

## SPIRULINA THE BEST FOOD FOR FUTURE



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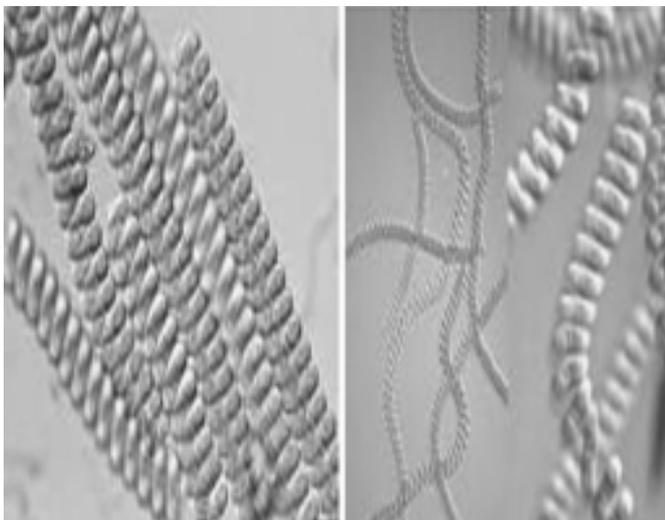
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Imagine a plant that can nourish our body by providing most of the protein you need to live, help prevent the annoying sniffing and sneezing of allergies, reinforce your immune system, help control high blood pressure and cholesterol, and help protect us from cancer. Does such a “super food” exist?

Yes. It’s called Spirulina.

According to World Health Organization (WHO) Spirulina is an interesting food rich in iron and protein which can be administered to children without risk. WHO also declared it as the best food for future. Spirulina is blue - green algae it is a simple, one- celled form of algae that thrives in warm, alkaline fresh-water bodies. The name “Spirulina” is derived from the Latin word for “helix” or “spiral Produced from two species of cyanobacteria Arthospira platensis & Arthospira maxicana.



**History of Spirulina:** A German Algae scientist, Dr.Darwin discovered the existence of the spiral shaped algae and named it Spirulina Dr. Clement of France in 1962 found that the Ganimou Kanembu people living around Lake Chades in Africa had stronger bodies than other civilized people at that time, despite poor living conditions and limited resources. Ganimou people eat a blue green algae found floating on the lakes surface. This algae was Spirulina.

**Why Spirulina is known as food of the future:**

Spirulina is being developed as the “food of the future” because of its amazing ability to synthesize high-quality concentrated food more efficiently than any other algae. Spirulina contains 65 to 71 percent complete protein, with all essential amino acids in perfect balance.

Spirulina won “the best natural food “ award in west Germanys International Food Expo. The United Nations has conducted a 5-year toxicology study on Spirulina and found it to be completely non-toxic! National Aeronautics Space Administration (NASA) Scientists from USA tested and found that 1 kg of Spirulina is nutritionally equal to 1,000 kg of assorted Vegetables and Fruits.

**Active ingredients of Spirulina are:**

Spirulina (dried) **Nutritional value per 100 g :**

Energy	1,213KJ	(4%)
Carbohydrates	23.9g	Vitamin A equiv 29µg
Sugars	3.1g	beta-carotene (3%)
Dietary fiber	3.6g	lutein zeaxanthin 342µg
Fat	7.72g	0 µg
Saturated	2.65g	Thiamine(B1) (207%)
Monoun- saturated	0.675g	2.38 mg
Polyunsaturated	2.08g	Riboflavin (B2) (306%)
Protein	57.47g	3.67 mg
Tryptophan	0.929g	Niacin (B3) (85%)
Threonine	2.97g	12.82 mg
Isoleucine	3.209g	Pantothenic- acid (B5) (70%)
Leucine	4.947g	3.48 mg
Lysine	3.025g	Vitamin B6 (28%)
Methionine	1.149g	0.364 mg
		Folate (B9) (24%)
		94 µg

Cystine	0.662g	Choline	(13%)
Phenylalanine	2.777g		66 mg
Tyrosine	2.584g	Vitamin C	(12%)
Valine	3.512g		10.1 mg
Arginine	4.147g	Vitamin E	(33%)
Histidine	1.085g		5 mg
Alanine	4.515g	Vitamin K	(24%)
Aspartic acid	5.793g		25.5 µg
Glutamic acid	8.386g	Trace metals	
Glycine	3.099g	Calcium	(12%)
Proline	2.382g		120 mg
Serine	2.998g	Iron	(219%)
Phosphorus	(17%)		28.5 mg
	118 mg	Magnesium	(55%)
Potassium	(29%)		195 mg
	1363 mg	Manganese	(90%)
Sodium	(70%)		1.9 mg
	1048 mg	Other constituents	
Zinc	(21%)	Water	4.68 g
	2 mg	Units	
		µg = micrograms	
		mg = milligrams	
		IU = International units	
		Source: USDA Nutrient Database	

### Spirulina Benefits

**1. Cleansing:** Spirulina promotes the body natural cleansing processes. You feel fitter, more cheerful, and you have more energy.

**2. Restoring:** Spirulina compensates for deficiencies in the diet and stimulates the metabolism. Your physical condition improves noticeably and you recover faster after exertion.

**3. Fortifying:** Spirulina boosts resistance and activates the body natural defense mechanisms. You feel stronger and are better able to cope with the pressures of everyday life.

