



Reducing your risk



A UK guide to avoiding hormone disruptors

By following the tips in this leaflet, you will:

- ◆ Protect your health and that of your family
- ◆ Help protect the environment
- ◆ Influence consumer choice.



There is not one person or animal on earth – from a polar bear in the Arctic, to a tree frog in the tropical rainforest, to a new-born child anywhere – that has not been exposed to man-made industrial or agricultural chemicals.

Why be concerned?

A new threat is now coming from a growing number of toxic chemicals known as hormone disruptors.

These can interfere with the normal functioning of the body's hormonal control systems, and can seriously affect health. The full extent of the problem is unclear, because only a small handful of the many thousands of chemicals in everyday industrial and domestic use have been adequately tested.

WWF is calling for regulation of these chemicals, and for the implementation of precautionary measures concerning their production, release and use in order to guard our wellbeing.

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Prevention is the cure

The evidence of damage to humans and wildlife by these hormone disruptors is mounting.

The effects are often irreversible but there are easy steps you can take in your everyday life to reduce your exposure to these chemicals.

This guide explains what the chemicals are and where they are found, and it offers practical suggestions for avoiding them. You will not be able to eliminate them altogether from your life, because many are persistent, accumulate in the body and can be passed onto the unborn child in the womb. However, there are a few simple precautions you can take to reduce your risk. This will benefit you and your family– and in turn, you will help protect the environment.

What is hormone disruption?

Hormones are found in humans and wildlife and are vital in regulating bodily functions. They act as chemical messengers and are produced by a variety of hormonal glands.

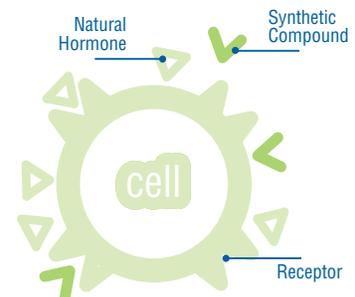


These glands include the testes, ovaries, thyroid and adrenal glands. The messages these hormones carry tell cells what to produce, how and when to grow, and even when to switch off and die. They also have a key role in directing the sexual development of the embryo and developing foetus, and help to form the nervous system, liver, kidneys, brain and other vital organs.

Hormone disrupting chemicals interfere with the messages sent to all these vital organs. They do so by mimicking naturally-occurring hormones or by activating or blocking hormone receptors or hormone production.

Just as natural hormones can have significant effects at surprisingly low concentrations, man-made contaminants that act as hormone disrupting chemicals can take effect at very low doses.

If hormonal messages are disrupted during critical phases of development – for example in the unborn child – there can be serious lifelong consequences for the offspring. This can occur even when the parent, already fully developed, is apparently unaffected.



The evidence of hormone disruption

Man-made chemicals have been released into the environment for many years. Recently, however, a wide range of abnormalities have been found in wildlife that demonstrate the threats posed by hormone disruptors.

Examples include:

Feminised male fish such as trout, roach and flounder in many UK rivers and estuaries

Female dogwhelks growing penises and becoming sterile in UK coastal areas

In Florida, Male alligators with small, dysfunctional genitals

Deformed reproductive organs in Columbia River otters leading to reproductive failure

Damage to the immune systems of North Sea seals and Mediterranean dolphins, leading to viral epidemics

Female polar bear cubs with genital deformities involving a stump-like penis

The list is growing all the time.

Evidence in Humans

Since there is little fundamental difference between the human hormone system and that of other animals, humans are more than likely affected too. Embryos and foetuses are most at risk. The British government and various scientific institutions are studying the following effects on humans:

Declining sperm counts and semen quality

Climbing rates of breast, testicular and prostate cancers

Deformities of male and female reproductive organs

Increasing incidence of childhood hyperactivity,

Learning disorders and impaired mental development

Plastics – versatile, but safe?

Plastics have revolutionised many aspects of modern living. However, two worrying substances found in some plastics are phthalates (pronounced ‘thalates’) and bisphenol A (BPA).

Phthalates add flexibility to a large range of plastic goods. They are also found in some paints, inks, adhesives and cosmetic products. The problem is that they can escape from these consumer goods and eventually find their way into our body. Although phthalates are generally no longer used in food packaging, they are still sometimes found in food. Other plastic additives in packaging may also leach into food. There is a current European ban on phthalates in plastic items designed to be sucked by children under three years of age. However, some other plastic toys also contain phthalates.



phthalates

Bisphenol A is used extensively in the production of polycarbonate and epoxy resins. It can also be found in adhesives, reinforced pipes, interior coatings of tins and drums, flooring, electronic goods, powder paints, lenses, crash helmets, thermal fax paper and some resistant plastic foods and drink containers. Our exposure to BPA is therefore widespread, particularly through food-can linings, from where it can leach into food, and from baby feeding bottles and plastic tableware.



