

MICROALGAE

First & Finest Superfood

by [Gabriel Cousens, M.D.](#)

(Note: the following article appeared in Body Mind Spirit Magazine in May 1995, and has been reproduced in its entirety. We have added links below for your convenience.)

1. [Discussion of AFA in this article begins.](#)
2. [Reported Benefits of taking AFA.](#)
3. [Discussion of AFA and Alzheimer's disease - 2 case studies.](#)

Blue-green algae have been around for three and a half billion years. They are primitive foods which contain the highest food energy highest nutrient values, and use up the least amount of the planet's resources. I have been using spirulina for nineteen years and the blue-green algae called **Aphanizomenon Flos Aquae (AFA)** for thirteen years. Because of this and my clinical experience with both of these wonderful algae, almost every time I give a lecture people tend to ask me about every aspect of them. This article is an opportunity to share my clinical experience as a physician as well as provide the consumer report-type information about these algae that so many people seem to be requesting. Collectively, algae supply 90 percent of the world's oxygen and potentially 80 percent of its food. Another advantage of the blue-green algae is their position at the bottom of the food chain. The higher up on the chain one eats, the higher the concentrations of herbicides, pesticides, and radioactivity. Flesh food, for example, has 14 times more herbicides and pesticides than fruits and vegetables.

People have understood the **importance of blue-green algae as a food source for at least four thousand years**; Chinese herbalists have been taking it to treat vitamin deficiency diseases for thousands of years. The Mayans and Aztecs regularly ate freshly harvested algae. The Kanembu natives living near Lake Johann in Chad in the deep African Sahara are still making and eating algae cakes. In the last 30 years people in the United States have begun to explore the use of the blue-green algae as a high nutrient food,

The two main classes of blue-green algae; that have drawn my attention are spirulina and **AFA, the blue-green algae grown in Upper Klamath Lake in Oregon**. I was first introduced to spirulina when I was working as a holistic physician with many people, including my family, who were spending long periods of time in India. Those on prolonged stays who took one tablespoon per day of spirulina were physically healthier than those who did not take spirulina.

Curious about its makeup, I discovered that spirulina, per gram, could be the most cost-effective, nutritious and well-rounded food on the planet, and that it stores almost indefinitely. It contains a protein complex which is about 95 percent assimilable. Other properties which establish it as a superfood choice are that it has: all the essential amino acids in correct proportion; the much needed omega-3 and 6 fatty acids; high concentrations of human-active B-12; glycolipids and sulfonolipids; the full spectrum of vitamins; 17 different beta-carotenoids; over 2000 enzymes; a full spectrum of well assimilated minerals; and it is especially high in iron and magnesium. Spirulina is the only substance which contains high amounts of phycocyanins which seem to be a powerful immune stimulant and anticancer force. Spirulina is second only to mother's milk in concentrations of natural gamma linolenic acid (GLA) Its high GLA content leads me to call it the "mother's milk" of the planet. Spirulina is 0.5 percent glycogen, which is a ready-made glucose in a stored energy form. It contains 9 percent rhamnose, which is a biologically active and unique sugar important for transporting essential nutrients across the blood-brain barrier. The cell wall of spirulina has high concentrations of mucopolysaccharides, which make the cell wall easily digestible and provide needed materials for the formation of glycoprotein, a combination of complex carbohydrate and protein complexes that are important for the building of cell membranes.

Spirulina is also a powerful alkalizing and healing food. A large body of scientific research has documented its healing power for hypoglycemia, diabetes, Chronic Fatigue Syndrome, anemia, ulcers, hepatitis, and its ability to boost the immune system. It has also been shown to help repair free-radical damage. The anticancer effects of spirulina have been researched and established by Harvard Medical School which found it to be highly effective in treating cancer in hamsters.

In my own clinical practice, I have found spirulina to be a significant help in the treatment of diabetes, hypoglycemia, chronic fatigue, protein deficiency and malnutrition. It is a great building food for pregnancy. At the [Tree of Life Rejuvenation Center in Patagonia, Arizona](#), I did preliminary personal research on how to prevent sunburn while still gaining the benefits of nutrients and energy from the sun. I found that ingesting spirulina and applying Phycotene Cream made an effective combination. Phycotene Cream is a skin cream whose primary ingredient is phycotene extracted from spirulina. It was developed by Dr. Christopher Hills who has been a leading spirulina researcher since the mid-sixties, and who many people consider the father of the modern spirulina movement. I found that even in the summer Arizona sun, by using this combination we were able to be outdoors for hours without getting sunburned. Phycotene Cream used alone was about 75 percent as effective.

In my third edition of Conscious Eating I explained the importance of eating foods high in solar electrons for general health, and for increasing the light body. Because spirulina is grown in very hot climates at high altitudes, it absorbs high amounts of sunlight. Eating spirulina allows one to absorb large amounts of these sun photons directly. Just as different herbs have different healing properties, so do the different blue-green algae. I think of spirulina as a general prana or life force energy for the body.

In conjunction with spirulina, **the other blue-green algae superfood that I often prescribe for my clients is Aphanizomenon Flos Aquae (AFA)**. Although people who sell the different algae products like to debate the merits of AFA vs. spirulina, I find that the blue-green algae, like herbs, have different energies that effect the human organism differently. Both are excellent. I use spirulina and AFA in a complementary way.

The first company to harvest AFA was started in the mid-sixties by Victor Kollman, the researcher who originally focused on the human use of AFA while working at the Los Alamos National Laboratories in New Mexico.

