



This information sheet is about chemicals and how they influence your cancer risk. It is based on research evidence and has been written for the general public.

Key Messages

Food additives are monitored internationally and are strictly regulated in New Zealand to ensure they are safe.

- Nitrates and Nitrites in preserved food are of greater benefit than harm
- Pesticide use is strictly controlled and the health benefits of eating fruit and vegetables are greater than any risk
- Washing and or peeling fruit and vegetables is advised
- Fluoride improves oral health and at the levels used in New Zealand water is safe.

There are often stories spread in the media and emails about certain chemicals or parts of foods, which are said to increase the risk of cancer. Many of these stories are not true and have no facts to support them but leave people worried about what they should eat. False information can steer people away from things that are healthy and which may offer protection from some cancers. Some of the commonly reported chemicals in food related stories are discussed below.

Food additives

Many different things are in commercially prepared foods and there is a good deal of suspicion among some people about the safety of these foods.

In 2007, the World Cancer Research Fund reported on all the research by a panel of experts on the links between food, nutrition and physical activity and cancer.

This report noted there is little epidemiological (the affect on humans) evidence on the possible effects of things added to food and drinks. The report also noted that, because these things are monitored internationally and nationally regulated, there is a lot of information on their effects on animals.

The report also noted food additives are monitored if any chemical present seems to be of special concern. Regulations, which limit how much of any additive that may cause harm, are generally based on the results of animal studies which make them very safe for humans to eat or drink.

Experts do not consider general use of food additives to be a cancer risk; however, the nitrates and nitrites added to preserve meats can change into carcinogens in the stomach and have been linked to cancer of the stomach.

What about nitrates and nitrites?

Nitrates and nitrites are chemical compounds that occur naturally in the environment and are important plant nutrients, but they can also be added to some food products as a method of preserving food. Nitrates and nitrites have been a traditional way to preserve food for hundreds of years but there is now evidence that they may be linked to stomach and colorectal cancers.

Nitrates and nitrites (for example as potassium or sodium nitrite [additive numbers 249 and 250] or potassium or sodium nitrate [additive numbers 251 and 252], which are used as food additives in processed meats, are known to form carcinogenic (cancer causing) substances. They form, nitrosamines and nitrosamides, with the acid in the stomach when they are eaten. Several of these compounds are known to be carcinogenic in humans. However, nitrites can be added in very small amounts in some foods because they kill bacteria, particularly the bacteria which cause botulism. These bacteria pose a much greater risk to health than the cancer risk linked with consuming (eating or drinking) small amount of nitrites. Nitrites are added to corned and preserved meat products to protect them from the bacteria and

to give them their normal colour and flavour.

The levels of nitrites added to processed foods are controlled by law and often other additives and antioxidants are also added to stop nitrosamines forming.

Processed meats also contain high levels of salt. Eating a lot of salt and salt preserved foods may cause some cancers. Processed meats may also be smoked. Smoked foods may also contain chemicals which may be linked to stomach cancer. The World Cancer Research Fund recommends avoiding salt-preserved, salted or salty foods and processed meats which have been smoked or cured.

Vegetables can also contain nitrite. Nitrite containing vegetables also have vitamin C and D, which stop nitrosamines and nitrosamides compounds forming in the stomach. So, vegetables are safe and healthy, and have positive health benefits that far outweigh the risks.

Are artificial sweeteners a risk for cancer?

Over many years there has been disagreement over the risks linked with consuming food with artificial sweeteners, especially saccharin and aspartame (brand names include NutraSweet and Equal). As a result of these debates artificial (fake) sweeteners have been researched a lot.

There have been a series of scares about aspartame, but in each case, the studies/papers have been found to be flawed and the evidence proved wrong. There is no reliable evidence which links aspartame with any kind of cancer in humans. Many years ago saccharin was linked with an increase in bladder cancer in rats which were fed large quantities (amounts) of saccharin. This link did not relate to humans and there has been no evidence to suggest saccharin causes cancer in humans.

Many of the studies on artificial sweeteners have been on rats. Animal studies do not prove carcinogenicity (it causes cancer) in humans and large studies looking at the affect of artificial sweeteners on people have not shown an increase in the risk of cancer.

Artificial sweeteners and other food additives are evaluated (judged) and monitored by governments in many different countries. Any additives which are cancer causing are unlikely to be registered and used.

Pesticides

Pesticides and herbicides are widely used in food production and many people worry the pesticides they may eat with fruit and vegetables will cause more harm to their health than the good it will do by eating these healthy foods.

High doses of some of these chemicals can cause cancer in animals, and there may be an increased risk to people who are exposed to high levels as part of their job (for example in industry or farming).

Sometimes traces of pesticides can be left in or on the outside of food. There are strict limits on the levels of pesticide residues (what's in the fruit and vegetables) that are allowed to be in food, and pesticide residues in foods are monitored. Levels of pesticide levels in New Zealand food are monitored regularly. Residue levels have reduced (gone down) over the years and levels are considered safe.

There is no current evidence (proof) that shows very low levels of pesticide residues increase the risk of cancer. There is evidence which suggests eating lots of fruit and vegetables has many health benefits. These health benefits far outweigh any risk which might be linked with pesticide residues and you should not limit the fruit and vegetables you eat. Despite the low risk, it is worth washing or peeling fruit and vegetables as it can remove some pesticide residues.

Fluoridated water

In many regions of New Zealand, and many other places around the world, fluoride is added to the water supply to reduce dental caries (holes in teeth). Fluoridation (putting fluoride in the water) began in New Zealand in the 1950s and it continues to be supported by the Ministry of Health because it has been shown to improve oral health without increasing other health risks. However, fluoridation causes debate because some people are concerned about possible health risks linked with fluoride and believe that water fluoridation takes away the person's right to choose to drink water without things added to it.

Studies of research on this topic have always found there is no clear link between water fluoridation and cancer. The most detailed and organised review so far concluded there was no proven link between fluoridation and cancer but that the quality of research (how carefully it was done) on water fluoridation was poor.

Genetically Modified Foods (GMFs)

Genetically modified foods (GM foods) use gene technology to modify (change) the genetic makeup of foods so they have characteristics (traits) which are not normally part of that food. Food produced for sale using gene technology must be assessed for safety by Food Standards Australia New Zealand. The method for judging food safety is designed to ensure GM foods provide all of the benefits of normally produced foods and that no added health risks will be caused as a result of the genetic modification.

A limited number of foods and ingredients on local and international markets come from GM sources. While limited in number, GM food can be used as ingredients in a wide range of food. The approved GM ingredients for New Zealand come from specified GM approved crops such as corn, canola, cotton oil, soybean and sugar beet.

Processed foods with approved GM ingredients must be labelled as having GM ingredients.

Very little research has been done on the long-term health effects of eating GM foods but there is no evidence to suggest that GM foods will either increase or decrease cancer risk.

Organic foods

There has been little scientific research comparing the cancer risk linked with organic versus (against) non-organic food. There is no evidence that food grown without pesticides or genetic modification influence cancer risk more or less than foods produced using non-organic farming methods.