

# The Nutrition Reporter™

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## High Vitamin D Levels May Reduce the Risk of Dying from Prostate Cancer

Vitamin D might not prevent prostate cancer, but three studies suggest that the vitamin can help control the disease in its early stages and reduce the risk of dying from it.

One of every six men will be diagnosed with prostate cancer, although only one of every 36 men will die from the disease.

Irene Shui, ScD, of Harvard University and her colleagues studied 1,260 men who had been diagnosed with prostate cancer and compared them with 1,331 men without the disease. Over 19 years, 144 men died from prostate cancer.

High vitamin D levels did not lower the risk of prostate cancer, according to Shui's article in the *Journal of the National Cancer Institute*. However, men with higher blood levels of vitamin D were 57 percent less likely to die from the disease.

Meanwhile, David T. Marshall, MD, of the Medical University of South Carolina, Charleston, reported that vitamin D supplements might reverse the growth of early low-risk prostate cancer, at least in some men. Marshall and his colleagues asked 52 men with low-grade prostate cancer to take 4,000 IU of vitamin D daily for one year.

All of the men had undergone prostate biopsies before and after the study, and their blood levels of prostate-specific antigen (PSA, a marker of prostate cancer risk) were measured every two months.

Marshall and his colleagues analyzed data from 44 of the subjects. Eight people had dropped out of the study or they yielded insufficient safety and efficacy data to be of value in the analysis.

Twenty-four (55 percent) of the men had a decrease in biopsy samples that were positive for prostate cancer. They also benefited from a decrease in their Gleason scores, a way of measuring the aggressiveness of prostate cancer.

Meanwhile, five men (11 percent) showed no change, and 15 (34 percent) had an increase in either positive biopsy samples or their Gleason scores.

Marshall noted that the vitamin D supplements decreased the number of positive biopsy samples in more than half of the patients.

"It is important to point out the absence of any measurable toxicity of the vitamin D3 treatment used in this clinical study," he added.

A related study, presented at the American Association for Cancer Research meeting, described some of the mechanisms behind the protective role of vitamin D.

Reinhold Vieth, PhD, of the University of Toronto, Canada, and his colleagues gave vitamin D supplements to 66 men diagnosed with prostate cancer and scheduled for surgery. The men took 400, 10,000, or 40,000 IU of vitamin D daily for three to eight weeks. (The researchers do *not* recommend taking 40,000 IU daily, but used this large amount because of the short timeframe of the study.)

Vitamin D increased the levels of the hormone calcitriol in prostate tissues, and higher calcitriol levels were associated with less activity of Ki67, a marker of cell proliferation in prostate cancer. In addition, higher calcitriol levels were related to increased levels of a key cancer-inhibiting substance.

Vitamin D is the precursor to calcitriol, and the highest levels of calcitriol corresponded to lower levels of Ki67.

Reference: Shui IM, Mucci LA, Kraft P, et al. Vitamin D-related genetic variation, plasma vitamin D, and risk of lethal prostate cancer: a prospective nested case-control study. *Journal of the National Cancer Institute*, 2012: epub ahead of print. Marshall DT, Savage SJ, Garrett-Mayer E, et al. Vitamin D3 supplementation at 4000 international units per day for one year results in a decrease of positive cores at repeat biopsy in subjects with low-risk prostate cancer under active surveillance. *Journal of Clinical Endocrinology and Metabolism*, 2012: doi10.1210/jc.2012-1451. Wagner D, Nonn L, Antonio A, et al. Double-blind randomized clinical trial of vitamin D3 showing effects on tissue calcitriol levels, gene expression and proliferation immunohistochemistry in prostate cancer. Presented at the American Association for Cancer Research, Chicago, March 31-April 4, 2012: Abstract number LB-435. □

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**Perspectives**

**No Single Cause of Autism**

One of the failings of modern medicine is its penchant for seeking single causes to complex health problems. For example, heart disease has multiple causes (of which elevated cholesterol is one symptom, not a cause), and cancer reflects a catastrophic breakdown of normal genetic programming, biochemistry, and immunity.

