

NUTRIENTS PART 2

C. Edgar Sheaffer, VMD May 2005

Vitamin K

Actions of vitamin K include normal blood clotting and building healthy bones. Vitamin K is absolutely essential in preventing and treating osteoporosis. It activates osteocalcin, the substance that holds calcium into bone. Three forms are designated as K-1, K-2, and K-3. K-1 is found in fat-soluble chlorophyll. Only fat soluble chlorophyll is absorbed by the GI tract. This is the natural form of chlorophyll which is not only a potent antioxidant but also acts as an anticancer nutrient.

Sources of the vitamin are dark green plants like spinach, broccoli, kale, cabbage and green tea. For livestock, dark green mold-free forages supply vitamin K along with other fat-soluble nutrients.

Symptoms of vitamin K deficiency include hemorrhagic disease especially in the newborn and weakness of bones in people and animals of every age.

RDA: 50 to 250 mcg. /day

Antioxidants

Proanthocyanidin or PCO

N-Acetylcysteine or NAC

Alpha-Lipoic Acid

Actions of Proanthocyanidin are to support collagen structures, increase intracellular vitamin C, to remove free radicals, and release compounds into the body to control inflammation and allergic reactions.

N-Acetylcysteine, sometimes referred to as a mucolytic agent acts in the detoxification of certain drugs. It is unrivaled for short term therapy in inflammatory reactions of the skin (eczema) and respiratory tract (sinus congestion). The action in the body is not unlike high levels of vitamin C. We prefer prescribing NAC and vitamin C over prednisone and other popular synthetic drugs. For most patients, the therapeutic action of natural antioxidants will far surpass that of antihistamine or steroid compounds.

Alpha Lipoic acid acts along with NAC to potentiate vitamin C and vitamin E in the body. In other words, these (antioxidant) vitamins become re-circulated from the kidneys back to vital organs such as the liver, heart, lungs and brain. People on a whole food diet who take Alpha-Lipoic acid and NAC need only ten to fifty units of natural vitamin E each day for optimum health.

Sources of the above antioxidants can be found in: red grapes; grape seeds; red wine; cranberries; raspberries; blueberries; green tea.

Recommended Daily Levels

PCO: 50-300 mg.

NAC: 500-1500 mg.

Alpha Lipoic acid: 50-150 mg.

Omega -3 Fatty Acids

For the last 50 plus years, Americans in general have been taught to avoid fats and oils in the diet. We know now that such recommendations are faulty. Most of our populace continues to take in abundant Omega-6 from grain and processed food, and too little Omega-3 from whole food. However, the clear choice for health is a 1:4 balance of Omega-3 with Omega-6 in the daily diet.

Jerry Brunetti says that free range organic eggs have a ration of one part Omega 3 to two parts Omega 6 fatty acids. It would therefore be helpful to consume this valuable food product in one's daily diet.

Nursing Mothers

Newborns and infants require Omega-3 DHA for normal neural development. The quality and quantity of DHA in breast milk depends on mother's diet. In a Norwegian study, women who took as little as 2.5 ml (1/2 tsp.) of top quality cod liver oil from cold water fish daily significantly increased the amount of DHA in their breast milk.

Recommendations for People

The best cod liver oils come from arctic waters. Cod liver oil and/ cold water fish oil should be taken more than once daily. Avoid any supplements that add artificial or synthetic vitamins to their product. Pregnant women need omega-3 oils for the EPA and DHA, but should avoid taking excessive vitamin A and D.

Other sources of omega-3 EPA and DHA are meats, eggs and dairy from grass based organic animals. In fact, eggs from free range hens have the optimum balance of Omega fatty acids that people require for cardiovascular and neurological wellness.

Heart Health and Brain Health

“EPA and DHA are components of cell membranes throughout the body, providing structure to the eyes, brain, and reproductive cells. These omega-3 fats also serve as precursors to hormones that regulate inflammation, blood clotting, blood pressure and more.”

“The most abundant and definitive research on the topic of fish and fish oil consumption concerns the role of omega-3 fats in the prevention and management of cardiovascular disease. Consumption of as little as one fish meal per week can cut your risk of cardiac arrest in half and a recent update to the American Heart Assn. recommendations includes the consumption of at least two fatty fish meals per week and/or supplementation with EPA and DHA to decrease risk of arrhythmias, decrease thrombosis, decrease triglyceride levels, decrease growth rate of atherosclerotic plaques, improve artery health, and slightly lower blood pressure.” [Using Fish Oils for Total Body Fitness. Barry W. Ritz, MS. 2004 Nordic Naturals, Inc.]

Selenium

Selenium is a true micronutrient. It is required in the body for the manufacture of certain essential enzymes. In veterinary medicine it has long been known as an essential nutrient for growth and reproduction. Vitamin E has a saving effect on levels of Selenium in the body.

Young Livestock

A brief list of disease conditions in young livestock associated with deficiency of Selenium/Vitamin E follows:

- White Muscle Disease in calves and foals
- Mulberry Heart Disease in piglets
- Stiff Lamb Disease in small ruminants
- Enzootic Muscular Dystrophy in all species
- Hepatitis dietetica in piglets

These conditions look much the same with profound stiffness during exercise. Continued exertion leads to dyspnea, rapid irregular heart beat and death from heart failure. All species of mammals are subject to deficiencies of Selenium along with Vitamin E.

Organic Selenium

For the mammal, selenocysteine is incorporated into the enzyme glutathione peroxidase, a potent antioxidant in the cells. Selenium is involved in thyroid hormone production, and helps to rid the body of poisonous heavy metals like lead, aluminum, mercury, and cadmium.

Organic forms of Selenium are preferred over the inorganic sodium selenite. The best sources are in the form of selenomethionine or high-selenium yeast. [Encyclopedia of Nutritional Supplements. Michael Murray, N.D. Prima Publishing. 1996]

Recommended Daily Levels

Adults: 50 to 400 mcg

Children: 1.5 mcg/lb.

Calves, lambs, foals: 200 to 500 mcg

Adult livestock: 250 to 750 mcg

Inorganic Selenium

When deficiency states are severe, once weekly injections of Selenium/ Vitamin E preparations may save the lives of young livestock. The USDA has placed limits on the additions of Sodium Selenite into feeds without a veterinary prescription. Blood and tissue values help the practitioner to determine the levels of nutrients required.

Living Fields

When a farm is in transition, soil that previously has been drugged with heavy chemical application is nearly devoid of life. It has been stated that for each pound of soluble nitrogen applied, one hundred pounds of carbon is lost. Carbon is the largest ingredient or element in the total organic matter in the soil.

It may take years to replace the organic matter and build a healthy environment for life. First year transition crops may be deficient in more than one mineral. Foliar feeding of approved nutrients can rejuvenate plants and save a year's crop.

Applying high carbon substances like compost, soft coal, fish meal, kelp or compost tea is a great help to transition fields. We need to feed the soil, feed the plants, and feed the livestock. To the young farmer our advice is as follows: “Get your advice from those who have already succeeded in organic and sustainable farming.”

For minerals and vitamins to be in foods, it must first be in the soil. Otherwise the nutrients have to be applied to the young growing plants. Forgotten nutrients will restore health when they are remembered and applied.

Submitted by: C. Edgar Sheaffer, VMD
Bonnie M. Sheaffer, RN