

Dr. Ron Ehrlich: Hello and welcome to Unstress. I'm Dr. Ron Ehrlich. Look, we just had to get Nicole Bijlsma back talking about healthy homes, healthy people. Now, as I think she mentioned in the last episode, she's doing a PhD in Building and Home Biology, the environmental toxins we're exposed to in our home but today we're gonna cover two or three, two I think, important subjects. That is water quality and plastics. Now, let's first talk about water quality. Let's just have a listen to it and stay around at the end and I'll share with you my own views on water fluoridation but it's a big topic. The other topic we're gonna cover is a huge topic, which seems also overwhelming but it's not. That is the topic of plastics. Arguably, it could be, it is one our biggest environmental challenges. I hope you enjoy this episode, this chat that I had with Nicole Bijlsma.

Welcome back, Nicole.

Nicole Bijlsma: Hi Ron.

Dr. Ron Ehrlich: Nicole, we had that program where we covered so much, really. [We heard your amazing story, personal story](#), which led you into this field of Home Biology and we defined what it was. We covered in the last show all about the bedroom and some of the things that can come up. You [gave 10 great tips again, which will be on that show](#), but today I wanted to pick up where we left off last time. We touched on water because water, I mean if we think sleep's the most important part of the day and the bedroom's the most important room in the house, well, water's a pretty important nutrient and there are some issues around water. Can you talk to us about what they might be?

Nicole Bijlsma: Sure. Drinking water is something, especially in Melbourne, that we all take for granted because it's considered to be one of the cleanest water supplies in the world because it comes from a forested catchment area that people can't access. The reality's most of the contaminants, especially in tap water, will be derived from the distribution systems. You've got hundreds of thousands of kilometers of pipe from the reservoir to your home and this is often where the contaminants can often arise. Of course, you also have things like pesticides that can be in the rivers. Many of the pesticides that are actually tested for are only a very small number compared to what's actually used in agriculture in Australia. That's also a big issue and a problem. Intact water, if we have a look some of the contaminants, we've got things like aluminum, for example, in my water supply in Melbourne, I get from Yarra Valley Water because most of it comes from the Yarra River. They add aluminium or alum sulfate as a flocculating agent. It binds to the sediment and then put it's to the floor so that it filters the sediment out of the water.

Dr. Ron Ehrlich: That is added to our water supply just to draw the, a flocculant is something that gathers all the heavy stuff and drops it down so the-

Nicole Bijlsma: Yes.

Dr. Ron Ehrlich: ... water's clearer. That's actually added to water. Okay. I didn't know that.

Nicole Bijlsma: And the level by the Australian drinking water guidelines of about .2 mg per liter, is based on aesthetics not health based guideline. Of course, aluminium's been correlated with Alzheimer's and dementia and more and more evidence coming out that there certainly seems to be a strong connection. The guidelines are not health based, they're based on the fact that consumers won't complain because they can't see sediment in their water.

Dr. Ron Ehrlich: Wow. Okay. I know when the first time I got a water filter, the guy came into my house with a white polystyrene cup, took the water from the tap, my own tap, then plugged the water filter in and then took another cup and I looked into this white cup and I could not believe the difference. This is kind of what's visible, well, even when you look at it after all floccing agents have been used, and you compare the two. It's visibly different but go on. Aluminium is one problem.

Nicole Bijlsma: The main source of aluminium comes the fluoride slurry, ironically. The fluoride they add is actually likely to contain, by some recent evidence, high levels of aluminium, which are never tested for.

Dr. Ron Ehrlich: We know this but I think it's worth saying that when they add fluoride into the water supply, everybody thinks it medical grade fluoride like you would have in toothpaste or what the dentist uses but in fact it's not. What is it?

Nicole Bijlsma: No, it comes as a toxic byproduct from the phosphate fertilizer industry or the aluminium industry and it's often contaminated with aluminium, arsenic, mercury, lead and radioactive nucleotides. It's incredibly toxic. Most countries have never fluoridated their water supply because it was unethical to mass medicate an entire population with a known pharmaceutical drug, which fluoride is classified because it treats tooth decay.

