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Effects of Ultra-Processed Foods

Ultra-processed foods (UPFs) make up more than half of daily calories for people in the U.S., U.K., and Canada and a steadily increasing percentage of calories in many other countries.[1–3] UPF intake is linked to many health problems, and reducing your intake is essential for your well-being. The following diagram shows the potential health risks associated with ultra-processed foods.

Ultra-Processed Foods Are Linked to Disease Risk

Eating ultra-processed foods is linked to an increased risk of many health conditions, including:

Brain and Mental Health:

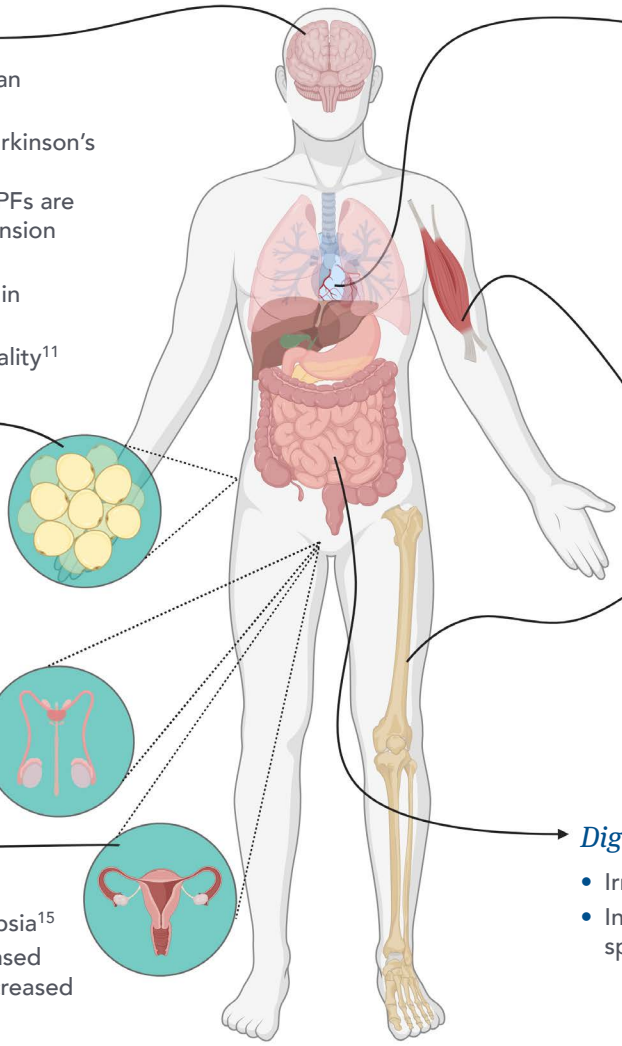
- Mental health problems, including an increased risk of depression[4]
- Cognitive dysfunction, including Parkinson's disease, cognitive impairment, and dementia in adults[5–7] In children, UPFs are associated with reduced comprehension and reasoning skills[8]
- Behavioral and cognitive problems in children[9,10]
- Sleep problems, like poor sleep quality[11]

Immune System:

- Asthma in children[12]
- Food allergies in children[12]
- Seasonal allergies in children[12]
- Eczema in children[12,13]
- Cancer, including breast, colon, and prostate cancer[14]

Reproductive Health:

- Pregnancy complications, including gestational diabetes and preeclampsia[15]
- Fertility problems, including decreased sperm concentration[16,17] and an increased risk of female infertility[18,19]



Cardiometabolic Health:

- Cardiovascular disease,[20,21] including heart attacks[21] and high blood pressure[22,23]
- Chronic kidney disease (CKD)[24]
- Obesity[25,26]
- Type 2 diabetes[27]
- Liver fat accumulation unrelated to alcohol intake, called metabolic dysfunction associated steatotic liver disease (MASLD)[28,29]

Bone and Muscle Health:

- Loss of muscle strength and reduced physical function with age[30]
- Bone density loss[31,32]

Digestive Health:

- Irritable bowel syndrome (IBS)[33,34]
- Inflammatory bowel disease (IBD), specifically Crohn's disease[35]

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Version 1; created 2026

What makes ultra-processed foods harmful?

