

# KIDS IN THE UK

## A picture of health?

**Childhood is a time of unparalleled growth and change. What children eat, as well as what's in their environment, can shape their long-term health and habits. Paying attention to nutrition, and limiting exposure to environmental toxins, has been shown to have a real and beneficial impact on healthy development.**

Most parents want nothing more than a happy, healthy child. Yet today children in the UK (and elsewhere in the world) are experiencing increasing levels of poor health. For example:

- Between 5-8% of children have a food allergy; 1 in 55 have a peanut allergy and 1 in 40 a cow's milk allergy. Hospital admissions for children with food allergies have increased by 700% since 1990.
- 1 in 11 children and young people has asthma. We have the highest prevalence, hospital admission and death rates for childhood asthma in Europe.
- Rates of other atopic diseases are also rising; 1 in 6 have eczema and 1 in 5 suffer from rhinitis.
- There are about 35,000 children and young people under the age of 19 with diabetes, mostly type-1.
- Around 3-7% of British children are thought to have attention deficit hyperactivity disorder (ADHD); many are prescribed drugs to try and improve their concentration at school.
- Headaches affect around half of children by the age of 7, and three quarters of those aged 15. Chronic migraine affects 0.8-1.8% of adolescents and 0.6% of children.
- Although more common in adults, around 14% of older teenage children and 6% of pre- to young teenage children have irritable bowel syndrome.
- One person in 210 has Crohn's disease or ulcerative colitis, conditions collectively known as Inflammatory Bowel Disease (IBD). The rate amongst youngsters is thought to be rising.
- While childhood cases are not monitored, around 1 in 100 people have coeliac disease.



## CHILDREN ARE DIFFERENT

In 2014, Harvard researchers noted that early exposure to environmental chemicals was causing a “pandemic of brain damage” in children.

Children are uniquely vulnerable to environmental pollution, in part because their response to toxic exposures is often very different from that of adults. Good examples of this can be seen in children's responses to drugs like phenobarbital and methylphenidate (Ritalin).

Phenobarbital acts like a sedative in adults, but produces hyperactivity in children; Ritalin, a cocaine-like drug, has a stimulant effect in adults but is used as an anti-hyperactivity drug in children.

There are many reasons for this paradoxical response. But perhaps the most influential is that in the womb, and in the first two years after birth, children undergo extraordinary cell growth in every part of their bodies, from brain neurons to immune cells, so there are more opportunities for toxic compounds to disrupt these cells.

Growing tissue is also much more sensitive to toxic exposures than other tissue and remains sensitive into the teen years. Indeed, studies of exposure to cigarette smoke have shown that the risk of dying of breast cancer is greater for those who started smoking before age 16 than for those who started smoking after age 20.

In addition, children differ from adults in a number of other ways that can increase their susceptibility to toxicants:

- Their body systems have a less-developed ability to break down toxic substances and may also have less capacity to repair damage.
- They eat, drink and breathe in more toxicants relative to their weight than adults. Even at rest an infant breathes in twice the volume of air as an adult, taking in more toxic substances per kg than a grown-up.
- They crawl around on the floor near dust and other potentially toxic particles and are more likely to put things in their mouths and eat things they shouldn't.

Rising rates of childhood illness may be the 'canary in the coal mine' – a warning cry from a world where our environments and diets are wildly out of balance.

## SOMETHING IN THE AIR

Other elements of our environment can also have a profound effect on health. In 2016, *Every Breath We Take: The Lifelong Impact of Air Pollution*, a joint report by the Royal College of Physicians and the Royal College for the Protection of Child Health, starkly set out the dangerous impact that air pollution, both outside and inside the home, is currently having on our children's health.

