional foods followed by group V.

Chart no 4–Reduction in total cholesterol level of obese respondents having CVD



There are fourteen respondents were having heart problems. There total cholesterol was recorded. It was found that maximum reduction of total cholesterol was recorded in age group greater than 50 years years , followed by 41-45 years.

Chart no 5- Effect of functional food group in obese CVD respondents



There are fourteen obese respondents who also have Cardiovascular diseases. The effect of functional foods on total cholesterol was studied. It was found that maximum reduction of cholesterol was recorded in respondents who are having group V functional foods followed by group IV.

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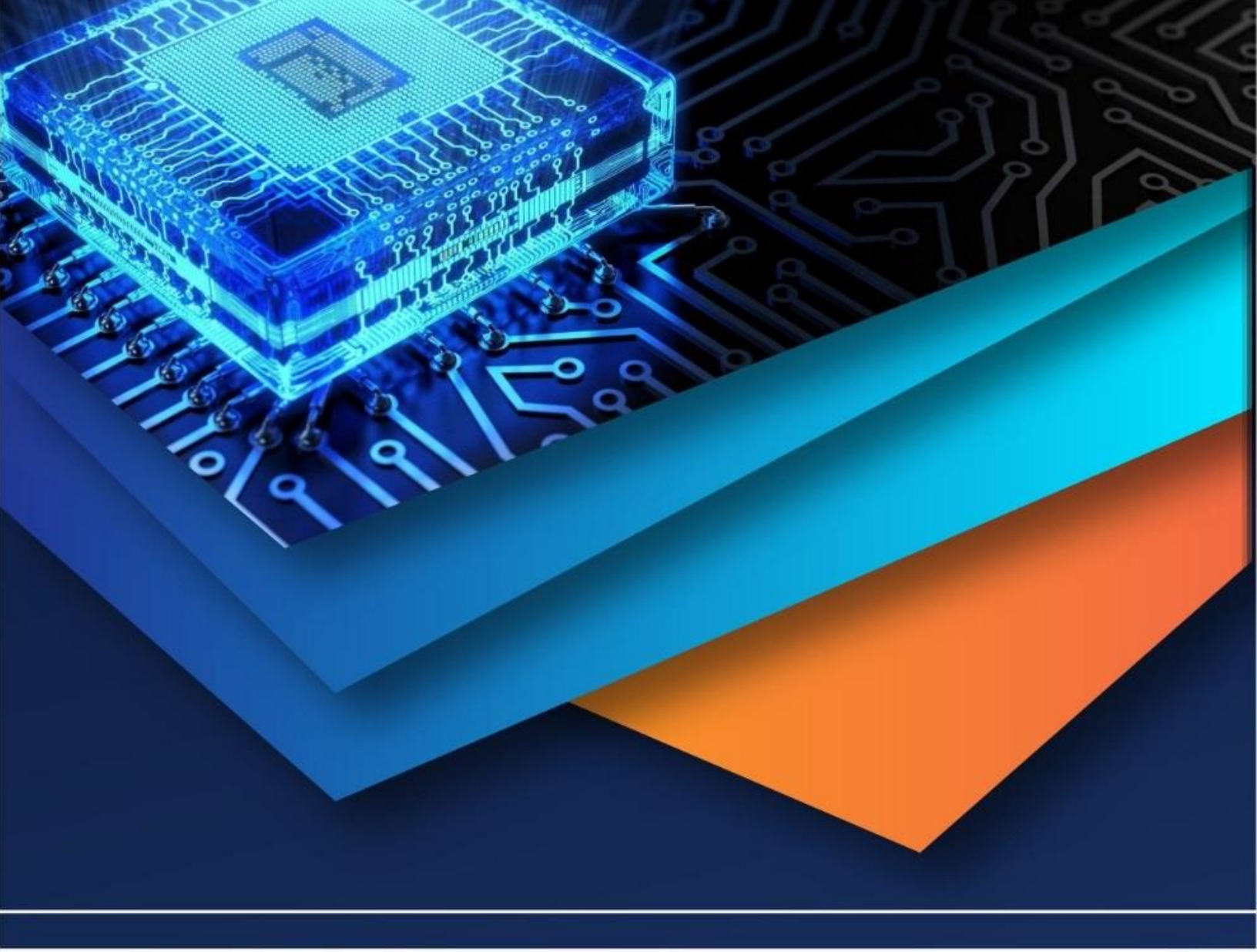
III. CONCLUSION

This study concluded that weight reduction can be achieved by adding dietary fibers and antioxidents containing foods. However it was recorded that antioxidant rich foods also contain soluble and insoluble fibers. In obese diabetics blood sugar level can be controlled by adding protein and vitamin indiet. It was concluded that age 41-50 years is well responded to functional foods.

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