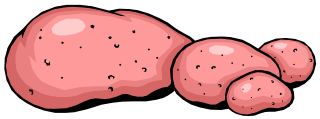
## Natural toxins found in food

Food is packed with natural chemicals that are essential to our health, such as vitamins and minerals. However some foods contain potentially harmful substances called natural toxins that can either make us ill directly or sometimes indirectly by preventing our body absorbing essential nutrients. Other natural toxins are produced when the food is damaged, or when moulds or other fungi grow on the food.

### Red kidney beans

Dried red kidney beans contain natural toxins called lectins, which can cause stomach aches and vomiting. Soaking the dried beans for at least 12 hours and then boiling them vigorously for at least 10 minutes in fresh water destroy these toxins. Tinned kidney beans have already had this process applied and so can be used without further treatment.



### Green potatoes

All potatoes contain natural toxins called glycoalkaloids, usually at low levels. However, higher levels of glycoalkaloids can be found in green parts of potatoes, sprouted potatoes and potatoes stored in light. Severe glycoalkaloid poisoning is very rare, but it's important to store potatoes in a dark, cool and dry place and not to eat green or sprouting parts. If you've removed the green parts and the potatoes still taste bitter, don't eat them. If you come across a green potato crisp, it's probably best not to eat it.

### Apples

Mouldy or damaged apples may contain a toxin called patulin, particularly around the bruised or damaged part of the fruit. Don't eat mouldy or damaged apples and don't use them to make apple sauce or juice.

### Other food sources

The stones and pips of apricots, plums, cherries, peaches, apples and pears all contain glycosides which if eaten release potentially lethal doses of cyanide. As does cassava and almonds (there are official limits for cyanide concentration in marzipan!)

The leaves of rhubarb contain large quantities of oxalic acid which interferes with calcium absorption. The stems are safe but still contain enough oxalic acid to give that characteristic teeth-roughening experience.

Many plants of the cabbage family have a tendency to prevent iodine from being used to replenish the body's thyroid hormones.

Fugu, the liver of a blow fish (puffer fish) may contain a poison so deadly it has been said that 'the element of risk in eating fugu may be one of the reasons why the dish is so popular with Japanese gourmets'.

The amines in cheese, chocolate, sauerkraut, and wine, can cause unpleasant reactions in many people.

## Mushroom Poisoning

Many people are interested in fungi because they are edible, but everyone also knows that wild fungi can be both delicious and deadly poisonous. Mushroom poisoning is a serious risk.

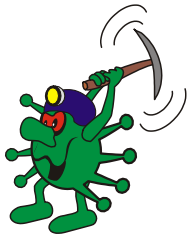
Mushroom poisoning may be instant but can take up to 40 hours. Symptoms may include vomiting, diarrhoea, stomach cramps, breathing problems, dizziness, loss of consciousness and convulsions. Death may occur 6 days after consumption of eating some types of fungi.

If mushroom poisoning is suspected the casualty should be taken to hospital and any available samples of the mushroom taken should be given to medical staff for analysis.

Further useful information is available from the Food Standards Web site on
http://www.foodstandards.gov.uk/multimedia/pdfs/naturaltoxins

## Poisoning from food that has been contaminated

### Heavy metal poisoning



The heavy metals most often implicated in human poisoning are lead, mercury, arsenic, and cadmium. Some heavy metals, such as zinc, copper, chromium, iron, and manganese, are required by the body in small amounts, but these same elements can be toxic in larger quantities.

Heavy metals may enter the body in food, water, air, or by absorption through the skin. Once in the body they compete with and displace essential minerals such as zinc, copper, magnesium and calcium, and interfere with organ system function. People may be exposed to heavy metals in industrial work, pharmaceutical manufacturing and agriculture.

**Symptoms**

Symptoms will vary depending on the nature and the quantity of the heavy metal ingested. Common general symptoms include: Nausea, Vomiting, Diarrhoea and Abdominal pain. Depending on the metal, there may be blue-black lines in the gum tissues. In severe cases patients exhibit obvious impairment of cognitive, motor, and language skills. The expression "mad as a hatter" comes from the mercury poisoning prevalent in 17th century France among hat makers who soaked animal hides in a solution of mercuric nitrate to soften the hair.

**Diagnosis**

Heavy metal poisoning may be detected using blood and urine tests, hair and tissue analysis, or X ray.

## Mycotoxins

Mycotoxins are the toxins produced by moulds and other fungi. They are invisible and can penetrate food, therefore, even if you remove mould from food it might still contain mycotoxins. The safest option is to throw mould food away.

Moulds can grow on most types of food if the conditions are right and they grow fastest in warm, moist conditions. There are a large number of poisons produced by moulds, but relatively few are involved in food poisoning.

Not all moulds are toxic. Cheeses with an external mould coating such as Brie and Camembert, or those with mould running through them, such as Stilton and Danish Blue are safe to eat in normal quantities because the moulds have been deliberately introduced. However, if mould grows on cheese that isn't supposed to be mouldy, you shouldn't eat it.

Aflatoxin poisoning is, however, a significant problem associated with cereals and oilseeds, particularly groundnuts, cottonseed, wheat, sorghum, maize and rice. It is a poison produced by two different types of moulds when the cereals and nuts are not dried sufficiently quickly or to a low enough moisture level. This is a particular problem with unshelled groundnuts where the mould can grow on the nut under the shell and contaminate the nut with poison. These nuts became discoloured and should be thrown away.

Poisoning can be prevented by not allowing the mould to grow, i.e. by drying the food quickly to sufficiently low moisture content.

## Pesticides

Consumer concern has grown over the scale of pesticide use and the potential hazard of the effect of pesticide residues in food on human health and the environment. The effects of lifetime exposure are unknown, but children, the old and the infirm are most at risk. Not all pesticides leave residues on food, and of the residues some can be removed by peeling or washing whilst others are within the food and cannot. However, the risk to health from eliminating fruit and vegetables from the diet outweighs risks due to possible exposure to pesticide residues. Pesticides in use pass strict safety standards, their use is controlled, food is monitored for residues and legal safety limits (Maximum Residue Level) have been set which take account of risks to babies and children.

# RUNNYMEDE BOROUGH COUNCIL

# Information on poisoning from contaminated Foods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