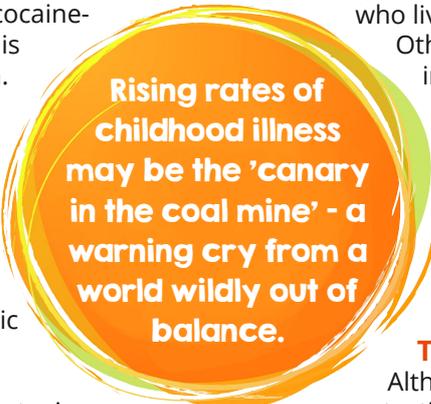
It all begins in the womb, said the report, with studies showing that the heart, brain, hormone and immune systems can all be harmed by air pollution resulting in

effects on growth, intelligence, development of the brain and coordination.

These impacts leave a life-long mark on health and well-being. For example, research shows that exposure to air pollution early in life alters the brain that in a way could make us more vulnerable to autism and schizophrenia.

One 2013 study from the Harvard School of Public Health found that women in the US exposed to high levels of air pollution while pregnant were up to twice as likely to have a child with autism as those who lived in areas with low pollution. Other studies have also found this increased level of risk.

Another study from the same year reported that children who lived in areas with high levels of traffic-related air pollution during their first year of life were three times as likely to develop autism.



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## THE TOXIC HOME

Although we think of them as protecting and enhancing our homes, air fresheners, cleaning products, toiletries, bug sprays, the flame retardants used on furniture and fabrics and household plastics all contain endocrine-disrupting chemicals (EDCs) – substances that can interfere with, or mimic, natural hormones.

EDCs, such as flame retardants, phthalates and bisphenol-A, are known for their damaging effects on reproductive, neurological and immune functions. Many of these substances are persistent – they don't break down easily in the environment or the body.

In one 2011 study, US scientists reported detecting potentially toxic flame retardants – among them pentaBDE, banned since 2005 – in 80% of the polyurethane foam samples collected from 101 common baby products including car seats, bassinet mattresses, breastfeeding pillows, high chairs, strollers, and other polyurethane foam-containing products designed for newborns, infants and toddlers.

These substances can be released into the air as gases, but they can also attach themselves to house dust, now known to be a major source of children's exposures to toxic substances including lead which, even at very low levels, is known to be harmful to the developing brain.

## DISASTROUS DIETS

While there are many external factors that influence healthy development, diet and nutrition is arguably the most important. It is also something that is, for the most part, within our control.

Common sense dictates that a healthy diet is based on whole unprocessed foods; it is high in vegetables and fruits with moderate levels of meats and fats and occasional 'treats'. Ensuring diversity in our diets also ensures we get a full range of nutrients from our food. Yet recent evidence shows that not only do our diets lack diversity, they are also neither natural nor healthy.

A 2018 study of 19 European countries showed that our diets are increasingly made up of "ultra-processed" foods – made mostly from cheap ingredients, many of which have been through multiple industrial processes.

These ingredients, found primarily in pre-prepared and convenience foods, are high in calories, unhealthy types of fat, refined starches and sugars and salt, and are poor sources of protein, fibre and micronutrients.

Consumption of these foods is linked with high levels of obesity, and most recently it has also been linked with a significant increase in the risk of developing cancer.

The UK had the worst diet of all, with half of all the food bought by families being ultra-processed.

In the US, too, ultra-processed foods are the norm, making up more than half of all calories consumed, and contributing nearly 90% of all added sugar intake.

No human body – and especially not a child's body, growing at an exponential rate for the first 16 years of its life – can thrive on this kind of diet and some may be more vulnerable to its ill effects than others.

### **PESTICIDES ON OUR PLATES**

In 2012 the American Academy of Pediatrics recommended that children have as little exposure to pesticides as possible, and produced guidelines for doctors to help them understand the issue.

Household insecticides, pet flea and tick chemicals, and agricultural pesticide residues are all important hazards it said, but diet was likely the most "influential source".

Even when our children are eating 'healthy' food, there may be problems hidden beneath the surface. In the UK and the rest of the EU, for instance, 60% of all fruits and vegetables sold in the UK contain residues of multiple pesticides.