bisphenol A



WWF's Tips

Plastics

- ◆ Choose general goods with the least plastic packaging and recycle as much as possible. This will help protect the wider environment.
 - ◆ Avoid using plastic flooring in your home.
 - ◆ It is preferable to Microwave and cook food in ceramic or glass dishes instead of plastic containers. Take food out of plastic packaging before cooking.
 - ◆ Store food in glass or ceramic containers instead of film and other plastic wrappings especially fatty food such as cheese, meat and butter.
 - ◆ Buy fresh food rather than canned food. Ask your supermarket which tins are lined with plastics containing BPA. If they don't know, ask them to contact the manufacturers for an answer.
 - ◆ Try to prevent your children from chewing anything made of plastic, including soft plastic toys and plastic dummies. Use natural fibre toys instead if you can. Although the European Union has banned the use of phthalates in toys and items likely to be sucked by children under three years of age, many other plastic toys still contain phthalates.
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Pesticides in food, in the home and in the garden shed

Many known or suspected hormone disruptors are pesticides.

With the vast range of imported food available in this country, pesticides used anywhere in the world can find their way into food consumed here. They are used to control weeds, rodents, fungi, moulds and insects. Many pesticides have hormone disrupting effects and have been associated with cancers, nerve and brain damage and birth defects.

Pesticides in food

Our greatest exposure to pesticides comes via food containing residues of pesticides, some of which can accumulate to harmful levels in the body. Government research shows that pesticides have been found in samples of a wide range of foods. For example:

46% of potatoes

45% of milk

26% of butter

19% of bread

41% of fruit & vegetables

Other exposure to pesticides

Garden pesticides are used widely, and the dangers from these products is widely known. But many pesticides find their way into drinking water. They are also found in shampoos used to treat head lice, as well as in fly sprays, mothballs and other anti-insect treatments around the home. We are also exposed to pesticides through weedkillers used on public lawns, parks and golf courses, and through regular contact with timber treated with some preservatives such as Pentachlorophenol or PCP. This includes timber in children's playgrounds.

Pesticides are so widespread that it is extremely difficult to avoid them altogether. However, overleaf we list some ways in which you can reduce your exposure.



WWF's Tips

Pesticides

- ◆ Wash and peel non-organic fruit and vegetables (a little vinegar in water will remove some pesticide residues from the surface of vegetables, although some will remain inside).



- ◆ Don't use pesticides to deal with fleas on pets. Instead, wash your animals with herbal shampoos and vacuum their bedding frequently.
- ◆ Don't use insecticides in your home. Natural products such as cedarwood to discourage moths, geraniums and citronella to repel mosquitoes and various natural oils are safer alternatives.
- ◆ At home or in the garden, modern building practice suggests that insect infestation of timber is often best cured by cutting out and burning the affected section. Natural oils can also help.
- ◆ Ensure that members of your family thoroughly wash their hands after playing in playgrounds, sports fields, golf courses and public parks. Find out if your child's school uses pesticides in playing fields and ask it not to. Ask your local authority not to use pesticides on grass verges, where they really aren't necessary.
- ◆ You can buy a water filter to help lower the concentrations of chemical residues in drinking water. Follow the instructions carefully and change the filter regularly to avoid potential threats from bacteria.
- ◆ Many head lice shampoos contain pesticides. Try using homeopathic alternatives, herbal shampoos and a very fine-toothed comb.
- ◆ Don't use pesticides in the garden. There are many substitutes such as those recommended by the **Henry Doubleday Research Association** Ryton Organic Gardens Coventry CV8 3LG Tel: 01203 303517
- ◆ Whenever possible, buy organic food and food grown locally. Remember that even fruit and vegetables grown without the use of pesticides may have been sprayed in storage. Many products carry **Soil Association** symbol – one of the marks that guarantees food as organic. Further details from the Soil Association, Bristol House 40-56 Victoria Street Bristol BS1 6BY Tel: 0117 929 0661



Persistent Organic Pollutants (POPs) – an ever-present threat



POPs are a group of chemicals with particularly hazardous characteristics: These hormone disruptors are very long-lived, they accumulate via the

food chain in humans and other animals, they are highly toxic and can travel miles through air and water currents. Because these pollutants are long-lived, disposing of them is a substantial problem. POPs include dioxins, PCBs and many pesticides.

