

Nutritional Inhibitors in Foods

Anti-nutrients:

Anti nutritional factors, by definition, are those biological compounds present in human or animal foods that reduce nutrient utilization or food intake, thereby contributing to impaired gastrointestinal and metabolic performance.

OR

Anti nutrients are synthetic or natural compounds which, when consumed, can interfere with the absorption of beneficial and essential organic nutrients and inorganic minerals. Anti nutrients either bind to nutrients to prevent their absorption, react with nutrients to form un-digestible compounds or inhibit digestive proteins from breaking down a nutrient so it can be used by the body.

Following are some anti-nutrients:

Phytate (Phytic Acid):

Phytates are most commonly found in whole grains particularly wheat bran. They are also found in legumes, nuts and seeds and also found in some fruits and vegetables. Phytates bind to Calcium, Iron, Magnesium, Zinc and Vitamin B3 (Niacin) and causes them to be carried out of the body before they can be absorbed. It is found that the level of phytate and its degradation products could be reduced by 4-8% through cooking, by 35-39% through germination, by 61-76% after soaking.

Oxalate (Oxalic Acid):

They are present in many plants and in significant amounts particularly in rhubarb, tea, spinach, parsley. These are molecules present in that can link up with Calcium and prevents its absorption in the human body. Oxalates also interfere with the duties of many other positively charged ions like Copper, Iron, Magnesium, Manganese, Zinc and more, Oxalate specifically impairs iron's intracellular release and interferes with the whole class of Vitamin B7 (Biotin). Oxalate also can be generated in the body when someone is consuming high doses of vitamin C or fructose.

Polyphenols:

Coffee and tea are grown because of their polyphenols content. Polyphenols are antioxidants that have a role in the prevention of degenerative diseases such as Cancer and Cardiovascular diseases, however they also inhibit the absorption of Iron which means tea and coffee should never be consumed with meals or within 30 minutes after a meal. What's more, the stronger the coffee or tea, the less iron absorbed.

Tannins:

A class of antioxidant polyphenols that may impair the digestion of various nutrients.

Phosphoric Acid:

Carbonated drinks contain phosphoric acid which is an anti-nutrient. It neutralizes the hydrochloric acid in the stomach and destroys the capacity of the body to absorb essential elements such as Calcium, Iron and Magnesium.

Avidin:

Egg whites contain high levels of avidin, a protein that binds to Vitamin B7 (biotin) and stops it being absorbed.

Lectins:

Found in all food plants, especially in seeds, legumes and grains. Some lectins may be harmful in high amounts, and interfere with the absorption of nutrients.

Protease Inhibitors:

Widely distributed among plants, especially in seeds, grains and legumes. They interfere with protein digestion by inhibiting digestive enzymes.

Saponins:

Saponins occur in a wide range of plants, including pulses and oilseeds such as kidney bean, lentil, pea, chickpea, groundnut and sunflower. Saponins reduce the uptake of certain nutrients including Glucose and Cholesterol at the gut through intraluminal physicochemical interaction.

Sulphur: in methionine and cysteine amino acids, found in flesh, eggs, soy, some nuts and seeds, some vegetables. It causes calcium deficiency (osteoporosis).