

## Microplastics: A Hidden Threat to Our Environment and Bodies

Microplastics, defined as plastic fragments smaller than 5 millimeters, have infiltrated our world in ways that are both visible and invisible<sup>1</sup>. From the peaks of Mount Everest to the depths of the Mariana Trench, these tiny plastic particles are everywhere, and they are beginning to enter our bodies in alarming amounts<sup>1</sup>. This article explores where microplastics are found in the environment, how they enter the human body, and their effects on health.

### Microplastics in the Environment

Microplastics are ubiquitous. They have been detected in oceans, rivers, agricultural soils, the atmosphere, and even the air we breathe. Researchers estimate there are over 170 trillion microplastics in the world's oceans, equivalent to roughly 30 billion half-liter water bottles<sup>2</sup>. In Canada alone, more than 4 million tonnes of plastic are discarded yearly, with over 90% ending up in landfills, incinerators, or the natural environment<sup>3</sup>. Alarmingly, these particles can persist in agricultural fields for up to 15 years, becoming airborne and contributing to air pollution<sup>4</sup>.



## How Microplastics Enter Our Bodies

### Inhalation

Microplastics can be inhaled from indoor and outdoor air. Sources include synthetic fibers shed from clothing, carpets, and upholstery, as well as airborne particles generated by sea salt aerosols and agricultural fertilizers<sup>2,4</sup>. Factory workers in industries dealing with synthetic fibers are at higher risk, with studies showing links between microplastic inhalation and respiratory conditions such as chronic obstructive pulmonary disease (COPD)<sup>4</sup>.

### Consumption

Microplastics also enter the body through food and beverages. Seafood, especially shellfish, is a common source, as we often consume the entire organism, including its digestive system filled with microplastics<sup>2</sup>. Plastic tea bags are another significant contributor; a single teabag can release 11.6 billion microplastic particles and 3.1 billion nanoplastic particles into a single cup of tea during brewing<sup>5</sup>. Moreover, drinking water from plastic bottles and eating foods exposed to plastic packaging further increase exposure<sup>5</sup>.

## The Effects of Microplastics on the Body

### Respiratory Issues

When inhaled, microplastics can cause oxidative stress in the lungs, leading to inflammation, coughing, sneezing, and shortness of breath<sup>4</sup>. Nano-sized plastics have been linked to mitochondrial damage in human respiratory cells, exacerbating symptoms and increasing the risk of conditions like COPD<sup>4</sup>. Microplastics can also act as carriers of toxins such as polystyrene, further compounding respiratory harm<sup>4</sup>.

### Digestive Issues

Microplastics consumed through food or beverages can accumulate in the gastrointestinal tract. While definitive evidence on exposure levels is still



emerging, chronic ingestion of microplastics may trigger immune responses and local particle toxicity<sup>4</sup>. Over time, these particles may disrupt gut microbiota, contributing to digestive disorders<sup>4</sup>.

## Other Health Concerns

Microplastics interfere with the endocrine system by acting as carriers for harmful chemicals like bisphenol A, which disrupt hormonal balance<sup>4</sup>. This disruption can lead to metabolic disorders, developmental issues, infertility, and other reproductive problems<sup>4</sup>. Recent studies have even found microplastics in human placentas, raising concerns about their impact on fetal development<sup>1</sup>.

## Solutions to the Microplastics Problem

Addressing the microplastics crisis requires collective efforts to reduce plastic waste and transition to sustainable alternatives. Embracing a plastic-free or zero-waste lifestyle can significantly lower plastic consumption and minimize microplastic pollution. Simple actions such as using reusable bags, bottles, and containers, avoiding single-use plastics, and choosing biodegradable products can make a difference. On a larger scale, advocating for stricter regulations on plastic production and supporting businesses that prioritize eco-friendly materials can help drive systemic change.

Resources like the **Eco Living Guide** encourage individuals to adopt sustainable habits and offer practical tips for transitioning to a [plastic-free lifestyle](#) and [going zero-waste](#).

## Conclusion

Microplastics have transitioned from being an environmental concern to a direct threat to human health. Their pervasive nature in our surroundings and the ease with which they enter our bodies demand urgent action to reduce plastic waste and mitigate exposure. As we work to protect the environment, addressing the microplastic crisis is essential not only for ecological well-being but also for safeguarding human health.



## References

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