

Cranberry Health News

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NEW REVIEW HIGHLIGHTS CRANBERRY FOR POSSIBLE CHEMOPREVENTIVE MECHANISMS

Activity due to unique combination of phytonutrients

A new research review and study examines how cranberry's unique flavonoid compounds have been further linked to potential anti-cancer properties. Led by Catherine C. Neto, PhD. of the University of Massachusetts Dartmouth and funded in part by the Cranberry Institute and the Wisconsin Cranberry Board, **this review is among the first to examine the effects of cranberry polyphenols on human cancer cells, in order to further explore cranberry's potential role in cancer prevention.** The review was published in the current edition of *The Journal of Nutrition* and presented as a part of the International Research Conference on Food, Nutrition, and Cancer, hosted by the American Institute of Cancer Research in Washington, D.C. in July 2006.

The review explores the existing research and recent findings on the anti-cancer properties of the cranberry, and its diverse phytochemical profile that likely plays a role in cancer prevention. Researchers from this study examined the antitumor activities of not only whole cranberry fruit and juice extracts, but also individual compounds and groups of compounds to identify active constituents.

"The results from *in vitro* studies using a variety of tumor models show that the polyphenol extracts from cranberry inhibit the growth and spread of breast, colon, prostate, lung, and other tumors," said Dr. Catherine Neto.

Cranberries' high antioxidant content is one of the many factors that work synergistically to create observed anti-tumor activities. Cranberries have three classes of flavonoids, including flavonols, anthocyanins, and proanthocyanidins (PACs), as well as catechins and other phenolic acids. Among flavonols, quercetin is one of the most extensively studied with regard to anticancer activity, due to its prevalence in fruit and vegetables. Cranberries are one of the leading fruit sources of quercetin on a weight basis.

A PAC fraction from cranberry was observed to selectively inhibit the growth of H460 human large cell lung carcinoma, HT-29 colon adenocarcinoma, and K562 chronic myelogenous leukemia cells in the study's panel of eight tumor cell lines. In one test, researchers used clonogenic soft agar assays to assess the ability of cranberry extracts and fractions to inhibit tumor colony formation in HT-29 and HCT-116 colon tumor cell lines. Over two weeks, the appearance of new tumor colonies decreased in a dose-dependent manner when they were treated with a cranberry polyphenolic extract and PAC fraction.

Reference: Neto, C. Cranberry and its phytochemicals: a review of *in vitro* anticancer studies. *The Journal of Nutrition*. 2007; (137):186S-193S.



Calendar of Events

American Academy of Physician Assistants Annual Conference

Visit the CI Booth!

May 26-31, 2007

Philadelphia, PA

For more information, visit

www.aapa.org

American Academy of Nurse Practitioners National Conference & Expo

Visit the CI Booth!

June 20-24, 2007

Indianapolis, IN

For more information, visit

www.aanp.org

School Nutrition Association Annual National Conference

Visit the CMC Booth and Culinary Demo!

July 15-18, 2007

Chicago, IL

For more information, visit

www.schoolnutrition.org

Take the Cranberry Institute Health Professional Online Survey

We want to hear from you!

We are conducting a short survey to learn more about health professionals' attitudes about cranberry health benefits, likelihood of recommending cranberries to patients and perception of the Cranberry Institute.

To access the survey, visit:

<http://www.surveymonkey.com/s.asp?A=167853737E76197>

UPDATE ON CRANBERRY EXTRACTS AND CANCER STUDIES

In an update on a preliminary study, Dr. Peter Ferguson of the London Health Sciences Centre in Ontario, Canada, led a team of researchers to test the ability of cranberry flavonoids to inhibit growth on brain, colon, and prostate human tumor cell lines. Flavonoid-rich fraction 6 (Fr6) and purified proanthocyanidins (PACs) isolated from cranberry significantly slowed the growth of explanted brain tumors *in vivo*, and inhibited the growth of the colon and prostate cancer cell lines. Researchers noted the complete regression of two prostate tumors, which suggests cranberry may have a potentially significant impact against this tumor type.

Reference: Ferguson, P., et. al. In vivo inhibition of growth of human tumor lines by flavonoid fractions from cranberry extract. *Nutrition and Cancer*. 56(1): 86-94.