AFA offers tremendous prana for the mind and nervous system, whereas spirulina is primarily a powerful prana to the entire body. AFA also has a healing effect on the body, but not nearly as powerful as that of spirulina.

Spirulina has some effect on the mind and nervous system, but not nearly as strong as that of AFA.

Gram for gram, **AFA is one of the most nutrient-dense foods on the planet**, a close second only to spirulina. Generally speaking their nutrient profiles are roughly similar. Both are full-spectrum nutrients. Spirulina, however, is significantly higher in GLA, phycotene, protein, and beta-carotenoid concentrations. Both have neuropeptide precursors, but AFA has much higher overall neuropeptide precursor concentrations.

Both have high human-active B-12 concentrations, but **AFA has about seven times more B-12 per gram than spirulina**. The AFA human-active B-12 amount in one gram equals the daily B-12 requirement for most people. **I recommend about 1.5 to 2 teaspoons of AFA per day**. Spirulina is the second most concentrated vegetarian B-12 source on the planet, 250 percent more than an equal weight of liver, and has 14 times the daily B-12 need in 100 gms. One tablespoon of spirulina (1 to 3 tablespoons is the average daily dose) will give you two-and-one-half times the daily human-active requirement of B-12. Taken together, spirulina and AFA provide many times the human daily requirement of B-12. **No vegetarian need ever worry about not getting enough B-12 in their diet if they are taking either or both of these blue-green algae superfoods.**

AFA is one of the few algae which are harvested in their natural state. I have visited Upper Klamath Lake several times and it is beautiful. One of the few remaining alkaline lakes on the planet, it has a very high mineral concentration due to volcanic ash deposited in the area 7000 years ago. The water contains 60 times the nutrients needed for the AFA to reach its full potential.

Perhaps the greatest value of AFA is not in its nutrient concentration or even its high concentration of neuropeptide precursors, but in its amazing positive effect on the nervous system in general, and specifically on the pituitary, pineal, and hypothalamic structures. AFA is an elixir for the brain-mind complex. According to my clinical experience and auricular acupuncture research with another physician, AFA specifically enhances the hypothalamus, the pineal and pituitary glands. These master glands in the brain are associated with the higher subtle spiritual centers.

My first exposure to AFA came in 1982 after returning from a year in India where I had been taking spirulina on a daily basis. I took some AFA just before I started an all-night dancing spiritual chant. I was astounded by how easy it was for me to stay focused, clear and blissful: I was one of two people out of hundreds who was able to dance through the whole night. **Over the years, people taking AFA have consistently reported an overall increase in mental alertness, mental stamina, short and long-term memory, problem-solving ability, creativity, dream recall, enhancement of the visualization process, and a greater sense of well-being and centeredness.** Some meditators feel that AFA helps enhance brain synchronization and helps them move more easily into the relaxation of the alpha state and therefore meditation. AFA seems to activate the mind-brain function in about 70-80 percent of those using it.

AFA may have antidepressive and other healing effects as well. I observed one person who had been chronically depressed for most of her life snap out of her depression one day after beginning treatment with the AFA. In another case, a four-year-old mute patient, who had been previously diagnosed as autistic, began to talk after one month on the AFA. These unique cases support my contention that AFA has some specific effect on brain energetics and function.

Because of these brain-enhancing qualities, I became interested in exploring the effect of AFA on Alzheimer's disease. In my preliminary research, which was published in the Journal of Orthomolecular Medicine in the 1985 Winter / Spring Issue, I reported positive effects in both of two closely followed clients. Each had been diagnosed with Alzheimer's disease at highly respected university medical centers.

One client was a 66-year-old woman with a seven-year history of Alzheimer's disease who, **after six months, showed a partial reversal of her disease.** Her response to the AFA seemed to level off after six months and no further improvement was noted. The second case involved a 64-year-old lawyer who had suffered with Alzheimer's for three years. He seemed to be going downhill rapidly. **After one month on high doses of AFA his degenerative process seemed to be arrested and he remained in this stabilized condition for three more years** -- until his wife discovered that spirulina was cheaper than AFA and began to give him spirulina instead. Once off the AFA his condition began to deteriorate. The degeneration was slowed down when she put him back on the

AFA. This unintended experiment highlights the difference in effect between AFA and spirulina.

These two cases do not prove that AFA cures Alzheimer's disease, but suggest it may be possible to temporarily halt the progression of the disease, to partially reverse or even help prevent it. It would take a comprehensive study to make any definitive statements about its effect on Alzheimer's and, as of yet, no study has been done.

There are many high quality spirulina products on the market. Most spirulina is grown on spirulina farms rather than in completely natural situations. The prices for small bottles of the different brands of spirulina, in tablet or powder form, are very competitive. One company offers spirulina in bulk at a significantly lower price. It pays to shop around and ask questions before making your buying decisions.

The same price variations are true for blue-green algae. There are three main companies that harvest blue-green algae. The two companies that harvest directly from Upper Klamath Lake offer AFA in bulk at a 50% savings. All three companies at this time claim to do regular algae toxicology testing as well as micro screening for daphnia, a small water flea. They all test for physical contaminants. There is no evidence at this time that any of the algae harvested by the three companies have any problems with algae toxins.

Whichever brand you choose, the blue-green algae are a significant life force on the earth. Algae were the first plants to use sunlight to perform photosynthesis and make their own food from the environment. For three and a half billion years, algae have transformed the planet into a life-support system for we complex multicellular organisms. Spirulina and AFA are an ancient and wonderful team of high life-force foods which have a powerful healing and rejuvenative effect on the human body, mind, and spirit.

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