

# Toxicity

I recently watched a TV program discussing popular health concerns. When toxicity was mentioned, the panel unanimously stated detoxification was unnecessary. They said that this process occurred naturally, and we need to do nothing more. What I was hearing could hardly be further from the truth.

We are being exposed to unprecedented level of toxicity, one which we have never experienced before, and it is having serious consequences. **Chemical production has increased from 1 million tonnes in 1940 to 600 million tonnes today.** Since World War Two 70,000 new chemicals have been released into the environment. Five new chemicals are added each day.

We come into contact with 4000 chemicals each month. Women who use higher levels of personal care products can have a four-fold increase of these toxins in their blood. Many of these substances stay in the body for decades and accumulate as we age.

**The US Cancer Prevention Coalition demonstrated that our lifetime safe toxin level is exceeded by the time a baby reaches 18 months of age.** Numerous studies have found the average person has hundreds of toxic chemicals in their bodies. For instance, the Mont Sinai study found all healthy volunteers had 210 chemicals in their bodies, including 52 carcinogens, 55 chemicals that could cause birth defects, 62 that were toxic to the brain and nervous system, 77 that were toxic to the reproductive system and 77 that were toxic to the immune system.

**Toxicity is higher in men than women** and research has uncovered the reason. Levels of pollutants drop in the mother's body by nearly half during pregnancy and go down with each pregnancy. Breast-feeding also lowers the level and the longer the breast feeding goes on the more the levels drop. This is tragic for the children because these pollutants are being passed to them when they are most vulnerable. (Even with this caveat, breast-feeding is still a better choice than bottle-feeding). **It means each generation has a greater toxic load.**

**Surveys have shown that about 10% of all chemicals are carcinogenic and 25-50% of chemicals are neurotoxic.** Cancer and neurological disease have seen dramatic rises over the last few decades. We are also seeing a large rises in auto-immune diseases. Virtually all of these can be triggered by chemicals.

Another concern is that many chemicals (pesticides, plastics) are **endocrine disruptors** (gender-benders), producing xenoestrogens and androgens (artificial female and male hormones). A particular worry is that these chemicals can act at extraordinarily low concentrations of parts per billion (equivalent to 1 second in 32 years). We are seeing big increases in both hormone-related cancers (breast, prostate, and ovary) and other diseases linked to abnormal hormones (infertility, polycystic ovary syndrome, endometriosis, reduced sperm counts).

Because there are individual differences in how we metabolise chemicals (sometimes several hundred-fold) and because of the unknown effects of chemical combinations, these toxic chemicals can be far more dangerous to some people than others.

Chemical toxicity is not the only risk we face. Electromagnetic pollution from mobile phones, wifi, smart meters and DECT phones, poses its own hazards and amplifies the risk of toxic chemicals. Dental materials containing heavy metals and plastics can greatly add to the total toxic load.

My belief is that **everyone needs to consider some sort of detoxification today**. Our exposure is simply too high, our ability to break down these chemicals too uncertain and the diseases they cause too serious.

## **SYMPTOMS OF TOXICITY**

Toxicity can produce almost any symptom, but some are commoner than others. **Fatigue** is typical. The 104 most frequently used chemicals are now found in the bodies of almost every person. Every single one of these damages the mitochondria which are the energy-producing factories of our cells. So, it is no surprise that fatigue is so common today. Another common symptom is **brain fog**. Most chemicals are lipophilic which means they are attracted to fatty tissue including the brain. Symptoms such as anxiety, depression, forgetfulness and irritability are also common. **Recurrent or persistent infections** can be a clue. This is because chemicals damage the immune system and for similar reasons can trigger auto-immune disease. Volumes have been written on chemicals which are immunotoxic. The majority of chemicals, notably plastics and pesticides are endocrine disruptors, hence they can cause **hormonal disorders** as noted above. Chemicals increase the risk of obesity and diabetes.

People suffering from chemical toxicity can become **very sensitive to chemical smells**, such as perfumes and can become more and more allergic to a range of chemicals. Alcohol intolerance and food intolerances are common as are allergic disorders such as rhinitis and asthma.

A major problem for people with toxicity is that **doctors are not taught about toxicity, so they do not consider it as a diagnosis**. Even in the unlikely event that they do consider it, **they cannot diagnose it as they have no way to test for it**. Because they have no explanation and because mental symptoms are common, they often wrongly put it down to it "being all in the mind". This is frustrating for patients and the result is that this field of medicine is completely overlooked by conventional doctors.

