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Smarter living



Plastic *not* fantastic

Plastics and their associated chemicals are polluting our world, corrupting our foods and invading our bodies. Genevieve Gannon talks to the experts about how a few simple changes can cut our exposure and help our health.



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We've all heard the bad news about plastic: it's everywhere, it's impossible to avoid, and it's shedding microplastics, allowing dangerous chemicals to leak into our bodies. We don't know exactly how much we're absorbing, or precisely how harmful it is, but there's a steady stream of terrifying articles (like the one that says we all have a plastic spoon's worth of microplastics in our brains) and a growing body of evidence linking Plastic Associated Chemicals (PACs) with cardiovascular disease, type 2 diabetes, obesity and reduced fertility. Among other horrors.

What's harder to determine is which plastics cause these harms, and what products deliver them to our systems. Do I need to throw out my black plastic spatulas? Plenty of researchers say no. What about my Teflon frying pan? The federal government has deemed Teflon safe for cookware despite its easy-clean surface of PTFE (polytetrafluoroethylene), which is a forever chemical.

PFAS, a group of fluorinated compounds, are another source of increasing alarm. In 2024, *The Weekly* reported on a cancer cluster in Jervis Bay where the Department of Defence previously ran training drills using a PFAS-rich firefighting foam. Yet PFAS are on our fast-food wrappers, raincoats and dental floss.

For those eager to reduce exposure to plastic and its chemical run-off, it's hard to know where to begin.

Happily, a recent study from the University of Western Australia (UWA) brings good news: it only takes a week of reduced exposure to plastic to drastically cut the levels of plastic chemicals in your body. The study measured two chemicals in people who swapped out their plastic utensils and toiletries and changed their diet to limit plastic exposure. Its reported results surprised even the researchers.

"This wasn't a 5 per cent decrease, this was 60 per cent of the bisphenols [and] 40 per cent of the low-molecular phthalates," says the study's lead

researcher, Professor Michaela Lucas. "We were very happy that the results were so robust."

For someone like me, whose best plastic-reduction intentions are thwarted by time and financial constraints, this is excellent news.

Before we get into it, a quick chemistry lesson. The UWA's Plastic Exposure Reduction Transforms Health (PERTH) Trial focused on two groups of PACs: phthalates and bisphenols. Bisphenols make plastics rigid, and are found in food storage containers, drink bottles, teething toys and lining the insides of tins, cans and bottle tops. Phthalates make plastics flexible and are commonly found in food packaging, children's toys and clothing. They're also used in cosmetics and toiletries, both in the packaging and as fragrance carriers.

"Any product that smells particularly nice most certainly has

into contact with food, notably the lining of tins and soft-drink cans, but also utensils and anything used in the manufacture of food. Australia's food safety body has reservations about the approach taken to decide on the ban, so the chemical remains in use here. And UWA researchers flagged that manufacturers in Europe have simply replaced BPA with Bisphenol-S, which is basically the same thing, only less well-understood and with "comparable health concerns".

This exemplifies the plastic conundrum. But it's also what makes the UWA trial such an elegant solution: if you swap your plastic-lined tin of tomatoes for a glass jar of passata, you prevent your food sloshing against either type of bisphenol. While so much remains unknown, it's heartening to see that simple home swaps can deliver such promising results.

"Any product that smells particularly nice most certainly has phthalates."

phthalates as a chemical carrier for fragrance," Professor Lucas says. That goes for cleaning products too.

Both phthalates and bisphenols have a reputation as endocrine disruptors, meaning they mess with your hormones. The Plastic Health Aware website, which tracks research into the health effects of plastics, draws a strong connection between exposure to the two chemical groups and cardiovascular disease, insulin resistance, obesity and miscarriage. It also recorded links to low sperm count, thyroid cancer and – in the case of phthalates – prostate cancer.

Experts continue to bicker over what is safe, and at what levels. Many have poked holes in the plastic-spoon-microplastic-brain study (much to my relief). But this doesn't help me make plastic-safe choices.

Europe has banned the use of Bisphenol-A (BPA) in items that come

The PERTH Trial

Given the success of the UWA trial, I was eager to learn more. Professor Lucas kindly walked me through it. Sixty participants were divided into five groups of 12, and for seven days they modified their lifestyle to varying degrees and had their urine tested for chemical levels.

Group one was given food that had low plastic exposure. Group two was given low-plastic food and utensils made of wood and metal. Group three was given toiletries with minimal plastic and group four was given the lot – low- or no-plastic food, utensils and toiletries. Group five made no changes; they were the control group.

The research team went to great lengths to minimise the plastic in the food used in the trial, working with more than 100 farmers and growers to



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Smarter living

provide the participants with a "paddock to plate" diet for a week. Even with all their resources, the UWA researchers could not completely eliminate plastic from the food chain.

"The more something is processed, the more chance it gets contaminated with plastic in processing," Professor Lucas says. "We realised it's not as easy as just buying something in a supermarket, washing it, then giving it to our participants."

There were barriers even with wholefoods. Milk, for example, needs to be pumped through a system that contains plastics in order to meet food safety standards. Another troublesome product was make-up.

"We could actually not find any make-up that was plastic-chemical free," Professor Lucas says. It meant participants in the groups receiving low-plastic personal care products were asked to skip wearing make-up for the duration of the trial.

