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Are Microplastics in Food a Threat to Your Health?

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Most people use plastic every day.

However, this material generally isn't biodegradable. Over time, it breaks down into tiny pieces called microplastics, which can be harmful to the environment.

What's more, recent studies have shown that microplastics are found commonly in food, particularly seafood.

Nevertheless, it is unclear whether these microplastics affect human health. This article will take an in-depth look at microplastics and whether they are a threat to your health.

What Are Microplastics?

Microplastics are small pieces of plastic that are found in the environment.

They are defined as plastic particles less than 0.2 inches (5 mm) in diameter.

They are either produced as small plastics, such as microbeads added to toothpaste and exfoliants, or are created when larger plastics are broken down in the environment.

Microplastics are common in oceans, rivers and soil and are often consumed by animals.

A number of studies in the 1970s began investigating the levels of microplastics in the oceans and found high levels in the Atlantic Ocean off the US coast (1, 2).

These days, due to the world's increasing use of plastic, there is much more plastic in rivers and oceans. An estimated 8.8 million tons (8 million metric tonnes) of plastic waste enter the ocean every year (3).

A whopping 276,000 tons (250,000 metric tonnes) of this plastic is currently floating at sea, while the rest has likely sunk or washed ashore (4).

> oceans, soil and other environments.

Microplastics in Food

Microplastics are increasingly found in many different environments, and food is no exception (5, 6).

One recent study examined 15 different brands of sea salt and found up to 273 microplastic particles per pound (600 particles per kilogram) of salt (7).

Other studies have found up to 300 microplastic fibers per pound (660 fibers per kilogram) of honey and up to about 109 microplastic fragments per quart (109 fragments per liter) of beer (8, 9).

However, the most common source of microplastics in food is seafood (10).

Because microplastics are particularly common in seawater, they are commonly consumed by fish and other marine organisms (11, 12).

Recent studies have shown that certain fish mistake plastic for food, which can lead to toxic chemicals accumulating inside fish liver (13).

A recent study found that microplastics were even present in deep-sea organisms, suggesting that microplastics are affecting even the most remote species (14).

What's more, mussels and oysters are at a much higher risk of microplastic contamination than most other species (15, 16).

A recent study found that mussels and oysters harvested for human consumption had 0.36–0.47 particles of microplastic per gram, meaning that shellfish consumers could ingest up to 11,000 particles of microplastic

> Microplastics are commonly found in food sources, particularly seafood. This may result in humans consuming high levels.

Are Microplastics Affecting Your Health?

Although a number of studies have shown there are microplastics present in food, it is still unclear what effect they may have on your health.

Thus far, very few studies have examined how microplastics affect human health and disease.

Phthalates, a type of chemical used to make plastic flexible, have been shown to increase the growth of breast cancer cells. However, this research was carried out in a petri dish, so the results can't be generalized to humans (18).

A recent study examined the effects of microplastics in laboratory mice.

When fed to mice, the microplastics accumulated in the liver, kidneys and intestines, and increased levels of oxidative stress molecules in the liver. They also increased the level of a molecule that may be toxic to the brain (19).

proposed this may be due to microplastics present in the air (22).

Some studies have shown that microplastics in the air may cause lung cells to produce inflammatory chemicals. However, this has only been shown in test-tube studies (23).

Bisphenol A (BPA) is one of the best studied chemicals found in plastic. It is usually found in plastic packaging or food storage containers and can leak out into food.

Some evidence has shown that BPA can interfere with reproductive hormones, especially in women (24).

SUMMARY

Evidence from test-tube and animal studies suggests that microplastics may be bad for health. However, very few studies examining the effects of microplastics in humans currently exist.

How to Avoid Microplastics in Food

Microplastics are found in many different human food sources. However, it is still unclear how they affect human health.

The highest concentrations of microplastics in the food chain appear to be in fish, particularly shellfish.

Because little is known about how microplastics affect health, it is not necessary to avoid shellfish entirely. However, it may be beneficial to eat high-quality shellfish from known sources.

In addition, some plastics can leak into food from packaging.

> Shellfish appear to be the greatest source of microplastics in the food chain, so make sure to choose high-quality shellfish from known sources. Limiting plastic food packaging may also reduce your microplastic intake.

The Bottom Line

Microplastics are either purposely produced to be small, like microbeads in cosmetics, or formed from the breakdown of larger plastics.

Unfortunately, microplastics are present throughout the environment, including in the air, water and food.

Seafood, particularly shellfish, contains high concentrations of microplastics that may accumulate in your body after you eat these foods.

How microplastics affect human health is currently unclear. However, results from animal and test-tube studies suggest they may have negative effects.

Reducing your use of plastic food packaging is one of most effective ways you can reduce plastic in the environment and in the food chain.

An evidence-based nutrition article from our experts at Authority Nutrition.

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