

UPDATED  
FOR SUMMER  
2007

# CRANBERRY HEALTH RESEARCH MILESTONES

The Berry that helps protect you inside

**SINCE 1984, MANY STUDIES HAVE INDICATED THAT CRANBERRIES MAY HAVE A NUMBER OF HEALTH BENEFITS**, the foremost being its "anti-adhesion" effect on certain bacteria. Ocean Spray cranberry contains a unique combination of antioxidants, and natural compounds known as proanthocyanidins (PACs) which help to protect the body against harmful bacteria.

The first scientific findings on cranberry were related to urinary tract health. Emerging science suggests that cranberries may also be helpful protectors of our health in other areas of the body. Through its dual benefits of anti-adhesion and its unique combination of antioxidants, the cranberry is fast becoming established as nature's remedy to fight harmful bacteria.



**Helps Protect You Inside, visit [www.oceanspray.co.uk](http://www.oceanspray.co.uk)**



# URINARY TRACT

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## MAY 1984 – JOURNAL OF UROLOGY

While trying to account for cranberry juice's unique urinary tract health benefits, Youngstown State University researchers demonstrate that the benefits may be related to the cranberry's ability to inhibit bacteria from adhering to the walls of the urinary tract. The researchers found that 440ml of Cranberry Classic significantly inhibited the E. coli bacteria, which cause 80 to 90 percent of UTIs, from adhering to the urinary tract.

SOBOTA AE. INHIBITION OF BACTERIAL ADHERENCE BY CRANBERRY JUICE: POTENTIAL USE FOR THE TREATMENT OF URINARY TRACT INFECTIONS. JOURNAL OF UROLOGY 1984; 131:1013-1016.

## MAY 1991 – NEW ENGLAND JOURNAL OF MEDICINE

Tel Aviv University researchers also describe the anti-E. coli adherence property of cranberry juice and attempt to identify the specific components in cranberries that cause this beneficial effect. They conclude that a compound in cranberries of an "unknown nature" prevents certain E. coli from adhering to the bladder's lining. Orange, pineapple, mango, guava and grapefruit juices did not possess this anti-adhesion property.

OFEK I, GOLDHAR J, ZAFRIRI D, LIS H, ADAR R, SHARON N. ANTI-ESCHERICHIA COLI ADHESION ACTIVITY OF CRANBERRY AND BLUEBERRY JUICES. NEW ENGLAND JOURNAL OF MEDICINE 1991; 324:1599.

## MARCH 1994 – JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Harvard Medical School researchers conduct the first well-controlled, large-scale clinical trial to demonstrate that drinking cranberry juice regularly, significantly reduced the presence of bacteria in the urine. The researchers found that the effect was not because of more acidic urine (the urine of the cranberry juice drinkers was no more acidic than those drinking a non-cranberry placebo drink) and speculated that there was something specific in cranberry that prevented bacteria from adhering to the urinary tract. This research was conducted with 153 women, average age of 78, using 330 ml of Ocean Spray Cranberry Juice, which contained 27 percent cranberry juice.

AVORN J, MONANE M, GURWITZ JH, GLYNN RJ, CHOODNOVSKIY I, LIPSITZ LA. REDUCTION OF BACTERIURIA AND PYURIA AFTER INGESTION OF CRANBERRY JUICE. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 1994; 271:751-754.

## FEBRUARY 1997 – JOURNAL OF FAMILY PRACTICE

In a small, double-blind clinical trial, researchers from Weber State University found that sexually active women between the ages of 18 and 45 who daily consume a cranberry dietary supplement (from spray-dried cranberry juice) for six months had a significantly lower risk of UTIs than women taking a placebo.

WALKER EB, BARNEY DP, MICKERLSEN JN, WALTON RJ, MICKELSEN RAJR. CRANBERRY CONCENTRATE: UTI PROPHYLAXIS. JOURNAL OF FAMILY PRACTICE 1997; 45:167-168.