In the same way, medicine has sought to identify a single cause of autism. Doctors have investigated the possible roles of genetics, mercury, infections, lead poisoning, maternal use of medications, and pesticide exposure, among others.

Finding a single cause would certainly simplify prevention and treatment. But I do not believe autism has a single cause, which means prevention and treatment are likely to remain complicated.

Recent studies have suggested that women who are obese or have type 2 diabetes are more likely to have children who develop autism. Obesity and type 2 diabetes reflect horrible eating habits and multiple nutritional deficiencies. Another study showed that prenatal vitamins might be protective, hinting that nutritional deficiencies play a role in autism.

Here's my thinking: Most serious noninfectious illnesses result from a cluster of different factors, not a single cause. The makeup of this cluster will likely vary from person to person – toxic exposures may be a dominant factor in some cases of autism, whereas the mother's lifestyle may be the major factor in other cases. Unfortunately, we live in an polluted world and toxic food environment, and there are so many things that can hurt us and our children. We have to defend against not just one assault, but a multitude of assaults on our health. –JC

**Probiotic Supplements Reduce Diarrhea from Antibiotics**

Take antibiotics – and there's a good chance you'll suffer from diarrhea for days and maybe even weeks. The reason is that most oral antibiotics destroy both beneficial and disease-causing bacteria. Worse, the diarrhea can set the stage for a life-threatening *Clostridium difficile* infection.

Many people take supplements containing probiotics – good bacteria – to maintain or restore normal gut flora during and after taking antibiotics. Now, an analysis of existing research published in the *Journal of the American Medical Association*, confirms that probiotic supplements can significantly reduce the risk of antibiotic-associated diarrhea.

Susanne Hempel, PhD, of RAND Health, Santa Monica, California, and her colleagues analyzed 63 controlled studies that included 11,811 people. The majority of these studies used *Lactobacillus*-based probiotics either alone or in combination with other types of probiotics (e.g., *Bifidobacterium* and *Saccharomyces*). Some of the studies also included prebiotics, which are nondigestible sugars that bacteria consume.

Hempel determined that probiotic supplements reduced the risk of diarrhea by 42 percent.

She noted that some antibiotics are more likely than others to cause diarrhea. But the studies she analyzed did not identify which antibiotics people took or which probiotics provided the greatest benefits.

Reference: Hempel S, Newberry SJ, Maher AR, et al. Probiotics for the prevention and treatment of antibiotic-associated diarrhea. A systematic review and meta-analysis. *JAMA*, 2012;307:1959-1969. □

**Curcumin Supplements Reduce Risks After Heart Surgery**

Curcumin, an extract of turmeric root, is a potent natural antioxidant and anti-inflammatory. It can also reduce the risk of a heart attack following bypass surgery.

Wanwarang Wongcharoen, MD, of Chiang Mai University, Thailand, and her colleagues noted that patients who suffer a heart attack shortly after undergoing heart bypass surgery have a poor long-term prognosis.

Previous research cited by Wongcharoen found that curcumin reduced inflammation-promoting substances during bypass surgery. A spike in free radicals and inflammation are common during such surgery and can damage the heart.

Wongcharoen and her colleagues gave 121 men and women, with an average age of 61 years, either curcumin or placebos starting three days before bypass surgery and continuing for five days after surgery. The curcumin dose was 1 gram four times daily.

The incidence of in-hospital heart attacks was 30 percent in the placebo group and just 13 percent in the curcumin group. In effect, curcumin supplements led to a 65 percent reduction in the risk of in-hospital heart attack following bypass surgery.

People taking curcumin also had lower levels of C-reactive protein, a marker of inflammation.

Reference: Wongcharoen W, Jai-ae S, Phrommintikul A, et al. Effects of curcuminoids on frequency of acute myocardial infarction after coronary artery bypass grafting. *American Journal of Cardiology*, 2012: epub ahead of print. □

## Rose Hips Supplements Improve Cardiovascular Risk Factors

Rose hips, the fruit of roses, is rich in vitamin C and antioxidant bioflavonoids. They enhance the integrity of blood vessels, and a new study has found that rose hips can reduce several risk factors for cardiovascular disease.

