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### Microplastics

#### First of all, what are microplastics exactly?

Microplastics are tiny plastic particles that are less than five millimeters in diameter. There are two categories of microplastics: primary and secondary. Primary microplastics are tiny particles designed for commercial use, such as cosmetics and microfibers shed from textiles. Secondary microplastics are particles that result from the breakdown of larger plastic items, such as water bottles, caused by exposure to environmental factors, i.e., the sun's radiation and ocean waves. Like all plastic items, microplastics do not break down into harmless molecules; instead, they can take hundreds or thousands of years to decompose, while affecting the environment. Some of the plastic pollution is from littering, but most is the result of storms, water runoff, and winds carrying plastic (both intact objects and microplastics).

#### So, what's the issue?

Researchers have found that these microplastics are present everywhere on Earth. An estimate, published in *Environmental Pollution*, puts the global microplastic total at between 12.5 and 125 trillion particles. They have been found in some of the most remote regions, including the poles, the equator, the deep ocean floor and even Mount Everest. This widespread reach means that the average person ingests approximately 5 grams of plastic every week, the equivalent of a credit card (according to a 2019 report by the WWF). Most of this plastic comes from drinking water.

Unfortunately, not much is known about the long-term effects of plastic ingestion on human health. However, it is known that certain plastics have harmful chemicals added to them during the manufacturing process. Certain dyes, additives and pigments found in plastics have been shown to have an influence on fertility and





create an increased occurrence of mutations and cancers. For example, phthalates, endocrine-disrupting chemicals that make plastics more flexible, have been linked to reduced testosterone levels in male fetuses.

In marine animals, tiny plastic particles have been seen blocking the digestive tract and reducing the animal's appetite by making them believe their stomach is full; thus, the plastic reduces growth, hinders reproductive behaviour, and can lead to starvation and death. This could create an issue for northern communities, already struggling with food insecurity and relying on seafood as a major food source.

### **How can we avoid them?**

First of all, we can all work to reduce our microplastic 'footprint', to limit our plastic pollution. As individuals, we can take small actions to do so.

Firstly, clothing made from plastic, such as polyester, is one of the greatest sources of microplastic pollution. Most of this pollution comes from doing laundry: a single load of laundry can release over 1 million microplastic fibers into the environment, through the wastewater generated by washing machines and the exhaust from dryers. To prevent this, you can install a filter in your washing machine that catches microplastics, run your machines on a lower setting so that the clothes are thrown around with less force (which is what causes fibers to separate and pull away), or try to wash your clothes by hand and air-dry them. You can also simply buy less clothes made with plastic, and instead choose natural fabrics such as cotton, silk, wool, hemp, and linen.

Next, given that all plastic eventually breaks down into microplastics, it is important to limit our use of single-use plastics. There are many ways to do so, mainly by using reusable alternatives to common objects such as using a reusable water bottle and carrying tote bags instead of plastic bags.

Another way we can reduce our spread of microplastics is reducing our car use. Car tires are a major source of microplastic, as friction from the road causes tires to break down and shed plastic particles. Instead of driving, you can instead choose public transport, walking, or biking.



That being said, there are also ways to reduce one's ingestion of microplastic in the short term. Water from plastic bottles has around double the microplastic level of tap water, so drinking tap water is a better choice. You can also filter the tap water to further reduce microplastic levels. Heating food in plastic is another thing to avoid, as chemicals from the plastic can enter the food. One final suggestion is to vacuum often, as the dust in your house can contain microplastics and chemicals that are found in plastic, such as phthalates. This is especially important if you stay inside for long periods of time.

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