## OCTOBER 1998 – NEW ENGLAND JOURNAL OF MEDICINE

Rutgers-led scientists identify the active components in cranberries responsible for maintaining urinary tract health as proanthocyanidins or condensed tannins. The researchers concluded that the cranberry Vaccinium proanthocyanidins in cranberry juice are responsible for promoting urinary tract health.

HOWELL AB, VORSA N, MARDEROSIAN AD, FOO LY. INHIBITION OF THE ADHERENCE OF P-FIMBRIATED ESCHERICHIA COLI TO UROEPITHELIAL-CELL SURFACES BY PROANTHOCYANIDIN EXTRACTS FROM CRANBERRIES. NEW ENGLAND JOURNAL OF MEDICINE 1998; 339:1085.

## APRIL 2001 – FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

Research led by Rutgers University researchers presented at Experimental Biology 2001 confirms that cranberry Vaccinium proanthocyanidins are absorbed in the body. This suggests that once cranberry proanthocyanidins are absorbed into the bloodstream they become available to other sites throughout the body and may function as anti-adhesion agents and/or antioxidants. For the first time, in vivo research helps confirm the role of cranberry compounds as the active compounds responsible for anti-adhesion of certain E. coli bacteria in the urinary tract. An animal model was used to perform this research.

HOWELL AB, LEAHY M, KUROWSKA E, GUTHRIE N. IN VIVO EVIDENCE THAT CRANBERRY PROANTHOCYANIDINS INHIBIT ADHERENCE OF P-FIMBRIATED E. COLI BACTERIA TO UROEPITHELIAL CELLS. FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY JOURNAL 2001; 15:A284.

## JUNE 2001 – BRITISH MEDICAL JOURNAL

Research from the University of Oulu, Finland, found that regular consumption of a cranberry juice beverage reduced the recurrence of UTIs by about half, in women studied. One hundred and fifty women who have had at least one UTI in their lifetime with the median age of 30 were used in this study. This adds to the body of research supporting cranberry's preventive role with these infections.

KONTIOKARI T, SUNDOQVIST K, NUUTINEN M, POKKA T, KOSKELA M, UHARI M. RANDOMISED TRIAL OF CRANBERRY-LINGONBERRY JUICE AND LACTOBACILLUS GG DRINK FOR THE PREVENTION OF URINARY TRACT INFECTIONS IN WOMEN. BRITISH MEDICAL JOURNAL 2001; 322:1571-1575.

## JUNE 2002 – CANADIAN JOURNAL OF UROLOGY

A University of British Columbia urologist found use of cranberry juice and tablets with increased fluid intake are more effective than fluids alone in preventing UTIs in women studied. Forty percent fewer women experienced UTIs when receiving cranberry products vs. placebo, and on average had half the number of UTIs. Antibiotic use was less in the cranberry group vs. placebo. The researcher recommended that cranberry products be offered as an option in the management of recurrent UTIs.

STOTHERS L. A RANDOMIZED TRIAL TO EVALUATE EFFECTIVENESS AND COST EFFECTIVENESS OF NATUROPATHIC CRANBERRY PRODUCTS AS PROPHYLAXIS AGAINST URINARY TRACT INFECTION IN WOMEN. CANADIAN JOURNAL OF UROLOGY 2002; 9:1558-1562.

## JUNE 2002 – JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Findings by researchers suggest that the regular consumption of Cranberry Classic may offer protection against certain antibiotic resistant bacteria that cause urinary tract infections (UTIs). This latest research, conducted jointly between Rutgers and the University of Michigan, suggests that regular consumption of Cranberry Classic could reduce the potential for development of UTIs, thus decreasing the rate of antibiotic resistance.

HOWELL AB, FOXMAN B. CRANBERRY JUICE AND ADHESION OF ANTIBIOTIC-RESISTANT UROPATHOGENS. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 2002; 287:3082-3083.

