



# INTRODUCTION TO PHYTONUTRIENTS

*“Let your food be your medicine; let your medicine be your food.”*

— Hippocrates, the “Father of Medicine”

Since ancient times, people have known that certain plant foods support soundness of mind and body. In our modern quest for health, however, we often turn to the medicine cabinet first and the diet last, focusing on cure rather than prevention. We tend to think high-tech treatments can fix our health problems, so we eat what we want without regard to how foods affect us. What you eat, however, can set the stage for health or disease. Experts commonly agree that a third of all cancers and half of all cardiovascular diseases can be attributed to diet.<sup>1</sup> Wellness and illness are two sides of the same coin: The wrong foods can endanger health, but the right foods can support it!

## FRUITS AND VEGETABLES: THE ULTIMATE “BODYGUARDS”

For eons, humans have been hunters and gatherers, but mostly gatherers. Scientists theorize that our metabolisms became dependent on the plants we gathered — fruits, vegetables, roots, nuts, seeds, herbs, and whole grains. The link between these foods and health is so well supported that virtually all of the world’s public health organizations recommend a diet rich in plant foods. Fruits and vegetables may be the ultimate “bodyguards.” In recent years, knowledge of exactly *how* they support health has grown as scientists have identified and tested thousands of health-promoting plant compounds.

## PHYTONUTRIENTS: HOW PLANTS PROTECT THEMSELVES AND US

Besides fiber, vitamins, and minerals, plants also contain other **phytonutrients** — “phyto” is derived from the Greek word for “plant,” — many of which impart vibrant colors, flavors, and aromas. Often antioxidants, these “protector nutrients” are crucial components of the plant’s defense systems against disease, predators, sunlight, and oxidation. They may protect us as well. Hundreds of research studies link phytonutrients or phytonutrient-rich diets to lower risks for ailments such as heart disease, high blood pressure, stroke, cancer, and blindness. Without these compounds in the diet, experts say, you’re opening the door to cellular damage, premature aging, disease, and even death.

Nowhere have more protective benefits of phytonutrients been shown than in the area of cancer research. More than 200 studies link greater fruit and vegetable intakes with lower cancer risks. *At almost every step along the pathway leading to cancer, there is a phytonutrient that reduces the likelihood of transmission to the next stage.* These findings have led to intensified research, including a multimillion-dollar effort by the

U.S. National Cancer Institute to find, isolate, and study protective substances in plant foods as diverse as tomatoes, garlic, licorice root, citrus fruits, carrots, broccoli, and soybeans.

## EXACTLY HOW DO PHYTONUTRIENTS FIGHT DISEASE?

Scientists are just beginning to discover the tricks plants have up their sleeves... er, leaves. Almost all fruits, vegetables, and cereal grains are rich in phytonutrients, including antioxidants, which may inhibit malignant changes. Some phytonutrients keep cancer-causing agents (carcinogens) from forming in the first place, while others boost the production of enzymes that detoxify carcinogens or remove them before they can cause cancer. Some phytonutrients block the cellular entry of cancer-linked hormones, whereas others kill cancer-linked microbes.

Even if these defenses fail, small tumors do not kill; the danger lies in a lump that grows, invades the bloodstream, and colonizes distant sites. But the original lump cannot grow without supply lines, and some phytonutrients can help prevent new blood vessels from forming, cutting off the oxygen and nutrient supplies that tumors need to grow.

Some phytonutrients, such as lipids and sterols from wheat, rice, and soy, help protect health in other ways. While plant lipids provide important “building blocks” of cellular membranes, plant sterols act as cholesterol-lowering agents.

Whew! That’s a lot of health protection! The bottom line? Listen to your mother (who has the American Cancer Society on her side) and eat your vegetables. And fruits, whole grains, nuts, seeds, and roots. Health experts worldwide recommend *at least* five servings of fruits and vegetables each day as part of a balanced diet whose bulk is plant foods. If you’re not getting as many servings as you should, supplements may provide some of the vital nutrients missing in suboptimal diets and help you bridge the “phytonutrient gap.”

## GNLD IS A TRUE PHYTONUTRIENT PIONEER

GNLD pioneered phytonutrient research. **Tre-en-en®**, introduced by GNLD in 1958 as an ingredient in **Formula IV®**, was the world’s first phytonutrient supplement, providing lipids and sterols from wheat, rice, and soy. **Carotenoid Complex™** was the first and only supplement to provide the full carotenoid profile of fruits and vegetables, and studies of Carotenoid Complex by Scientific Advisory Board members earned GNLD the distinction of being the only direct selling company ever invited to present its findings to the New York Academy of Sciences. Carotenoid Complex studies have been presented at numerous scientific conferences and were twice published in the *American Journal of Clinical Nutrition*. Similarly, **Flavonoid Complex™** was the world’s first supplement to offer water-soluble antioxidant protection from



flavonoid-rich fruits, vegetables, and green tea. **Cruciferous Plus™** followed suit with protection from orange, soy, licorice root, and a broad spectrum of cruciferous vegetables. Studies conducted by an outside laboratory using stringent National Cancer Institute protocols showed that both Flavonoid Complex and Cruciferous *Plus* inhibited the growth of human cancer cells in test tubes. And **Garlic Allium Complex** was the first phytonutrient supplement on the market to provide broad-spectrum protection from garlic, onions, leeks, *and* chives.

Most phytonutrient research has been done in the last seven years. This field of research is still in its infancy, and GNLD has considerably more experience than its market competitors. We were the first company to champion the health-protecting properties of phytonutrients, and we have remained on the forefront through diligent research and consistent innovation. We are absolutely confident that you will not find finer phytonutrient supplements anywhere. And we have the data to prove it.

[1] Goldberg, I. Introduction. In: Functional Foods: Designer Foods, Pharmafoods, Nutraceuticals. Goldberg, I., ed. Chapman & Hall, New York, 1994. p. 6.