



Phytochemicals-Phytonutrients

Natural compounds called phytonutrients or phytochemicals, are components of plants that are powerful defenders of health.

It's no secret that a plant-rich diet offers vitamins and minerals that boost your health. These essential nutrients are necessary for survival — they help your body grow and function properly.

But you might not know that fruits, vegetables and other plant foods contain a bonus called phytochemicals or phytonutrients. While they may not be necessary for survival, these chemicals and compounds offer impressive health benefits.

All plants — including fruit, vegetables, beans and grains — produce phytochemicals. They are part of the plant's immune system and help protect the plant from viruses, bacteria, fungi and parasites.

Phytochemicals can offer humans some of that same protection. While some phytochemicals are also vitamins, they aren't essential to our health like vitamins and minerals. Instead, they protect your cells from damage caused by environmental toxins and the body's natural chemical (metabolic) processes.

“Phytochemicals have antioxidant properties and offer protection that decreases the risk of many diseases,” says [Vijaya Surampudi, MD](#), a physician nutrition specialist at UCLA Health. **“They help with neutralizing free radicals, which can damage the DNA.”**

Types of phytochemicals

Experts have identified thousands of phytochemicals but only closely studied certain ones. But what they've uncovered includes impressive health benefits.

Well-known phytonutrients include:

- **Anthocyanidins**, produced by red and purple berries
- **Beta-carotene**, found in orange and dark green leafy vegetables
- **Catechins**, present in black grapes, apricots and strawberries
- **Carotenoids**, produced in pumpkin, carrots and bell peppers
- **Flavonoids**, found in tea and wine
- **Isoflavones**, contained in soybeans
- **Polyphenols**, produced by cloves, berries and dark chocolate

Health benefits of phytochemicals

The variety of phytochemicals and their antioxidant properties offer protection from several diseases — it's not just one type of phytochemical that provides one specific benefit. “As an example,” Dr. Surampudi says, “phytoestrogens — present in a wide variety of foods including soybeans, flaxseed, peaches and garlic — help protect against bone loss, breast cancer, uterine cancer and cardiovascular disease.”

Eat phytochemicals to:

Improve immune function

A balanced immune function — neither underactive or overactive — can protect you against infection and diseases without overreactions and chronic inflammation. Phytochemicals can help achieve and maintain a balanced immune system.

Phytochemicals also work as antimicrobial agents. They reduce the chance that viruses and bacteria can grow in the body. Early research suggests that when an infection does occur, phytochemicals help ensure your immune system has an appropriate response. They can also reduce ongoing inflammation associated with inflammatory diseases.

Prevent cancer

Phytochemicals act as chemoprevention — they hinder cancer development — by preventing DNA damage. They can also repair mutated genes, slow cancer growth and help abnormal cells die more quickly. Making simple [dietary changes to include more phytochemicals](#) provides a safe, cost-effective way to prevent cancer.

Research supports using phytochemicals as chemoprevention for several types of cancer, including:

- Breast
- Cervical
- Colorectal
- Leukemia
- Prostate

Protect your brain

Many foods that support brain function, sleep and mental health contain phytochemicals. Phytochemicals in foods such as berries, tea, onions and purple cabbage benefit your brain by supporting:

- **Brain plasticity**, the brain's ability to modify and adapt in response to new information, sensory stimulation, damage and other impactful experiences
- **Cognition**, including memory, attention and learning ability
- **Neurodegenerative disorders**, by helping prevent or delay the progression of Alzheimer's disease and Parkinson's disease
- **Sleep**, by reducing insomnia

Support heart health

Phytochemicals prevent cardiovascular diseases by helping:

- Decrease inflammation
- Improve cholesterol absorption
- Preventing oxidative stress
- Reduce blood pressure

A plant heavy diet also increases your intake of heart-healthy fiber. **“Fiber can help reduce cholesterol and cardiovascular disease,” Dr. Surampudi says. “In nutrition studies, no matter what disease you're looking at, whether it's heart disease or certain cancers, people who eat more vegetables have improved survival.”**

How to incorporate phytonutrients into your diet

Phytonutrients give foods their color and smell. Eating a colorful diet is an easy way to make sure you're getting all types of phytochemicals.

If you don't love vegetables or struggle to incorporate them into your meals, Dr. Surampudi recommends herbs and spices.\

“People forget that herbs and spices have phytochemicals,” she says. “They are fragrant and offer a variety of colors. They also have some of the highest antioxidant properties and are easy to add into almost any meal.”

Paraphrased information from uclahealth.org