## MARCH 2003 – AMERICAN JOURNAL OF CLINICAL NUTRITION

Research from the University of Oulu, Finland, found frequent consumption of fresh berry juices to be associated with lowered risk for recurrence of UTIs. Dietary habits seem to be an important risk factor for UTI recurrences in women, and dietary guidance could be a first step towards prevention.

KONTIOKARI T, LAITINEN J, JARVI L, POKKA T, SUNDQVIST K, UHARI M. DIETARY FACTORS PROTECTING WOMEN FROM URINARY TRACT INFECTION. AMERICAN JOURNAL OF CLINICAL NUTRITION 2003; 77:600-604.

## JANUARY 2004 – COCHRANE DATABASE SYSTEMATIC REVIEWS

The Cochrane Collaboration published a research review, concluding that there is some evidence that cranberry juice may decrease the number of symptomatic UTIs in women. The Cochrane Collaboration is a non-profit organization based in the UK whose mission is to help people make well-informed decisions about healthcare by developing systematic reviews of the effects of healthcare interventions.

JEPSON RG, MIHALJEVIC L, CRAIG J. CRANBERRIES FOR PREVENTING URINARY TRACT INFECTIONS. COCHRANE LIBRARY 2004; 1:1-19.

## ADDITIONAL RESEARCH REFERENCES

FOXMAN B, GEIGER AM, PALIN K, GILLESPIE B, KOOPMAN JS. FIRST-TIME URINARY TRACT INFECTION AND SEXUAL BEHAVIOR. EPIDEMIOLOGY 1995; 6:162-168. • DIGNAM RR, AHMED M, KELLY KG, KENMAN SJ, ZAYON M, KLEBAN M. THE EFFECT OF CRANBERRY JUICE ON URINARY TRACT INFECTION RATES IN A LONG-TERM CARE FACILITY. ANNALS OF LONG-TERM CARE 1998;6:163-167. • HENIG YS, LEAHY MM. CRANBERRY JUICE AND URINARY TRACT HEALTH: SCIENCE SUPPORTS FOLKLORE. NUTRITION 2000; 16:684-687. • FAGELMAN FC. CRANBERRY JUICE AND URINARY TRACT INFECTIONS: WHAT IS THE EVIDENCE? UROLOGY 2001; 57:407-413. • LEAHY M, RODERICK R, BRILLIANT K. THE CRANBERRY – PROMISING HEALTH BENEFITS, OLD AND NEW. NUTRITION TODAY 2001; 36:254-265. • MANGES AR, JOHNSON JR, FOXMAN B, O'BRYAN TT, FULLERTON KE, RILEY LW. WIDESPREAD DISTRIBUTION OF URINARY TRACT INFECTIONS CAUSED BY A MULTIDRUG-RESISTANT ESCHERICHIA COLI CLONAL GROUP. NEW ENGLAND JOURNAL OF MEDICINE 2001; 345:1007-1013. • STAMM WE. AN EPIDEMIC OF URINARY TRACT INFECTIONS. NEW ENGLAND JOURNAL OF MEDICINE 2001; 345:1055-1057.

## SEPTEMBER 2005 - PHYTOCHEMISTRY

Researchers from Rutgers and the University of Wisconsin investigated the anti-adhesion effects of Cranberry Classic versus other foods that contain proanthocyanidins (PACs). In this human study, they found that only consumption of Cranberry Classic resulted in urine with microbial anti-adhesion activity. Grape and apple juices, green tea and chocolate were also tested and did not produce this anti-adhesion activity. The researchers found that cranberry proanthocyanidins contained a unique structural feature that may account for this unique microbial anti-adhesion property.

HOWELL AB, REED JD, MCENIRY B, KRUEGER CG, CUNNINGHAM DG. A-TYPE CRANBERRY PROANTHOCYANIDINS AND UROPATHOGENIC BACTERIAL ANTI-ADHESION ACTIVITY. PHYTOCHEMISTRY 2005; 66: 2281-91.

