



function, it is important that all are taken together. B vitamins are necessary for metabolism of carbohydrates, fats and proteins which makes them essential for energy production. They are also necessary for normal functioning of the nervous system, maintenance of muscle tone in the gastrointestinal tract and for health of the skin, hair, eyes, mouth and liver.<sup>(3)</sup>

The **One Step®** formula also provides major minerals and trace minerals which play an important role in various bodily functions. **Calcium** and **magnesium** are provided in the colloidal form for maximum absorption and utilization by the body. **Chromium** in the biologically active form of niacin-bound chromium polynicotinate, is used for its ability to regulate blood-sugar and lower cholesterol,<sup>(4)</sup> as well as for its role in reducing body fat. **MSM** (methyl sulfonyl methane) supplies a usable source of organic sulfur that is essential for building healthy new cells.

### Antioxidants

Research in the field of antioxidant nutrients has taken a giant leap in the past few years. **One Step®** supplies therapeutic quantities of the antioxidant vitamins A, C, E and **beta carotene**, but it doesn't stop there.

In addition to beta carotene, **One Step®** contains **Beta-tene®**, a balanced blend of five mixed carotenoids including alpha-carotene, zeaxanthin, cryptoxanthin, lutein and lycopene. The effects of these carotenoids are seen in different areas of the body. Lutein and zeaxanthin, for example, show the strongest protective effect against macular degeneration. Lycopene appears to protect against cancer of the mouth, pharynx, esophagus, stomach, colon, rectum and prostate.

The less saturated **tocotrienol** form of vitamin E is also included in **One Step®**. Research over the past five to ten years indicates that tocotrienols may have more powerful antioxidant effects than vitamin E, particularly in certain lipid cell membranes and in brain cell mitochondria. Tocotrienols can also help lower elevated cholesterol by normalizing the rate of breakdown of HMG CoA-reductase. If this enzyme is accelerated or overactive, it creates excess cholesterol. Clinical trials also indicate that tocotrienols can halt and even lessen a buildup of atherosclerotic plaque. In laboratory studies on a variety of cancers including breast cancer and melanoma, tocotrienols in the growth media significantly reduced or halted the cancer growth.<sup>(5)</sup>

The amino acid tri-peptide, **glutathione**, is the main defense against oxidative stress generated by cellular respiration. It appears to be especially important in organs exposed to exogenous toxins such as the liver, kidneys, lungs and intestines. Glutathione blocks cell damage throughout the body by neutralizing and breaking down free radicals, rejuvenates immune function, detoxifies oxidized or rancid fats in the intestines and can deactivate at least thirty cancer causing substances. Glutathione levels, which tend to drop dramatically between ages 40 and 60, have recently been identified as a strikingly accurate biomarker, distinguishing healthy people over age sixty from those

with disease. Subjects with 20 percent higher blood glutathione had only one-third the rates of arthritis, high blood pressure, heart disease, circulatory symptoms, diabetes, stomach symptoms and urinary tract infections as those with lower glutathione.<sup>(6)</sup>

**Alpha-lipoic acid** functions both as an antioxidant and as a coenzyme in the metabolism of sugars for production of cellular energy. From lipoic acid the body manufactures dihydrolipoic acid, a powerful and unique antioxidant that works in both the lipid and aqueous parts of the cells. Lipoic acid and dihydrolipoic acid neutralize both oxygen and nitrogen free radicals. Lipoic acid also works to recycle vitamins C and E and it increases glutathione levels in cells.<sup>(20,21)</sup> As a coenzyme in sugar metabolism, lipoic acid speeds breakdown and burning of sugar, which occurs primarily in muscle cells, and may actually increase energy levels and strength in muscle cells. In early experiments, lipoic acid increased the burning of glucose in a way that was comparable to, but independent of, inulin.<sup>(22,23)</sup>

**CoQ<sub>10</sub>** is present in the mitochondria of human cells and is a cofactor in several metabolic pathways, particularly oxidative phosphorylation. CoQ<sub>10</sub> is also a membrane stabilizer and has been shown to increase antioxidant protection in membranes. The mitochondria are prime targets of free radical damage in brain cells, leading to decline in mental function. Because of its importance in protecting the mitochondria, CoQ<sub>10</sub> may help prevent degenerative brain diseases such as Alzheimer's.

### Flavonoids

Over 4,000 flavonoid compounds have been characterized and classified according to chemical structure. Since flavonoids are active against a wide variety of free radicals and different flavonoids seem to have a preference for specific tissues, **One Step®** supplies flavonoids from a variety of sources including:

- **Citrus Bioflavonoid 5X Complex**, an undiluted blend of hesperidin, naringin and rutin that is five times more potent than bioflavonoids used in most supplements.
- **Quercetin** appears to reduce allergic processes, inhibit replication of both RNA and DNA viruses and inhibit mast cell degranulation which causes tissue destruction in rheumatoid arthritis. It also inhibits the release of histamine and other inflammatory mediators by stabilizing mast cells and basophils; inhibits several enzymes to prevent inflammation; decreases leukotriene formation, lipid peroxidation and collagen breakdown.<sup>(7)</sup>
- Anthocyanidins and proanthocyanidins from **Pycnogenol®** and from **grape skin** and **grape seed extracts** have an affinity for connective tissues, particularly collagen and elastin. These flavonoids work with vitamin C to help regenerate collagen and shield it from free radical attack. Together these nutrients strengthen and restore permeability to capillaries allowing more oxygen, nutrients, enzymes and hormones to pass through cell membranes. This

“protect and repair” function promotes smoothness and elasticity of skin, improved circulation in the extremities and increased memory capacity (since proanthocyanidins cross the blood-brain barrier).<sup>(8)</sup>

- In addition to cardiovascular protection, resveratrol, a phenolic flavonoid found in **grape skins**, made the news when it was shown in cell cultures and animal studies to block the action of cancer-causing agents,

## Fiber and Accessory Nutrients

Adequate dietary fiber is essential for intestinal health. **One Step®** provides six grams of **dietary fiber** per serving from **rice bran** and **guar gum**. As an intestinal cleanser and detoxifier, dietary fiber can bind cholesterol as well as cancer promoting compounds and other toxins. Because of its bulk, it also suppresses the appetite producing a feeling of fullness.

