



# HEALTH NOTES



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## Plastic in Your Food & Drink

Plastics are very durable manmade solid materials used in the construction of many household items such as toys, electronics, clothing, food containers, and general construction. These compounds were first created by Alexander Parkes in 1862. Today's plastics are composed of long branching chains of rather simple compounds. For this reason the names of plastics often start with the prefix "poly."

Worldwide production of plastics has reached 350 million tons per year. Unlike wood and other natural materials that deteriorate and disintegrate in a few years, most plastics remain in the environment for centuries. In the process of disposal many plastics are broken apart into smaller and smaller particles and are then called microplastics.

Microplastics are smaller than 5 millimeters in size and pollute rivers and oceans. They pollute the land and are even suspended in the air. They are now found in foods, particularly seafood, sea salt, and drinking water.

Within tissues, plastic particles may be recognized by the immune system as foreign invaders and may trigger local immune reactions. Many toxins and pollutants can adhere to the surface of plastics and thus they become a vector to expose us to chemicals not originally in the plastic materials.

A very small study was recently published that looked at the presence of plastic materials in the stool of people from around the world. The eight volunteers were living in Japan, Russia, the Netherlands, Great Britain, Italy, Poland, Finland, and Austria.<sup>1</sup> Everything in the diet was recorded for 7 days. The ingredients of toothpastes, cosmetics, and chewing gum were recorded. Stool samples were collected in glass containers using a metal spoon to avoid any further contamination by plastics.

Antiseptics killed all germs and all organic materials were dissolved with strong chemicals. Plastics, in what was left, were identified using an infrared microspectroscope. Ten different types of plastic were looked for including polyethylene, polypropylene, polyvinyl chloride, polystyrene, polyethylene terephthalate, polyamide, polyurethane, polycarbonate, polymethyl methacrylate, and polyoxymethylene.

All stool samples contained plastics. One had only 3 types of plastic. Another had 7 different types of plastic. In all, 9 of the 10 types of plastic were found in the volunteers. Polypropylene and polyethylene terephthalate were present in all 8 samples.

On average, 20 pieces of plastic were found in each 10 grams of stool. (28 grams=one ounce). The highest amount was 172 pieces per 10 grams of stool.



Plastics get into food during production, watering, processing, packaging, or preparation in your home or settling into food out of the air. It is estimated that each year there could be the ingestion of up to 11,000 pieces of plastic from shellfish, 1000 particles from sea salt, 5800 particles from drinking water and airborne fallout may be as much as 68,000 pieces. Drinking water from plastic bottles contain up to 325 pieces for each bottle. Food and drinks are often stored in plastic containers.

While this is a small study, the results probably underestimate the amount of plastic in food and drink. The strong chemicals used to break down organic matter and kill germs may have dissolved the smallest pieces of plastic. The authors also washed and filtered the captured plastic pieces in a filter that only retained pieces of plastic larger than 50 micrometers in size. Smaller particles were not captured by the filter and were flushed away. It is also true that there were hundreds of small pieces of "stuff" found that couldn't clearly be identified as being plastic of the types sought.

Plastic is not mentioned in the Bible, but it is clear that the environment is contaminated pervasively by the harmful creativity of humans. God comes to put an end to this.

"The nations were angry, and Your wrath has come, and the time of the dead, that they should be judged, and that You should reward Your servants the prophets and the saints, and those who fear Your name, small and great, and should **destroy those who destroy the earth.**"

—Revelation 11:18[NKJV]

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<sup>1</sup>Phillip Schwabl, et.al, "Detection of Various Microplastics in Human Stool," Annals of Internal Medicine Vol. 171, No. 7, October 1, 2019, 453-463