

Rationale For FiberMin-E.F.A.™

Dietary Fiber

Fiber has a major nutritional impact on the dietary habits and health of Americans and can no longer be seen as a fad. With new interest in fiber has come new promise of protection against colon/rectal cancers, heart disease, diverticulosis, constipation, obesity, gallbladder disease, and diabetes. To those who embrace the relationship between whole foods and sound health, this is exciting news.

FIBERMIN-E.F.A.™

W Y S O N G

PURPOSE:

Specifically designed to create a high ratio of soluble to insoluble fibers, supply essential fatty acids, decrease fibers that bind minerals, and provide a natural multimineral source.

INGREDIENTS:

Apple Fiber, Oat Fiber, Modified Plant Fiber, Pea Fiber, Dried Prune Plums, Ground Psyllium Seeds, Ground Flax Seeds, Naturally Chelated Trace Minerals.

DIRECTIONS:

Used in conjunction with flavorful foods, it will simply take on the flavor of the food. As a fiber supplement, gradually increase the dosage, as tolerated, from 1 tablespoon to 2 tablespoons divided throughout the day. Drink 6-8 glasses of WellSpring™-enhanced water daily. Include FiberMin-E.F.A.™ in a well-rounded diet of fresh, whole, natural foods.

SERVING SUGGESTIONS:

Add to juices, shakes, cereals, salads, breads, casseroles, cakes, muffins, cookies, or any other dish that is being prepared. However, maximum nutritional benefit will be derived when FiberMin-E.F.A. is not cooked.



In the early 1970's, epidemiological studies pointed out a noteworthy correlation between health and the high fiber diet of rural Africans. It was postulated that dietary fiber may play a protective role in diverticular disease, heart disease, obesity, gallbladder disease, and peptic ulcer disease – ailments virtually unheard of among African villagers. Theory suggested that the native, unrefined high-fiber diet (30-50 g/day) was the link to good health. Conversely, in Western countries where such diseases are common, it was suspected that the relatively low-fiber (5-10 g/day), more processed diet typical of urban areas played a significant role in the deterioration of “civilized” health conditions.

The modern Western diet contains only 20% of the dietary fiber present in diets of 100 years ago. Over the last 100 years in the U.S., there has been an increase in the incidence of constipation, diverticular disease, appendicitis, hemorrhoids, coronary heart disease and colon cancer. For significant segments of our population, consumption of whole grains, vegetables, fruits and legumes is so low that the leading source of dietary fiber is white bread – a pitiful fiber source (white flour contains only 8% of the fiber found in whole wheat flour).

Fiber Types

Fiber from plant sources can be classified into two basic categories – insoluble and soluble. Soluble fiber sources readily mix with water to form a viscous or gel-like texture. Examples of soluble fiber include pectin, gums, mucilages, and some types of hemicellulose. Tougher, more fibrous insoluble fibers include methylcellulose, lignin, and other types of hemicellulose. By definition, fibers are those components of food that are resistant to the enzymes of the human digestive tract. Fiber gives strength and stability to plant cell walls and provides overall plant structure. We recognize fiber as the crunch of an apple, the bulk in salads, the chewiness of whole-meal bread and the viscosity of pea soup.

Nature provides ample sources of fiber in whole, raw foods ranging from grains to prunes. Such natural plant foods contain a mixture of both soluble and insoluble fibers, which can perform different useful functions within the body.

A healthful balance of both soluble and insoluble fibers serves in the prompt transportation of toxins and carcinogens out of the digestive system. Insoluble fibers alleviate constipation and speed digestion time, which is helpful in colon cancer prevention. Soluble fibers, on the other hand, seem to be more effective in the treatment or prevention of a greater diversity of health-related complications such as elevated serum cholesterol and lipid levels, obesity, and diabetes.

