



IMAGE AWARENESS WELLNESS INSTITUTE

Omega-3 Breakthrough

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A NUTRITION BREAKTHROUGH

Literally thousands of research papers on the benefits of fish oil supplementation have been written since GNLD first introduced Salmon Oil over 20 years ago. In a research project which has spanned many years GNLD has sought to concentrate the beneficial components of the fish oil, while removing those that cause burping and fish odor. This research project has now come to fruition with the development of an advanced technology called "**molecular differentiation.**"

This exclusive GNLD technology has made it possible for GNLD to pick and choose the components of fish oil desired in a supplement. This has made it possible to create a totally unique and different kind of fish oil supplement.

For example, there are actually eight members of the omega-3 fatty acid family which are of nutritional significance. GNLD's new Salmon Oil+ will deliver standardized amounts of all eight of these fatty acids.

PURITY

One of the key issues which centers around fish oil supplementation is the frequency of contamination of these products. Numerous studies suggest that fish and fish oil supplements are susceptible to contamina-

THE EIGHT OMEGA-3'S

ALA-Alpha linolenic acid
DHA-Docosahexaenoic acid
DPA-Docosapentaenoic acid
EPA-Eicosapentaenoic acid
ETA-Eicosatetraenoic acid
ETA(3)-Eicosatrienoic acid
HPA-Heneicosapentaenoic acid
SDA-Stearadonic acid

tion with heavy metals and fat-loving (or lipophilic) toxins such as PCB's, dioxin, and DDE. There is no purer product on the market than GNLD Salmon Oil Plus. All sources for this product are screened for more than 160 potential contaminants with an allowable detection limit of ZERO!

POTENCY

A number of years ago Tufts University shocked the health food marketplace when their studies revealed that the average fish oil supplement had an average of a

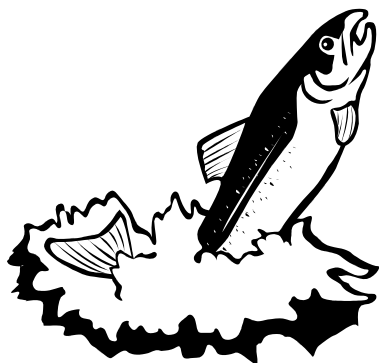
third of the important EPA listed on the label. This fatty acid is essential to derive the important anti-inflammatory benefits from fish oils.

A study at that time revealed that GNLD Salmon Oil met or exceeded label declarations going back two years. This was not a surprise as GNLD operates under a pharmaceutical license despite the fact that this level of sophistication is not required for food supplements. GNLD's Salmon Oil Plus product takes a major step forward in the area of product potency.

Not only will the new Salmon Oil Plus provide the completeness of all 8 members of the omega-3 family in standardized amounts, but there is also a tremendous boost in the potency of the product--**Ultra-high potency!**

GNLD Salmon Oil Plus will contain 33% more DHA, a key brain building nutrient, than current Salmon Oil capsules. All of this will be in a smaller capsule (1/3 smaller) which will eliminate a lot of the "repeating" which some people find objectionable with fish oil supplementation.

Potency of this product is assured with GNLD's leading edge technology "molecular differentiation" which selects specific nutrient molecules from salmon, tuna, sardines, and anchovies while eliminating or reducing others. This product insures unsurpassed potency and



consistency. The company boasts UHPO3 "Ultra High Potency Omega-3 fatty acids in the product information, an exclusive GNLD technology.

DEFICIENCY 'SIGNS'

Primary indications of omega-3 fatty acid deficiency which can affect brain function according to Purdue researchers Drs. Burgess and Stephens are "excessive thirst; frequent urination; dry skin; dry, unmanageable, 'strawlike' hair; dandruff; small, hard bumps on the arms, thighs, or elbows."

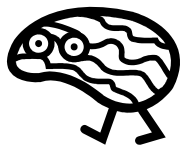
REFERENCE:

Carper, Jean, *Your Miracle Brain*, New York: HarperCollins Publishers, 2000, 95.

OMEGA-3: THE PROMISE

The value of any supplement is dependent upon the spectrum of benefits which it offers. No supplements have been shown to offer more wide ranging benefits than have high quality fish oils. Omega-3 oils are probably at the top of the list as far as nutritional deficiencies in the American diet.

Omega-3 oils have demonstrated a wide range of benefits. These include improvements in brain function, reduction of inflammation and autoimmune disease, improvements in heart health, and facilitation of weight loss.



DHA AND THE BRAIN

The new Salmon Oil Plus almost doubles the amount of DHA over previous supplements. DHA is the king of the brain fats governing almost every conceivable mental function. DHA consists of half the fat in brain cell membranes. It is concentrated at the critical synaptic communication

centers, in the part of the brain that allows us to think (cerebral cortex), and in the internal energy factories of the brain cells called the mitochondria. This fat is also the primary building block of the photoreceptors of the retina which allows us to see.