## **REDUCING THE RISK**

Reducing our risk involves firstly reducing our exposure and secondly increasing the elimination of toxins.

### **1) Reducing Exposure**

**This is the crucial first step.** The risk comes from food, water, personal care products and the environment. **Avoid pesticides** (eat organic where possible), plastics (avoid microwaving in plastic and plastic-lined kettles), and avoid processed foods. Processed foods, with their multiple chemical ingredients, are bad news and best left on the shelf. In addition, most processed food contains high-fructose corn syrup, which is high in mercury, a potent toxin. **Using a water filter is a simple step.** Teflon or aluminium pans contain particularly nasty chemicals and should be avoided. Soluble fibre, such as oats, pectin and psyllium help remove toxins from food (take with lots of water). **Avoid farmed salmon** which has the highest concentration of both PCBs and pesticides of any food. The US Environmental Protection Agency have stated it is unsafe to eat farmed salmon more than 4 times a year. Larger fish such as tuna are high in mercury and tinned sardines are high in PCBs and these are also best avoided.

Use **natural personal care products.** Most chemicals are fat soluble and are rapidly absorbed through the skin. **It is believed that 64% of all chemical exposure is through the skin.** Hair dyes have been associated with lymphoma and bladder cancer and girls working in nail salons have an eight-fold higher risk of brain tumours. Perfumes are made from a combination of toxic chemicals, and these are not even labelled. **Anything you put on your skin will get absorbed into your body** so don't put anything on your skin that you wouldn't eat!

A good starting point is to **remove "smellies" from the house** as they are nearly always toxic. **Avoid air fresheners and aerosols** as they can be absorbed through both the skin and lungs making them more toxic. **Avoid fragranced products** which are nearly always toxic. Beware of any chemicals with "chloro" or "flouro" in the name. These are both toxic and very long-lasting.

**Carpets, new furniture, paints and numerous household items outgas toxic chemicals,** including carcinogens like formaldehyde. **Carpets are usually the most toxic element in the house.** You can use an air purifier (with a HEPA filter) or leave the room empty with windows open for a few days after painting or introducing new carpets and furniture. Avoid pesticides in the garden as this is known to increase cancer risk. Wash new clothes before wearing. Avoid anything containing nanoparticles. These can be found in clothes and especially socks (often labelled silver technology).

Don't let your dentist use amalgam fillings and where non-metallic options are available (eg crowns) go for them.

Switch the wifi at night, avoid having mobile phones in the bedroom at night (especially charging mobile phones). These microwave the brain and body at a time when healing should be taking place. Never agree to have a smart meter.

## **2 Increasing Elimination of Toxins**

Anything that induces **sweating** helps eliminate toxins and some chemicals are mainly excreted through the skin. Saunas have been used for firemen who have been exposed to high levels of toxicity. Dr Myhill has found 50 saunas reduced levels of toxic chemicals by 50%. Exercise has many benefits, and this includes sweating out chemicals.

**Fasting**, with fruit and vegetable juices or water, is beneficial on many levels. One is the increased elimination of chemicals. This needs to be built up slowly. The second is that it supplies crucial nutrients. People with high levels of toxicity can feel quite unwell once they starting fasting as toxins migrate from the fatty tissues to the bloodstream. Start with a one-day fast and, if possible, use organic fruits and vegetables because juicing concentrates both nutrients and pesticides.

People eating a plant-based diet have lower levels of pollutants such as dioxins and PBDEs. A 1992 study found levels of heavy metals (mercury, lead and cadmium) dropped significantly after 3 months of eating a plant-based diet but built up again on going back on meat, fish and eggs. (Pollutants tend to be higher in fish and farm animals due to bioaccumulation of toxins).

**Cruciferous vegetables** (brassicas) such as cabbage, broccoli, cauliflower, Brussels sprouts **enhance phase 2 detoxification**.

Oil-pulling (see separate leaflet) and Epsom salt baths are simple ways to reduce toxicity although there is little research on these.

### **3 Supply Nutrients**

Every stage of detoxification requires vitamins, minerals and amino acids and many people are already deficient in these. Drugs (including pharmaceutical drugs) and alcohol will further deplete these.

#### **Three nutrients stand out:**

The first is **Vitamin C**. Use at high dosage until symptoms settle (usually between 6 and 10 grams spread over the day). It has an impressive ability to detoxify and has been used successfully for tetanus and diphtheria toxoids, snake-bites and other toxins.

