### Nutrition suggestions for prostate cancer patients.

The below suggestions is a compendium of information taken from currently available scientific studies on the influence of the different nutrition on prostate cancer patients. Some products seems to lower the risk of development or progression of the disease and some increase this risk.

### Products decreasing the risk:

### **Tomatoes**



In a series of studies tomato juice, sauce, paste taken everyday has found to be significantly suppressing prostate cancer cell growth. Some studies showed also drop of the PSA level. This effect is most probably caused by powerful antioxidant - substance called lycopene and other carotenoids<sup>1</sup> contained in tomato.

### Plant-based high fibre diet



Multiple studies also show possible risk decreasing effect - slow down or even reverse of the progression of prostate cancer cell growth with the increased intake of whole grains, vegetables (especially cruciferous<sup>2</sup>), fruit, beans, seeds, legumes, nuts, peas, raisin, dates. Generally, the more consistent and disciplined was change of diet, the stronger improvements in health conditions occurred.

### Soy products



Soy milk and diet rich in soy products was studied buy numerous scientists in the environments naturally consuming them more then in western diet (Japanese and other Asian countries, Adventists community). The results show very significant reduction of the prostate cancer development risk. Phytoestrogens<sup>3</sup> in soy, slow down prostate cancer cell grow and their spread to the other organs - metastasis.



### Green Tea

Different studies also confirmed efficiency of the high (about 6 cups a day) consumption of the green tea in stopping prostate cancer from developing. Black tee did not show any similar effect.

#### Fish



Traditional Japanese diet is rich in fish and that has also shown to decrease prostate cancer risk in some men. Long term population based studies suggest that men, who eat fish more than 3 times a week can lower the risk of developing and progressing of prostate cancer or prostate cancer related mortality.

#### Pomegranate



Studies done in lab and on mouses had shown significant slowdown in prostate cancer cells growth together with strong drop down of the PSA levels when human prostatectomy cancer cells where treated with pomegranate juice extract. The suggestion out of those studies is, that pomegranate mighty have therapeutic effect on prostate cancer in people.



### Fruit, fructose

High fructose intake in some studies was related to a lower risk of advanced prostate cancer.



### Supplemental and Dietary Selenium Se

Some trials showed reduction of the prostate cancer risk among men, who had initial low selenium blood level. Other study showed that Se supplementation may increase the destruction of the prostate cancer cells. Especially beneficial was dietary selenium.

### **Dietary Omega3 Fatty Acids**



Protective effect of the dietary Omega 3 was noticed by serious of the studies.

### Products, that might increase the risk:

#### Meat



According to some studies very well done meat consumption increase the risk of prostate cancer. For the increased risk of the diets high in animal fat might be responsible arachidonic acid - an omega-6 fatty acid common in the Western diet. Some studies although show no relation between meat consumption and prostate cancer risk.

#### **Diary products and Calcium**



Some studies has shown a possible prostate cancer risk increase with the consumption of diary products and milk. 5 and more servings a week (high intake) had shown an increased risk of developing a prostate cancer, compared to 1 and less serving. Also Calcium from dairy products and supplements was positively associated with risk, but not calcium from other foods. Although there are studies that show risk connected to calcium intake but not the diary products.



#### Supplemental Vitamin E

Large trial on over 35 thousand men shower significant prostate cancer risk increase with the supplementation of vitamin E, however, the other studies showed reduced risk of prostate cancer among SMOKERS, who were supplemented with vitamin E. Other large and long term study showed no influence of the vitamin E and C supplementation on prostate cancer risk rate.

# Pomegranate fruit juice for chemoprevention and chemotherapy of prostate cancer

Arshi Malik, Farrukh Afaq, Sami Sarfaraz, Vaqar M. Adhami, Deeba N. Syed, and Hasan Mukhtar, PNAS October 11, 2005 102 (41) 14813-14818; https://doi.org/ 10.1073/pnas.0505870102

#### Pomegranate Extracts Potently Suppress Proliferation, Xenograft Growth, and Invasion of Human Prostate Cancer Cells

Martin Albrecht, Wenguo Jiang, James Kumi-Diaka, Ephraim P. Lansky, Lyndon M. Gommersall, Amit Patel, Robert E. Mansel, Ishak Neeman, Albert A. Geldof, and

