

# The Nutrition Reporter™

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The independent newsletter that reports vitamin, mineral, and food therapies

## Several Studies Find that Omega-3 Fish Oils May Help in Reducing Weight

Taking omega-3 fish oil supplements may help some people lose body fat and weight – a finding that supports the idea that certain nutrients influence weight, irrespective of calorie intake.

The reason, according to some of the researchers, is that the omega-3s activate several genes involved in burning fat, shifting metabolism away from the storage to the burning of fat.

In the first of several recent studies, Peter R.C. Howe, PhD, of the University of South Australia, Adelaide, and his colleagues asked 81 men and women to take 6 grams of fish oils daily or take the fish oils in combination with light exercise. As a control, some of the subjects took sunflower oil, or they took sunflower oil and engaged in moderate exercise.

The fish oils, obtained from tuna, provided 260 mg of docosahexaenoic acid (DHA) and 60 mg of eicosapentaenoic acid (EPA) daily.

At the end of the 12-week study, the results were striking. The combination of fish oil supplementation and regular exercise “significantly reduced body fat, which indicates the potential benefit of a combined treatment strategy for optimizing body composition,” wrote Howe.

On average, people taking the fish oils and engaging in light exercise lost an average of about 3 pounds of weight.

In addition, the fish oil and exercise independently increased muscle mass, though only slightly. In contrast, people taking the sunflower oil had increases in body fat and decreases in muscle. The combination of sunflower oil and exercise led to negligible improvements.

In a separate study, Salwa W. Rizkalla, MD, of the French National Institute for Health and Medical Research (INSERM) and colleagues asked 27 women with type 2 diabetes to take 3 grams of either fish oils or placebos daily for two months. The supplements provided 1.8 grams of EPA and DHA daily.

At the end of the study, women taking the fish oils had lost more body fat and their fat cells had shrunk in size. On average, they lost about 1 pound of weight, whereas people taking placebos had no change in weight.

Women taking the fish oils also benefited from lower blood levels of triglycerides, a risk factor for heart disease.

Finally, researchers from Japan fed different types of diets to obesity-prone laboratory mice. Mice given fish oils as 8 percent of their diet gained substantially less weight than animals on either high-fat or low-fat diets.

The researchers determined that the fish oils boosted the activity of several genes involved in burning fat, as well as increasing the metabolism of fats in the intestine.

References: Hill AM, Buckley JD, Murphy KJ. Combining fish-oil supplements with regular aerobic exercise improves body composition and cardiovascular disease risk factors. *American Journal of Clinical Nutrition*, 2007;85:1267-1274. Kabir M, Skurnik G, Naour N, et al. Treatment for 2 mo with n-3 polyunsaturated fatty acids reduces adiposity and some atherogenic factors but does not improve insulin sensitivity in women with type 2 diabetes: a randomized controlled study. *American Journal of Clinical Nutrition*, 2007;86:1670-1679. Mori T, Kondo H, Hase T, et al. Dietary fish oil upregulates intestinal lipid metabolism and reduces body weight gain in C57BL/6J mice. *Journal of Nutrition*, 2007;137:2629-2634. □

### Perspectives

#### What to Do With Blood Sugar

You may have heard about the U.S. government-funded diabetes study that was abruptly shut down last month. The study involved the aggressive medical (not nutritional) treatment to lower blood sugar in people with diabetes.

The idea behind the study was that reducing blood sugar levels to near normal levels would improve the health of people with diabetes. It turned out that people in the study with the lowest blood sugar levels

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were far more likely to die from a heart attack, compared with people who were not treated as aggressively. Newspaper stories questioned the rationale of lowering blood sugar too much in people with diabetes.

Meanwhile, a second and similar study, directed by Australian researchers, did not find a higher risk of death. However, the second study did not seek to lower blood sugar as much and, based on initial reports, and did not involve either as many prescription drugs or high doses.

Make no bones about it: elevated blood sugar is dangerous, and even modest increases in blood sugar increase the risk of heart attack.

