

## Inulin

### - Information for Health Professionals & Informed Consumers by Jan Roberts, Nutritionist

Thanks to the marketing efforts of leading food manufacturers, most Australians know something about the benefits of dietary fibre. Also called "roughage", dietary fibre is the indigestible portion of plant foods. Chemically, it consists of non-starch polysaccharides such as cellulose and many other plant components such as dextrans, inulin, lignin, waxes, chitins, pectins, beta-glucans and oligosaccharides. The term "fibre" is somewhat of a misnomer, since many types of so-called dietary fibre are not fibres at all. Dietary fibre can be soluble (able to dissolve in water) or insoluble. Soluble fibre, like all fibre, cannot be digested, but changes as it passes through the digestive tract, being transformed (fermented) by the resident bacteria.

Dietary Guidelines for Australians says that "about one-third of our dietary fibre intake comes from cereals, especially whole grains. Fibre plays a vital role in keeping us 'regular'. Including plenty of whole grain foods and cereal fibre in your daily meals is a good way to prevent constipation and may reduce the risk of other gut problems such as diverticular disease and bowel cancer. Several recent scientific studies have also suggested whole grains may help prevent coronary heart disease and, perhaps, diabetes - major health problems in Australia today. "However despite the overwhelming evidence of very positive health effects and government recommendations, many of us struggle to consume enough of this ubiquitous plant-based substance.

The problem starts young - with babies and toddlers fed pureed, pre-digested mush rather than being breast-fed until they are old enough to select from a variety of fresh, whole foods that actually need chewing and digesting. The problem continues, with adult taste buds conditioned in infancy to the standard western diet of highly refined and processed foods, which not only lack essential nutrients, but also those indigestible, long-chain carbohydrates which are found in whole plant foods and without which our gastro-intestinal tract will not function optimally.

Inulin belongs to one particular class of these carbohydrates, a class known as fructans. On one hand, inulin is considered a functional food, affecting our body's physiological and biochemical processes, resulting in better health and reduction in the risk of many diseases. Inulin acts as a bifidogenic agent, stimulating our body's immune system, decreasing the pathogenic bacteria in the intestine, relieving constipation, decreasing the risk of osteoporosis by increasing mineral absorption, especially of calcium, reducing the risk of atherosclerosis by lowering the synthesis of triglycerides and fatty acids in the liver and decreasing their levels in serum. Inulin is therefore also classified as a prebiotic - a substance which increases the number and/or activity of bifidobacteria and lactic acid bacteria. Inulin passes through the stomach and duodenum undigested and is highly available to the gut bacterial flora. This makes it similar to resistant starches and other fermentable carbohydrates. This contrasts with proprietary probiotic formulations based on lactic acid bacteria (LAB) in which the bacteria have to survive very challenging conditions through the gastrointestinal tract before they are able to colonize the gut.

In addition and unlike other chains of sugar molecules, inulin is not broken down into monosaccharides, it does not elevate blood sugar levels and may actually be helpful in the management of diabetes. Inulin contains a third to a quarter of the food energy of sugar or other carbohydrates and a sixth to a ninth of the food energy of fat. Inulin is not used by *Streptococcus mutans* to form acids and insoluble glucans that are the main culprits in dental caries. Rather inulin modulates the levels of insulin and glucagon, thereby regulating carbohydrate and lipid metabolism by lowering the blood glucose levels; it is also effective in lowering blood urea and uric acid levels, thereby maintaining nitrogen balance.

Because of the significant health-promoting functions of prebiotic inulin, Phyto Therapy Pty Ltd has chosen to include prebiotic inulin at a dose used in clinical studies. The prebiotic inulin comes from organic Jerusalem artichoke extract and is combined with Essential 8 Organics® super concentrate. This "sister" product known as Essential 8 Organics® with prebiotic inulin delivers the foundation nutrition of 5 vegetables and 3 fruits along with prebiotics, providing the basis for optimal gut health, nutrient absorption and antioxidant status.

It will come as no surprise that some traditional diets contain large doses of plant based ingredients containing inulin. Many foods naturally high in inulin or fructo-oligosaccharides, such as chicory, Jerusalem artichoke, garlic, and leek, have been seen as "stimulants of good health" for centuries. But just remember - if your diet has been low in natural sources of fibre, the addition of quantities of this prebiotic may result in a temporary increase in gas or bowel movement, until your body has made the adjustment to this digestive gut aid.

### Did You Know?

A recent article in the Sunday Telegraph Food and Wine section talks about Jerusalem Artichoke as having an appearance similar to Ginger with a texture softer than boiled potato with a sweet, earthy, nutty flesh. This Winter, we're likely to see more of this under-rated vegetable as it makes its way into retail food outlets and restaurant menus.

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