## OCTOBER 2005 - JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE

Researchers from Brigham and Women's Hospital found that dried cranberries may offer a anti-adhesion mechanism that may protect the body from the bacteria that cause urinary tract infections (UTIs). This pilot laboratory study compared sweetened dried cranberries to a control and raisin samples. Laboratory analysis of the bacteria in one study participant's urine demonstrated a 50 percent increase in anti-adherence activity after dried cranberry consumption and samples from two other participants showed a 25 percent increase. There was no indication of increased anti-adherence activity in the samples taken from two other study participants.

GREENBERG JA, NEWMANN SJ, HOWELL AB. CONSUMPTION OF SWEETENED DRIED CRANBERRIES VERSUS UNSWEETENED RAISINS FOR INHIBITION OF UROPATHOGENIC ESCHERICHIA COLI ADHESION IN HUMAN URINE: A PILOT STUDY. JOURNAL OF ALTERNATIVE AND COMPLEMENTARY MEDICINE 2005; 11: 875-878.

## FEBRUARY 2006 – BIOTECHNOLOGY AND BIOENGINEERING

Researchers from Worcester Polytechnic Institute laboratory study found that cranberry proanthocyanidins (PACs) disable certain E. coli bacteria and may prevent the attachment of microorganisms that cause Urinary Tract Infections by changing the shape of the bacteria from rods to spheres, altering their cell membrane, and making it difficult for bacteria to make contact with cells, or from latching onto them.

LIU Y, BLACK MA, CARON L, CAMESANO TA. ROLE OF CRANBERRY JUICE ON MOLECULAR-SCALE SURFACE CHARACTERISTICS AND ADHESION BEHAVIOR OF ESCHERICHIA COLI. BIOTECHNOLOGY AND BIOENGINEERING 2006 FEB 5;93(2):297-305.

# LUNGS AND RESPIRATORY TRACT

## APRIL 2005 - ANTIVIRAL RESEARCH

A laboratory study found that components found in Cranberry Classic prevent type A and B flu viruses from attaching to host cells and inhibit subsequent infection. This preliminary study suggests the potential for cranberry components to play a role in controlling influenza viral infection.

WEISS E. I. CRANBERRY JUICE CONSTITUENTS AFFECT INFLUENZA VIRUS ADHESION AND INFECTIVITY. ANTIVIRAL RESEARCH 2005; 66:9-12.

## JANUARY 2007 - PHYTOMEDICINE

The anti-adhesion properties of the cranberry may be as helpful against some viral infections as they are in warding off certain harmful bacteria. This in vitro study found that cranberry juice exhibits antiviral effects towards two gastrointestinal viruses. Further studies are needed to better understand the mechanism of action.

LIPSON S.M. ; SETHI L.; COHEN, P.; GORDON, R.E.; TAN, I.P.; BURDOWSKI, A.; STOTZKY, G. ANTIVIRAL EFFECTS ON BACTERIOPHAGES AND ROTAVIRUS BY CRANBERRY JUICE. PHYTOMEDICINE 2007; 14:23-30.



# DENTAL

## DECEMBER 1998 – JOURNAL OF THE AMERICAN DENTAL ASSOCIATION

Laboratory research from Tel Aviv University suggests that compounds in cranberries may inhibit certain bacteria found in the mouth from sticking to teeth leading to the development of plaque, apparently through the same type of anti-adhesion mechanism through which they maintain urinary tract health. These bacteria have been associated with periodontal gum disease.

WEISS EJ, LEV-DOR R, KASHMAN Y, GOLDHAR J, SHARON N, OFEK I. INHIBITING INTERSPECIES COAGGREGATION OF PLAQUE BACTERIA WITH A CRANBERRY JUICE CONSTITUENT. JOURNAL OF THE AMERICAN DENTAL ASSOCIATION 1998; 129:1719-1723.

## JUNE 2004 – JOURNAL OF ORAL MICROBIOLOGY IMMUNOLOGY

Laboratory research from Tokyo Dental College in Chiba, Japan further supports cranberry's anti-adhesion mechanism on strains of oral bacteria such as streptococci as well as the formation of biofilm within the oral cavity. These findings suggest that cranberry compounds can help decrease oral bacteria (streptococci) on the tooth surface, thus, slowing development of dental plaque.