The second is **Alpha Lipoic Acid**. The liver is the key organ of detoxification and alpha-lipoic acid protects and strengthens the liver. It has been used to reverse poisoning from death cap mushroom which is normally fatal. It also recycles Vitamin C and E. R lipoic acid is the most potent form of lipoic acid. A typical dose of alpha lipoic acid is 300mg daily.

The third is **glutathione**. This is not absorbed well when given by mouth. In addition, 50% of the population have a defect in the enzyme glutathione-s-transferase which metabolises glutathione. There are various forms available. Reconcostat is effective but very expensive. A reasonable option is L glutathione complex.

However, although these are the prize nutrients for detoxification there are others, and the **detoxification process can be slowed down by its weakest link.**

Different nutrients are needed for the **phase 1 and phase 2 detoxification.** If there are too few key nutrients or too many chemicals the system malfunctions.

**Phase One:** Vitamin C, Vitamin E (Mixed tocopherols), molybdenum and Vitamin B2. It is helped by milk thistle.

**Phase Two:** N Acetyl cysteine, alpha lipoic acid, selenium, vitamin B6, and curcumin. Phase 2 needs an adequate supply of glutathione (which in turn requires selenium and zinc). Deficiencies of taurine, glycine, arginine, ornithine and sulphur can also impair phase two detoxification.

Important nutrients are **zinc** (15 to 30mg daily), **B vitamins** and **selenium.** These are needed for key detoxification pathways.

Toxicity is nearly always associated with gut inflammation, so a **probiotic** (which aids absorption of nutrients) is an important supplement to use (see probiotic leaflet). Other sources of beneficial bacteria are fermented foods such as kefir and sauerkraut. The gut is responsible for half of all detoxification. So, using a probiotic combined with a diet very low in sugars and refined carbohydrates, such as white flour, (as these foods feed the harmful bacteria) helps the detoxification process.

Another key nutrient is **Vitamin D** which is the single most important immune-regulating nutrient in the body. Use a dose of between 5000 and 10,000 IU daily for a month or two (this is the sort of dose you get with regular sunbathing) and then reduce to between 2000 and 5000 IU daily.

**Iodine** also deserves a mention as it is needed to **detoxify halogens** such as flouride (toothpaste, perfluorinated chemicals such as teflon, many drugs) , chlorine (tap water, chlorinated chemicals and drugs) and bromides ((flame retardants, personal care products). See iodine leaflet for more details.

If you are having brain symptoms such as memory loss or brain fog the add **lecithin** which supplies both phosphatidylcholine (essential for brain function) and essential fats (also essential for brain function). See leaflet Fats: the Good and the Bad for more information on essential fats. The easiest way to take lecithin is to add the granules to a drink of water. They don't dissolve but will go down easily. Start with one tablespoonful daily and increase as necessary to 5 tablespoonfuls.

Also consider alkalinising the urine: this increases the output of toxic substances.

## **Toxicity Testing**

Unfortunately, no toxicity tests are available under the NHS so testing from private labs will be needed. There are **three types of tests:** those

that **measure toxic chemicals in the body** such as chemicals and heavy metals; those that **measure the detoxification processes** and those that **look at genetic differences** (people with the HLA gene are more susceptible to chemical and mould toxicity and those with variants of the APOE4 gene can also be more susceptible, especially to heavy metals).

None of these tests are perfect and none will give a complete answer. If you measure chemicals in the blood and urine everyone will have them to some degree. It is sometimes difficult to know if they are the cause of the person's symptoms. Tests of this type include the **GLX-TOX** (from Great Plains Lab in the USA - this can be arranged through Viva Health) This is a urine test which measures 172 chemicals in the body. Genova do a similar test called **Toxic Elements Core Profile**.

Detoxification process tests include the **Hepatic Detox Profile** (a urine test which shows if Phase 1 or 2 detoxification are impaired), **Superoxidase dismutase**, often called SODase, (a blood test which measures a key enzyme in the detoxification process) and paraoxonase (a blood test which measure the ability to break down organophosphate chemicals and pesticides). **The Organic Acids Test** (OAT) – which is a urine test -gives information about toxicity and biochemical processed in the gut and is often combined with the GLX-TOX test. These may give a clue to which parts of the detoxification process are under stress. **Urinary D glucaric acid** is an indirect test for chemical exposure. Genetic test will show underlying susceptibilities.