



THE FITNESS DOCTOR

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Microplastics (& Nanoplastics) Are Ubiquitous

Humans, on average, ingest about 5 grams of microplastic every week, which is about the size of a credit card. Over the course of one year, estimations of the total mass of ingested particles correspond to 50 plastic bags per year!



Microplastics

(and nanoplastics) are tiny particles that can enter the body through various means, including ingestion, inhalation, and dermal exposure, and once inside, they can accumulate in different tissues and organs.

Experiments have shown that microplastics can affect various systems in the human body, including the digestive, respiratory, endocrine, reproductive, and immune systems.

What Can We Do?

Reduce Your Exposure

Here are some steps to reduce your exposure to microplastics:

Filter Drinking Water: Use water filters that can remove microplastics from your tap water.

Limit Plastic Packaging: Reduce the use of plastic-wrapped foods and bottled water, as these can contribute to microplastic ingestion.

Choose Natural Fibers: Opt for clothing made from natural fibers like cotton, wool, or linen, which shed fewer microplastics compared to synthetic fabrics.

Reduce Processed Foods: Processed foods often contain higher levels of microplastics due to packaging and production processes.

Ventilation and Air Quality: Improve indoor air quality and reduce dust accumulation, as airborne microplastics can settle on surfaces and be ingested.

NEVER microwave anything in plastic.

While these actions can minimize your exposure, the removal of microplastics already present in the body remains an area of active research, and no definitive solutions are available yet.

Research into the removal of microplastics and nanoplastics from the human body is still in its early stages, but several ideas and approaches are being explored.

Certain compounds may be able to enhance the liver and kidneys' ability to filter out microplastics and associated toxins from the blood. Compounds like N-acetylcysteine (NAC) or glutathione, known to support detoxification, could have the potential to boost the excretion of microplastics.

N-acetylcysteine (NAC) is not commonly found in foods because it is a supplement derived from the amino acid cysteine. However, cysteine, the precursor to NAC, is found in several protein-rich foods. Glutathione, a potent antioxidant, is synthesized by the body from amino acids but can also be found in certain foods.

Cysteine is an amino acid that your body converts into NAC. Foods high in cysteine include:

Poultry: Chicken and turkey.

Eggs: Especially the yolk.

Dairy Products: Cheese, yogurt, and milk.

Red Peppers: Also high in vitamin C, which helps in cysteine absorption.

Garlic: Rich in sulfur compounds, which are crucial for cysteine synthesis.

Onions: Like garlic, onions are also sulfur rich.

Legumes: Lentils, beans, and soybeans.

Foods High in Glutathione

Glutathione levels in foods can be affected by processing and cooking methods, but some foods are naturally rich in this antioxidant:

Asparagus: One of the best natural sources of glutathione.

Avocado: High in healthy fats

and glutathione.

Spinach: Raw spinach is a good source.

Broccoli: Contains both glutathione and compounds that help the body produce more.

Brussels Sprouts: Like broccoli, these are sulfur-rich and support glutathione production.

Garlic: Again, a good source of sulfur compounds that boost glutathione.

Tomatoes: Particularly raw tomatoes have higher levels of glutathione.

Cucumber: Another vegetable with notable glutathione content.

Whey Protein: Contains the building blocks for glutathione synthesis.

Okra: Provides a good amount of glutathione.

Boosting Glutathione Levels Through Diet

Vitamin C: Consuming foods high in vitamin C (e.g., citrus fruits, strawberries) can help regenerate and maintain glutathione levels in the body.

Selenium: Foods rich in selenium (e.g., Brazil nuts, sunflower seeds) support the activity of glutathione peroxidase, an enzyme that relies on glutathione.

While direct consumption of NAC through food is not possible, these cysteine- and glutathione-rich foods can help support your body's natural production of these compounds. Food-derived cyanidin-3-O-glucoside reverses microplastic toxicity via promoting discharge and modulating the gut microbiota in mice

Cyanidin-3-O-glucoside (C3G) is a type of anthocyanin found in various fruits and vegetables, such as berries, red cabbage, and black rice. It is known for its potent antioxidant and anti-inflammatory properties.

C3G, a bioactive compound of the anthocyanin family, possesses a variety of functional effects, including antioxidant and anti-inflammatory, as well as gut microbiota modulation. C3G has been demonstrated to prevent polystyrene induced toxicities via activating autophagy and promoting discharge.

What food is highest in C3G? Black Elderberry! Double Bonus: Elderberry is also known for boosting your immune system, which is very important this time of year.

Plastics are ubiquitous and impossible to avoid completely. However, there is an app that is helpful for detecting them, called "Beat the Microbead." I recommend checking it out. •

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