Therapeutic Effects of Fiber

Fiber prevents the formation of stools that are difficult to pass and reduces colon luminal pressure. Cultures who regularly consume unrefined high-fiber foods rarely suffer from the intestinal disorders of Westernized cultures. Fiber is not easily digested by the body's digestive secretions and enters the large intestine essentially intact. In the large intestine, water is drawn into and confined within the spongy matrix structure that fiber provides. The hydrophilic nature of fiber assists in the development of a bulkier, softer stool, and its swift passage through the body. Fiber's ability to stimulate the smooth, efficient working of the bowel makes it an excellent natural laxative.

For a nation that spends \$500 million per year on over-the-counter laxative products – many of which can cause cramps, diarrhea and excessive fluid and mineral loss – fiber is an excellent, natural way to gently coax the return of natural digestive rhythms. Several laxative drugs act as stimulants to the colon which, upon repeated use, can eventually impair the colon's ability to act on its own. Furthermore, most laxative products produce a watery, less controlled stool, since water is not incorporated into an ordered, fibrous structure. An understanding of fiber's function in laxation is helpful to

understanding fiber's beneficial effects on other potentially serious intestinal disorders.

Diverticulosis

A diet low in fiber results in small hardened stools that when propelled along the colon, create increased pressure in the lumen of the colon. Excess pressure can cause areas of weakness in the colon, creating small outpouchings with no apparent symptoms. These outpouchings, or diverticuli, are highly prone to infection, a condition known as diverticulosis. Diverticular disease is characterized by widespread abdominal pain, irregular bowel habits, and nausea. In progressed cases, when diverticuli break open, massive colonic bleeding may ensue, requiring surgery. It is a well-established fact that the middle-aged and elderly of Westernized countries are especially susceptible to colon diverticular complications.

Appendicitis

Small, hardened fecal matter resulting from low fiber diets can obstruct the opening of the appendix and cause impaction. As with diverticuli that house impacted fecal matter, serious infection can occur within the appendix. The incidence of appendicitis is greatest in modern, developed countries where dietary fiber intake is low.

Irritable Bowel Syndrome

Another condition that may be related to fiber intake is the "irritable bowel syndrome," perhaps the most common affliction encountered by the gastroenterologist. It is characterized by abdominal aching and alternating periods of constipation and diarrhea. Added fiber bulk expands the radius of the colon and encourages the colonic musculature to function smoothly and rhythmically.

Obesity

Obesity is often referred to as America's number one health problem and is extremely rare in populations where unrefined diets, complete with natural fibers, are regularly consumed. Many high-fiber foods, namely fruits and vegetables, are naturally low in calories. Fiber itself yields few, if any, calories (these calories being the result of fatty acids produced by fiber's interaction with gut bacteria).

Because fiber readily absorbs water, which tends to increase the viscosity of stomach contents, one is likely to feel full faster. With a consequent increase in stomach distention, dietary fiber also helps to slow down the process of gastric emptying. This slow emptying keeps one feeling full longer. In addition, the extra time needed to chew most fibrous foods slows down the overall process of eating. The slower one eats, the more time is apportioned for signals of satiety to reach the brain and serve as a natural warning against overeating. Finally, since fiber-rich foods take less time to pass through the digestive tract, it is possible that not every calorie is absorbed in the small intestine, but rather some may be excreted with the feces.

Diabetes

A positive relationship exists between adequate fiber intake and the control of blood sugar. Some doctors have dramatically reduced diabetics' insulin needs through the use of high-fiber diets. Soluble fibers, particularly pectin, have been demonstrated to be the most effective fiber types for reducing the glycemic curve and insulin response. Because pectin has an especially high affinity for water, its ability to reduce the rate of sugar absorption may be due to the dispersion of nutrients within the watery gel matrix formed by its fibers. When car-

bohydrates are consumed along with fiber, blood sugar levels do not rise as high as when carbohydrates are consumed without fiber.

