

The Effective Role of Dietary Fiber in the Purspective of Prevention of Lifestyle Diseases

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Introduction of Lifestyle Diseases or Non Communicable Diseases:

Many life style diseases are arising over the world. These are the types of non-communicable diseases. It consists of Diabetes, Coronary heart diseases, cancer, many digestive diseases etc. According to WHO, this is the ERA of non-communicable diseases which is very genuinely structured by changed modern life styles of individuals. The world's biggest killer is ischaemic heart disease, responsible for 16% of the world's total deaths. Since 2000, the largest increase in deaths has been for this disease, rising by more than 2 million to 8.9 million deaths in 2019. Stroke and chronic obstructive pulmonary disease are the 2nd and 3rd leading causes of death, responsible for approximately 11% and 6% of total deaths respectively. Deaths from noncommunicable diseases are on the rise. Diabetes has entered the top 10 causes of death, following a significant percentage increase of 70% since 2000. Diabetes is also responsible for the largest rise in male deaths among the top 10, with an 80% increase since 2000.

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Life style diseases or Noncommunicable diseases (NCDs), also known as chronic diseases, tend to be of lengthy duration and are the outcome of a combination of genetic, physiological, environmental and behavioural factors. These diseases are occurred due to rapid unplanned urbanization, globalization of unhealthy lifestyles. [WHO]

Noncommunicable diseases (NCDs) or lifestyle diseases are the single biggest factor dominating health and longevity of modern humans. The WHO states that 70% of global disease load is caused by NCD, which are also responsible for about 70% of all deaths globally. The most common causes of NCD are strongly correlated to metabolic and behavioral risk factors, and contribute to four key metabolic changes that increase the risk of many lifestyle diseases like Raised blood pressure,

Overweight/obesity, Hyperglycaemia(elevated blood glucose levels) and Hyperlipidemia(increased blood lipid level).

One of the most promising way to prevent these all in a very healthier and easier way is a regular balanced diet which is rich in Dietary fiber mainly. Diet plays a very important role to combat these life style diseases like diabetes, coronary heart diseases, etc.

Diets with abundant use of packed foods, lacking dietary fiber, and a lack of physical activity may results in persons as raised blood pressure, increased blood glucose, elevated lipid profiles and obesity and overweight with invited risk of many more. As we know that, Prevention is always better than cure and control, in this regard also it happened to be very true and genuine. As today's diet of many people is comprised of outside packaged foods which are very rich in sugar, carbohydrates, refined sugars, fats and very less in Dietary fibers and complex carbohydrates as well as proteins and good quality of fats. The daily modified Dietary intake of Dietary fiber with regular intake is a boon with fighting these all life style diseases. The Inclusion of Dietary fiber in our regular diet is very easy with whole grains, legumes, fresh fruits and vegetables also roots and tubers which are very easily available and accessible to all the persons. The few examples of concentrated sources of dietary fiber are Jowar, Ragi, Bajra, Soyabean, all Sprouts, Carrots, Cucumber, green veges, sapota, guava, kiwi, pomegranate, fenugreek seeds, flex seeds, etc. The all food sources are locally available and affordable too.

What is Dietary Fiber?

Dietary fibre is the indigestible part of plant foods, such as fruit, vegetables, grains, nuts, seeds and legumes. Fibre adds bulk to our stools, promotes the growth of healthy bacteria in our bowel, and also acts a sponge, absorbing fluid to soften the stools.

Dietary fiber can be classified on the various basis, for example, structure and solvency. Based on dissolvability, they can be separated into solvent or insoluble dietary fibers. Insoluble dietary fiber consists of essentially, cellulose, lignin, hemicellulose, resistant starch), while dissolvable dietary fiber comprises

polysaccharides like gelatin, gums, mucilage, β -glucan, polydextrose)

Dietary fiber, also known as roughage, which includes the parts of plant foods, human body can't digest or absorb as we don't have that enzyme to digest it. Unlike other food nutrients, such as fats, proteins or carbohydrates — which body can digest and absorb — fiber can be digested by human body.

The Recommended Daily Allowances (RDA) of fibre for those aged over 65 years is 25-30g. Indian Council of Medical Research(ICMR) recommends 40 grams of dietary fibre in the daily diet.

One of the dietary fiber, Soluble fibre takes up the water which helps to bulk out the feces and allows it to easily move out of the digestive system. It also slows down the rate of digestion, so helps in managing obesity.

The persons who daily have adequate amount of dietary fiber appear to be at significantly lower risk for developing, hypertension, diabetes, obesity, and certain gastrointestinal diseases.

The modification of diet in with inclusion of Dietary fiber in Diabetic people helps to maintain blood glucose levels.. It also controls the rise or fall down of insulin levels in the blood.

Health benefits of food fibers against various lifestyle diseases:

Maintaining Digestive health:

The fiber can increase in stool weight by binding property of huge amount of water, which reduces colonic transit time due to increased stool bulk which prevents commonest problem like constipation and lower production of carcinogenic components. Enhanced amount of the fibre content of the diet increases the faecal energy excretion, principally within the kind of fat and nitrogen. With its water holding capacity, stool may be easily evacuated.