Dioxins are mainly produced during combustion processes in industry. PCBs are no longer produced in the UK, but because they are persistent, they remain in the environment. Pesticides that are POPs have now mostly been banned in the UK, but

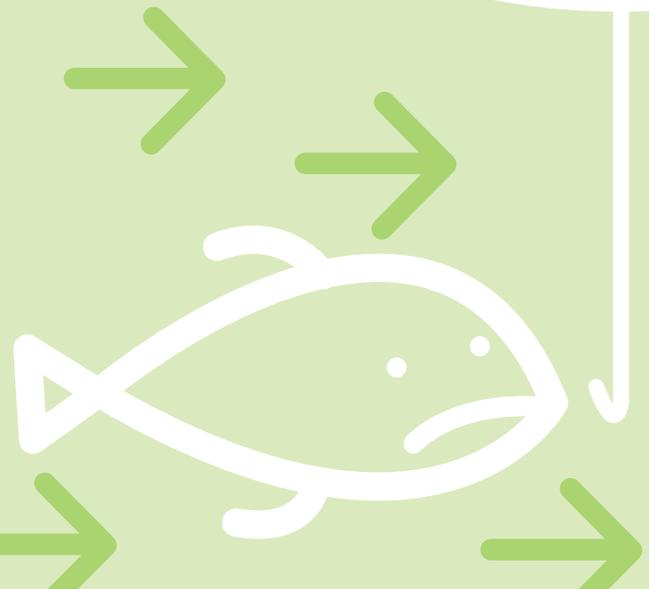
they are still used by some countries on food we may import. POPs have been found in animals from the remotest parts of the world, including polar bears, whales and seals. Humans also have significant concentrations of POPs in their bodies.



WWF's Tips

POPs

- ◆ If you catch fish to eat, don't take them from polluted estuaries or rivers. Ask the **Ministry of Agriculture, Fisheries and Food (MAFF)** for details about which fish stocks are polluted, and for its recommendations about limiting your intake. Further details from MAFF, Nobel House, 17 Smith Square, London SW1P 3JR. Website: www.maff.gov.uk
- ◆ Don't burn plastic in your garden or at home because many products are made from PVC which releases dioxins when burned.
- ◆ Try to eat lower down the food chain by reducing your intake of meat and dairy products that are not organic. Reduce your fat intake – particularly animal fat.
- ◆ Follow all other tips in this leaflet.





Heavy metals in water, food and the home

Lead, cadmium and mercury are particularly toxic metals that can cause hormone disruption.

Lead

Lead affects the growing brain and can cause neurological disorders as well as reduced intelligence in children. It is used in old plumbing and batteries and can leach from waste disposal sites. But the biggest threats from lead are in household dust, drinking water and in dirt ingested by children. It was commonly used in glazes and paints, so stripping these can be hazardous. Some homes built before 1970 have lead water pipes. These are a particular threat if you live in a soft or acid water area (contact your local water company).



Mercury and cadmium

Mercury is used in small button-type batteries, fluorescent tubes, some pesticides and thermometers and in many other products. Most dental fillings contain mercury. Mercury can cross the placenta from mother to foetus and cause neurological damage in the child.

Cadmium is principally used in rechargeable batteries. It is also released from metal smelters and from phosphate fertiliser production. It can also be found in sewage sludge which is often spread on agricultural land. Many traditional industrial towns have sites with high levels of cadmium contamination.

Mercury and cadmium also flow from many landfill sites. Some fossil fuels – particularly coal – are contaminated with these heavy metals that are released when burned.



WWF's Tips

Lead

- ◆ Remove dust with a moist mop or duster regularly, especially near doors and windows. Wash children's toys regularly and groom pets outside. Make sure your children wash their hands after they have been playing outside,
- ◆ If you think your garden may be contaminated – for example if where you live was once part of an industrial site – get your soil tested by the local authority's environmental health department.
- ◆ Run your taps for a few minutes after long periods of disuse (after you have been away for the weekend or on holiday for example). This will flush out some of the water that may have been contaminated with lead or other pipe coatings.

If in doubt, ask your water supply company to test your water (which it will do free of charge).

- ◆ Before stripping lead paints, seek advice from the **Department of the Environment, Transport and the Regions (DETR)**. Obtain your free leaflet '*Are you redecorating? Advice on old lead paint in your home*' by calling 0870 1226 236 and seek further information from www.environment.detr.gov.uk/wotw/index.htm Another free leaflet, '*Old lead painted surfaces. A guide on repainting and removal for DIY and professional painters and decorators*' is available from **The British Coatings Federation (BCF)** on 01372 360 660 or from www.coatings.org.uk
- ◆ If you think you may have been exposed already, ask your doctor for a blood test. There are ways to reduce the level of heavy metals in your body.