**Health Properties:** Though it does taste like pond scum, Spirulina has some great health-boosting qualities:

- Spirulina is 65% protein and amino acids including the essential fatty acid gamma linolenic acid (GLA) which has gotten a lot of attention for its anti-inflammatory properties.
- Spirulina contains Omega 3-, 6 and 9s and is especially high in Omega-3s.

**Spirulina - A powerful Antioxidant:** Spirulina is exceptionally rich in antioxidants that neutralize free-radicals. Spirulina contains beta-carotene, tocopherols and phenolic acids, which are proven to exhibit antioxidant properties. Phycocyanin is able to scavenge the very dangerous hydroxy radical and inhibit the oxidation of lipids in the liver and kidneys. A study demonstrated 71 % antioxidant capacity for the group taking the Spirulina extract and 54% for the group that did not, indicating strong antioxidant protection (Miranda., 1998., Brazilian Journal of Medical and Biological Research).

**Spirulina Prevents Cancer:** Spirulina has been found useful in cancer prevention. The anti-mutagenic effect of Spirulina is beneficial in cancer protection and treatment. Experimental studies have demonstrated its profound effect on oral cancer. Spirulina was found to reverse oral leukoplakia in tobacco chewers in Kerala. Complete regression was observed in 45% of the treated people with a dose of 1g/day for 12 months. Calcium spirulan isolated from Spirulina platensis, reduced the lung metastasis of B16-BL6 melanoma cells by inhibiting the tumor invasion of basement membrane (Mishima et al., 1998., Clinical & Experimental Metastasis).

**Spirulina is Cardio protective:** Spirulina is cholesterol free. Reduces the level of serum LDL (bad cholesterol) and raises HDL (good cholesterol). Spirulina cause a significant change in vascular tone by increasing the synthesis and release of nitric oxide and by decreasing the synthesis and release of a vasoconstricting substance from the endothelial cells.

**Spirulina was found to lower cholesterol:** Clinical studies have shown that thirty healthy men with high cholesterol, mild hypertension and hyperlipidemia after eating Spirulina for eight weeks were found to have lower cholesterol, triglycerides and low density lipoprotein (LDL). The findings concluded that antioxidants such as beta carotene, vitamin C and E, selenium etc present in Spirulina offer significant protection against cardiovascular diseases.

**Dietetic therapy with Spirulina for liver diseases:** A diet high in protein and vitamins is generally indicated in these patients in order to improve liver function. Spirulina which is abundant in vitamins and minerals is one of the optimum nutritional supplements to improve liver function and protect the liver.

**Dietetic therapy with Spirulina for diabetes mellitus:** These patients are required to reduce their food intake and to supplement balanced amounts of necessary nutrients and dietary fiber. These conflicting demands are fulfilled only by Spirulina which contains protein and trace elements abundantly. (Clinical test performed by Chiba Hygienic College; Literature No.44, 273-277, 1991)

**Anti-Viral Aqueous extracts of Spirulina** inhibits the replication of the HIV-1 virus in human T-cells of the immune system, mononuclear blood cells and Langerhans cells of the pancreas. Japanese scientists discovered an anti-viral compound in Spirulina called Calcium Spirulan it was found to be active against numerous viruses, including influenza, herpes, and HIV.

**Spirulina for Anemia** One table spoon of Spirulina a day can eliminate iron deficiency, the most common reason for anemia.

**Spirulina for malnutrition** Baby saved from malnutrition by Spirulina, in Togo, West Africa. Spirulina is recommended for nursing mothers. For newborns, malnutrition is often caused by a lack of mother's milk, the mother herself often being ill. Spirulina given to the mother helps a return to lactation and the babies rapidly gain weight.

**Spirulina for Athletes:** Athletes need extra nutrition. Spirulina contains GLA which is known to stimulate prostaglandins, master hormones which regulate every cell of the body, including heart, skin, circulation and musculature. Correct prostaglandin levels are necessary for good health and performance. World Class and Olympic athletes in China and Cuba use Spirulina to improve performance.

**Spirulina reducing Pre-menstrual syndrome (PMS)** Studies show women with more severe PMS have unusually low levels of certain nutrients, so many health experts urge a nutritional approach. Three key factors increase the severity of PMS – poor nutrition, lack of exercise and stress. Many clinics recommend foods or supplements rich in B-complex, magnesium, zinc, beta carotene, GLA and other vitamins, minerals and herbs. By containing many of these nutrients, Spirulina is useful in a PMS reducing plan, and several PMS supplements contain Spirulina.

Spirulina is used as **slimming agent** in USA. The phenylalanine present in Spirulina is said to signal the brain

to stop hunger pangs leading to reduction in food uptake. Spirulina is used in balms and anti-wrinkle creams. It helps in skin metabolism, cell regeneration and skin secretion. Spirulina is used in Japan as a safe bio-lipstick and eyeliner.

**CONCLUSION:** WHO in 1992 declared "Spirulina is a high quality food product, rich in iron and protein, safe to consume and an excellent nutrient supplement for children". Over 200 scientific studies have demonstrated potential health benefits of Spirulina. To maintain good health and longevity, use Spirulina, nature's gift of super food to mankind.

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#### External links

- "Blue-green Algae". Medline Plus. National Institutes of Health. December 2011.
- "Blue-green Algae". Memorial Sloan-Kettering Cancer Center. December 2011.
- "Spirulina". University of Maryland Medical Center. June 2011.
- "Spirulina". Beth Israel Deaconess Medical Center. August 2011.