“During the last decade, the anti-inflammatory properties of rose hip have been documented in several studies and it has been used successfully to ameliorate symptoms in patients suffering from osteoarthritis, rheumatoid arthritis and lower-back pain,” observed Cecilia Holm, PhD, of Lund University, Sweden.

Holm and her colleagues had previously reported that large amounts of rose hips reversed obesity and glucose intolerance in laboratory mice. That prompted them to investigate the effects of rose hips in people.

She and her colleagues asked 31 obese men and women to consume a daily drink containing rose hips or a placebo drink. The test drink provided 40 grams (40,000 mg) of rose hips daily.

After six weeks, people consuming the rose hips had a 3.4 percent decrease in systolic blood pressure, a 4.9 percent decrease in total cholesterol, and a 6 percent reduction in low-density lipoprotein (LDL) cholesterol. In addition, the subjects’ ratio of LDL to high-density lipoprotein (HDL) cholesterol improved.

*Editor’s note:* The amount of rose hips in supplements is typically very small. I recommend buying dried rose hips from an herbalist or the bulk foods department of a natural grocer. You can steep rose hips in tea or blend some in a smoothie. Forty grams is approximately 1.5 ounces.

Reference: Andersson U, Berger K, Hogberg A, et al. Effects of rose hip intake on risk markers of type 2 diabetes and cardiovascular disease: a randomized, double-blind, cross-over investigation in obese persons. *European Journal of Clinical Nutrition*, 2012;66:585-590. □

## Vitamin D Can Help When Back Surgery Fails to Ease Pain

There’s still hope if you have had back surgery to relieve pain and now suffer from what some doctors call “failed back surgery syndrome.” The solution, vitamin D, costs only pennies a day.

Previous research has shown that vitamin D can often relieve chronic back pain, even when surgery fails. In the latest report, Saranatra Waikakul, MD, of Siriraj Hospital, Bangkok, Thailand, described his treatment of six men and three women who had back

surgery, but developed failed back surgery syndrome, consisting of chronic pain, disability, and depression. He compared them to seven patients who had undergone successful back surgery.

All of the patients, who ranged from 27 to 55 years of age, had blood levels of vitamin D less than 30 ng/ml, indicating deficiency. Waikakul gave the patients 20,000 IU of vitamin D2 daily for 10 days, then 600 IU daily of vitamin D3 for maintenance.

Six months later, the patients’ average vitamin D levels had increased from 17 to 42.5 ng/ml. Overall, they experienced a 54 percent decrease in pain, and their low-back disability was reduced by an average of 32 percent.

“Vitamin D deficiency is fairly common in patients with chronic pain syndrome and/or musculoskeletal pain,” wrote Waikakul.

Reference: Waikakul S. Serum 25-hydroxy-calciferol level and failed back surgery syndrome. *Journal of Orthopedic Surgery*, 2012;20:18-22. □

## Fish Oil Supplements Benefit Patients Undergoing Dialysis

For people with severe kidney disease, successful blood dialysis requires reliable veins to artificially filter the blood. However, some dialysis patients must undergo “synthetic arteriovenous grafts,” in which a plastic tube is grafted between an artery and vein.

A new study has found that patients receiving such synthetic grafts fare better if they take omega-3 fish oil supplements.

Charmaine E. Lok, MD, of Toronto General Hospital, Canada, and her colleagues oversaw a study conducted at 15 North American dialysis centers. Of the 201 patients participating, just over half had diabetes.

The patients began taking four fish oil capsules or placebos one week after having an arteriovenous graft and continued taking the capsules daily for 12 months. Each fish oil capsule provided 400 mg of eicosapentaenoic acid (EPA) and 200 mg of docosahexaenoic acid (DHA), adding up to 1,600 mg of EPA and 800 mg of DHA daily.

Patients taking fish oils had half as many thromboses (blood clots), needed fewer subsequent surgical interventions, and had improved survival without serious cardiovascular disease. They also had slightly lower systolic blood pressure.

However, fish oils did not decrease the proportion of grafts that closed or collapsed.