Moray J. Campbell, Published Online:24 Sep 2004https://doi.org/10.1089/jmf. 2004.7.274

#### Prostate cancer prevention through pomegranate fruit

(PMID:16479165), Malik A, Mukhtar H, Cell Cycle (Georgetown, Tex.) [15 Feb 2006, 5(4):371-373], Type: Journal Article DOI: 10.4161/cc.5.4.2486

#### Pomegranate Ellagitannin-Derived Metabolites Inhibit Prostate Cancer Growth and Localize to the Mouse Prostate Gland

Navindra P. Seeram<sup>\*</sup>, William J. Aronson, Yanjun Zhang, Susanne M. Henning, Aune Moro, Ru-po Lee, Maryam Sartippour, Diane M. Harris, Matthew Rettig, Marc A. Suchard//Allan J. Pantuck, Arie Belldegrun, David Heber

#### Fatty fish consumption and risk of prostate cancer A Prospective Study of Intake of Fish and Marine Fatty Acids and Prostate Cancer

Katarina Augustsson, Dominique S. Michaud, Eric B. Rimm, Michael F. Leitzmann, Meir J. Stampfer, Walter C. Willett and Edward Giovannucci, Published January 2003

**Fish consumption and prostate cancer risk: a review and meta-analysis** Konrad M Szymanski, David C Wheeler, Lorelei A Mucci, The American Journal of Clinical Nutrition, Volume 92, Issue 5, November 2010, Pages 1223- 1233,

## Modulation of omega-3/omega-6 polyunsaturated ratios with dietary fish oils in men with prostate cancer

William J Aronsona,\*correspondence, John A Glaspyb, Srinivasa T Reddyc, David Reesed, David Hebere, Dilprit Baggab

#### Meat and Meat Mutagens and Risk of Prostate Cancer in the Agricultural Health Study

Stella Koutros, Amanda J. Cross, Dale P. Sandler, Jane A. Hoppin, Xiaomei Ma, Tongzhang Zheng, Michael C.R. Alavanja and Rashmi Sinha

#### Meat and Meat-related Compounds and Risk of Prostate Cancer in a Large

**Prospective Cohort Study in the United States**, Rashmi Sinha, Yikyung Park, Barry I. Graubard, Michael F. Leitzmann, Albert Hollenbeck, Arthur Schatzkin, Amanda J. Cross, American Journal of Epidemiology, Volume 170, Issue 9, 1 November 2009, Pages 1165-1177

# Meat Consumption, Cooking Practices, Meat Mutagens, and Risk of Prostate Cancer

Esther M. John, Mariana C. Stern, Rashmi Sinha & Jocelyn Koo (2011)Nutrition and Cancer, 63:4, 525-537, DOI: 10.1080/01635581.2011.53931

# Meat and dairy consumption and subsequent risk of prostate cancer in a US cohort study

Sabine RohrmannElizabeth A. PlatzEmail authorClaudine J. KavanaughLucy ThuitaSandra C. HoffmanKathy J. Helzlsouer

**Prospective Studies of Dairy Product and Calcium Intakes and Prostate Cancer** Xiang Gao, Michael P. LaValley, Katherine L. Tuckerisk: A Meta-Analysis, JNCI: Journal of the National Cancer Institute, Volume 97, Issue 23, 7 December 2005, Pages 1768- 1777,

**Dietary fat intake and prostate cancer risk: a case-control study in Spain** Ramon, J.M., Bou, R., Romea, S. et al. Cancer Causes Control (2000) 11: 679.

### Dairy products, calcium, and prostate cancer risk in the Physicians' Health Study,

June M Chan, Meir J Stampfer, Jing Ma, Peter H Gann, J Michael Gaziano, Edward L Giovannucci, The American Journal of Clinical Nutrition, Volume 74, Issue 4, October 2001, Pages 549- 554,

#### Animal foods, protein, calcium and prostate cancer risk: the European Prospective Investigation into Cancer and Nutrition

N E Allen, TJ Key, E Roboli, British Journal of Cancer volume 98, pages1574-1581 (06 May 2008)

