Additional resource: What the labels don't say

Accompanying PDF to Step 1.10 in the online course 'Understanding Food Labels'.

The following contaminants and residues are not listed on food labels. However, EU legislation ensures that food placed in the market is safe to eat and does not contain contaminants at levels which could threaten human health. In the case of residues, their levels in food should not harm the consumer.

Contaminants

- Mycotoxins are naturally occurring chemicals produced by certain moulds. They can grow on grains, nuts, spices, and dried fruits, and cause serious adverse health effects (e.g. cancer). To protect consumers there are strict controls and limits in place, yet people are advised to take some measures such as inspecting and discarding any grains and nuts that look mouldy, discoloured, or shrivelled. Mycotoxins (such as aflatoxins, ochratoxin A, patulin) are classified as contaminants and maximum levels are set on the basis of scientific advice provided by the European Food Safety Authority (EFSA). Members State authorities are responsible for sampling food products, to ensure that they comply with legislation.

- Acrylamide occurs naturally as a result of cooking high-starch foods, such as potatoes and bread, using high-heat methods (above 120°C) [2]. It can be formed when foods are baked, fried, grilled, toasted or roasted. Laboratory tests show that acrylamide in the diet causes cancer in animals and has the potential to cause cancer in humans. [3]. Despite this, acrylamide can be found, for example, in a simple bag of potato chips. The UK Food Standards Agency (FSA) gives recommendations on how we can reduce the amount of acrylamide we consume by changing the way we prepare food at home and explains what the food industry is doing to reduce it in products.

- Arsenic is naturally present in the environment. It occurs in the air, soil, water and in almost all plant and animal tissues. Therefore, it is present at very low levels in many foods and impossible to eliminate completely. There are two forms of arsenic: the organic form, which is commonly found in fish and seafood and is less harmful; and inorganic arsenic, which is highly toxic and long-term exposure can cause cancer and skin lesions. It has also been associated with developmental effects, heart disease, diabetes, and damage to the nervous system and brain [4]. Arsenic can build up in

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some foods more than in others, such as rice. This does not mean you shouldn't eat rice; you can enjoy rice as part of a healthy and balanced diet. To protect consumers from excessive exposure, a maximum level for arsenic in rice has been set. These maximum levels are regularly reviewed, and manufacturers are responsible for making sure the food they produce is safe.

- Mercury and dioxins are environmental contaminants, which are known to accumulate in fish. Mercury is a naturally occurring element, which is released into the environment from both natural sources and because of industrial pollution. Dioxins and PCBs (polychlorinated biphenyls) are industrial pollutants that are widespread and persistent in the environment.
  - Mercury: nearly all fish contain trace amounts, however species that are near the top of the food chain (e.g. shark, swordfish, certain species of large tuna, etc.) may accumulate larger amounts through eating other fish. In most species that are commonly eaten the levels do not pose a risk to human health. Children and women who are pregnant, breastfeeding or planning a pregnancy are advised to avoid eating shark, marlin, swordfish, and similar species.
  - Dioxins and dioxin-like PCBs: harmful effects on human health, can result from chronic exposure to high levels of dioxins and PCBs, but the risk is negligible if intake remains below a critical level.

Mycotoxins, acrylamide, arsenic, mercury, and dioxins are contaminants. EU legislation on contaminants is based on scientific advice and the principle that contaminants levels shall be kept as low as can be reasonably achieved following good working practices. Maximum levels have been set for certain contaminants (e.g. mycotoxins, dioxins, heavy metals, nitrates) to protect public health.

Evaluating these risks is the remit of organisations such as the EFSA and national food safety authorities. These authorities set intake guidelines, under constant review, that allow consumers to enjoy the benefits of a food within safe limits of intake.

Residues

- Antibiotics and antibiotic resistance.
  Antibiotics are medicines that kill or stop the growth of bacteria. Antibiotic resistance happens when bacteria develop the ability to survive or grow despite being exposed to antibiotics designed to kill them. Antibiotics save lives, but any time antibiotics are used, they can contribute to the development and spread antibiotic resistance. Antibiotic resistance spreads through people, animals, and the environment.

Improving antibiotic use, including reducing unnecessary use, can help stop resistance from spreading.
Animals, like people, carry bacteria in their guts. Some of these bacteria may be antibiotic resistant. Antibiotic-resistant bacteria can get in food in several ways:
  - When animals are slaughtered and processed for food, resistant bacteria can contaminate meat or other animal products.
  - Animal waste (poop) can contain resistant bacteria and get into the surrounding environment. Fruit and vegetables can get contaminated through contact with soil, water, or fertiliser that contains animal waste.

- Pesticides & pesticides residues
  Pesticides play a key role contributing to the increase in yields, farmers benefit from more efficient production and consumers benefit from high quality and low-cost products. Pesticides must undergo a strict safety assessment; a list of pesticides that are approved for use is available within the EU pesticides database.
  Pesticides residues are the very small amounts of pesticide that can remain in or on a crop after harvesting or storage and that can make their way into the food products made from these crops. Residues are subject to legal maximum levels fixed by the European Commission for each individual pesticide approved for use on a given crop in the EU. If pesticide residues are found in food products at a level of potential concern for consumers, they are not allowed on the market.

The EU legislation on residues of veterinary medicinal products used in food producing animals and on residues of plant protection products (pesticides) provides for a scientific evaluation before respective products are authorised. If necessary, maximum residue limits (MRLs) are established and in some cases the use of substances is prohibited.

- Bisphenol A (BPA) is used in the manufacture of plastic and may be found in the lining of food and beverage cans [5]. Animal studies indicate that BPA exposure can lower the age of onset of puberty, disrupt sexual organ development and increase cancer risk. BPA can act in a similar way to oestrogen in the body and binds to the oestradiol receptor. There are also associations between BPA and impaired thyroid function, impaired foetal growth and increased aggressive and reactive behaviours in boys exposed in utero. BPA has also been associated with increased body fat and, in animals, increased abdominal fat and impaired glucose tolerance [6]. The research on BPA is ongoing and the current findings indicate that dietary exposure to BPA is not considered to be harmful for humans of any age group. Many companies are however beginning to use BPA alternatives in their packaging and you may see statements such as ‘BPA-free’ on the labels.

The EU legislation on food contact materials provides that these materials shall not transfer their components into food in quantities that could endanger human health or change the composition, the taste or the texture of food.

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