But the researchers in the American study used a panoply of drugs – not nutrition – to reduce blood sugar. The patients' blood sugar did in fact decrease, but the drug treatment simply modified a symptom – high blood sugar – while the underlying disease process continued.

The fatalities may have been further complicated by the interactions of the various drugs. The patients were given a variety of FDA-approved drugs for treating diabetes, including metformin, thiazolidinediones (e.g., rosiglitazone), sulfonylureas, exenatide, acarbose, and insulin. Insulin alone can increase the risk of a heart attack. One doctor was quoted in the *New York Times* as saying that the treatment was “brutal” and had little relevance to real-world treatment.

This was yet another unfortunate – and deadly – study showing that more drugs are more dangerous than fewer drugs. So much for the Hippocratic Oath of first doing no harm. The ideal approach to treating diabetes (and prediabetes) is through nutrition and supplements. I'm yet to hear of anyone, diabetic or not, dying from good eating habits. – JC

## **Supplements Reduce Symptoms of Dyslexia in Children**

A combination of supplemental essential fatty acids – primarily docosahexaenoic acid (DHA) and gamma-linolenic acid (GLA) – can lead to significant improvements in children and teenagers with dyslexia. The condition alters how the brain sees graphic symbols, such as letters on a page, and interferes with reading ability.

Lars Lindmark, MD, of Falsterbo, Sweden, treated 20 children with Efelex, a commercial fatty acid supplement for five months. The children ranged from 9 to 17 years of age, and the supplement provided 480 mg of DHA, 108 mg of eicosapentaenoic acid (EPA), 96 mg of GLA, and 36 mg of arachidonic acid (AA) daily. Although arachidonic is

widely considered pro-inflammatory, it does play a role in normal brain development.

The children were evaluated objectively (with clinical tests) and subjectively (based on interviews with parents) at the start of the study and after six, 12, and 20 weeks. By the end of the study, three-fourths of the children had improved.

Specifically, the objective tests indicated substantial improvements in word recognition and reading speed – an average 23 percent improvement in word recognition and 60 percent improvement in reading speed. Interviews with the children and parents showed even greater improvements in short-term memory, reading speed, and general school work.

“AA and DHA are major components of neurons,” wrote Lindmark. “DHA alone comprises some 15 percent of brain gray matter and up to 30 percent of retinal tissue.”

Reference: Lindmark L, Clough P. A 5-month open study with long-chain polyunsaturated fatty acids in dyslexia. *Journal of Medicinal Food*, 2007;10:662-666. □

## **High Levels of Antioxidants Seem to Lower Cataract Risk**

People who consume large amounts of antioxidants – from a combination of food and supplements – have a lower risk of developing cataracts.

William G. Christen, ScD, of the Harvard Medical School, Boston, and his colleagues tracked the eating habits, supplement use, and risk of cataract among 35,551 women health professionals for an average of 10 years. During this time 2,031 women developed cataracts.

Women with the highest dietary intake of lutein and zeaxanthin – almost 7 mg daily combined – were 18 percent less likely to develop cataracts, compared with those who had low intake of these antioxidants. The large amount of lutein and zeaxanthin reflected significant consumption of vegetables, and the amount is comparable to many high-potency supplements.

Furthermore, women with the highest vitamin E intake from foods and supplements – 262 mg, or almost 400 IU, daily – were 14 percent less likely to develop cataracts, compared with women who had low intake of the vitamin. That amount of vitamin E is impossible to consume from food alone, so most of the vitamin E likely came from supplements.

The researchers also noted protective trends from eating large amounts of leafy green vegetables and particularly raw spinach. These foods are rich sources of lutein and zeaxanthin, and previous studies have found that high intake of leafy green

vegetables are associated with a lower risk of cataract.