DHA is the most fluid of all fats. It's dynamic activity makes it the ideal building block for tissues which control mood and emotions, thinking and learning. DHA has been shown to enhance learning in animals.¹

Barry Sears aptly described the importance of DHA for brain function: "Trying to maintain your brain function without adequate DHA is like trying to build the sturdiest brick house in town without enough bricks. You might have the best architect, the best location, and the best contractor, but if you don't have enough bricks, the dream house will never be built properly. Without adequate DHA, your brain can't function adequately and can't form new neural connections, let alone maintain old ones."²

The brain of a baby is particularly susceptible to damage from DHA deficiency. In the mother's womb, a baby's brain makes as many as 250,000 nerve cells every minute. At six weeks half the weight of the fetus is brain tissue. By the third trimester 70% of the energy reserves of the fetus are directed toward brain development. All this rapid construction requires one very important building material--DHA. A growing child will suck so much DHA from the mother that it normally takes four years of average dietary intake to replace this essential fat.

Deficiency of DHA is a tremendous risk for infants. Just the amount of DHA in a mother's milk has been shown to increase IQ of children between 2-5 points. Breast-fed children score better on picture intelligence, mathematics, nonverbal ability, and sentence completion than do chil-

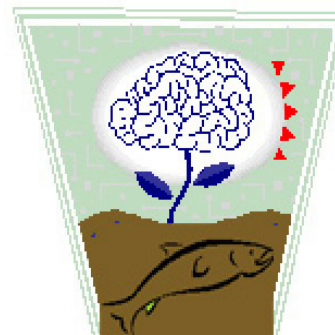
dren fed formula without DHA. Premature infants that are breast fed have a 5-12 IQ point advantage.³

Breast-fed children can also see the equivalent of one more line on the eye chart found in the optometrist's office than can a formula-fed baby! Mother's milk contains 30 times more DHA than cows milk. Formula in the US is not fortified with DHA. DHA levels in American women are only 1/3 those of Japanese women which may explain why the average Japanese IQ is 110!

Deficiency of DHA in the diets of American women and their infants is such a serious problem that one leading expert on omega-3 oils wrote,

"It's a scandal that infant formula is not fortified with omega-3. By failing to give kids omega-3 we are breeding them for mental disease, brain dysfunction, low intelligence, low achievement, and antisocial behavior." (Dr. Andrew Stoll, Harvard University)⁴

It would be a serious mistake to apply the benefits of omega-3 oils to infants alone. These oils can benefit brain function at any age. They have been shown to increase test scores of students who supplement, decrease the risk of postpartum depression, improve mood by upregulating serotonin, relieve bipolar symptoms,



Dr. Joseph Hibbeln suggests that fish oil is like fertilizer for brain cells, building healthy cell membranes, boosting serotonin, and increasing the number of connections or synapses in the brain. Underwood, Anne, Living longer, living better, *Newsweek*, 1/18/06, 52-59.

decrease the aggressiveness and irritability associated with stress, improve dyslexia and attention deficit, protect the brain from alcohol damage, improve concentration, increase the speed with which we are able to think, improve learning, preserve mental functioning into old age, and decrease the risk of Alzheimer's and dementia as we age.¹

Tomohito Hamazaki of Toyama Medical and Pharmaceutical University found that students tend to become hostile and aggressive when stressed out by taking difficult pathology tests and finishing their graduation thesis. Students supplemented with 1.8 grams of DHA per day transited this stressful time without showing a trace of the expected spike in aggressiveness and hostility. A control group of students supplemented with soybean oil showed significant increases in aggressiveness.

K. Myanaga, a Japanese researcher, demonstrated that fish oil speeds a brain wave called "p300." This brain wave is closely linked to learning and memory and is known to decline with age. DHA, but not EPA, was shown to significantly increase the p300 rate within two hours of the time it was ingested.

DHA boosted levels of acetylcholine, a key neurotransmitter in the brain, in rats reversing learning deficits.

The Zutphen Elderly Study found that daily fish consumption reduced loss of mental functioning in elderly men (60-84) by 40%. Consumption of omega-6 fats increased brain impairment 2 1/2 times.

Older people lose the ability to synthesize DHA. Dr. Ernst Schaefer and his associates at Tufts University found that those diagnosed with Alzheimer's were twice as likely to have low DHA blood levels. Those with low blood levels of DHA were also 67% more likely to develop Alzheimer's over a 10 year

period. Omega-3 supplementation was shown in one study to benefit memory, mood, and other Alzheimer's symptoms in 81% of patients.