YAMANAKA A, KIMIZUKA R, KATO T, OKUDA K. INHIBITORY EFFECTS OF CRANBERRY JUICE ON ATTACHMENT OF ORAL STREPTOCOCCI AND BIOFILM FORMATION. JOURNAL OF ORAL MICROBIOL IMMUNOLOGY 2004; 19(3):150-154.

## DECEMBER 2000 – FEDERATION OF EUROPEAN MICROBIOLOGICAL SOCIETIES (FEMS)

A recently published study by researchers at Tel Aviv University, the Weizmann Institute of Science and Haifa Technion finds preliminary evidence that cranberry may also have an anti-adhesion effect on *H. pylori*, the bacteria that are a cause of stomach ulcers. The *in vitro* study, using human gastric mucus cells and a cranberry fraction, suggests that the cranberry's anti-adhesion effect may prevent the bacteria from attaching to the stomach lining, an important step in the progression of events leading to some ulcers.

BURGER O, ITZHAK O, TABAK M, WEISS EJ, SHARON N, NEEMAN I. A HIGH MOLECULAR MASS CONSTITUENT OF CRANBERRY JUICE INHIBITS HELICOBACTER PYLORI ADHESION TO HUMAN GASTRIC MUCUS. FEDERATION OF EUROPEAN MICROBIOLOGICAL SOCIETIES 2000; 29:295-301.

## SEPTEMBER 2003 – CHINESE JOURNAL OF DIGESTIVE DISEASES

This animal study found Cranberry Classic reducing *H. pylori* infection in mice. While cranberry juice was not found to be effective in eliminating *H. pylori* infection in the mice studied, the authors conclude consumption of cranberry juice was effective at suppressing *H. pylori* infection.

XIAO SD AND SHI T. IS CRANBERRY JUICE EFFECTIVE IN THE TREATMENT AND PREVENTION OF HELICOBACTER PYLORI INFECTION OF MICE? CHINESE JOURNAL OF DIGESTIVE DISEASES 2003; 4:136-139.

## DECEMBER 2004 – DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE

This laboratory study found that compounds in cranberry inhibited antibiotic-resistant and non-resistant *H. pylori* from adhering to gastric cells. The authors note the data from this study suggest that a combination of antibiotics and cranberry may improve the elimination of *H. pylori*.

SHMUELY H, BURGER O, NEEMAN I, YAHAV J, SAMRA Z, NIV Y, SHARON N, WEISS E, ATHAMNA A, TABAK M, OFEK I. SUSCEPTIBILITY OF HELICOBACTER PYLORI ISOLATES TO THE ANTIADHESION ACTIVITY OF A HIGH-MOLECULAR-WEIGHT CONSTITUENT OF CRANBERRY. DIAGNOSTIC MICROBIOLOGY AND INFECTIOUS DISEASE 2004; 50:231-235.

## JUNE 2004 – JOURNAL OF ANTIMICROBIAL CHEMOTHERAPY

This clinical study out of Israel investigated the effect of a mouthwash supplemented with a cranberry extract on oral hygiene. The study found that following 6 weeks of daily usage of cranberry-containing mouthwash by an experimental group, certain oral pathogens (*Streptococcus mutans*) as well the total bacterial count were reduced significantly. Additional *in vitro* work suggested that the ability to reduce these pathogen counts *in vivo* is due to the anti-adhesion activity of the cranberry constituent.

STEINBERG D, FELDMAN M, OFEK I, WEISS EJ. EFFECT OF A HIGH-MOLECULAR-WEIGHT COMPONENT OF CRANBERRY ON CONSTITUENTS OF DENTAL BIOFILM. JOURNAL OF ANTIMICROBIAL CHEMOTHERAPY 2004; 1093-1096.