Despite the challenges, the results were clear. Researchers found the groups given plastic-reduced food showed a big drop in bisphenols and

some phthalates. Group three, which was given low-plastic toiletries, reduced their phthalates but not bisphenols. The multi-intervention group reported a reduction in phthalates and bisphenols.

"This is really a trial to show if you reduce personal care products and plastic packaging, and touch points of plastic during production, this is what you can achieve in a week," Professor Lucas explains.

And as I learned, in Australia, we have a lot of room for improvement.

The Plastic Country

Australians are the second highest generators of single-use plastic waste per person in the world, according to the World Wide Fund for Nature.

Some of us, of course, use far less than others. Kal Glanznig, 26, is a Sutherland Shire councillor who has made two documentaries about plastic pollution and fought to reduce plastic use. Kal grew up near Cronulla, a stretch of coast that embodies Australian beach culture. He first became interested in the plastic issue

during high school when one of his ocean water polo training sessions had to be cancelled.

"We got in the water, we started swimming, and there was just plastic rubbish and wrappers getting all over us. It was so gross," Kal remembers. "The coach was, 'Okay, training's over. Get out of the water, it's too polluted.' That was a moment where I thought, 'This is crazy. Surely, I can do something about it.'"

He did, co-founding Plastic Free Cronulla and lobbying local businesses to reduce their plastic use. He was also elected to Sutherland Shire Council at the age of 24 on a platform to clean up plastic.

As part of his new documentary, *The Plastic Country*, he measured his own plastic exposure. As someone who is very mindful of this, he was surprised to learn he had a very high level of phthalates in his system. The results came with a stern warning: reduce exposure now.

"It was definitely a shock. This is in me. How do I solve this?" Kal says. "My brain quickly went to frustration. Having the knowledge that, unknowingly and unwillingly, I am being exposed to these chemicals that are damaging my health."

"As Australians, we're so conscious about our health and our lifestyle, but I don't think we know what plastic is doing because it's actually undoing all of that."

While there are things we can do on an individual level, such as avoiding plastic water bottles and not heating plastic in the microwave, Kal is frustrated by the lack of government leadership on both plastic pollution and PAC regulation.

"The easy action is getting a red list of chemicals that already have conclusive research and classifying them and banning them, which is what the EU has done," he says. "Australia has [its] head in the sand a little bit when it comes to addressing this issue at the federal level."

"We need a nationally consistent approach. Everyone's going to win. If you ask every Australian, I think it's

"We need better food regulation and also better information for consumers."





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Kal cleaning the shore at Cronulla and Yalangbara in the NT. Opposite (from left): The PERTH Trial's Dr Andrew Lucas, Professor Michaela Lucas and Dr Amelia Harray.



one thing we can all agree on: we don't want to see plastic in our turtles' bellies or on the beaches."

Despite his frustration with Australia's policymakers, Kal does believe in individual action. While we wait for big changes, we can implement our own small changes.

A little goes a long way
Plastic purity takes time and resources many of us don't have. The PERTH Trial went to extreme lengths to minimise plastic contact points. For example, the low-plastic food was delivered to participants in cardboard boxes insulated with sheep's wool.

A quick audit of my own kitchen leaves me feeling glum about my capacity to meaningfully reduce my plastic exposure. My kettle is made of plastic. We have one stainless steel frying pan, but I wash it with a squirt of scented detergent from a plastic bottle and scrub it with a plastic-bristled brush. As for the black plastic utensils, they go into the dishwasher,

PERTH's top tips

- Choose whole fruits and vegetables without plastic packaging
- Wash all fresh food before consuming
- Limit ultra-processed foods
- Never reheat food in plastic
- Avoid single-use coffee cups
- Choose larger quantities of items, such as a 1kg yoghurt tub, to minimise plastic-to-product ratios
- Swap plastic cooking utensils and chopping boards for wood and stainless steel
- Swap your plastic kettle for stainless steel
- Look for shampoo and soap in bars instead of plastic bottles
- Vacuum and dust often – dust is full of microplastics
- Avoid polyester clothing and soft furnishings

SOURCE: THE PERTH TRIAL

where hot water pours over the plastic-coated racks and dissolves the cleaning tablet's thin plastic wrapper.

Even though I'm terrified there might be a whole spoon's worth of plastic in my brain, I know my resolve doesn't extend to hand-washing black char off a stainless steel pan with a bar of soap.

To avoid being overwhelmed, Professor Lucas recommends slow changes and substitutions over time. One of my favourite tips came from another of the PERTH Trial team, co-lead Dr Amelia Harray, who encourages looking for second-hand alternatives. "You can buy stainless steel cookware from op shops," she suggests. "It lasts forever and it doesn't contain

plastic." The same is true for glass and ceramics.

Professor Lucas acknowledges that achieving the same results as the PERTH Trial is probably out of reach for the average person, and echoes Kal's call for policymakers to step in. "We need better food regulation and also better information for consumers," she says.

In the meantime, use the list of changes suggested by the PERTH Trial researchers here to cut your own plastic exposure.

"You can make small steps," Professor Lucas says. "It's a bit like going for a five-minute walk every day; it's better than not going for a walk at all. It's very similar with our plastic exposure." **AWW**

The Plastic Country is screening in select cinemas. Visit theplasticcountry.com to find one near you or host your own.