Dr. Ron Ehrlich: This is a whole subject. You mentioned that there was a recent study out about that effect. Tell us little bit about that, that effect of water fluoridation.

Nicole Bijlsma: Well, that came out four weeks ago and it was a Mexican study examining children who were exposed to fluoride in utero, which of course we all, in Australia, if a pregnant woman's drinking tap water, you're gonna be exposed to fluoride. They found that the exposure in the womb was linked to a significant decline in children's IQ by the age of 7 and 12. That was the largest, it was a 12 year study on fluoride and I think it's gonna be a real clincher to nailing, putting the coffin in the nail for fluoride in the countries, in the 25 odd countries that still fluoridate their supply including Australia. Most countries have never fluoridated their water supply because it's unethical to do that and it's because it's associated with significant adverse health effects. Osteoporosis, osteoarthritis, thyroid disease, diabetes, autism, neurodevelopmental studies.

I mean a recent systematic review of a 150 studies in water fluoridation found a significant association with, of course, drinking water and dental fluorosis. In 2006, the American Dental Association warned against not preparing infant formula with fluoridated tap water because of the risk of children developing dental fluorosis. It's also parlayed with muscular skeletal problems in increased risk for fractures, et cetera.

More importantly, with finding that in the New Zealand Health Department did a really big study of 93,000 children and found that the benefit of fluoridating their water for tooth decay was only 1.3% benefit in oral health and yet we know it's correlated with autism and neurobehavioral disorders. It's crazy.

Dr. Ron Ehrlich: It is. I've been a dentist for 40 years and I must say I didn't really look at it very seriously until about 10-15 years ago because for the first period of that time, 25-30 years, I was pro. I just thought, that's it and the reason they do it is because tooth decay has reduced significantly since 1975-2010 in those countries that were fluoridated but, "Hey, guess what?" It's also reduced significantly in those countries that were not fluoridated and when you put the two graphs together they're almost indistinguishable. Fluoride now, last program we talked about fire retardants and bromide or brominated products. People have to go back to high school chemistry but bromide, fluoride, chloride, iodine, chlorine, fluorine they're all part of the same family. Iodine, we know, is important for thyroid function. Here we have the brominated products in our fire retardants. We've got the fluoridated in our water supply but wait, there's more. We've got chlorine in our water supply, which I get, but tell us about that.

Nicole Bijlsma: Well, for no other reason, very, very important that you actually get rid of chlorine in your water supply. We know, of course, chlorine was added to urban water supplies around the early 19th century as a cheap and effective way to reduce water born illnesses, and it's very effective at doing that. It's a strong antibacterial. However, ingesting chlorinated water, knowing that the gut microbiome is critical for human health, doesn't make sense.

It took me quite some years, that's why I'm using the naturopathic practice to realize why are we going a \$40 probiotic to a patient who's drinking it with chlorinated water that's gonna kill most of it off? The funny thing is though when you look at the research, there's hardly any research on the impact of chlorinated water. I can't find any and it's impact the gut microbiome. I think this is so important 'cause it affects millions of people, of course. The big one with chlorine, of course, it's a strong skin and lung irritant. Many of my patients, I found, with eczema and asthma, especially with eczema, significantly improved when they had a KDF shower filter or they don't bathe in chlorinated water. They had a KDF bath filter because chlorine is a strong skin irritant.

Chlorine can also combine with particles called organic matter. Those that contain carbon to form trihalomethanes, which you will see on your water report that you get every year from your water distributor. How many THMs are in your water supply? They're one of the strongest carcinogens that you'll ever be exposed to. It's important, of course, that you aren't exposed to those because they are strong carcinogens and that's where a cheap carbon filter or KDF filter can be useful.

The problem with chlorine also is it reduces the pH and acidifies the water, which enables things like lead and copper from your mains or domestic pipes to leach more quickly and of course that's another issue associated with the use of chlorinated water.

