

# The Nutrition Reporter™

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## Antioxidants Appear To Help, Not Hurt, Patients Undergoing Cancer Treatments

One of the perennial controversies in medicine and nutrition is whether cancer patients should take antioxidants and other nutritional supplements while undergoing radiation therapy or chemotherapy.

The controversy stems from the idea that radiation and chemo destroy cancer cells by generating large amounts of free radicals. Antioxidants quench free radicals, and many oncologists believe that antioxidants will also interfere with radiation and chemo.

In contrast, many alternative medical practitioners have reported impressive therapeutic successes by combining conventional cancer therapies with high-dose intravenous vitamin C and oral antioxidant supplements. For example, Jeanne Drisko, MD, of the University of Kansas Medical Center, Kansas City, several years ago described striking successes in treating ovarian cancer patients with a combination of high-dose antioxidants and chemotherapy. She is currently conducting a large clinical trial.

Charles B. Simone, MD, of the nonprofit Simone Protective Cancer Institute, Lawrenceville, New Jersey, recently reviewed 50 clinical and observational trials, involving 8,521 patients, who used one or more nutritional supplements.

The studies “have consistently shown that nonprescription antioxidants and other nutrients do not interfere with therapeutic modalities for cancer,” Simone concluded. “Furthermore, they enhance the killing of therapeutic modalities for cancer, decrease their side effects, and protect normal tissue.”

He added that, in 15 human studies, “3,738 patients who took nonprescription antioxidants and other nutrients actually had increased survival.”

Keith I. Block, MD, of the Institute for Integrative Cancer Research and Education, Evanston, Illinois, came to similar conclusions after analyzing 19 well-controlled clinical trials in which antioxidants were used in conjunction with conventional cancer therapies. The antioxidants included glutathione, melatonin, vitamin A, an antioxidant mixture,

vitamin C, N-acetylcysteine, vitamin E, and ellagic acid, though not usually in combination.

“None of the trials reported evidence of significant decreases in efficacy from antioxidant supplementation during chemotherapy,” wrote Block. “Many of the studies indicated that antioxidant supplementation resulted in either increased survival times, increased tumor responses, or both, as well as fewer toxicities...”

Ralph W. Moss, PhD, publisher of *The Moss Reports*, which evaluate conventional and alternative treatments for cancer, noted that radiation therapy reduces antioxidant levels in cancer patients. “The widespread self-administration of dietary antioxidants by patients can be seen as an attempt to correct treatment-induced hypovitaminosis.”

Moss cited research showing that radiation therapy is most effective in oxygen-rich tumor cells. But large tumors are often low-oxygen environments, reducing the effectiveness of radiation. “Antioxidants, as a class, improve blood flow and therefore promote the normal oxygenation of tissues, thereby rendering tumors more – not less – susceptible to radiation.”

Antioxidants may have anti-cancer benefits through a variety of non-antioxidant benefits. They regulate how cells communicate with each other, inflammation, and gene expression.

Moss concluded that the “preponderance” of findings from experimental and clinical studies suggests that antioxidants do not interfere with the effectiveness of cancer therapies and may actually increase the chances of a “beneficial outcome.”

References: Simone CB 2nd, Simone NL, Simone V, et al. Antioxidants and other nutrients do not interfere with chemotherapy or radiation therapy and can increase kill and increase survival. *Alternative Therapies in Health and Medicine*, 2007;13:22-28 and 40-47. Block KI, Koch AC, Mead MN, et al. *Cancer Treatment Reviews*, 2007;33:407-418. Moss RW. Do Antioxidants Interfere with Radiation Therapy for Cancer? *Integrative Cancer Therapies*, 2007;6:281-292. □

More research summaries on next page

**Perspectives**

**The Search for Superfoods**

“Black raspberries may prevent cancer of esophagus.”  
“Blueberries may help old folks keep their smarts.”  
“Green tea may reduce prostate cancer risk.”

These are a few of the many news headlines I’ve recently read while tracking the latest nutrition research. Any number of foods or their nutritional ingredients are regularly touted as superfoods, functional foods, or nutraceuticals. Unfortunately, such headlines are often misleading.