Heart Disease

A high serum cholesterol concentration relates to increased risk of coronary heart disease. Certain fibers have been shown to have substantial hypercholesterolemic-preventing effects. It is especially important to distinguish between fiber types. Cholesterol lowering properties appear to be related to the water-soluble fibers. Bile salts, synthesized from body stores of cholesterol and found in the digestive fluids secreted by the liver and gallbladder, play an integral role in fat digestion. After bile salts are used to digest food, they are normally reabsorbed into the body. When in the gut, certain types of soluble fiber, such as pectin, bind bile salts. When bound, bile salts cannot be reabsorbed, so they are excreted through the feces. This means that cholesterol must then be taken from the serum to make new bile salts to replace those excreted. The more this cycle is repeated, the lower serum cholesterol falls.

Colon Cancer

Physicians diagnose 90,000 cases of colon cancer every year; the disease kills some 60,000 people annually. Only half of those diagnosed live 5 or more years after diagnosis. Needless to say, any dietary measure that may reduce the risk of the disease deserves attention. Colon cancer is triggered by the presence of carcinogens in the digestive tract. These carcinogens, including nitrosamines and phenols, are generated when colonic bacteria act on dietary components, namely bile acids. Bile acids can be absorbed into fiber and passed out in the stool before intestinal bacteria are allowed to form concentrated carcinogens. Fiber's

proven ability to shorten transit time translates into minimum exposure of the colon mucosa to suspected carcinogens. Because fiber builds a more bulky, fluid retentive, sponge-like stool, cancer-inducing chemicals can in effect be washed out of the digestive tract. Fibers that decrease transit time dilute colon contents and increase stool bulk to reduce tumor formation.

Wysong FiberMin-E.F.A.TM

To reap the full benefits of fiber, one cannot eat only one type of fibrous food. In other words, sprinkling bran here and there will not do the trick. It is important to realize what different fiber types can do for the body.

FiberMin-E.F.A.TM's apple fiber is comprised of whole apples, which contain fibers of cellulose, hemicellulose, lignin, and pectin, with pectin being the apple's standout fiber. Pectin is the most widely studied fiber in relation to serum cholesterol reduction. It has proven its worth in numerous documented studies. Pectin is also especially effective in reducing blood glucose levels. It has a remarkable capacity to absorb water, forms gels easily, and increases enzyme secretion.

FiberMin-E.F.A.'s oat bran has been shown to reduce serum cholesterol levels an average of 14% over a ten-day span in hypercholesterolemic males, while HDL (high-density lipoproteins related to decreased risk) levels remained unchanged. The ratio of oat's soluble dietary fiber to total dietary fiber is higher than that of many other less easily-tolerated commercial fibers, such as wheat bran. Thirty percent of the fiber in oat bran is soluble hemicellulose.

Peas are an extremely rich multi-fiber source containing up to 93% total dietary fiber. Soluble hemicellulose and

insoluble cellulose, among others, are the pea's primary fibers. Pea fiber is often used in bread products to raise dietary fiber levels to the equivalent fiber content of 100% whole-wheat products. Dried plums not only contain a significant level of both insoluble and soluble fiber, but they also contain a unique sugar called sorbitol. It functions by drawing water into the digestive tract, which helps to loosen stool and increase bowel motility. Plums are also an excellent source of other beneficial nutrients such as potassium, copper, boron, carotenoids, and phenolic antioxidant compounds.

Cellulose is the primary fiber matrix of plants. Methylation allows cellulose to form a "gum" that is non-fermentable in the digestive tract (will not produce gas) and absorbs water into the large intestine, thus stimulating the bowel to form a soft, bulky stool, which prevents "straining." It has also been shown to be useful in lowering LDL (Low-density lipoproteins correlated to heart disease) cholesterol in patients with mild to moderate hypercholesterolemia.

FiberMin-E.F.A.'s psyllium seed husks yield bulk-forming, insoluble fiber that speeds gastrointestinal transit time. In addition, psyllium contributes further gel-forming, water holding properties.