Dr. Ron Ehrlich: Wow. We've got heavy metals there coming in via the pipes that are used to bring our water in. In a sense, putting that in the get the water to us is really important. I mean, a good water supply is a really important part of our existence. I think once we get the water into our house that's when we can really do something about it. What's the best the thing we can do about the water we actually drink?

Nicole Bijlsma: Well, you're right, chlorine is important. I mean, ozone would have been much better and that's what Europe uses. It ozonates its municipal supply rather than chlorinate and that would be better. Of course, they'd have to change the entire system and it's gonna cost billions to do it.

In light of the fact that we do have chlorinated water supply, what we need to do is have a filter, preferably at the point of use, not at the point of entry. At the tap, the kitchen tap, having one dedicated for drinking water is important. It depends on what you want to get rid of. If you want to get rid of pesticides and chlorine, et cetera, you can do that very simply with a carbon filter, preferably one micron carbon filter and make sure it's replaced regularly depending on the volume of water going through.

If you wanna get rid of fluoride, the only one that really does it effectively is reverse osmosis and that's expensive. You're looking about 1,000. It has to be plumbed in for every liter of water, drinking water you get is a liter or two of waste water, which has to go through the plumbing or has to be plumbed to the washing machine to be used. You need a barrel to store it. When you put in on, it doesn't just happen, it's gotta store it in a tank 'cause it takes miles if there's a delay. You need quite a bit of bench space or under sink space to do it and a lot of people who are in rentals won't wanna justify the cost of that.

Dr. Ron Ehrlich: Although, there are some portable ones. I know while we were doing up our house, we actually bought a portable one. It was little bit of hassle but we thought it was worthwhile. What about showers? There's an issue there with showers, potentially too, isn't there?

Nicole Bijlsma: Yeah. With showers, it's the chlorine and it's trihalomethanes and the fact that is a strong skin and lung irritant. It's important that you have a KDF, Kinetic Degradation Filtration system.

Dr. Ron Ehrlich: Hang on. Hang on. Say that again slowly.

Nicole Bijlsma: K-D-F filter.

Dr. Ron Ehrlich: KDF filter. That just-

Nicole Bijlsma: Yes.

Dr. Ron Ehrlich: ... screws on to the tap part in front of the shower head before it comes out of the shower head. The KDF filter will get rid of the chlorine?

Nicole Bijlsma: Yeah. It can't put on every shower filter 'cause that's just screwing to the wall so you detach your shower head then put the filter in then put the shower head back on which means, the shower head's going to come out about the 15 cm but well worth it especially with people with skin problems I found. That was so much more useful to buy a \$60 KDF filter than to give them a shopping bag full of herbs for months on end that taste awful to improve their skin.

Dr. Ron Ehrlich: Okay. Water is a big issue. Let's just talk a little bit about plastics 'cause they're pretty ubiquitous too. I was in the UK a few months ago and there was a report in the Guardian about plastic finding its way into the water supply in the UK and most water supplies in the USA. It's finding its way everywhere, isn't it? Into the food chain. Tell us about plastics.

Nicole Bijlsma: Plastics are probably one of the greatest disasters for human health and environmental health that we're currently facing on this planet. We know the Pacific Garbage Patch is accumulation of kilometers of plastic that are in this particular area of the Pacific Ocean. What we know is the sun breaks it down into little particles and chemicals that it's colluding almost every fish in the ocean, which of course we eat and then it goes back through the food chain. We need to act on plastics immediately because they're affecting, they're coming back through us, through the food chain and because they're contaminating everything on this planet. There are different types of plastics and they are provided with a resin identification code, which is the number in the triangle. There are no safe plastics. All plastics take hundreds of years to degrade. Those that are recyclable still take a long time to degrade, hundreds of years. Only 9% of the degradable plastics like polyethylene terephthalate or PET, used in all your water bottles, et cetera. Only 9% are actually recycled. 91% ends up in landfill and a lot of that will end up in the aquifers and in the ocean.

