Plants are living pharmacies, producing thousands of substances beneficial to human health. There are several major categories of these phytonutrients, including the plant pigments called bioflavonoids. While clearly exhibiting antioxidant capabilities that offer protection from oxidative stress, bioflavonoids may be even more important for their ability to modulate cell-signaling pathways. Among the many important cell-signaling functions that bioflavonoids influence are regulating the cell cycle, inhibiting cell proliferation, and producing detoxification enzymes.

**PROANTHOCYANIDINS**

Proanthocyanidins are a subclass of bioflavonoids found in blue and purple berries, purple grapes, and red wine, and they are available in relatively high concentrations in grape seed extract. Research suggests a strong role for dietary bioflavonoids, including proanthocyanidins, in supporting and maintaining sound cardiovascular function. Epidemiological evidence of this connection begins with the observation that relatively low rates of heart disease exist in France, despite a diet high in saturated fat. This apparent “French paradox” has been attributed to the proanthocyanidins in the red wine consumed with most meals. Human clinical research has also shown that proanthocyanidins in red wine maintain healthy endothelial function.*

Proanthocyanidins have been studied extensively in Europe and in the United States. Scientifically observed and documented benefits include the following:

- Helps maintain healthy cholesterol levels already within the normal range*
- Helps retain healthy capillary strength and vascular function*
- Supports healthy immune function*
- Supports healthy peripheral circulation*

**THE MANY ROLES OF VITAMIN C**

Vitamin C plays many important roles in the body, and because human bodies are incapable of manufacturing vitamin C, we must rely on our diet to satisfy our daily requirement. The amount of vitamin C needed daily for optimal performance is directly related to individual ingestion; absorption; utilization; manufacturing vitamin C, we must rely on our diet to satisfy our daily requirement. The amount of vitamin

Critical to good health, vitamin C supports many important functions in the body. First, it is essential for collagen synthesis. Collagen is the most abundant structural protein in the body and is essential for staying healthy and strengthening muscles, teeth, bones, skin, and blood vessels. Without sufficient vitamin C, there is inadequate collagen.* Under normal conditions, the RDA of 75–90 mg per day meets the requirement for maintaining collagen. But we also need vitamin C to quench free radicals, reduce lipid oxidation, and regenerate other antioxidants. It is a co-factor or co-substrate for many enzyme systems involved in such functions as ATP synthesis within mitochondria and hormone biosynthesis. Vitamin C can help retain cardiovascular health by supporting healthy adrenal function and healthy arterial wall integrity. And, vitamin C helps support a healthy immune system, which is the primary system responsible for defense of the human body. You also need enough vitamin C to help protect the liver from environmental toxins and drug metabolites and to make carnitine, interferon, and prostaglandin E1. Thus, a daily dose of 75–90 mg is unlikely to be sufficient for everyone.*