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FDA compliance services since 1992

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April 4, 2004

Comparative View of Omega 3 Fatty Acids in Fish Per 85 g serving		
More than 1.0 grams	0.5 g - 0.9 g	Less than 0.5g
Turbot	Scallops	Carp
Salmon	Crab	Cod
Herring mackerel sardines	Shrimp	Grouper
Atlantic bluefish	Sea bass	Pacific Halibut
Most shellfish	Snapper	Ocean Perch
Pacific oysters	Clams	Mahi Mahi
Squid	Lobster	Orange Roughy
Anchovy	Striped Bass	
	Shark	
	Mussels	
	Rainbow Trout	

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Zinc

“zinc is essential for our immune system, for reproduction, growth, wound repair, taste and smell. An often quoted fact is that the human body on average contains no more than 3 grams of zinc, but this tiny amount ensures the proper functioning of more than 300 enzymes “¹

“High levels of antioxidants and zinc significantly reduce the risk of advanced age-related macular degeneration (AMD) and its associated vision loss.”²

Health and Well Being

Bolsters Immunity
Boosts Brain Activity
Heals and Protects Skin
Stimulates Taste, Smell, Mood
Over-all Health
Eating Right

Men's Health

Male Fertility
Prostate

Women's Health

Pre-Menstrual Syndrome
Pregnancy & Lactation
Post-Menstrual Health
Prevention
Eating Disorders

Children and Adolescents

Eating Disorders
Growth and Development
Children at Risk

1. Michael Martin, The Ringsider, the magazine of the London Metal Exchange, July 2001
2. Oct. 12, 2001, Michael Coogan, National Institutes of Health - National Eye Institute, October 2001 issue of Archives of Ophthalmology.

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Phosphorus

“ very involved with bone and teeth formation as well as most metabolic actions in the body, including kidney functioning, cell growth and the contraction of the heart muscle.

The main inorganic component of bone is calcium phosphate salts while cell membranes are composed largely of phospholipids. While it assists the body in vitamin use (especially some B group vitamins), it also is involved in converting food to energy.

Deficiency of phosphorus Deficiency of this element is unusual but may have symptoms varying from painful bones, irregular breathing, fatigue, anxiety, numbness, skin sensitivity and changes in body weight.

“Along with the B vitamins, phosphorus is needed to extract energy from food, particularly fats and starches. It is a component of healthy bones, teeth, gums and many other tissues. Phosphorus also helps with kidney functioning and heart regularity. It lessens arthritis pain. But none of this would be possible without proper levels of vitamin D and calcium, which phosphorus needs to function properly.

Health and Well Being

- Speeds up the healing process and puts a stop to calcium loss from injury.
- Helps prevent and treat osteoporosis.
- Helps treat or forestall bone diseases like rickets.
- Prevents stunted growth in children.
- Helps break up and carry away fats and fatty acids in your blood, as well as keeping your blood balanced.
- Works to keep your nerves from feeling frazzled, and your mind alert and sharp.
- Helps stimulate your glands to secrete hormones.
- Keeps your muscles, including your heart, contracting regularly and smoothly.
- Lets you digest two members of the B-vitamin family, riboflavin and niacin.
- Assures transmission of impulses from one nerve to another.
- Keeps your kidneys effectively excreting wastes.
- Gives you stable and plentiful energy.
- Forms the proteins that help all of us reproduce

April 4, 2004

“Vitamin B12 deficiency common among elderly people

Researchers at Columbia University have confirmed that elderly people often suffer from a lack of vitamin B12 (cobalamin). The deficiency is usually only discovered when patients develop megaloblastic anemia. However, before this stage is reached, cobalamin-deficient individuals may develop neuropsychiatric damage and show signs of disorientation and confusion. The researchers evaluated 548 men and women aged 67 to 96 years and compared their cobalamin and folate status to that of 117 healthy, younger control subjects. They found that 40.5 per cent of the elderly people suffered from a vitamin B12 deficiency versus only 17.9 per cent in the younger group. There was no significant difference in folate status among the two groups. The researchers also found that people who took oral supplements containing vitamin B12 and folate (6 micrograms and 400 micrograms per day respectively) were much less likely to suffer from a deficiency than were people who did not supplement. They point out that as people age they become less and less able to absorb vitamin B12 from food and therefore are likely to develop a deficiency. As gastric atrophy progresses vitamin B12 status can only be maintained by taking high oral doses of cobalamin (500-1000 micrograms daily) or by routine intramuscular injections providing 1 mg per month. The researchers also point out that a vitamin B12 deficiency leads to an accumulation of homocysteine in the blood. An increased serum concentration of homocysteine and its derivatives is now recognized as a major risk factor in heart disease and stroke. 4

“a physician at the Hospital General de Mostoles, reports the case of a 68-year-old man with the shaky-leg syndrome. The shaking (tremor) would begin immediately after the patient stood up and subside as soon as he began walking. A detailed examination revealed that the patient had a very low blood level of vitamin B12 “ 2

Vitamin B12

“ also called cobalamin, is important to good health. It helps maintain healthy nerve cells and red blood cells, and is also needed to make DNA, the genetic material in all cells (1-4). Vitamin B12 is bound to the protein in food. Hydrochloric acid in the stomach releases B12 from protein during digestion. Once released, B12 combines with a substance called intrinsic factor (IF) before it is absorbed into the bloodstream.

Characteristic signs of B12 deficiency include fatigue, weakness, nausea, constipation, flatulence (gas), loss of appetite, and weight loss (1, 3, 11). Deficiency also can lead to neurological changes such as numbness and tingling in the hands and feet (7, 12).

