



THE SUPER HERO OF THE FOOD – DIETARY FIBER

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ABSTRACT

As the standard of living is improved our eating habits have changed a lot. Many lifestyle diseases are caused by an imbalanced diet, such as Heart Diseases diabetes, obesity, constipation etc, as a result of which many functional foods that can adjust the body function and prevent the recent lifestyle diseases have gained importance Diets rich in fiber such as cereals, nuts, fruits and vegetables have a positive effect on health since their consumption decrease the incidence of several disease. The increase in the total fiber content of the diet may delay the glycemic response, it increases the volume of food inside the intestines and stomach and it also improves the intestinal flora and provides energy and nutritional for probiotics proliferation.

Keywords: cellulose, soluble fiber, intestinal flora

INTRODUCTION

Dietary Fiber includes a number of polysaccharide and lignin that are not digested by the enzymes of the gastrointestinal tract these nonnutritive substance have specific chemical structures. Cellulose is the most abundant molecule in nature and is the principle structure of call wall. It is insoluble in water and we abundantly present in the bran of the Cereal grain (Robinson & Lawler, Normal K therapeutic nutrition 16th Edition Page 89).

Dietary fiber in naturally occurring foods consists of plant wall the structure of which differs not only among plant species but also during normal development within one species or even

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a single cell. These complex carbohydrates have individual and diverse actions along the gastrointestinal tract: fiber moves along the gastro intestinal tract as a sponge slowing gastric emptying.

Whatever edible thing Nature has made for us, it has added some or other form of dietary fiber or cellulose in it. Whenever plants during Photosynthesis were producing food, it was carbohydrates and fiber.

Earlier when mankind was using unrefined unprocessed food, he was having less health issues than compared to today, But due to change in lifestyle luxury, Convenience food availability and reduction of cooking time the fiber in the diet was eliminated and various health problems increased. These fibers are not digestible themselves but enhance digestion. If we can regularly include them in our diet, not only we can reduce weight early but remain young, healthy and away from various diseases. Thus in true sense these are Super hero of the food which keeps on working silently for us.

Benefits of dietary fiber:

Digestion: Fiber improves our Gut Flora or Gut health.

Human Intestine is the home of many microbes or Bacteria's. There bacteria's are good bacteria and help in synthesis of Vitamin B complex, fiber present in the food is the food for these useful Good Bacteria's and if these bacteria's get enough food and are fed well, they will synthesise more Vitamin B Complex in the Gut.

Insoluble fiber binds to water as it passes through the digestive tract making stools so far and bulkier. Fiber helps in peristalsis, thus helping the food move the smoothly in the digestive tract and helps in the elimination of constipation

Weight-loss: fiber gives bulk to the diet thus if you eat fiber rich food such as salad, whole cereals etc, it gives a feeling of fullness thus reducing the appetite, thus it may be useful for people who wish to weight loss. Fiber itself has no calories, but it absorbs water and gives the signal of stomach being full and prevents overeating, further fiber gives a Satiety value too, so craving for food is reduced and caloric intake is lowered down.

Cholesterol: The consumption of water soluble fiber binds to bile acids, suggesting that high fiber diet may result in an increased excretion of cholesterol.

Diabetes and obesity: High fiber diet which contains whole grain, whole legumes, whole fruit and vegetables' reduce the risk of Type II diabetes and obesity. Fiber helps in reducing



glycemic Index and improves a insulin sensitivity. Fibrous food is very good for Diabetic patients as it release Glucose or sugar slowly in the blood, thus reducing sugar spike, hence keeps a check on Glucose level of the person.

Cancer: High fiber diets reduce the risk of developing cancer, mainly colon Cancer.

Methods of including fiber in the Diet

Whatever nature has gives us to eat contains fiber but due to our luxury, Comfort and taste we process it, and exclude fiber from it. Processing decreases cooking time of the food but at the same time it deprives us of natural fiber present in the food.

- Whole grains along with coarse cereals like jowar, bajra, has high content of fiber in it wheat flour should not be strained and should be used along with choker so as to have lots of fiber content.
- Whole fruit and vegetable are rich sources of fiber; hence instead of taking juices we must try to consume whole fruit which have high fiber content in it.
- Salad give bulk to the diet hence should be consumed daily because of their high fiber content.
- Nuts like Anjeer, Dates, Almonds, Walnuts etc. also have high fiber.
- Seeds such as flax seeds, pumpkin seeds, muskmelon seeds, Sesame have high content of fiber, along with antioxidants and omega 3 fatty acids, hence should be eaten in small amount daily.
- Whole legumes, such as Rajma, chole have high fiber content

Application of Dietary fibers

(A) Dietary Fiber Application in the Flour Products.

Currently, flour products that are rich in dietary fiber are widely available. Compared with non modified food, this kind of improved dietary product has attracted consumer interest and is sold for higher prices. The dietary fiber is often added in flour products, such as whole grain bread, noodles, biscuits, and steamed bread.

Fiber-rich noodles sold in markets are usually made by adding bran, rather than soluble dietary fiber. The use of partially hydrolyzed guar gum, as a soluble fiber source, has been tested for use in fiber-fortified noodles with health benefits. Research showed that the noodles with added banana flour rich in dietary fiber, had good nutritional quality and sensory acceptability.



For instance, coffee grounds were added to cookies for increased dietary fiber source, resulting in more nutritious and more flavorful cookies with potential value in the prevention of diabetes.

(B) Dietary Fiber Application in the Meat Products.

The primary importance of meat as food lies in the fact that it is a good source of high biological value protein and provides essential fatty acids, vitamins, minerals, and many essential micronutrients. However, most meat is deficient in essential dietary fiber. Thus, to improve the nutritional value, attempts have been made to add dietary fiber from different sources into sausages, surimi, meatballs, meat emulsion, and other meat products.

Dietary fiber addition may effectively increase acceptability by giving meat products higher quality, improving the processing characteristics of meat products, improving the yield of meat products, and lengthening the shelf time. Addition of dietary fiber into meat emulsion can lower cooking loss and improve emulsion stability and viscosity,

(C) Dietary Fiber Application in the Dairy Produce.

Yogurt is made of fresh milk that is fermented with bacterial cultures and is considered as a healthy food. Yogurt with better taste and higher nutritional value has a higher acceptability. The physical attributes of yogurts.

Recent studies find that addition of dietary fiber may improve the nutritive value, but adding different amounts of dietary fiber into yogurt can influence texture, consistency, rheological properties, and consumer accept ability. Yogurt fortified with Dietary Fiber had firmer texture and darker color.

CONCLUSION

Dietary fiber is very important for Human health; in the last 20 years a lot research and studies have been conducted on dietary fiber that it is now considered as a major nutrient which should included in the diet daily. An average normal person requires 30 gms of fiber everyday Dietary fibers' represent a heterogeneous category, and there is still much to understand as to which foods should be preferred to maximize the metabolic effect of fibers, including influences on the get health. Dietary fiber can prevent the absorption of harmful substances. Studies are needed to expand the application of dietary fiber and improve its economic and practical value.



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