Reference: Christen WG, Liu S, Glynn RJ, et al. Dietary carotenoids, vitamins C and E, and risk of cataract in women. *Archives of Ophthalmology*, 2008;126:102-109. □

## Researchers Link Vitamin E to Less Physical Decline in Elderly

In the latest in a surge of positive studies on vitamin E, researchers have reported that high blood levels of vitamin E are associated with a significantly lower risk of physical disability among seniors.

Benedetta Bartali, PhD, of the Yale University School of Medicine, and her colleagues analyzed blood levels of nutrients and physical function over three years in 698 men and women who were at least age 65 years of age when the study began.

The assessment of physical function was based on walking speed, repeatedly rising from a chair, and sense of balance. Two factors were associated with physical decline: being over 81 years old and, among people ages 70 to 80 years old, having low levels of vitamin E. People with the lowest blood concentrations of vitamin E were 62 percent more likely to experience a significant decline in physical functioning over the three-year study.

Reference: Bartali B, Frongillo EA, Guralnik JM, et al. Serum micronutrient concentrations and decline in physical function among older persons. *JAMA*, 2008;299:308-315. □

## Vinegar Lowers Blood Sugar Levels in People with Diabetes

Several well-controlled studies have found that small amounts of vinegar can lower blood sugar and insulin levels and may help people lose weight. In the latest report along these lines, researchers found that people with type 2 diabetes benefited from consuming small amounts of apple-cider vinegar.

Carol S. Johnston, PhD, of the Arizona State University, asked 11 middle-age and elderly women to take 2 tablespoons of either apple-cider vinegar or water along with 1 ounce of cheese before going to bed on two days. After five days, the subjects were then given the alternative protocol, so everyone served as both test and placebo subjects. The subjects had been diagnosed with diabetes for about five years, and eight of them were taking drugs to lower blood sugar.

Overall, the apple-cider vinegar led to a 4 percent decrease in fasting blood sugar, compared with a 2 percent drop for those drinking water. Noteworthy, the vinegar led to a 6 percent decline in fasting blood sugar among the six participants who began the study with a fasting blood sugar of 129 mg/dl or higher.

The difference between the vinegar and placebo phases of the study may have been even greater if the subjects had not been given cheese. It is possible that the protein in the cheese contributed to the blood-sugar reduction in the placebo group.

Previous research has found that the acetic acid in vinegar functions as a starch blocker, inhibiting the activity of some digestive enzymes, including amylase, sucrase, and lactase.

Reference: White AM, Johnston CS. Vinegar ingestion at bedtime moderates waking glucose concentrations in adults with well-controlled type 2 diabetes. *Diabetes Care*, 2007;11: 2814-2815. □

## Vitamin Supplements May Lower Indicator of Inflammation

Blood levels of C-reactive protein (CRP) are increasingly being used as a marker of inflammation, and some research indicates that CRP is an active promoter of inflammation. It functions as a cell-communication molecule, helping the body ramp up inflammation. The problem? Chronic inflammation is now regarded as an underlying cause of coronary heart disease, Alzheimer's, and many cases of cancer.

Barbara Thorand, MPH, of the National Research Center for Environment and Health, Neuherberg, Germany, and her colleagues measured CRP levels and the use of nutritional supplements in 2,045 women and 2,172 men ranging from 25 to 74 years of age.

Women taking either vitamin E supplements or multivitamin supplements were 43 percent more likely to have low CRP levels. In this study, neither of the supplements influenced CRP levels in men.

Several previous studies have found that vitamin E supplements can lower CRP levels.

Reference: Scheurig AC, Thorand B, Fischer B, et al. Association between the intake of vitamins and trace elements from supplements and C-reactive protein: results of the MONICA/LORA Augsburg study. *European Journal of Clinical Nutrition*, 2008;62:127-137. □

## Eggs on a Low-Carb Diet Boost Levels of "Good" HDL Cholesterol

When people follow a regular calorie-reduction diet, they often develop higher blood levels of cholesterol after eating eggs or other high-cholesterol foods. But this effect does not seem to occur when people eat eggs while following low-carbohydrate diets, according to a new study.