A recent analysis of 12 years of UK government data on pesticide residues by PAN -UK found worrying levels of 123 different pesticides in free produce supplied to 4-6 year olds under the Department of Health's School Fruit and Vegetable Scheme. Some of these were substances linked to serious health problems such as cancer and hormone disruption.

The report also found that the levels of residues contained in free school fruits and vegetables – specifically apples, bananas and raisins – were higher than those in produce found on supermarket shelves.

All pesticides are potentially harmful but two which are regularly in the news are of note: neonicotinoid insecticides and the herbicide glyphosate.

A raft of recent studies have shown that exposure to neonicotinoids – implicated in the global collapse of bee populations and found in high levels in UK waterways – can harm children's brains.

Glyphosate (Roundup), the most widely used herbicide in the world, is used by local councils in parks, on city streets, and in playgrounds to control weeds. In the UK it is the most sprayed herbicide in domestic gardens.

Throughout the world glyphosate is also regularly sprayed on non-GMO crops – such as wheat, oats, maize and barley but also soya, rapeseed, sunflower seeds and chick peas – as a desiccant, to dry them out, before harvest.

Traces are regularly found in bread samples in the UK. Laboratory tests in both the US and UK have found it in the popular ice cream brand Ben & Jerry's – likely due to the cookie, cake and other cereal ingredients used. It is also a contaminant in honey and, like neonicotinoids, its use has been associated with steep declines in pollinators such as bees and butterflies.

Its routine use in agriculture means that foods contaminated with glyphosate residues are a growing problem in the Americas, where genetically modified (GMO) 'Roundup Ready' crops, engineered to withstand repeated sprayings, have significantly increased its use, and its presence in the food system. Studies show that GMO crops contain much higher levels of glyphosate and its toxic breakdown product, AMPA, than non-GMO crops.

Studies of animals fed GM foods and/or glyphosate, show worrying health impacts including damage to vital organs like the liver and kidneys, damage to gut tissues and gut flora, immune system disruption, reproductive abnormalities and tumours.

It's been linked to breast cancer and in 2015 the International Agency for Research on Cancer (IARC) declared glyphosate a 'probable human carcinogen'.

Glyphosate has been found in the urine of citizens throughout Europe, and worryingly high levels have been found in the breastmilk and urine of American mothers, as well as in their drinking water. Passed on to babies through breastmilk, or the water used to make formula, this could represent a genuine risk to infant health since glyphosate is a suspected hormone disrupter. Recent studies suggest that this herbicide is also toxic to sperm.

In spite of all this glyphosate remains on the market in the UK, EU and elsewhere.

### **A NOTE ABOUT GMO CROPS**

Genetically modified (GMO) food has been widely publicised as the best way to feed the world – but eating it could make our global nutrition and health problems worse.

Even in countries where GMOs are ubiquitous, it is still rare for consumers to walk into a store and buy GMOs as whole foods (though this is changing with the introduction of GMO apples, potatoes and salmon in the US).

Instead, GMO crops like soya and maize are turned into ingredients for ultra-processed ready meals, pre-packaged foods and takeaways.



The main by-products of GMOs are fats and sugars. GMOs, when they're not being turned into biofuels – which feed no one – are being turned into corn, soya and even cottonseed oil and sugars, such as high fructose corn syrup and beet sugar.

In other words, what GMOs have most successfully done is provide cheap, unhealthy ingredients to the junk food industry. Consuming this food is linked to multiple health problems, of which obesity is just one.

But the link between GMOs and obesity could also be, in part, due to the glyphosate used on these crops.

Glyphosate is a hormone disrupter and a registered antibiotic. It has been shown to destroy the good bacteria in the guts of animals. If this is also true in humans, as recent studies suggest, it could interfere with the absorption of nutrients from our food, how well we digest proteins and ultimately how easy it is to maintain a healthy weight.

The UK does not grow GM crops – yet. But we do feed them to farm animals intended for human consumption, with no consumer labelling and no follow-up on potential impacts on human health.

