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Life Extension Update Exclusive

### **N-acetyl-glucosamine suppresses autoimmune attack**

A report published online this month in the *Journal of Biological Chemistry* described the finding of assistant professor of neurology Michael Demetriou at the University of California Irvine Center for Immunology and his colleagues that N-acetylglucosamine, a form of the commonly used arthritis supplement glucosamine, suppresses the growth and function of abnormal T-cells responsible for autoimmune attack in multiple sclerosis and diabetes type 1. The cause of autoimmune disease is not completely understood, but is believed to be the result of interactions between inherited risk and environmental exposure.

Using mouse models of the two diseases, Dr Demetriou's team discovered that by modifying T-cell proteins, the sugar N-acetylglucosamine prevents T-cell hyperactivity that results in autoimmune attack on brain myelin and the insulin-producing cells of the pancreas. Preventing this attack of the body on itself protects against the development of paralysis in multiple sclerosis as well as elevated glucose in diabetes.

"This finding shows the potential of using a dietary supplement to help treat autoimmune diseases," Dr Demetriou commented. "Most importantly, we understand how this sugar-based supplement inhibits the cells that attack the body, making metabolic therapy a rational approach to prevent or treat these debilitating diseases."

Another recent study found improvement in 75 percent of children with treatment-resistant autoimmune inflammatory bowel disease who received a two year course of N-acetylglucosamine. "Together, these findings identify metabolic therapy using dietary supplements such as N-acetylglucosamine as potential treatments for autoimmune diseases," Dr Demetriou stated. "Excitement for this treatment strategy stems from the novel mechanism for affecting T-cell function and autoimmunity and the availability and simplicity of its use. However, additional studies in humans will be required to assess the full potential of this therapeutic approach."

Health Concern

### **Multiple sclerosis**

For reasons that remain a mystery, the immune systems of people who have MS attempt to destroy the body's own myelin. Specifically, a type of white blood cell called a T-cell becomes sensitized against myelin self-antigens. These sensitized T-cells secrete various inflammatory mediators (including tumor necrosis factor, cytokines, and prostaglandins) that eventually strip away myelin and damage supportive cells, thereby incapacitating or destroying the axon (Kidd PM 2001). MS is thus an inflammatory autoimmune demyelinating disease.

Supplements that have been studied in animals and people with MS include:

- **Vitamin D**— 1000 international units (IU) daily
- **EPA/DHA**—3000 to 4000 milligrams (mg) daily of fish oil concentrate
- **GLA**— 1000 to 3000 mg daily of high GLA oil
- **DHEA**— 15 to 75 mg daily (Have blood tested in 3 to 6 weeks to maintain optimal levels.)
- **NAC**— 600 mg daily with 1800 mg of vitamin C
- **Vitamin E**— 400 IU daily
- **CoQ10**— 100 to 300 mg daily
- **Lipoic acid (preferably R-dihydro lipoic acid)**—300 mg daily
- **Vitamin B12**— 5 to 40 mg daily in the form of sublingual methylcobalamin tablets

[http://www.lef.org/protocols/neurological/multiple\\_sclerosis\\_01.htm](http://www.lef.org/protocols/neurological/multiple_sclerosis_01.htm)

## Featured Products

### Mega GLA with Sesame Lignans

Health conscious people have been consuming a lot of borage oil to obtain GLA (gamma-linolenic acid), the parent of the biologically active DGLA (di-homo-gamma-linolenic acid). Life Extension has added 10 milligrams of sesame lignans to each capsule of Mega GLA borage oil. Sesame lignans not only increase beneficial DGLA, but they also help reduce production of pro-inflammatory arachidonic acid, which decreases the formation of destructive prostaglandin E2 and leukotriene B4.

<http://www.lef.org/newshop/items/item00756.html>

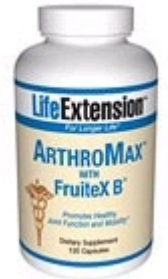


### Arthromax™ with Fruitex®

As people grow older, structural alterations occur in their joints that lead to discomfort and loss of mobility. While conventional doctors rely on prescription drugs, scientists have identified a number of natural agents that provide broad-spectrum support for healthy joint function and structure.

Glucosamine provides the underlying structural foundation for joints, while methylsulfonylmethane (MSM) provides crucial sulfur compounds that are so important to maintain comfortable joint function.

<http://www.lef.org/newshop/items/item00903.html>



### UltraMetabolism by Mark Hyman, MD

How to ignite the fat burning DNA hidden inside your body

...for the first time ever, Mark Hyman, MD unveils his groundbreaking but simple plan for automatic weight loss in his new book, UltraMetabolism. Never before have all seven keys to permanent weight loss been integrated into a single plan. Based on the cutting-edge science of Nutrigenomics, in UltraMetabolism, you'll discover:

- How to re-program your genes to automatically LOSE weight and GAIN health...
- Why you actually need to eat carbs to lose weight...
- Why eating less and exercising more can actually make you fat, and much more...

Dr. Hyman is a leader in a rapidly emerging field called functional medicine and both he and UltraMetabolism have been profiled in Life Extension Magazine in the past. Dr. Hyman explains how food talks to your DNA and can either switch on health and vitality or disease and obesity depending on what you eat.

Right now Dr. Hyman has made special arrangements for you to download a sneak preview of UltraMetabolism free of charge,

plus a metabolism-boosting 60-minute online video and a free 7-step course on how to re-program your genes to turn on health and vitality and turn off disease and obesity.

<http://www.ultrametabolismspecial.com/extension1>

If you have questions or comments concerning this issue or past issues of Life Extension Update, send them to [ddye@lifeextension.com](mailto:ddye@lifeextension.com) or call 954 202 7716.

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