Dr. Jacqueline Stordy, a British nutrition researcher at the University of Surrey, found that those with dyslexia are notably deficient in DHA. She was led to this discovery as a result of a son who suffered with the condition.¹

Lack of EPA has recently been associated with mental disorders, especially schizophrenia.⁵

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1. Carper, Jean, *Your Miracle Brain*, New York: HarperCollins Publishers, 2000, 82-104.
2. Sears Barry, *The Omega Rx Zone*, New York: Regan Collins, 2002, 41.
3. Sears Barry, 194-6.
4. Carper, Jean, *Your Miracle Brain*, New York: HarperCollins Publishers, 2000, 102.
5. Carper, Jean, 67-87.



OMEGA-3 AND THE HEART

Nowhere is research more sound than the benefit of omega-3 oils for the heart. Omega-3 oils decrease the stickiness of blood platelets, dramatically reduce triglyceride levels, decrease the thickness of the blood, decrease the tendency to form clots, and increase the health of arterial walls. Both EPA and DHA provide substantial benefits for the heart.

REFERENCE

- Harris, William S., and Connor, William, "The Effect of Salmon Oil upon plasma lipids, lipoproteins, and triglyceride clearance, *Transactions of the Association of American Physicians*, xciii, 1980, 148-155.



DIGESTIVE DISORDERS

In 1970 a significant study was conducted by the British. Capuchin

monkeys were placed on a laboratory diet deficient in omega-3 oils for two years. Long term deficiency of these oils resulted in diarrhea from intestinal inflammation in one out of four of the animals. Other animals became psychotic creating open, infected sores by gnawing at their own bodies. All the animals developed dandruff. Research has shown the benefit of fish oil supplementation in Crohn's disease and ulcerative colitis, although this is little known and rarely practiced by physicians.

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- Stenson, W.F., et al, Dietary supplementation with fish oil in ulcerative colitis, *Annals of Internal Medicine* 16:609-614, 1992.
- Belluzzi, A., et al, Effect of an enteric-coated fish oil preparation on relapses in Crohn's disease, *New England Journal of Medicine* 334:1557, 1996.



AUTOIMMUNE DISEASE

EPA plays a major role in preventing some of the complications of autoimmune diseases. This was proven many years ago with an animal model of lupus erythematosus.

REFERENCE

- Prickett, James D., et al, "Effects of dietary enrichment with eicosapentaenoic acid upon autoimmune nephritis in female NZBXNZW/F1 mice," *Arthritis and Rheumatism*, Vol. 26, No. 2, 133-139.



OBESITY

A key hormone involved in obesity called leptin was discovered in 1994. Leptin is responsible for satiety signals telling the body we are full and do not need to eat any more food. Resistance to the functioning of this hormone (similar to insulin resistance) is involved with becoming obese. Recent research suggests that



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omega-3 oils may be essential for the body to respond properly to leptin.

Other factors which are important for proper leptin function include adequate sleep and darkness at night (melatonin production), exercise, and low intake of sugar. Sugar is a major factor in causing surges of leptin which contribute to leptin resistance in much the same way that excessive sugar intake causes insulin resistance.

Winnicki, M., et al., Fish-rich diet, leptin, and body mass, *Circulation*, July 2002; 106(3):289-91.

AN AMAZING STUDY

One of the more amazing studies of omega-3 oils was published in 1988. Mice were fed large quantities of fish oils in the diet. Their health was compared to animals which were fasted. Fasting animals have a much longer life span and greatly reduced incidence of disease.

This study found that mice on a fish oil diet lived twice as long as normal. They produced half the normal levels of harmful auto-antibodies as they aged and also manifested lower than normal inflammation. The animals were free of kidney disease which normally affects every one of this particular breed of mice. In ad-

dition, the blood cholesterol levels of the mice given the fish oil had lower cholesterol levels than animals which were fasting. Fish oil is the only nutrient of which I am aware that has been shown in an actual study to prolong life as effectively as fasting.

"No-fault fat: More praise for fish oil, *Science News*, October 8, 1988.

ONLY THE BEGINNING

This paper only touches on the benefits one can expect from GNLD's new Salmon Oil Plus. Evaluations have appeared in the medical literature with reference to the benefit of omega-3 oils in atherosclerosis, coronary heart disease, hypertension, inflammatory and autoimmune diseases such as arthritis, psoriasis, ulcerative colitis and in animal models of cancer. It is of interest that omega-3 oils decrease the size and number of cancer tumors in animal models of the disease. The tumors also appear later in the life of the animals.

Sadly, discovery of many of the benefits of these remarkable oils has come as the result of widespread deficiencies in the American population due to dietary changes resulting from food processing and changing dietary habits. Res-

toration of the omega-3 oils to the diet offers great promise for improved health for all age groups.

Simopoulous, Artemis P., et al, "Omega-3 Fatty Acids in Health and Disease and in Growth and Development," *American Journal of Clinical Nutrition*, 1991;54:438-63.

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