Ultra-processed foods are linked to harmful health effects through multiple pathways:

- **Promotes excessive calorie intake:** Eating UPFs is linked to an excessive calorie intake because they are engineered with ingredients that make them very pleasurable and hard to stop eating.[36,37] Excess calories are a contributor to obesity.[38] Obesity is linked to many chronic diseases, including type 2 diabetes[39] and cardiovascular disease.[40]
- **Decreases vitamin and mineral intake:** UPFs are low in beneficial nutrients and crowd out more nutritious foods in the diet. As a result, a high intake of UPFs is associated with a lower intake of vitamins and minerals, including vitamins A, C, D, E, B3, and potassium, zinc, and magnesium.[41]
- **Decreases phytonutrient intake:** Phytonutrients are plant components associated with health benefits found in high amounts in colorful plant foods.[42] UPF consumption is linked to lower intakes of phytonutrients, including flavonoids.[43,44]
- **Increases inflammation:** UPFs are linked to increased inflammation,[45,46] possibly through harmful effects on the gut lining and microbiome and reduced intake of antioxidant nutrients. Inflammation underlies many chronic health problems.[47]
- **Promotes blood sugar imbalances:** Many UPFs contain refined carbohydrates and added sugars that raise blood sugar faster and higher than minimally-processed foods.[48] High blood sugar and high insulin, the hormone that helps blood sugar enter cells, are linked to multiple chronic health conditions, including type 2 diabetes,[49] cognitive decline,[50] and polycystic ovary syndrome (PCOS).[51]
- **Promotes increased intestinal permeability:** UPFs are tied to increased intestinal permeability through their inflammatory effects and certain additives they contain.[52] Increased intestinal permeability happens when the protective layer of cells that lines the intestine is damaged, allowing inflammatory substances to enter the bloodstream. It is linked to many conditions, including IBD and type 2 diabetes.[53]
- **Changes gut bacteria:** UPF intake is associated with inflammatory gut bacteria.[54,55] Unhealthy shifts in gut bacteria are, in turn, linked to many chronic diseases.[56]
- **Increases exposure to environmental toxicants:** Processed foods are linked to increased environmental toxicant exposure, including phthalates and microplastics, through processing and packaging materials.[57–60]
- **Decreases cultural eating habits:** High UPF intake is associated with a decreased intake of traditional and cultural foods. This effect may lead to disconnection from important cultural health-promoting foods.[61]

How to Reduce Your Intake of Ultra-Processed Foods

There are three ways you can gradually reduce your UPF intake:

Make small swaps:

- Replace an ultra-processed protein bar with added sugars or artificial sweeteners for one sweetened with dates or honey.
- Replace breakfast cereal with added sugars and artificial colors for unsweetened, whole-grain cereal.
- Swap an ultra-processed candy bar for a few squares of dark chocolate.
- Replace salad dressing with added sugars, emulsifiers, and industrial seed oils with homemade olive oil and vinegar dressing.

Tackle ultra-processed eating patterns:

- Do you find yourself gravitating to the vending machine for quick snacks at work? Pack a food container with nuts and fresh fruit instead.
- Do you rely heavily on frozen dinners reheated in the microwave? Commit to making a home-cooked dinner one night a week instead of eating a frozen meal and build from there.

Become a master label reader:

It is unrealistic for most people to give up all packaged foods. To successfully limit your ultra-processed food purchases while grocery shopping, hone your label reading skills.

- Check ingredient lists on food packages for ingredients not commonly found in home cooking.
- Look past flashy labels and health claims. Just because a package says "low fat" or "reduced sodium" doesn't mean it is healthy. Check out the ingredients list and then decide whether the food is something you want to add to your cart.

Ultra-processed foods are linked to many negative health effects, and reducing your intake of them is crucial for your health. Every small step you take to reduce your UPF intake is a step in the right direction towards protecting your wellbeing.

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