WWF's Tips

Mercury and Cadmium

- ◆ Don't breathe in the vapour if you break a fluorescent tube or a thermometer. Clean up mercury spills with a wet mop – not a vacuum cleaner. Ask your local authority for details of the safest way of disposal.
 - ◆ If you smoke, try to stop. Avoid passive smoking. Cigarettes contain cadmium and numerous other pollutants.
 - ◆ Buy your batteries from shops that will dispose of them properly and make sure you return them when they are exhausted. Where possible, ensure that rechargeable batteries containing cadmium are returned to the manufacturers for recycling.
- ◆ Obtain your electricity supply from guaranteed renewable sources if possible. Check that it is not generated through the use of waste incineration, as this releases toxic chemicals into the environment. Ask your electricity company for details.
 - ◆ Minimise car and energy use: burning fossil fuel releases cadmium and mercury into the environment.
 - ◆ Ask your dentist not to use mercury fillings if at all possible. There are alternatives that contain no mercury, such as porcelain or gold. If your dentist suggests a white filling, make sure it is not Bisphenol A and ask for an alternative that doesn't contain hormone disruptors.



Other hormone disrupting chemicals in your home

There may be more hormone disruptors in your home than you think. For example, in household products such as some hair sprays and hair dyes, flame retardants in televisions and stereos and some strong cleaning products.

- ◆ Be careful in your use of hair sprays and hair dyes, especially if you are pregnant or spend time with children. Some perfumes can contain hormone disruptors or allergens. If in doubt, ask the manufacturer for a full list of the contents of these products. Consumer associations can help with your queries.
- ◆ Many manufacturers of electronic goods are replacing flame retardants with less harmful alternatives. You can find out which ones by asking consumer associations and looking on their websites.
- ◆ Don't use very strong industrial cleaning products in the home. A range of effective 'green' washing and cleaning products that use plant extracts and degrade quickly is now widely available.

Spread the word

The issue of hormone disruptors is a relatively new one. Please pass this guide on to someone else, or to a school, college or workplace. Everyone should know of the dangers – especially pregnant women, farmers, sports ground-keepers, green-grocers, supermarket managers, dentists, schoolteachers, local councillors, MPs and MEPs. If you need more copies of this free leaflet, contact WWF.



WWF's Top 15 Tips

for reducing your exposure to hormone disruptors

- 1** Buy food without plastic packaging. Avoid storing, cooking or microwaving fatty foods in plastic containers: use glass or ceramic containers instead.
- 2** Buy organic products as much as possible. Eat products from lower down the food chain and follow the National Healthy Eating Guidelines which you can obtain from your doctor. Always wash vegetables and fruit, and peel them if they are not organic.
- 3** Many head lice shampoos contain pesticides. Try using homeopathic alternatives, herbal shampoos and a very fine-toothed comb.
- 4** Don't use pesticides indoors or in the garden. Consider alternatives and try gardening organically.
- 5** Ask your vet for a flea killer for your pet that does not contain pesticides, or use a herbal shampoo and vacuum your animal's bedding regularly.
- 6** Ask your DIY store for wood preservatives that do not contain pesticides.
- 7** Use environmentally friendly cleaning products in your home.
- 8** Seek advice before stripping old paint-work that may contain lead.
- 9** Try to avoid mercury fillings or certain plastic dental coatings. Ask your dentist for alternatives or at least to minimise your exposure.
- 10** Treat exhausted batteries as hazardous waste and arrange with your supplier to dispose of them carefully.
- 11** Prevent your children from chewing on plastic items such as toys.
- 12** Ask your MP, MEP and others in positions of influence to seek reduced releases of hormone disruptors.
- 13** Give up smoking and avoid passive smoking.
- 14** Ask your supermarket or the manufacturers of any products that may contain hormone disruptors for full ingredients lists. Ask your supermarket to label products containing these chemicals. You should have the right to know.
- 15** Make sure you and your children wash their hands after outdoor activities in parks, playing fields and golf courses. You can ask your local authority to reduce the use of pesticides in these areas.

WWF is campaigning for the public's right to know which chemicals are used in products; for hormone disruptors to be controlled properly; and for precautionary measures to be implemented.



As a consumer you have real power to influence how products are made, which chemicals are used in them and whether industry and government take steps to eliminate hormone disruptors.

If you want to know more, visit the WWF website:
www.wwf-uk.org

Further reading

Our Stolen Future: Are We Threatening Our Fertility, Intelligence and Survival?
Theo Colborn, Dianne Dumjanoski and John Peterson Myers, Dutton 1996.

Contact WWF for free factsheets and briefings on hormone disruptors.
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Panda House, Weyside Park
Godalming, Surrey GU7 1XR

Tel: 01483 426444
Fax: 01483 426409

www.wwf-uk.org

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WWF: taking action for a living planet

WWF is working in the United Kingdom and throughout the world to save endangered species and habitats as well as to ensure that people use natural resources such as forests in a sustainable way. It also encourages people and organisations to reduce pollution to a minimum and stop the wasteful use of fossil fuels.