FÜCOXANTHIN Healthy Weight Management



From the delicate taste of miso soup from Japan, to the steaming bowls of laverbread from Wales, to the crisp sheets of nori on sushi, Americans are slowly starting to appreciate what many cultures have known for centuries: the amazing nutritional value of seaweed.

Brown seaweed, sometimes called wakame, is a native plant of the Pacific Ocean, where forests of undulating kelp create entire cities for the fishes of the ocean. Although it has traditionally been used as an ingredient in Asian soups and salads, only recently have its components been studied and understood. It contains fücox-

anthin, a carotenoid pigment that gives the seaweed its brown color. It is a

non-stimulant thermogenic. Initial animal studies suggest that it may naturally help the body convert fat into heat and energy; therefore it might help maintain a healthy weight in conjunction with a healthy diet and exercise plan. It is also a natural antioxidant.

The components of FÜCOXANTHIN may have a wide array of benefits for the body: an increased ability to burn fat as fuel for energy, cell protection from free radicals, and benefits to the cardiovascular system. Source Naturals[®] is pleased to present such a potentially beneficial tool for your health and well-being.

Strategies





for Wellness

Meet Fücoxanthin

One of the active components of brown seaweed is fücoxanthin, a naturally occurring brown pigment. It is a carotenoid that is found in the chloroplasts of seaweed, and like all carotenoids, has a protective function against cell damage from oxygen and light.

Healthy Weight Maintenance

Initial animal studies show that fücoxanthin may upregulate the expression of Uncoupling Protein 1 (UCP1). UCP1 is a protein that creates a channel in the mitochondrial membrane, allowing protons to enter the organelle without storing the energy as ATP. Instead, the energy is released as heat (thermogenic). Initial animal studies show that upregulation of UCP1 by fücoxanthin seems to occur prefer-



entially in White Adipose Tissue (WAT). If human clinical trials show similar results, fücoxanthin may upregulate UCP1 expression in WAT, leading to the oxidation of fat, thermogenesis, and a reduction of WAT weight.

As an added thermogenic ingredient, Source Naturals FÜCOXANTHIN



contains EGCG from green tea. EGCG is a natural compound that not only supports the burning of fat, but is also a potent antioxidant.

Focus on VAT

One of the most exciting aspects of this process is that initial studies indicate that fücoxanthin appears to affect mitochondria in the Visceral Adipose Tissue (VAT), the white adipose tissue surrounding the internal organs in the abdominal cavity. A reduction of overall weight should decrease VAT, and a decrease in VAT can benefit many of the body's systems by breaking the cycle of metabolic inflammation, imbalanced insulin, and weight gain.

The Metabolic Inflammation[™] Cycle

This vicious cycle often starts with an unhealthy diet, as illustrated in the following Cycle of Metabolic Inflammation chart. **Excess refined**

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

carbohydrates can lead to **increased blood glucose levels**, which greatly enhance the risk of weight gain, glycation and inflammation. Spikes in blood glucose levels caused by a poor diet result in increased insulin production. Insulin is a powerful hormone. After excess blood sugar is response is an increase in an important enzyme called **JNK** (C Jun N-Kinase enzymes). JNK lowers insulin efficiency in bringing glucose into the cells to be burned as fuel, so more glucose builds up in the blood. Now we are back to where the cycle began and so it con-



Cycle of Metabolic Inflammation

converted to fat in the liver, the heightened levels of insulin signal that fat is to be stored in fat cells and not burned as fuel for energy. Some of this weight gain is stored in the Visceral Adipose Tissue (VAT), the fat that surrounds the organs of the midsection. This increased VAT acts like a gland and secretes proinflammatory messenger molecules called cytokines. The cytokines upregulate the immune system and trigger an inflammatory response. Among the many problems caused by this inflammatory

tinues on. This cycle may keep our body stuck in a weight gain biochemistry, making it difficult to lose weight.

As you can see from the diagram, the cycle feeds on itself. **Increased glucose** triggers a process called **glycation** in which sugar literally burns protein molecules, turning them into Advanced Glycation End Products (AGEs). This burning process affects cells and signals the immune system to act which, in turn, causes more **metabolic inflammation**. As a result of this process, the body naturally increases its defenses and goes into an ongoing state of inflammatory response. This can also be compounded by **other triggers of metabolic inflammation**.

By using this model, the key to optimal health is simple: Stop making decisions that feed the cycle and, instead, make decisions to block the cycle. Reducing the VAT in the midsection reduces the cytokines in the system, an excellent way to decrease inappropriate inflammatory response. One way of doing this utilizing Source Naturals is FÜCOXANTHIN. Not only may FÜCOXANTHIN aid in losing weight as part of an overall healthy diet exercise program (a copy of the Maximum Metabolism plan is included in each bottle), but with the addition of EGCG, a natural antioxidant, it may also benefit overall health by slowing the unhealthy cycle of metabolic inflammation.

Helpful Kelp

Very few weight management products offer so much to your overall health; in fact, of the twelve metabolic systems of the SystemiCare[™] health model, five are supported with this formula: Cells/DNA, Inflammation Response, Antioxidant Defense, Blood Sugar Regulation, and Metabolism/Hormones. All of these systems are keys to vibrant health, and Source Naturals is pleased to introduce FÜCOXANTHIN, a product with such wide-ranging benefits.

References

Maeda H, et al. 2007. Fücoxanthin from edible seaweed, Undaria pinnatifida, shows antiobesity effect through UCP1 expression in white adipose tissues. *Biochem Biophys Res Commun.* 332(2): 392-7.

Maeda H, et al. 2007. Dietary combination of fücoxanthin and fish oil attenuates the weight gain of white adipose tissue and decreases blood glucose in obese/diabetic KK-Ay mice. *J Agric Food Chem.* 55(19):7701-6.

Yuan YV, Walsh NA. 2006. Antioxidant and antiproliferative activities of extracts from a variety of edible seaweeds. *Food Chem Toxicol.* 44(7):1144-50.





These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

© 2010 Source Naturals, Inc., P.O. Box 2118, Santa Cruz, CA 95063

REVB1004

LC3440