You’re not going to significantly reduce your risk of disease or achieve optimal health by eating a bowl of black raspberries every day. They’ll certainly taste great and will provide some health benefits, of course. But good health doesn’t result from eating a superfood – it comes from healthy eating habits.

Eating a healthy diet isn’t all that mysterious. If you follow two simple rules, you’ll be on the right track most of the time.

First, eat mostly fresh foods instead of processed and packaged foods. Fresh foods look something like they do in nature. For example, a salmon filet looks like part of a fish, which a fish stick does not. As a general rule, fresh foods receive less tampering compared with processed foods. Most processed foods have added sugars, refined carbs, sodium, or unhealthy fats – or all of them – adding up to high-calorie nonnutrients.

Second, eat a diverse selection of foods, including quality protein, healthy fats, and a lot of vegetables. A diversity of foods translates into a bounty of nutrients, many of which have not been extensively studied and as a result don’t garner a lot of headlines. For example, a recent study reported that curcumin, the active compound in the spice turmeric, was a powerful anti-inflammatory. (See related story.) That’s just one spice, out of hundreds of healthy options to choose from at your local market. – *JC*

**Lycopene Beneficial in Stopping Benign Prostate Enlargement**

Benign enlargement of the prostate, known also as benign prostatic hyperplasia (BPH), tends to affect men after age 50. As the prostate enlarges, it squeezes the urethra, which in turn causes a variety of urinary symptoms, including dribbling and a sudden urge to urinate.

In a recent study, Hans-Konrad Biesalski, MD, of the University of Hohenheim, Germany, and his colleagues treated 40 men with enlarged prostates. The men were free of prostate cancer, and they ranged from 45 to 70 years of age. They were given

15 mg of lycopene or placebos daily for six months.

Thirty-seven of the men completed the study, and those who were given lycopene had decreases in prostate-specific antigen (PSA), a marker of prostate cancer risk. In addition, the prostate did not enlarge in men taking lycopene, whereas prostate size and weight increased by almost one-fourth in the placebo group.

“Prostate enlargement tended to be slower in the lycopene group compared with the placebo group,” wrote Biesalski. He added that lycopene “may inhibit disease progress and ameliorate symptoms in BPH patients.”

Overweight was also associated with the risk of enlarged prostate.

Reference: Schwarz S, Obermuller-Jevic UC, Hellmis E, et al. Lycopene inhibits disease progression in patients with benign prostate hyperplasia. *Journal of Nutrition*, 2008;138:49-53. □

**Curcumin, Found in Turmeric, Is A Potent Anti-Inflammatory**

Turmeric is part of the tantalizing blend of spices commonly known as curry. Growing research shows that its active ingredient, called curcumin, is a potent anti-inflammatory compound.

“It is now well recognized that most chronic diseases are the result of dysregulated inflammation,” wrote Bharat B. Aggarwal, PhD, in one of two recent scientific reviews. “Turmeric has been traditionally described as an anti-inflammatory agent.”

Turmeric has been used as a spice in southern Asian cuisine for thousands of years. It has also been used in traditional Ayurvedic medicine for around 4,000 years, explained Aggarwal, a researcher at the M.D. Anderson Cancer Treatment Center in Houston, Texas.

In recent years, researchers have turned their focus to curcumin, which accounts for about 3 percent of turmeric. Chemists classify curcumin as an antioxidant polyphenol. More than 2,000 scientific papers have been published on curcumin.

In one of his review articles, Aggarwal noted that curcumin inhibits inflammation through 97 different mechanisms. It turns off genes involved in inflammation, inhibits inflammation promoters such as interleukin-6, and blocks the activity of other inflammation instigators, including nuclear factor kappa beta.

Human studies have found that curcumin has benefits in rheumatoid arthritis, psoriasis, gallstones, inflammatory bowel disease, and elevated cholesterol levels.

Aggarwal noted that curcumin supplements are now being used as an adjunct cancer treatment at

M.D. Anderson. In fact, around two dozen clinical trials are underway worldwide to test curcumin in conjunction with conventional therapies in the treatment of various cancers. Daily dosages in these trials range from 2 to 8 grams daily.

He wrote that curcumin may also reduce the numbers of precancerous colorectal polyps.

“Curcumin, a spice once relegated to the kitchen shelf, has moved into the clinical and may provide to be ‘curecumin,’” Aggarwal concluded.

