

Enzymes, Nutrients and Antinutrients

DIGESTIVE ENZYMES are primarily produced in the pancreas and small intestine. They break down our food into nutrients so that our bodies can absorb them.

A **NUTRIENT** is a substance that provides nourishment essential for growth and the maintenance of life.

So what then are **ANTINUTRIENTS?**

Antinutrients

As scientific research methods develop, new information on nutrition comes to light that challenges what we have previously held to be true about our food. One of these new pieces of information is that of 'antinutrients'.

Antinutrients interfere with the absorption of nutrients and digestion and, irritate the intestinal tract. Whole grains, nuts, seeds and legumes are all high in antinutrients. But these foods are meant to be good for you – right? Well yes – if they are correctly prepared, in a way that reduces the antinutrients.

Antinutrients are part of a seed's natural system of preservation. Nature has ensured that seeds won't sprout until the perfect growing conditions exist. Two of these antinutrients worth mentioning are Phytic Acid and Enzyme Inhibitors.

Phytic Acid

Phytic acid is the storage form of phosphorus – that is, seeds store phosphorus as phytic acid. Grains, nuts and legumes are all seeds and have high levels of phytic acid. So do other edible seeds such as pumpkin and sunflower seeds.

When phytic acid is bound to a mineral in the seed, it's known as phytate.

Phytic acid is an antinutrient because it binds to essential minerals (such as calcium, copper, iron, zinc, and magnesium) in the digestive tract, making them less available to our bodies. Phytates also reduce the digestibility of starches, proteins, and fats.

Enzyme Inhibitors

Enzyme inhibitors are present in seeds to prevent them from developing (sprouting) until there are suitable growing conditions. Unfortunately eating seeds with enzyme inhibitors negatively affects our digestive and metabolic enzymes.

It is not necessary to avoid foods containing phytic acid or enzyme inhibitors, but it is important to prepare them correctly – as our ancestors did. Correct preparation reduces the phytic acid, neutralises the enzyme inhibitors and increases the bio-availability of the nutrients.

SOAKING NUTS, GRAINS, SEEDS AND LEGUMES

Soaking and fermenting nuts, grains, seeds and legumes is something our grannies (or granny's granny) did and for good reason. It mimics nature's 'perfect sprouting' conditions by providing moisture, warmth, time and slight acidity. As the seed begins to germinate while soaking, phytic acid is reduced, enzyme inhibitors are neutralised and the production of numerous beneficial enzymes (such as phytase) begins. The action of these enzymes increases the amount of vitamins, especially B vitamins. Difficult-to-digest proteins are partially broken down into simpler components that are more readily available for absorption.

HOW TO SOAK GRAINS AND LEGUMES

Cover with warm water and add one of the following acids: lemon juice, apple cider vinegar, buttermilk, yoghurt, kefir or whey. The ratio of grain to acid should be 2 tablespoons of acid for every 1 cup of grains. Soak for 7-24 hours in a warm place. Drain, rinse and cook as usual. Cooking time will be reduced due to the soaking.

HOW TO SOAK OATS

Oats contain more phytates than almost any other grain as well as being very low in phytase (the enzyme that helps to break down phytates). So soaking them in an acid water solution is not enough to adequately break down the large amount of antinutrients. By adding additional phytase to the acid soak water in the form of ground buckwheat, a decent amount of the antinutrients can be removed.

Cover the oats with warm water and add an acid and ground buckwheat. The ratio should be 2 teaspoons of acid plus 1 tablespoon of ground buckwheat for every 1 cup of oats. Soak for 24 hours in a warm place. Drain, gently rinse and cook as usual. Cooking time will be reduced due to the soaking.

HOW TO SOAK NUTS AND SEEDS

Cover the nuts or seeds with warm water and add sea salt. The ratio of nuts or seeds to salt should be a ½ tablespoon salt for every 2 cups of nuts or seeds. Soak for 6-8 hours (or overnight), then drain, rinse and dehydrate or roast.

Dehydrate by placing in a warm oven (no warmer than 65°C/150°F) or dehydrator for 12-24 hours.

You can help mitigate phytic acid in your little one's diet with foods rich in vitamin C, vitamin D and calcium. The bio-available calcium from bone broths, as well as vitamin D from ghee or butter can help to reduce the adverse effects of phytic acid.

