

Phytonutrients: Nature's Hidden Treasures



March is National Nutrition Month. Created by the Academy of Nutrition and Dietetics 50 years ago, it celebrates the importance of a balanced diet and healthy lifestyle habits. This year's theme, Fuel for the Future, highlights choosing foods that are helpful to the body and planet.

Phytonutrients are naturally occurring compounds that are produced by plants. Technically known as phytochemicals, they protect plants from insects, pests and other environmental stresses such as ultraviolet rays. Environmental conditions (soil, light), agricultural methods (fertilization, irrigation), and processing can alter a plant's concentration of phytonutrients. Over 10,000 phytonutrients have been identified in plants. Only a fraction of them has been studied [i].

Phytonutrients are found in foods. Consuming a variety of fruits, vegetables and whole grains may help prevent inflammation and damage to cells in the body. Many phytonutrients are associated with reducing the risk of diseases such as cancer, heart disease and Type 2 diabetes [ii, iii]. Other phytonutrients may have antibacterial and antiviral properties [ii, iv].

Phytonutrients are found in the pigments of plant food. They contribute to the rich colors, flavors and aromas of plant foods. Some common sources include broccoli, carrots, onion, garlic, whole grain bread, berries, beans, peas, lentils, nuts, herbs, and soy foods [ii]. Tea, coffee, chocolate, and wine also contain phytonutrients.

Use the color of food (including skins) to identify some of its health benefits. Green foods contain *lutein* which is associated with promoting eye health. Red foods contain *lycopene* which is associated with preventing cancer. Orange and yellow foods contain *beta carotene* which is associated with supporting visual and immune function as well as bone and skin health. Purple, blue and black foods contain *anthocyanins* which are associated with supporting brain and heart health. Some white foods such as garlic contain *allicin* which is associated with having antiviral, antiparasitic and antifungal properties. Other white foods such as soy contain *isoflavones* which are associated with reducing the risk of diabetes, cancer, and nerve damage [v].

Cooking methods can influence the phytochemical content in foods. For example, red, orange and yellow foods and consume with healthy fats to increase the availability of lycopene and beta carotene for the body to absorb. High heat from boiling or frying a vegetable such as spinach can reduce its lutein content [vi].

Nature provides a unique source of diverse phytonutrients. Because they are present in so many plant-based foods, it is easy to include them in your diet. Fuel your body with a daily rainbow of colors. Each color contributes to your health!

- i. Monjotin N, Amiot MJ, Fleurentin J, Morel JM, Raynal S. Clinical Evidence of the Benefits of Phytonutrients in Human Healthcare. *Nutrients*. 2022;14(9):1712. Published 2022 Apr 20. doi:10.3390/nu14091712
- ii. Saxena M, Saxena J, Nema R, Singh D, Gupta A. Phytochemistry of Medicinal Plants. *J Pharm Phyto*. 2012; 1(6):168-182. https://www.researchgate.net/publication/284425734_Phytochemistry_of_Medicinal_Plants
- iii. Monjotin N, Amiot MJ, Fleurentin J, Morel JM, Raynal S. Clinical Evidence of the Benefits of Phytonutrients in Human Healthcare. *Nutrients*. 2022;14(9):1712. Published 2022 Apr 20. doi:10.3390/nu14091712
- iv. Barbieri R, Coppo E, Marchese A, et al. Phytochemicals for human disease: An update on plant-derived compounds antibacterial activity. *Microbiol Res*. 2017;196:44-68. doi:10.1016/j.micres.2016.12.003
- v. Roy M, Datta A. Fundamentals of Phytochemicals. In: *Cancer Genetics and Therapeutics*. Springer, Singapore. 2019. https://link.springer.com/chapter/10.1007/978-981-13-9471-3_3
- vi. Chung RWS, Leanderson P, Gustafsson N, Jonasson L. Liberation of lutein from spinach: Effects of heating time, microwave-reheating and liquefaction. *Food Chem*. 2019;277:573-578. doi:

