

Dietary Fibre for Health

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Do terms like soluble fibre, insoluble fibre and dietary fibre confuse you? Relax; you are not the only one. In this article I aim to de-mystify the role of dietary fibre in health. Let's start with these terms:

Dietary Fibre

This refers to the complex carbohydrates, which are resistant to hydrolysis by human digestive enzymes, i.e. they pass through the human stomach undigested.

Dietary fibre is divided into two further components, which have very different and complementary functions in the bowel.

Soluble Fibre - includes such compounds as mucilage, beta-glucans and pectin. These provide valuable viscosity, bulk and lubrication in the stomach and small intestine. It is often not appreciated that once soluble fibre passes into the large intestine or colon, it is broken down by the naturally occurring bacteria which are present in a healthy colon.

Insoluble Fibre - includes such compounds as cellulose, hemicellulose and lignin. These maintain an open sponge like structure, which contributes valuable bulk and pore space, which evenly distributes pressure. These compounds pass out of the body largely unmodified.

Heart Disease

In recent years there has been much discussion of the potential for soluble fibre to help lower blood LDL cholesterol levels and improve the cholesterol ratio. This can happen because the bile acids needed for fat digestion are steroids synthesised by the liver from LDL cholesterol. In the absence of soluble fibre in the diet, over 90% of the bile acids are reabsorbed from the small intestine (terminal ileum) and recycled back into the body via the liver. If soluble fibre is present, the bile acids are carried through into the colon, where they are not absorbed.

The importance of this pathway for reducing LDL cholesterol levels and the risk of heart disease has been emphasised recently in a study carried out in Lyon, France, where over 600 patients recently hospitalised for heart attacks were randomly allocated to two dietary regimes. The first was the 'Prudent Heart Diet', as recommended by the American Heart Foundation, the second was a Mediterranean style diet, with moderate amounts of Omega-3 EFA, Omega-9 and higher levels of fibre and phytochemicals from fruit and vegetables – after two years the risk of cardiac death was a massive 76% lower in the second group.

Bowel Cancer

The popular advice to eat lots of oat bran (a rich source of soluble fibre) to control your cholesterol level seems at first sight to be a great idea, but there is a hidden catch to this. If there is only soluble fibre present, the fibre is broken down by the bacteria in the colon depositing the unbound bile acids into the colon. In the colon the bile acids are also metabolised by the bacteria, to form secondary bile acids, which are powerful cancer promoters increasing the risk of colon cancer. This is where the importance of the insoluble fibre comes in – it is needed to bind, dilute and to carry out the bile acids in the faeces, contributing to greatly reduced risk of bowel cancer.

Balanced Fibre Intake

A regular daily intake of both soluble and insoluble dietary fibre can greatly reduce the risk of both premature heart disease and bowel cancer. A ratio of soluble to insoluble fibre in the diet of 1:2 is recommended as about ideal. Foods that are rich in soluble fibre include whole grain oats and barley, dried legumes and apples. Good foods for insoluble fibre include wheat, rice and corn bran and vegetables such as cauliflower and lettuce. Unfortunately there are few foods that have the ideal balance of soluble to insoluble fibre - flax seed fibre is an exception.

Ideally people would get a sufficient and balanced fibre intake from eating a wide range of whole grain products, legumes, fresh fruit and vegetables. Unfortunately all too often this is not the case and substantial numbers of people have bowel problems as a result. This is largely because of the modern life style, which often includes too much processed food and insufficient exercise. Rather than resort to chemical or herbal laxatives, a healthier and convenient way to alleviate the problem is to take a fibre supplement.

The most commonly prescribed fibre supplements are those based on the use of psyllium hulls. Unfortunately psyllium hulls are only a source of soluble fibre, so their use has the unpleasant side effect of increasing the risk of bowel cancer. It is important that where psyllium hull supplements are prescribed then the advice is to also use a good source of insoluble fibre – perhaps wheat bran.

Alternatively, a naturally well balanced fibre supplement is *waihi bush organic farm flax fibre* - a flax seed fibre which is fully Certified Organic with a very gentle action, which makes it safe to take long term.

Bowel Regulation and Irritable Bowel Syndrome

In *waihi bush organic farm flax fibre* the soluble fibre is present as mucilage, which can absorb up to 13 times its weight in water. Thus it has a gentle regulating effect on the rate of bowel action. Taken with plenty of fluid it has a gentle laxative effect. Taken with only a little liquid, *waihi bush organic farm flax fibre* can firm up diarrhoea or loose bowel motions to allow the body a chance to heal naturally. It is also a perfect food for the beneficial bacteria in the colon, which helps maintain good bowel health.

The high bulk and pressure distribution that comes from a high fibre diet can also be effective at preventing the occurrence of diverticulitis and haemorrhoids.

The use of flax seed fibre has been reported to be of substantial benefit to patients with Irritable Bowel Syndrome - we have had several users able to completely discontinue long term medication after regular use of *waihi bush organic farm flax fibre*.

Regulation of Stomach Acid

Flax mucilage (Soluble fibre) also has the ability to buffer excess digestive acids, which makes it an ideal food for those with acid or sensitive stomachs or ulcers, to allow the body a chance to heal naturally.

Diabetes

A high fibre diet is inherently rich in starch and low in sugar, which can be very helpful in managing diabetes. More importantly, the viscosity and bulking attributes of dietary fibre help regulate the rate of absorption of glucose from the intestine, which is very beneficial in helping to manage naturally the blood sugar levels of diabetic patients. Flax seed fibre has proved to be very useful early in the day as a food to help keep down blood sugar levels.

Protein

Flax seed fibre contains 30% high quality, easily digestible protein that contains all the eight essential amino acids necessary for human health. The body cannot make these essential amino acids, so they must come from foods.

Of special interest to Coeliacs is that the protein does not contain any gluten, so provides an additional source of high quality protein for them.

Lignans

Flax seed fibre is one of nature's richest sources of plant lignans, which act like phytoestrogens. These compounds are converted by the human body into human lignans, which have a number of functions.

So what do lignans do?

1. Lignans have been shown to have a powerful immune boosting effect. This is being utilised for general health reasons, as well as being a part of treatment programs for cancer, AIDS and other degenerative

diseases such as diabetes. Boosting the immune system can help considerably with such diverse problems as infections, allergies, asthma, eczema and other skin conditions.

2. Lignans act like both oestrogens and anti-oestrogens, so are used in the body in place of oestrogen when levels are low, and can 'block' the receptors for oestrogen, when levels are too high – thereby having the effect of regulating levels in either situation. Flax seed fibre is being used to help women with menopausal imbalances, successfully diminishing unpleasant symptoms such as hot flushes (one study showed a 25% reduction) and emotional disturbance - and in the long term, to reduce the risk of breast cancer and other hormone related cancers and osteoporosis. Phytoestrogens have been shown to have a protective effect against the hormone related cancers, such as breast cancer; prostate cancer; bowel cancer; uterine and cervical cancers. They are also being used in the treatment of these cancers.
3. Lignans appear to have potent anti-cancer properties. Lignans are being extensively researched for their anti-cancer properties. These properties appear to be coming from more than just their hormone regulating effects, and affect cancers other than the hormone-related cancers.
4. Other effects of lignans include digitalis-like effects and diuretic effects.

Note: this article was prepared by David Musgrave, based on published scientific and medical literature.

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