Prevention of colorectal cancer:

High-fat intake has been correlated to the incidence of cancer. A high-fibre, diet may reduce the danger of carcinoma in various manner.. Fibre can absorb water, lowering the concentration of potential carcinogenic agents inside the intestine.

Prevention of obesity and diabetes:

Fibers are having literally zero calories so these are the boon for overweight people. A bulk of salads are having very less calories but gives immense pleasure of stomach fullness so very helpful in the management of obesity. Several studies have shown that there's a positive association between low dietary fibre intake and a high BMI and increasing the intake

of dietary fibre significantly reduces the danger of gaining weight. Insoluble fiber gives bulk to the diet with very least amount of calories where soluble fibres prolong the intestinal time duration of digestion and absorption, and increase the time-course hunger and satiety. The viscous nature and water holding capacity of the fibres hamper the speed of digestion which results in increased period of stomach emptying. This will definitely counter the food as well as calorie intake.

It can also lowers the food absorption rate so helping in the gradual raise of blood glucose levels, hence highly recommended for diabetic persons. Dietary Fiber-rich diet, are shown to increase insulin resistance and also the risk of diabetes mellitus.. Dietary fiber are having very least calories so they can satisfying without being calorically dense so helps in developinf calorie deficit. Also Supplementing a clinical diet with soluble fibres, like gum and mucilages, results in an increased satiation value hence slower gastric/stomach emptying which delays the hunger sensation. Foods containing a high amount of Dietary Fibers are very low in caloric content which is only 2-3 calories/g. Therefore, a high-fibre diet is suggested for weight reducing regimes and controlling blood glucose elevation.

Foods high in fibre tend to be low in the Glycemic Index (GI). The GI is a measurement of the speed at which food is converted to glucose in the blood stream. High GI foods, like white bread, pasta, sugary snacks and other highly refined products, tend to cause a rapid, dramatic, spike in blood glucose levels, so inclusion of adequate amount of dietary fiber is very essential to control it successfully.

Diabetes mellitus is a health condition mainly characterized by elevated blood glucose levels. Dietary Fiber has a promising effect on blood sugar reduction. Soluble fibre delays digestion speed and absorption of glucose into the blood, which can prevent hikes of blood glucose levels throughout the day.

Prevention of rectal disorder in adults:

The good and healthy gastrointestinal status is very essential for a person as it exerts all the toxics and wastes from the body. A large number of patients suffer from a spread of anal and lower rectal disorders therefore, treatment with a high-fibre diet found to be more beneficial and easier too. A soft formed stool, which might be easily passed out, usually produces an improvement within the symptoms resulting from these disorders. High fibre diet prevents and controls constipation and bowl hardening

so helps to alleviate this gastrointestinal problems. . Dietary fiber can definitely lowers the frequency of constipation .

Prevention of heart disease

There is a very prominent relationship between the amount, and type of Dietary Fiber (soluble type) in the diet and the risk of coronary heart diseases. Cardiovascular diseases account for most NCD deaths, or 17.9 million people annually, followed by cancers (9.0 million), respiratory diseases (3.9million), and diabetes (1.6 million), globally. (WHO)

Diets that include viscous or soluble fibers like gums and mucilages may play a role in reducing the cardiovascular disease risk, thus contributing to an improvement in blood pressure .

Soluble fibre can bind to nutritional cholesterol, assisting the body to excrete it.

High-fibre protects toward hyperlipidamia and ischemic coronary heart diseases .. Gums and pectic substances have hypocholesterolemic and hypotriglyceridemic effects. This action of Dietary Fiber may be very critical inside the remedy of atherosclerosis, coronary heart problems, hypercholesterolemia and hyperlipidemia ..

Conclusion and Recommendations:

The diet rich in adequate amount of soluble as well as insoluble dietary fibers plays an very important role in the prevention as well as control of many lifestyle diseases. Therefore like with other nutrients like Carbohydrates, proteins, fats, different vitamins and minerals, dietary fiber should be taken in regular meals to have our guts healthy.

The intake of adequate amount of dietary fiber can lead to good gastrointestinal health, and reduction in susceptibility to many life style diseases such as diverticular coronary heart disease, cancer, diabetes etc. Increased consumption of food fibers has also lead to increased satiety and weight loss.

All leafy as well as other Vegetables, different nuts, legumes (beans, peas, and lentils), fresh seasonal fruits, and whole grains like jowar , ragi, bajra, should be included in our regular diet. Include all fresh seasonal fruits in daily diet. As lifestyle diseases are the results of changed sedentary lifestyle which lacking in energy expenditure through physical activities so one must have the enhanced physical activities with proper calaorie equilibrium. Hence Exercise must be our daily routine with walking, yoga, cardio training etc to prevent obesity and further metabolic health problems. Have a plenty of water (2-3 liters per day) as water is very important media for all metabolic activities. One

must have a very balanced diet which comprises all the basic food groups like all cereals and pulses, legumes, vegetables and fruits, nuts and oil seeds, milk and milk products, meat, fish and poultry . The regular diet can play a very essential and promising role over ones health status so one must increase our value of diet with good amount of dietary fiber which can prevent and helps in management of many lifestyle diseases which are arising very rapidly throughout the world.

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