References: Aggarwal BB, Sundaram C, Malani N, et al. Curcumin: the Indian solid gold. *Advances in Experimental Medicine and Biology*, 2007;595:1-75. Goel A, Hunnumakkara AB, Aggarwal BB. Curcumin as “curecumin”: from kitchen to clinic. *Biochemical Pharmacology*, 2007; doi: 10.1016/j.bcp.2007.08.016. □

## Vitamin K May Benefit People Taking Anticoagulant Drugs

Doctors routinely advise patients taking coumadin to avoid vitamin K-rich foods, such as leafy green vegetables. Coumadin and related drugs work by inhibiting vitamin K, which is involved in blood clotting. The rationale is that such foods may reduce the effectiveness of anticoagulant drugs.

But a new study suggests that patients might actually do better if they take vitamin K supplements. That’s because supplements provide a consistent amount of vitamin K, and drug dosages can be adjusted accordingly.

“Research suggests that patients with a low dietary intake of vitamin K have a less stable anticoagulant control than patients with a higher intake,” observed Felix van der Meer, MD, of the Leiden University Medical Center in The Netherlands.

He and his colleagues treated 200 patients with a dose-adjusted vitamin K antagonist drug and also gave them 100 mcg of vitamin K or placebos daily for 24 weeks. The researchers tracked the amount of time patients stayed within the therapeutic range of the drug.

Patients were far more likely to remain in the drug’s therapeutic range if they took vitamin K supplements. The researchers wrote that “vitamin K improves stability of anticoagulant therapy. Because the risk of side effects is inversely related to anticoagulant stability, such an improvement is likely to reduce the number of bleeding and thrombotic events.”

*Editor’s note:* If you are taking anticoagulant medications, consult your physician before taking vitamin K supplements.

Reference: Rombouts EK, Rosendaal FR, van der Meer FJM. *Journal of Thrombosis and Haemostasis*, 2007;5:2043-2048. □

## Glucosamine Sulfate May Be Better than Hydrochloride Form

Glucosamine is a building block of the cartilage that cushions the knees. Although a large number of studies show that glucosamine supplements can reduce the pain of osteoarthritis and sometimes reverse cartilage breakdown, some studies have shown no benefits.

The reason, according to Jean-Yves Reginster, MD, PhD, of the University of Leige, Belgium, may be the form of glucosamine used in studies. The two most common forms are glucosamine sulfate and glucosamine hydrochloride. They’re often combined with chondroitin sulfate in supplements.

One of the studies cited by Reginster combined glucosamine hydrochloride with chondroitin sulfate. People with moderate-to-severe knee pain benefited the most, which might be explained “by an increase in the bioavailability of sulfates,” he wrote.

“Most of the negative clinical trials were performed with glucosamine hydrochloride 500 mg three times daily, whereas most of the positive trials were performed with the glucosamine sulfate powder for oral solution at the dose of 1500 mg once daily,” wrote Reginster. “This obviously raises the question, so far unanswered, of the importance of sulfate and of its contribution to the overall effects of glucosamine.”

Based on the evidence, glucosamine sulfate “may reduce the progression of knee osteoarthritis.” It appears to work more by preventing the breakdown of cartilage rather than rebuilding it, and it also reduces the pain associated with knee osteoarthritis.

Reference: Reginster JY, Bruyere O, Neuprez A. Current role of glucosamine in the treatment of osteoarthritis. *Rheumatology*, 2007;46:731-735. □

## A Little Honey Before Bedtime Eases Children’s Coughs

Honey is well known for its antioxidant and antimicrobial properties. In many countries around the world, it’s used to promote wound healing as a topical dressing. Now, according to a recent study, it can also reduce coughing in children and enable them – and their parents – to get a better night’s sleep.

Ian M. Paul, MD, and his colleagues at Pennsylvania State University, Hershey, treated 105 children with buckwheat honey, dextromethorphan (the most common over-the-counter cough remedy), or nothing at all on two consecutive nights. Children ages two to five years received 1/2 teaspoon of honey, those between six and 11 years received 1 teaspoon, and those between 12 and 18 received 2 teaspoons of

Continues on next page

## Quick Reviews of Recent Research

### • Overweight people don't burn fat efficiently

Researchers from The Netherlands have confirmed what many overweight people have long suspected – the heavier they are, the more difficulty they have burning fat. The researchers measured fat oxidation in 56 overweight or obese women and men for 12 hours after breakfast. Oxidation, or burning, of fat ranged from 4 to 28 percent. The least overweight subjects had the highest rate of fat burning, whereas the heaviest had the lowest rate of fat burning.