Additional symptoms of B12 deficiency are difficulty in maintaining balance, depression, confusion, poor memory, and soreness of the mouth or tongue (13). Some of these symptoms can also result from a variety of medical conditions other than vitamin B12 deficiency. It is important to have a physician evaluate these symptoms so that appropriate medical care can be given” 1

“Vitamin B12 deficiency implicated in Alzheimer's disease

CLWYD, NORTH WALES. Suspicion has been growing that a lack of vitamin B12 is somehow implicated in the development of Alzheimer's disease. Now researchers in the United Kingdom have confirmed this suspicion. They evaluated members of a family with a genetic predisposition towards Alzheimer's disease. They found that four out of six (67 per cent) of family members with confirmed Alzheimer's disease had abnormally low vitamin B12 levels in their blood. This compares to only one out of 12 (8 per cent) among the family members who were at equal genetic risk for developing Alzheimer's disease but did not. The researchers speculate that a vitamin B12 deficiency could result in impaired methylation reactions in the central nervous system - a characteristic feature in Alzheimer's disease. They also consider the possibility that the genetic predisposition to Alzheimer's disease may actually be related to a genetic impairment in the ability to absorb vitamin B12. Vitamin B12 deficiency in itself often causes disorientation and confusion and thus mimics some of the prominent symptoms of Alzheimer's disease. 3

1. National Institute of Health
 2. Benito-Leon, Julian and Porta-Etessam, Jesus. Shaky-leg syndrome and vitamin B12 deficiency. New England Journal of Medicine, Vol. 342, No. 13, 2000, p. 981
 3. McCaddon, A. and Kelly, C.L. Familial Alzheimer's disease and vitamin B12 deficiency. Age and Ageing, Vol. 23, July 1994, pp. 334-37
 4. Lindenbaum, John, et al. Prevalence of cobalamin deficiency in the Framingham elderly population. American Journal of Clinical Nutrition, Vol. 60, July 1994, pp. 2-11
- Allen, Lindsay H. and Casterline, Jennifer. Vitamin B-12 deficiency in elderly individuals: diagnosis and requirements. American Journal of Clinical Nutrition, Vol. 60, July 1994, pp. 12-14

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Copper

“At least 20 percent of the population suffers from a deficiency of copper, a trace mineral that is essential to good health. Yet few people are aware of the health disorders that are associated with copper deficiency:

- Osteoporosis
- Osteoarthritis and rheumatoid arthritis
- Cardiovascular disease
- Chronic conditions involving bone, connective tissue, heart and blood vessels
- Colon cancer

In infants and children, copper deficiency may result in anemia, bone abnormalities, impaired growth, weight gain, frequent infections (colds, flu, pneumonia), poor motor coordination and low energy.

Even a mild copper deficiency, which affects a much larger percentage of the population, can impair health in subtle ways. Symptoms of mild copper deficiency include:

- Lowered resistance to infections
- Reproductive problems
- General fatigue
- Impaired brain function

Who is most at risk for copper deficiency?

Those who are most susceptible to copper deficiency include:

- The elderly, athletes and those engaged in hard physical work
- Vegetarians, particularly those who do not consume dairy products
- Pregnant women and their fetuses
- Premature infants, especially those with very low birth weights
- Full-term infants who are fed unfortified formula or cow's milk (which contains low concentrations of copper bound to milk proteins)¹

“- Foods that are high in copper, an essential trace element that is present in inadequate amounts in many people's diets, according to scientists with the US Department of Agriculture's Agricultural Research Service in Grand Forks, North Dakota. A growing body of evidence suggests that a low-copper diet may significantly increase the risk of colon cancer.

In recent studies, Dr. Cindy D. Davis and colleagues found that rats raised on only one-fifth of their copper requirement were significantly more prone to develop colon cancer precursors than were animals who received adequate amounts of copper, after both groups were given a cancer-causing chemical. One report on the investigation was published in the Journal of Nutrition in 1999, another is awaiting publication. “²

1. International Copper Association, 2001 ©

2. Mar 6 (Reuters Health) ,Rene Ruiz-Isasi, MD

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Health and Well Being

Selenium

Heart Disease

Some population surveys have indicated an association between a lower antioxidant intake with a greater incidence of heart disease. Additional lines of evidence suggest that oxidative stress from free radicals may promote heart disease. For example, it is the oxidized form of low-density lipoproteins (LDL, often called "bad" cholesterol) that promotes plaque build-up in coronary arteries. Selenium is one of a group of antioxidants that may help limit the oxidation of LDL cholesterol and thereby help to prevent coronary artery disease

Arthritis

Surveys of patients with rheumatoid arthritis, a chronic disease that causes pain, stiffness, swelling, and loss of function in joints, have indicated that they have reduced selenium levels in their blood. In addition, some individuals with arthritis have a low selenium intake.

The body's immune system naturally makes free radicals that can help destroy invading organisms and damaged tissue, but that can also harm healthy tissue. Selenium, as an antioxidant, may help control levels of free radicals and help to relieve symptoms of arthritis. Current findings are considered preliminary ¹

"Selenium is an essential trace mineral in the human body. This nutrient is an important part of antioxidant enzymes that protect cells against the effects of free radicals that are produced during normal oxygen metabolism. The body has developed defenses such as antioxidants to control levels of free radicals because they can damage cells and contribute to the development of some chronic diseases. Selenium is also essential for normal functioning of the immune system and thyroid gland " ¹

1. National Institute of Health