Reference: Lok CE, Moist L, Hemmelgarn BR, et al. Effect of fish oil supplementation on graft patency and cardiovascular events among patients with new synthetic arteriovenous hemodialysis grafts. *JAMA*, 2012;307:1809-1816. □

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## Quick Reviews of Recent Research

### • Vitamin D levels low in fibromyalgia patients

Doctors in Ireland have reported that only 15 percent of patients with fibromyalgia have normal blood levels of vitamin D. The condition is characterized by muscular pain, and vitamin D deficiency has been linked to muscular pain in other studies. The researchers noted that 62 percent of patients had borderline deficiencies and 28 percent had outright deficiencies of the vitamin.

Jan A. British Society for Rheumatology meeting, May 1-3, Glasgow, Scotland: abstract #231.

### • Vitamin A might reduce melanoma risk

A study of almost 70,000 people has found that vitamin A supplements – beyond what is found in multivitamins – might protect against melanoma, an often deadly form of cancer, according to researchers in California. After five years of follow up, 566 people were diagnosed with melanoma. Vitamin A supplementation was associated with a 40 percent lower risk of melanoma, but dietary vitamin A did not appear to be protective. Vitamin A is needed for the production and normal differentiation of epithelial cells.

Asgari MM. *Journal of Investigative Dermatology*, 2012: doi 10.1038/jid.2012.21

### • Magnesium reduces blood pressure

British researchers analyzed data from 22 published studies of magnesium supplements and blood pressure. The studies ranged from three to 24 weeks, with magnesium doses from 120 to 973 mg daily. Magnesium supplements led to a 3 to 4 mm Hg decrease in systolic blood pressure and a 2 to 3 mm Hg decrease in diastolic blood pressure. Blood pressure reductions were greater when people took at least 370 mg of magnesium daily.

Kass L. *European Journal of Clinical Nutrition*, 2012;66:411-418.

### • Vitamin K2 involved in energy production

Coenzyme Q10 (CoQ10) is well known for its role in furthering energy production in cells' mitochondria, often described as the power plants of cells. An experimental study by researchers in Belgium found that vitamin K2 also plays a role in energy production. Both nutrients help transfer energy-containing electrons in mitochondria, leading to more efficient production of adenosine triphosphate (ATP), the major energy-carrying compound in cells. In addition, CoQ10 and vitamin K2 are members of a chemical family of compounds called quinones. The researchers wrote that vitamin K2 might help protect against Parkinson's disease. CoQ10 has already been documented to have this benefit in people.

Vos M. *Science*, 2012: 10.1126/science.1218632.

### • New study supports antioxidants in eyes

Two antioxidants, lutein and zeaxanthin, have been shown to improve visual acuity and reduce the risk of age-related macular degeneration, a disease that affects the eye's retina. Finnish researchers analyzed data from 1,689 subjects ranging from 61 to 80 years of age. People with the highest blood levels of lutein and zeaxanthin had a 42 and 41 percent lower risk of developing cataract, respectively. Lutein and zeaxanthin are found in leafy green vegetables, such as kale and spinach.

Karppi J. *British Journal of Nutrition*, 2011: doi 10.1017/S0007114511005332.

### • Eating patterns heighten diabetes risk

A study by researchers at Harvard University has identified two eating patterns (as opposed to specific eating habits) that significantly increase the risk of type 2 diabetes. The study tracked 29,206 American men for 16 years. During follow up, 1,944 men developed type 2 diabetes. Men who skipped breakfast were 21 percent more likely to develop diabetes compared with men who ate breakfast. In addition, men who ate only one or two meals per day, instead of three meals, were 25 percent more likely to develop diabetes.

Mekary RA. *American Journal of Clinical Nutrition*, 2012;95:1182-1189.

### • Extra choline yields benefits to newborns

During prenatal development, nutrients can program genes for life, increasing or decreasing disease risk. Researchers at Cornell University supplemented third-trimester pregnant women with either 930 mg or 450 mg of choline daily. The B vitamin is involved in methylating genes and regulating their behavior. Women consuming the higher amount of choline delivered babies with 33 percent lower levels of cortisol, a stress hormone.

Jiang X, *FASEB Journal*, 2012: epub ahead of print

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