Westertep KR, et al. *American Journal of Clinical Nutrition*, 2008;87:132-135.

### • Vitamin D may help in rheumatoid arthritis

Italian researchers reviewed the evidence relating low vitamin D to auto-immune diseases, including rheumatoid arthritis. Higher consumption of vitamin D has been linked to a lower risk of rheumatoid arthritis. The researchers noted that vitamin D may reduce the activity of a type of immune cell known as Th1, involved in attacking the body's own tissues.

Cutolo M, et al. *Autoimmunity Reviews*, 2007;7:59-64.

### • Protein intake related to lean body mass

Researchers from Wake Forest University, North Carolina, investigated the dietary habits of 2,066 men and women ages 70 to 79. People eating the most protein lost 40 percent less muscle, as well as arm and leg muscle, over three years, compared with

people who ate the least amount of protein. The researchers wrote that dietary protein could help reduce age-related loss of muscle, a major contributor to physical disability.

Houston DK, et al. *American Journal of Clinical Nutrition*, 2008; 87:150-155.

### • Selenium may help maintain muscle mass

Biologists consider protein the biochemical workhorse of the body. A team of British and Dutch researchers recently investigated the role of selenium in protein production in the body. They asked 39 people to take 100 mcg of selenium daily for six weeks, after which they studied immune cells from the subjects' blood. The selenium supplements increased the activity of genes primarily involved in protein synthesis.

Pagmantidis V, et al. *American Journal of Clinical Nutrition*, 2008;87:81-189.

### • Fish consumption aids brain function

Norwegian and British researchers analyzed cognitive function in relation to fish and fish products (e.g., stews, soups) among 2,031 men and women ages 70 to 74. People who consumed more fish, rich in omega-3 fats, had higher scores on cognitive tests. The benefits were dose related, and the optimal intake was about 2.5 ounces of fish daily.

Nurk E, et al. *American Journal of Clinical Nutrition*, 2007; 86:1470-1478.

### • L-carnitine boosts energy levels

Researchers treated 66 centenarians suffering from age-related fatigue with either 2 grams of L-carnitine or placebos daily for six months. L-carnitine supplements led to significant improvements in physical and mental fatigue, as well as cognition. The supplements also increased the subjects' total muscle mass while decreasing their fat mass.

Malaguarnera M, et al. *American Journal of Clinical Nutrition*, 2007;86:1738-1744.

## Honey Eases Coughs...

Continues from previous page

honey 30 minutes before bedtime. The parents completed a five-question questionnaire for each night.

Parents rated honey far more effective than either the drug or no treatment at all in all categories measured – including cough frequency, cough severity, sleep disruption to the child, and sleep disruption to the parents.

“Buckwheat honey is a dark variety of honey, and darker honeys tend to have a higher content of [antioxidant] phenolic compounds,” wrote Paul.

He added that dextromethorphan is widely used, even though studies have found that it does not actually reduce coughing.

Paul cautioned that honey is generally safe except for the risk of infantile botulism in infants less than one year of age. Infant immune systems are not sufficiently developed to fight this type of bacteria.

Reference: Paul IM, Beiler J, McMonagle A, et al. Effect of honey, dextromethorphan, and no treatment on nocturnal cough and sleep quality for coughing children and their parents.

*Archives of Pediatric and Adolescent Medicine*, 2007;161: 1140-1146. □

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#### The Nutrition Reporter™

Post Office Box 30246 • Tucson AZ 85751-0246 USA

Editor and Publisher: Jack Challe

Copy Editor: Mary E. Larsen

#### Medical and Scientific Advisors

Richard P. Huemer, MD Lancaster, Calif. • Ralph K. Campbell, MD Polson, Montana

Peter Langsjoen, MD Tyler, Texas • Ronald E. Hunninghake, MD Wichita, Kansas

Marcus Laux, ND San Francisco, Calif. • James A. Duke, PhD Fulton, Maryland