## APRIL 2007 - EUROPEAN JOURNAL OF ORAL SCIENCES

Researchers at Laval University in Quebec City, Canada found cranberry juice concentrate contains molecules that inhibit the inflammatory response of two major cell types in gum tissue. This dental research provides an opportunity to build on cranberry's anti-inflammatory properties and support the treatment of periodontitis.

BODET, C.; CHANDAD, F.; GRÉNIER, D. CRANBERRY COMPONENTS INHIBIT INTERLEUKIN-6, INTERLEUKIN-9 AND PROSTAGLANDIN E2 PRODUCTION BY LIPOPOLYSACCHARIDE-ACTIVATED GINGIVAL FIBROBLASTS. EUROPEAN JOURNAL OF ORAL SCIENCE 2007, 115, 64-70.

## MARCH 2005 – HELICOBACTER

This clinical study found daily consumption of cranberry juice suppressed *H. pylori* infection in the participants studied. The authors conclude this study suggests that regular consumption of cranberry juice may retard *H. pylori* infection in adults. Drinking cranberry juice daily may be a promising new tool in the worldwide management of this infection.

ZHANG L, MA J, PAN K, GO V, CHEN J, YOU W. EFFICACY OF CRANBERRY JUICE ON HELICOBACTER PYLORI INFECTION: A DOUBLE-BLIND, RANDOMIZED PLACEBO-CONTROLLED TRIAL. HELICOBACTER 2005; 10:139-145.

## JUNE 2005 - AMERICAN SOCIETY FOR MICROBIOLOGY'S 105TH GENERAL MEETING

New research presented at the American Society for Microbiology's 105th General Meeting suggests Cranberry Classic may also work against gastrointestinal viruses. Laboratory research on animals showed that Cranberry Classic prevented the SA-11 virus from attaching to red blood cells or infecting host cells. Research is needed to determine any beneficial effects that Cranberry Classic may have on reducing the incidence of viral intestinal disease in humans.

COHEN P. AND LIPSON S. MECHANISM(S) OF INACTIVATION BY THE AMERICAN CRANBERRY (VACCINIUM MACROCARPON) OF MAMMALIAN ENTERIC VIRUSES. AMERICAN SOCIETY FOR MICROBIOLOGY'S 105TH GENERAL MEETING JUNE 5-9, 2005, ATLANTA, GEORGIA.

# STOMACH

# HEART



## MAY 1998 – LIFE SCIENCES

Early results from an in vitro study from the University of Wisconsin-LaCrosse suggest cranberry juice might promote cardiovascular health. In the study, cranberry juice proved to be an effective antioxidant, preventing LDL cholesterol from becoming oxidized. Oxidation of LDL cholesterol is believed to contribute to atherosclerosis.

WILSON T, PORCARI JP, HARBIN D. CRANBERRY EXTRACT INHIBITS LOW DENSITY LIPOPROTEIN OXIDATION. LIFE SCIENCES 1998; 62(24):381-386.

## SEPTEMBER 2000 – JOURNAL OF MEDICINAL FOOD

This in vitro study found that compounds in cranberry juice have a beneficial effect on the cardiovascular system similar to compounds in red wine. Additionally, this study found that cranberry juice reduced the blood pressure in the rats studied. The authors note this study suggests that regular consumption of cranberry juice may have a beneficial effect on the cardiovascular system, similar to red wine.

MAHER MA, MATACZYNSKI H, STEFANIAK HM, WILSON T. CRANBERRY JUICE INDUCES NITRIC OXIDE-DEPENDENT VASODILATION IN VITRO AND ITS INFUSION TRANSIENTLY REDUCES BLOOD PRESSURE IN ANESTHETIZED RATS. JOURNAL OF MEDICINAL FOOD 2000; 3:141-147.

## NOVEMBER 2001 – JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE

Researchers at the University of Wisconsin-Madison tested a series of cranberry flavonoid fractions in vitro and find that some of them prevent LDL oxidation. Of the fractions tested, the cranberry proanthocyanidin fraction was most effective in protecting the LDL from oxidation.