The amino acid **L-glutamine** and the amino sugar **glucosamine** are needed to maintain and repair the intestinal lining. The mucosal lining of the small intestines allows absorption of nutrients and, at the same time, provides a protective barrier to keep out undesirable molecules. When a breakdown in that barrier results in increased intestinal permeability or “leaky gut syndrome”, neither function is performed successfully. L-glutamine is the only substance other than glucose that can be used as fuel by the brain. Supplemental L-glutamine also increases glutathione levels and is used to reduce cravings for sugar, carbohydrates and alcohol.<sup>(10)</sup> Glucosamine plays a crucial role in connective tissue synthesis and is needed for maintenance and repair of joints, ligaments and tendons.

**Inulin**, a fructo-oligosaccharide, is added to **One Step®** to support the growth and proliferation of beneficial bacteria in the intestines. It also has a beneficial effect on blood sugar control.<sup>(8)</sup>

**Bioperine®** is a patented extract of black pepper which significantly increases absorption of many nutrients.<sup>(12)</sup>

**Aloe isolate** is freeze dried aloe vera mucilaginous polysaccharide, a functional component of aloe vera. Aloe vera taken internally is known for regulating the bowel. Preliminary studies and anecdotal reports also indicate a tonic and anti-ulcer effect. The polysaccharide component of aloe vera, acemannan, shows significant immune enhancing and antiviral activity.<sup>(8)</sup>

**Beta-1,3-glucan**, an extract of the cell wall of bakers yeast, has been shown to enhance macrophage function dramatically, and to increase resistance to a variety of bacterial, viral, fungal and parasitic infections.

The dried leaves of the prickly pear cactus, also known as **nopal**, are rich in nutrients and phytochemicals that nutritionally support the liver and pancreas. Nopal also helps remove ammonia free radicals and environmental toxins such as alcohol and cigarette smoke.

**Gamma oryzanol**, a strong antioxidant extracted from rice bran, has been used as an alternative to anabolic steroids to stimulate production of growth hormone. It

inhibit development and growth of tumors and cause precancerous cells to revert to normal.<sup>(9)</sup>

- **Ginkgo biloba** extract contains flavonoids that have demonstrated remarkable effects on circulatory and nervous system functions including enhanced energy, increased cellular glucose uptake, inhibition of platelet aggregation, increased blood flow to the brain and improved transmission of nerve signals as well as antioxidant activity.<sup>(6)</sup>

has also been used as a safe, and effective treatment for lipid abnormalities<sup>(13)</sup> and as an effective treatment for a broad range of gastrointestinal disorders including stress-induced gastric and duodenal ulcers.<sup>(14)</sup>

**Gugulipid** and **lecithin** are used for their effects on lipid metabolism. Gugulipid, the oleoresin of the Indian herb *Commiphora mukul* or gum guggul, has been shown to effectively lower elevated cholesterol and triglycerides and reduce body weight in obese individuals with elevated blood lipids.<sup>(15)</sup>

**TMG** (trimethylglycine) is added to **One Step®** to detoxify homocysteine. In a group of patients with early-onset arteriosclerosis, elevated blood homocysteine was found to be a greater risk factor than high cholesterol, high blood pressure or cigarette smoking.<sup>(16)</sup>

**Siberian ginseng** is used for its “adaptogenic” effects. Studies indicate that this herb increases the ability of humans to withstand many adverse physical conditions (noise, heat, motion, intense work load, exercise, illness); increases mental alertness and work output; improves quality of work under stressful conditions; and improves athletic performance.<sup>(8)</sup>

**Creatine pyruvate** (patent pending) is a combination of two outstanding energy supplements. **Creatine**, found in high concentrations in skeletal and cardiac muscle, brain and sperm cells, plays an important role in energy transfer. Creatine supplementation significantly reduces fatigue, enabling subjects to perform for longer periods at speeds close to maximum. Recovery from intense activity is also much faster.<sup>(17)</sup> As an energy booster, **pyruvate** has been shown to increase exercise performance as it enhances the transport of glucose into the cells. Pyruvate increases metabolic rate without raising blood pressure or heart rate and weight loss, particularly fat loss, is enhanced.<sup>(18)</sup>

**CitriMax®** contains (-)-hydroxycitric acid, the active component of the herb *Garcinia cambogia*. Its success in promoting loss of body fat is linked to its relationship with citrate lyase, an enzyme needed for the formation of acetyl Coenzyme A. As a result of this action, fat burning speeds up, appetite is suppressed, metabolic rate increases, stamina and endurance are enhanced, fat production is inhibited and protein is spared.<sup>(19)</sup>

The phospholipids, particularly **phosphatidyl serine (Leci-PS®)** promote membrane fluidity which is crucial for cellular responsiveness and for the cell's processing of nutrients and information. Phosphatidyl serine also enhances the efficiency of glucose to “energize” the brain and improve overall performance.<sup>(24)</sup>