Maria Luz Fernandes, PhD, of the University of Connecticut, Storrs, and her colleagues placed 28 overweight or obese men on low-carb diets. The men

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## Quick Reviews of Recent Research

### • Soft drinks are factor in metabolic syndrome

Metabolic syndrome, also known as Syndrome X, consists of a cluster of risk factors that significantly increase the risk of diabetes and heart disease. In a study of 3,470 middle-age women, Harvard Medical School researchers found that consumption of one soft drink daily – regardless of whether it contained high-fructose corn syrup or artificial sweeteners – increased the risk of metabolic syndrome by 44 to 50 percent. Soft drink consumption also significantly increased the chances of developing the individual components of metabolic syndrome, including abdominal obesity, impaired glucose tolerance, high blood pressure, elevated triglycerides, and low HDL

### Eggs and HDL Cholesterol...

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were allowed to eat as much fish and meat as they wanted, along with moderate amounts of cheese and vegetables, and small amounts of nuts. Some of the men were asked to eat three eggs daily – containing about 640 mg of cholesterol – while other men were asked to eat an egg substitute containing no cholesterol.

After following the low-carb diets for 12 weeks, both groups of men had significant improvements. On average, they lost six to seven pounds of weight, and their waist circumference decreased by about six and one-half inches. Their blood pressure dropped about 10 points, and their triglyceride levels decreased by an average of 44 points.

Men consuming the eggs had a substantial 12 point average increase in their high-density lipoprotein (HDL) cholesterol levels. This beneficial change did not occur in men eating egg substitutes. Although levels of the “bad” low-density lipoprotein (LDL) cholesterol increased about the same amount, the important LDL:HDL cholesterol level remained the same.

In essence, the study found that eating eggs on a low-carb diet enhanced blood-fat patterns in overweight men.

A further benefit was that the number of men with metabolic syndrome in the study decreased from 18 to just three by following the low-carb diet. Metabolic syndrome is a cluster of risk factors that significantly increases the chances of developing diabetes and heart disease.

Reference: Mutungi G, Ratliff J, Puglisi M, et al. Dietary cholesterol from eggs increases plasma HDL cholesterol in overweight men consuming a carbohydrate-restricted diet. *Journal of Nutrition*, 2008;138:272-276. □

cholesterol. The researchers wrote, “The high sweetness of diet or regular soft drinks may lead to conditioning for greater preference for intake of sweetened items.

Dhingra R, et al. *Circulation*, 2007;116:480-488.

### • Glucosamine does not raise blood sugar

Some research has suggested that glucosamine sulfate supplements might alter blood fats and blood sugar. Researchers from the University of Florida investigated whether glucosamine sulfate supplements might increase levels of high-density lipoprotein (HDL) cholesterol in people with diabetes. Daily supplements of 1,500 mg for two weeks did not increase HDL levels – or blood sugar levels.

Albert SG, et al. *Diabetes Care*, 2007;30:2800-2803.

### • Acid-reducing drugs hurt brain function

Researchers from the University of North Carolina found that the use of histamine-3 receptor (H2) antagonist drugs (such as Tagamet and Zantac) were linked to a two and one-half time greater risk of impaired cognition among African Americans. These drugs and proton-pump inhibitors (e.g. Prilosec, Prevacid, and Nexium) reduce stomach acid consequently absorption of vitamin B12 and C – and likely other nutrients. Low vitamin B12 has been associated with poor cognition in other studies. Use of the drugs might also reflect poor eating habits.

Boustani M, et al. *Journal of the American Geriatric Society*, 2007;55:1248-1253.

### • Echinacea protects against common cold

In an analysis of 14 previous studies of echinacea supplements and the common cold, researchers from the University of Connecticut calculated that the popular herbal supplement reduced the odds of developing a common cold by 58 percent. Use of the herb also shortened the duration of a typical seven-day cold by about a day and a half.

Shah SA, et al. *Lancet Infectious Diseases*, 2007;7:473-480.

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