The reality of what they say and what's actually happening is very different. When we're looking at plastics in terms of hormone disrupting impacts. There are three that are directly related to breast cancer risk, hormone cancers like testicular cancer, prostate cancer, et cetera. They are polyvinyl chloride, vinyl chloride. Again, your chlorides. [Like you said, Ron, about the halogens.](#) They are fluoride, chlorine, bromine. They're a disaster for human health and the environment. Vinyl chloride is a problem and should never be used in domestic piping. It's commonly used in tank water from the tank in the open sun to the house. That's not good 'cause it contains phthalates, which are hormone disrupting chemicals correlated with those illnesses I just mentioned as well as obesity.

Dr. Ron Ehrlich: Does the reverse osmosis remove phthalates?

Nicole Bijlsma: Not that I'm aware of.

Dr. Ron Ehrlich: You mean it even gets through. Oh god. It even gets through the, okay, okay. I'm still alright. I've almost passed out here. I've regained my composure. Please go on.



Nicole Bijlsma: Number three is the resin identification code of polyvinyl chloride.

Dr. Ron Ehrlich: Hang on. Hang on. Say that slowly, for number three.

Nicole Bijlsma: Yeah. So, when you see the three in the triangle that means it's polyvinyl chloride plastic.

Dr. Ron Ehrlich: Oh I see.

Nicole Bijlsma: When you see number six in the triangle that's polystyrene and that's the one that's not good 'cause it contains nonylphenols. That's the one they correlated with breast cancer in the late 80s by two cell biologists at Tuks University who were looking at the rice chip between breast cancer and estrogen hormone. When they added estrogen to the breast cancer cells, they multiplied but in the control group, the breast cancer cells sitting in the test tubes that had no estrogen, they were also multiplying and eventually they found a chemical, nonylphenol, in the plastic test tube, polystyrene plastic test tube, was causing the breast cancer cells to multiply. Polystyrene cups, cutlery, plastics especially in take away foods that you shouldn't ever be used and certainly never heated because they contain chemicals that are strongly correlated now with many of the hormone disrupting cancers, obesity and early puberty and all that stuff. They're often used in yogurt containers, margarine containers, egg cartons, number plates, plates et cetera, et cetera.

Dr. Ron Ehrlich: You know, gosh. We've gotta leave our listeners with some positives. I mean the first thing is of course, to eliminate the use of these materials from our own lives. I know that I go into the greengrocer and they offer me a plastic bag, which has got written on it degradable, degradable, degradable and that's meant to reassure me where as, in fact all it's doing is describing what happens. The thing breaks down but it's not **biodegradable**. The best thing, of course, is to avoid it. To take bags with you to the supermarket to the greengrocer. The water bottle's another issue, I mean, have your own water bottle.

Nicole Bijlsma: Yes. Stainless steel. Stainless steel, food grade stainless steel water bottle recommended for kids. Sippy cups, you can get stainless steel sippy cups. Glass, of course, is the best but obviously for children, it's not viable but for adults it is. I mean there's Grolsch bottles are really good to use. Stainless steel or glass are your best options because they don't contain chemicals that leach in the same way that these plastics do. Yes, not using plastic bags, bringing in your calico bags and reusable as much as possible to reduce the environmental load and therefore the toxic load is important. Being clear, don't throw your plastic containers out from listening the podcast, use them for your tool boxes, to put little toys in and things like that, that's fine. You can still store your oats and your grains in your plastic containers, just don't put meat or anything acidic like meat or fruit in your plastic containers. If you're going to freeze or heat food always put it in glass.

Dr. Ron Ehrlich: Nicole you're doing a PhD. Just tell us quickly, because when we first chatted [in our last episode](#), you told your story about how you came into this. But now you're doing a PhD and what's the PhD about?

Nicole Bijlsma: The PhD is looking at environmental chemicals and their impact on human health. I first did literature review to look up what the regulations were for chemicals and the fact that they're not health based. The impact on human health and synergistic effect of multiple chemicals and how they correlated with many of the illnesses we see, chronic illnesses that a doctor would see every day.