PORTER ML, KRUEGER CG, WIEBE DA, CUNNINGHAM DG, REED JD. CRANBERRY PROANTHOCYANIDINS ASSOCIATE WITH LOW-DENSITY LIPOPROTEIN AND INHIBIT IN VITRO CU<sup>2+</sup>-INDUCED OXIDATION. JOURNAL OF THE SCIENCE OF FOOD AND AGRICULTURE 2001; 81:1306-1313.

## AUGUST 2004 – AMERICAN CHEMICAL SOCIETY NATIONAL MEETING

This in vitro study conducted at the William Harvey Research Institute in England suggests that a serving of Cranberry Classic each day could be as good for the heart as red wine. Scientists tested Cranberry Classic, Cranberry Classic Light, a California merlot and an Argentine cabernet sauvignon and found similar results for promoting healthy arteries among all of these beverages.

CORDER R. ANTI-ATHEROSCLEROTIC POTENTIAL OF CRANBERRY JUICE AND RED WINE: COMPARABLE INHIBITION OF ENDOTHELIN-1 SYNTHESIS BY CULTURED ENDOTHELIAL CELLS. AMERICAN CHEMICAL SOCIETY NATIONAL MEETING 2004.

## AUGUST 2005 – LIFE SCIENCES

Researchers at Cornell University report that 100 grams of cranberries is equivalent to 1000 mg vitamin C or 3700 mg vitamin E for inhibiting LDL oxidation. These researchers also found that cranberries promoted the uptake of cholesterol in liver cells in culture. These findings suggest that cranberry has similar antioxidant potential as 1000 mg vitamin C and also has specific effects on liver to promote removal of cholesterol from the blood.

CHU Y-F, LIU RH. CRANBERRIES INHIBIT LDL OXIDATION AND INDUCE LDL RECEPTOR EXPRESSION IN HEPATOCYTES. LIFE SCIENCES 2005;77(15):1892-1901.

## AUGUST 2006 – BRITISH JOURNAL OF NUTRITION

A clinical study conducted at Laval University in Quebec City, Canada indicated that consuming a daily glass of light cranberry juice drink improved circulation by increasing the level of HDL, or good cholesterol found in the bloodstream. Thirty men with slightly elevated LDL cholesterol levels consumed increasing daily doses of light cranberry juice cocktail. A 8.6 percent increase of HDL cholesterol levels were found among participants studied.

RUEL G, POMERLEAU S, COUTURE P, LEMIEUX S, LAMARCHE B, COUILLARD C. FAVOURABLE IMPACT OF LOW-CALORIE CRANBERRY JUICE CONSUMPTION ON PLASMA HDL-CHOLESTEROL CONCENTRATIONS IN MEN. BRITISH JOURNAL OF NUTRITION 2006;96:357-364.

# CANCER

## JANUARY 2007 – JOURNAL OF NUTRITION

A comprehensive compilation of the anticancer properties of cranberry that reviews the in vitro studies in tumor models showing effects of cranberry constituents on inhibiting growth of breast, colon, prostate, lung, and other tumors. The several ways cranberry may inhibit cancer cell growth include inducing the cells to die and reducing the ability of the cells to invade surrounding tissues. The findings suggest cranberry has a potential role as a dietary chemopreventive agent.

NETO CC. CRANBERRY AND ITS PHYTOCHEMICALS: A REVIEW OF IN VITRO ANTICANCER STUDIES. JOURNAL OF NUTRITION 2007;137(1 SUPPL):186S-193S.

# antioxid

# ANTIOXIDANT

## NOVEMBER 2001 – JOURNAL OF AGRICULTURE AND FOOD CHEMISTRY

This study found that cranberries, compared to other fruits, appear to have a high level of antioxidants. On a fresh weight basis, cranberry had the highest concentration of polyphenols of the 20 fruits tested in the study, as well as the highest concentration of free phenols among these fruits.