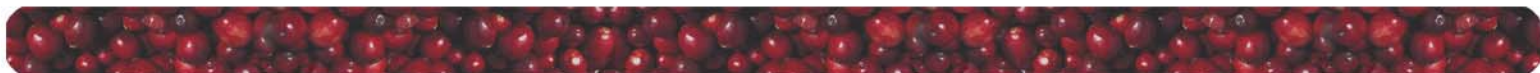
In a recent study published in the *Journal of Agriculture and Food Chemistry*, researchers at the University of California, Los Angeles, tested the extracts of six berries, including cranberry, against human tumor cell lines in cell cultures. Cranberry extract was shown to be effective in slowing cancer cell growth, a protective benefit that increased with the amount of extract added.

Reference: Seeram, N.P., et. al. Blackberry, Black Raspberry, Blueberry, Cranberry, Red Raspberry, and Strawberry Extracts Inhibit Growth and Stimulate Apoptosis of Human Cancer Cells In Vitro. *Journal of Agricultural and Food Chemistry*. 2006; 54(25): 9329-9339.

Cranberry Extracts and Human Breast Cancer Cells

In a recent study published in *Cancer Letter* and led by Drs. J. Sun and Rui Hai Liu at Cornell University, researchers found cranberries inhibited the growth of certain cancer cell lines and ornithine decarboxylase (ODC), the first and rate-controlling enzyme for the production of compounds required for cell division, *in vitro*. The data showed that cranberry phytochemical extracts significantly inhibited human breast cancer MCF-7 cell development at doses of 5 to 30 mg/mL. Apoptosis (cell death) occurred after the cancer cells were exposed to cranberry extracts for four hours, with a 25 percent increase in the ratio of apoptotic cells when extracts at a dose of 50 mg/mL were applied. These results suggest that cranberry phytochemical extracts may possess the ability to suppress the growth and spread of breast cancer MCF-7 cells.

Reference: Sun J., et. al. Cranberry phytochemical extracts induce cell cycle arrest and apoptosis in human MCF-7 breast cancer cells. *Cancer Letter*. (2006); 241(1):124-34.



Cranberries in the News

The Latest on What Your Patients Are Reading

According to an article featured in *Health News Digest*, slight weight gain, when left intact, can accumulate yearly and endanger overall health. Lona Sandon, assistant professor of clinical nutrition at the UT Southwestern Medical Center, mentions that “healthy food choices, eating habits, food preparation, and exercise” are the correct way to avoid adding extra weight.

Cranberries are highlighted as a healthy food because of their high level of antioxidants, and the antiadhesion mechanism that blocks certain pathogenic bacteria in the body, and plaque formation leading to periodontal disease on teeth.

Reference: UT Southwestern Medical Center, “Even Slight Weight Gain Can Set Stage for Obesity, Health Risks.” *Health News Digest*
<http://www.healthnewsdigest.com>

In the February issue of *Reader's Digest*, health columnist Dean Ornish, MD, recommends cranberry juice as an easy way to add disease-preventing power to the diet. In addition to preventing urinary tract infections, “**regular consumption [of cranberry juice] may also suppress *H. pylori* infection, which can lead to ulcers and gastric cancer.**”

Reference: Dean Ornish, “Food for Life: The Simple Way to Beat Disease,” *Reader's Digest*, February 2007.
<http://www.rd.com/content/openContent.do?contentId=32990>

Cranberry Tuna Salad

Prep time: 15 minutes

Makes: 4 servings



1 cup	Edamame, cooked, drained
1 cup	Cherry tomatoes, halved
1 cup	Carrots, peeled, diced
1 can (6 oz)	Tuna, packed in water, drained
1/2 cup	Cranberries, sweetened dried
1/2 cup	Radishes, halved, thinly sliced
1/4 cup	Green onions, thinly sliced
2 tablespoons	Olive oil
4 teaspoons	Lime juice
1 to 2 teaspoons	Wasabi paste
1 teaspoon	Fresh ginger, grated
1 teaspoon	Sugar

Mix edamame, tomatoes, carrots, tuna, cranberries, radishes, and green onions in large bowl.

Blend olive oil, lime juice, wasabi paste, ginger, and sugar in small bowl. Pour over tuna mixture; toss until blended.

Nutritional Analysis per Serving: Calories 240 (34% Calories from Fat), 16g Protein, 24g Carbohydrate, 5g Fiber, 9g Fat, 1g Sat. Fat, 0g Trans Fat, 15mg Cholesterol, 190mg Sodium