Then I interviewed 17 of the top environmental doctors in Australia, New Zealand to see how they deal with these chemicals and they can't deal with them very well. What they did say was the most useful tool was an exposure history so that was really important. As a result of that I'm developing an exposure history tool that I'll use to go into quite a few homes that I'll use, I'll also use [electromagnetic field](#) tools and indoor air quality tools if I can get funding to actually validate if my questionnaire can show a connection between people's illnesses and the health hazards that I pick up in their home. So ultimately, I'd love to have an app that's freely available to all consumers around the world that they can use and say, "Okay, here are my symptoms. This is what's in my house. This is how close I sleep to these devices. This is the visible mould, et cetera." And see if there's actually a connection that we can then inform them and then educate them how to reduce their exposure.

Dr. Ron Ehrlich: That's gotta be a crowdsourcing boom. Like you put that out there and people, this is part of [the message of the podcast](#). If we're waiting for the change to come from above, and I'm not talking about God here, I'm talking about government regulatory bodies and professional organizations, we could be waiting a long time. Remember how long took tobacco to find its way-

Nicole Bijlsma: Asbestos.

Dr. Ron Ehrlich: Asbestos. Another one.

Nicole Bijlsma: Lead paint, PVC.

Dr. Ron Ehrlich: It goes on and on and on. Actually, it's interesting, you've mentioned that in Europe they're a lot more precaution, they're a lot more cautious and there's this thing called the precautionary principle. Tell our listener a little bit about the precautionary principle.

Nicole Bijlsma: It states that if there's an evidence to indicate that it could cause harm that we need to act before the evidence becomes conclusive. When I'm speaking at medical conferences, I say to them, "I feel evidence based medicine has kept medicine in the dark and given free rein for industry to sell products that A, we don't need and are contaminating human health."

We need to start looking at when is there sufficient evidence to act and that's what the precautionary principle is about. Of course, Europe has implemented their [REACH program](#) to look at putting the onus from the manufacturer of the products, for shampoos, conditioners, personal care, everything, to prove they're safe before they're launched into the marketplace. To me, that's just common sense but unfortunately, it doesn't happen in Australia.

Dr. Ron Ehrlich: I think we follow the American model. The American model is basically, it's a dereg, you know, this is part of financial deregulation. Let the market self regulate and if there's a problem, if you've got a health problem from something, "Hey, you can take it to court." And you can sue the manufacturer and see how you go. And based on all the evidence let the judge decide and then award you either compensation or throw it out of court. I don't know whether, I mean, me personally, I don't really wanna end in court challenging anybody. I like the precautionary principle. It's sounds like given the lack of regulation, there's a lot to be cautious about.

Nicole Bijlsma: Absolutely. That's why when I start [my book](#), the first chapter is the true cost of progress and how the industry works in terms of the four dog defense. How they deny, deny until the events become conclusive and then they build in warnings in their products. Warning you not to buy their products and therefore preventing you suing them like the cigarette smoke packets with all the pictures of gangrene, et cetera and warning you not to buy their product or your mobile phone. They've warned you in your phone, there's somewhere there that says don't put this phone near your person so you can't sue them down the track when the tsunami of brain tumors which is already started becomes to the fore and the fact that they can't get insurance from the large insurance companies around the world, telecommunications can't... because they're expecting it.

Dr. Ron Ehrlich: Well, this is the very point of the podcast and it's very pointed talking to people like you and that is to empower people with knowledge that allows them to take some control and within our own house considering that's where are greatest exposure is. Choices that we make, each and every day, can make a huge difference. Listen, we're gonna have a links. When's the new book coming out?

Nicole Bijlsma: [It's coming and landing on the 15th of December. I'm taking preorders until the 30th of November with free postage because the book is hard cover, almost 400 pages, full color throughout, it's 39.95. If they order before the 30th of November, they'll get free postage and a signed copy.](#)

Dr. Ron Ehrlich: Well, we'll have links to your website and all of that but it's been terrific, as always, talking to you. Good luck with your PhD and when you need to go with the crowdsourcing on your app 'cause we'll definitely be there to support you and advertise. Thanks again, Nicole.

Nicole Bijlsma: Thanks so much Ron.

[You can learn more about Nicole Bijlsma's work, her recommendations and order her fabulous and informative book all through her website, by clicking this link.](#)

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