For several decades a strong coalition of Member States has kept GMOs out of the EU food supply. However, post-Brexit the UK government is committed to bringing GMO food and feed, including crops engineered with new and untested GMO techniques such as CRISPR, to our farms and to import more of these foods from the US.

### REPAIRING THE DAMAGE THROUGH THE GUT

In their insightful book, *What's Making Our Children Sick?*, Drs Michelle Perro and Vincanne Adams show that, in their combined experience, hard-to-diagnose and hard-to-treat chronic health problems in children are rooted in diet and environment.

The book provides clinical case studies illustrating how the health problems of many children – allergies, asthma, rashes, gastrointestinal issues, autoimmune disorders, and cognitive malfunction – can be successfully treated through the gut with a fresh, organic (and therefore non-GMO and pesticide-free) wholefood diet.

These treatment successes are related, in part, to the impact that diet has on the community of bacteria and other microorganisms in the body, collectively known as the microbiome.

In a healthy body the balance of 'good' to 'bad' bacteria is maintained by a healthy diet (including breastmilk) and healthy lifestyle, including good oral hygiene, fresh air and time outdoors.

The beneficial bacteria that live in our gut are vital in supporting a well-functioning immune system; but this microbiome also interacts with our neurological system. For instance, some gut microbes produce substances

that can weaken the blood-brain barrier, allowing infections and toxicants to reach the brain. The health and diversity of the microbiome also influences weight management and levels of inflammation in the body, including in the brain.

More and more research is now linking a poorly functioning microbiome to raised incidences of autism, ADHD, anxiety, depression, bipolar disorders, schizophrenia, dyslexia, learning and behavioural difficulties. It may also have some impact on moods since it is estimated that 90% of the body's serotonin – an important mood-regulating neurotransmitter – is made in the gut.

A poorly balanced microbiome can also become a self-perpetuating problem. For instance, stress and anxiety can affect its composition, which in turn can affect levels of stress and anxiety. An unhealthy microbiome is also linked to allergies and sensitivities, which if left unaddressed can further disrupt the microbiome.

### CHANGE CAN COME QUICKLY

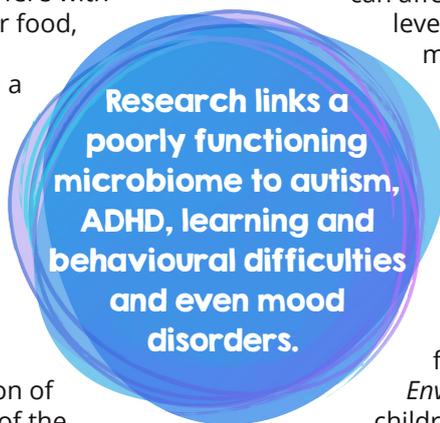
The process of treating childhood illnesses through the gut takes commitment and a new mind-set about food priorities. But the good news is that dietary changes can begin to reap rewards fairly quickly. In a 2006 study, in the journal *Environmental Health Perspectives*, when children were switched to an organic diet there was a "drastic and immediate decrease" in pesticides in their urine.

In 2015, a study commissioned by the Swedish Environmental Research Institute (IVL) showed that when a family of five switched to an all-organic diet it took just 2 weeks to remove most of the pesticides from their bodies.

In another 2015 study, African-Americans who swapped their Westernised diets for a traditional African high-fibre, low-fat diet dramatically lowered their risk of colon cancer – also in 2 weeks – due to the significant beneficial effects of the higher fibre diet on gut flora.

We can tinker at the edges of the problem of child health with fat and sugar taxes, with angry editorials that blame parents, teachers, food manufacturers and politicians. But the bottom line is that our internal ecosystems can only be as healthy as our external ecosystems. Both of these ecosystems are in urgent need of repair and rebalancing.

Get it right and we can ensure a healthier future for our own children and for generations to come.



[www.beyond-gm.org](http://www.beyond-gm.org)

*This leaflet was produced with assistance from The Sheepdrove Trust. References and suggested reading are available online at: [www.beyond-gm.org/kids-health](http://www.beyond-gm.org/kids-health).*