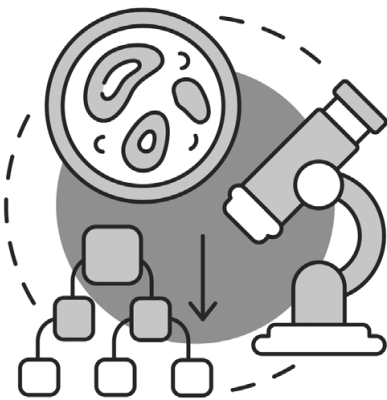


Microplastics and Human Health

By Stuart Layt

- 1 Researchers at the University of Queensland (UQ) have been given a boost in their quest to find out exactly how harmful microplastics are to humans with the launch of a new specialist laboratory. Environmental health expert at UQ, Kevin Thomas, said having the resources to accurately measure nanoparticles of plastic meant they could answer some longstanding questions about their effect on the body. “Plastic is in the environment, and it’s a very complicated situation because there are many different types of plastics, and it’s further changed in the environment through weathering,” he said. “It’s a unique challenge because there is a complexity we don’t quite understand, but there is already a lot of data to suggest humans are exposed to a lot of plastic particles, so we are trying to quantify what the effect is of that exposure.”
- 2 Microplastics have increasingly invaded the environment over the last few decades, as they come from a range of sources, from plastic products like bottles to fragments of car tyres flaking off on roads. And the problem is growing because the plastics continue to break down into smaller and smaller particles once they are in the environment. They also become concentrated as they go up the food chain, with smaller animals with a small amount of microplastics in their systems being eaten by larger animals who take those microplastics into their systems. Recent studies indicate the average adult human ingests more than 100,000 microplastic particles every day, but it is not yet fully understood what health effects that produces. “There is a lot of previous data to show humans are exposed to particles, and our great challenge is to find out what effect that is having on us,” Professor Thomas said.
- 3 The UQ team has two projects ready to go with the opening of the new centre – the first is to measure the levels of microplastics in blood, urine and brain tissue. The other project is to investigate the behaviour of extremely small microplastics, below 10 micrometres in size, and develop measures to quantify them. To achieve this, the lab does not contain much plastic at all, and is mostly stainless steel to avoid nanoparticles from the lab itself contaminating samples. The research team expected to have initial findings on the projects by the end of the year, after which they will reach out to other institutions around the world for collaborations.

- 4 The lab has been established thanks to a partnership between UQ and the Minderoo Foundation, a major philanthropic organisation. Sarah Dunlop, the director of the Plastics and Human Health program at the Minderoo Foundation, said the new centre had the capability to do world-first research on nanoplastics. “The research can be compared to looking for something the size of a tennis ball between here and 100 kilometres away,” Professor Dunlop said. “It’s a huge message in itself, which says just how far this plastic pollution has reached, not only across the planet, but into our bodies. So it’s very much about building that global capacity so we can shine the light on the problem and eliminate the harmful effects of plastic on people on the planet.”

brisbanetimes.com.au, 2022

Tekst 4 Microplastics and Human Health

- 1p 8 What is the goal of the research done by UQ, according to paragraph 1?
A to examine how microplastics end up in humans
B to find out the origin of microplastics consumed by humans
C to prove that microplastics are dangerous for people
D to study the impact of microplastics on people
- 2p 9 Komen de volgende beweringen over plastic overeen met de inhoud van alinea 2?
Omcirkel 'wel' of 'niet' achter elk nummer in de uitwerkbijlage.
1 Het blijft uiteenvallen in kleinere stukjes.
2 Deeltjes ervan worden doorgegeven via de voedselketen.
3 Er zijn verschillende soorten die op andere manieren afbreken.
- 1p 10 What is the function of paragraph 3?
A to emphasise why research on microplastics is indispensable
B to explain what is going to be studied in the new research lab
C to give an overview of the results and implications of the research
D to praise the scientists who conducted previous research projects
E to stress that more funding is needed for future research projects
- 1p 11 'The UQ team has two projects ready to go with the opening of the new centre' (alinea 3)
→ Wat is er speciaal aan het laboratorium waardoor het geschikt is voor deze projecten?
Geef antwoord in het Nederlands.
- 1p 12 Which of the following quotes explains why researching microplastics is so difficult?
A "Plastic is in the environment, and it's a very complicated situation because there are many different types of plastics, and it's further changed in the environment through weathering." (paragraph 1)
B "humans are exposed to particles, and our great challenge is to find out what effect that is having on us." (paragraph 2)
C "It's a huge message in itself, which says just how far this plastic pollution has reached, not only across the planet, but into our bodies." (paragraph 4)
- 1p 13 What is the main aim of the text as a whole?
A to create awareness of the risks of plastics for the environment
B to persuade companies to produce materials without plastics
C to update people about a scientific examination into plastics
D to warn people about the harmful effects of plastics on humans

Bronvermelding

Een opsomming van de in dit examen gebruikte bronnen, zoals teksten en afbeeldingen, is te vinden in het bij dit examen behorende correctievoorschrift.