Ground flax seed provides high gum mucilage, which makes flax seeds one of the best-known natural laxatives. The soluble fibers of flax seed soothe, moisten, and protect intestinal mucosa, buffer excess acid, help to prevent flatulence and stool odor, and sweeten breath. In addition, flax fiber helps stabilize blood glucose levels and lower serum cholesterol. Flax seed contains all major, most minor, and some trace

minerals, vitamins A, E, B₁, B₂, and C, along with various proteins and essential fatty acid-rich oils.

FiberMin-E.F.A. and Minerals

Mineral-deficient diets are discouragingly common in modern societies. Three factors have contributed to widespread mineral deficiency. Industrialized farming makes a practice of growing crops year after year on the same soil, without replacing the dozens of trace minerals lost to absorption and incorporation into plants. Only nitrogen, phosphorous, and potassium (NPK) are replaced, which may improve yields, but does not replenish the exhausted earth. The commercial produce we consume does not contain the valuable minerals, that would otherwise naturally be found when grown in mineral-rich soil. Also, minerals are invariably lost through milling, heating, leaching, and oxidation. Chelated minerals, those bound to proteins and carbohydrates of natural foods, are most readily absorbed by the body, and are lost during the above-mentioned, rigorous processing methods.

Further complicating an already compromised mineral intake is the increased use of fiber supplements, such as bran, during food processing. Mineral-deficient fiber is added back into nutrient-depleted, processed food. Some of these fiber supplements are particularly rich in phytic acid, a hexaphosphate form of myo-inositol. Phytic acid binds valuable divalent cations, such as the essential minerals calcium, magnesium, and zinc, thereby preventing their absorption and use by the body. Therefore, even though fiber supplementation may be done with the best of intentions, the result compromises the benefits of fiber, and compounds the problem of mineral deficiency.

An effective solution to mineral deficiency is to increase the consumption of whole, natural foods, and to decrease the consumption of processed and fast foods. One should also be aware of phytic acid in fiber supplements, which leaches additional minerals from the body. Naturally chelated trace minerals are added to FiberMin-E.F.A.

Essential Fatty Acids (EFA's)

The average modern consumer ingests an excess of fat, which for the most part, is highly processed and altered through heating, solvent-extraction, mechanical shearing, oxygenation, and hydrogenation. The end result is a skeletal remnant that introduces new toxic compounds, such as trans-isomers created during hydrogenation, into the diet and provides little more than fat-producing calories. In contrast, your body requires unaltered, natural fats containing essential fatty acids.

The oil fraction of flax seed provides the essential fatty acids, alpha linolenic acid (omega-3 and -6 rich) and alpha linoleic acid (omega-6 rich). In addition, flax seeds contain phospholipids such as lecithin. Phospholipids are an essential component of all cell membranes. Lecithin also possesses prostaglandin-like properties, which allows it to support important biochemical pathways.

The benefits of unaltered essential fatty acids are numerous and varied because they perform an integral role both structurally and metabolically in every tissue of the body. Recent research has demonstrated the benefits of omega-3 fatty acids in the prevention and treatment of cardiovascular disease. Omega-3's are also found in fish oil, which is thought to be responsible for

the remarkable cardiovascular health of Eskimos whose natural diet includes generous amounts of fish.

The essential fatty acids in FiberMin-E.F.A. help provide important health promoting fats in low-fat diets.

Using FiberMin-E.F.A.™

It is important to consume a wide variety of fibers and to increase fiber intake in a gradual, patient fashion. Too much of a single type of dietary fiber can lead to deficiencies in trace minerals through the cation binding of phytic acid.

A gradual, progressive intake is especially prudent since individual intolerances for fiber vary. A sudden, excessive intake may also lead to intestinal gas, bloating, cramps, and diarrhea in some, while others may experience less distressing side effects.

Although there is no set Recommended Daily Allowance, it is recommended that daily fiber consumption be between 20 and 35 grams, roughly twice the fiber intake of the average American diet.

Include FiberMin-E.F.A. in a well-rounded diet of fresh, whole, natural foods as recommended in the Optimal Health Program.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

FiberMin-E.F.A.™ SCIENTIFIC REFERENCES

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