VINSON JA, SU X, ZUBIK L, BOSE P. PHENOL ANTIOXIDANT QUANTITY AND QUALITY IN FOODS: FRUITS. JOURNAL OF AGRICULTURE AND FOOD CHEMISTRY 2001; 49:5315-5321.

## DECEMBER 2002 – JOURNAL OF AGRICULTURAL FOOD CHEMISTRY

This study found cranberry to have the highest total phenolic content and highest total antioxidant activity compared to all other common fruits studied. The authors note phytochemicals, especially phenolics in fruits and vegetables are thought to be the primary bioactive compounds for the health benefits.

SUN J, CHU YG, WU X LIU RH. ANTIOXIDANT AND ANTIPROLIFERATIVE ACTIVITIES OF COMMON FRUITS. JOURNAL OF AGRICULTURAL FOOD CHEMISTRY 2002; 50:7449-7454.

## MARCH 2004 – JOURNAL OF NUTRITION

This study looked at the proanthocyanidin (PAC) content found in common foods in the U.S. food supply and the average daily intake of PACs in the U.S. population. This study found apples, chocolate and grapes to be the major sources of PACs in the diet, and that men aged 60+ years of age and children 2-5 years of age consume more PACs daily than other Americans because they eat more fruit. This study supports the idea that PACs are a major part of the total flavonoids consumed in Western diets.

GU L, KELM M, HAMMERSTONE J, BEECHER G, HOLDEN J, DAYTOWITZ D, GEBHARDT S, PRIOR R. CONCENTRATIONS OF PROANTHOCYANIDINS IN COMMON FOODS AND ESTIMATIONS OF NORMAL CONSUMPTION. JOURNAL OF NUTRITION 2004; 134:613-617.

## JUNE 2004 – JOURNAL OF AGRICULTURAL FOOD CHEMISTRY

This study looked at the total antioxidant capacity (TAC) per gram of 100 common foods. Researchers found that cranberries have the highest TAC per gram compared to all other fruits studied. Cranberries had a TAC of almost 95 per gram followed by wild blueberries (93), black plums (73), plums (62) and cultivated blueberries (62).

WU X, BEECHER GR, HOLDEN JM, HAYTOWITZ D, GEBHARDT S, PRIOR R. LIPOPHILIC AND HYDROPHILIC ANTIOXIDANT CAPACITIES OF COMMON FOODS IN THE UNITED STATES. JOURNAL OF AGRICULTURAL FOOD CHEMISTRY 2004; 52:4026-4037.

## AUGUST 2004 – USDA DATABASE FOR THE PROANTHOCYANIDIN CONTENT OF SELECTED FOODS

This study looked at the concentration of total proanthocyanidins in common foods. Researchers found that cranberries have the highest concentration of total PACs per gram compared to all other fruits studied. Cranberries had a 418.8 mg/100g followed by wild blueberry (331.9), plum (215.9), cultivated blueberry (179.8) and strawberry (145.0).

U.S. DEPARTMENT OF AGRICULTURE, AGRICULTURAL RESEARCH SERVICE. USDA DATABASE FOR THE PROANTHOCYANIDIN CONTENT OF SELECTED FOODS 2004.

## JULY 2006 – BIOSCIENCE BIOTECHNOLOGY BIOCHEMISTRY

A clinical study at Okayama University in Japan, looked at the urinary excretion of anthocyanins after drinking 200 ml of cranberry juice. Researchers found that in urine excreted 3 to 6 hours after drinking, substantial amounts of cranberry anthocyanins were present indicating a high level of absorption and metabolism. Anthocyanins have been shown to have significant antioxidant activity, and with sufficient absorption anthocyanins have the potential to exert a number of health benefits.

ONISHI R, ET AL. URINARY EXCRETION OF ANTHOCYANINS IN HUMANS AFTER CRANBERRY JUICE INGESTION. BIOSCIENCE BIOTECHNOLOGY BIOCHEMISTRY. 2006; 70(7):1681-7.

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