# Dairy products, calcium, and prostate cancer risk: a systematic review and meta-analysis of cohort studies

Dagfinn Aune, Deborah A Navarro Rosenblatt, Doris SM Chan, Ana Rita Vieira, Rui Vieira, Darren C Greenwood, Lars J Vatten, Teresa Norat, The American Journal of Clinical Nutrition, Volume 101, Issue 1, January 2015, Pages 87-117, https://doi.org/10.3945/ajcn.113.067157

# Calcium, Diary Products and Risk of Prostate Cancer in a Prospective Cohort of United States Men

Carmen Rodriguez, Marjorie L. McCullough, Alison M. Mondul, Eric J. Jacobs, Dorna Fakhrabadi-Shokoohi, Edward L. Giovannucci, Michael J. Thun and Eugenia E. Calle

#### Fruit and Vegetable Intakes and Prostate Cancer Risk

Jennifer H. Cohen, Alan R. Kristal, Janet L. Stanford, JNCI: Journal of the National Cancer Institute, Volume 92, Issue 1, 5 January 2000, Pages 61-68, https://doi.org/10.1093/jnci/92.1.61

## Vegetables, Fruits, Legumes and Prostate Cancer: A Multiethnic Case-Control Study

Laurence N. Kolonel, Jean H. Hankin, Alice S. Whittemore, Anna H. Wu, Richard P. Gallagher, Lynne R. Wilkens, Esther M. John, Geoffrey R. Howe, Darlene M. Dreon, Dee W. West and Ralph S. Paffenbarger J.

#### Vitamin E and the Risk of Prostate Cancer

The Selenium and Vitamin E Cancer Prevention Trial (SELECT)

Eric A. Klein, MD; Ian M. Thompson, MD; Catherine M. Tangen, DrPH; JAMA. 2011;306(14):1549-1556. doi:10.1001/jama.2011.1437

#### Vitamins E and C in the Prevention of Prostate and Total Cancer in Men The Physicians' Health Study II Randomized Controlled Trial

Susanne Rautiainen, PhD; J. Michael Gaziano, MD, MPH; William G. Christen, ScD; Vadim Bubes, PhD; Gregory Kotler, PhD; Robert J. Glynn, ScD; JoAnn E. Manson, MD, DrPH; Julie E. Buring, ScD; Howard D. Sesso, ScD, MPH

# Supplemental and Dietary Vitamin E, B-Carotene, and Vitamin C Intakes and Prostate Cancer Risk

Victoria A. Kirsh, Richard B. Hayes, Susan T. Mayne, Nilanjan Chatterjee, Amy F. Subar, L. Beth Dixon, Demetrius Albanes, Gerald L. Andriole, Donald A. Urban, Ulrike Peters On behalf of the PLCO Trial

JNCI: Journal of the National Cancer Institute, Volume 98, Issue 4, 15 February 2006, Pages 245-254, https://doi.org/10.1093/jnci/djj050

#### Status of selenium in prostate cancer prevention

Combs, G. Br J Cancer 91, 195-199 (2004) doi:10.1038/sj.bjc.6601974

# Dietary Omega-3 Fatty Acids, Cyclooxygenase-2 Genetic Variation, and Aggressive Prostate Cancer Risk

Vincent Fradet, Iona Cheng, Graham Casey and John S. Witte DOI: 10.1158/1078-0432.CCR-08-2503 Published April 2009

#### Omega-3 Fatty Acids and PPAR in Cancer

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## Pomegranate fruit juice for chemoprevention and chemotherapy of prostate cancer

Arshi Malik, Farrukh Afaq, Sami Sarfaraz, Vaqar M. Adhami, Deeba N. Syed, and Hasan Mukhtar, PNAS October 11, 2005 102 (41) 14813-14818; https://doi.org/ 10.1073/pnas.0505870102

# Plant Foods, Antioxidants, and Prostate Cancer Risk: Findings From Case-Control Studies in Canada

Meera G. Jain , Gregory T. Hislop , Geoffrey R. Howe & Parviz Ghadirian Pages 173-184 | Published online: 18 Nov 2009Download citation https://doi.org/ 10.1207/S15327914NC3402\_8

#### Soy consumption and prostate cancer risk in men: a revisit of a meta-analysis Lin Yan, Edward L Spitznagel

*The American Journal of Clinical Nutrition*, Volume 89, Issue 4, April 2009, Pages 1155–1163, https://doi.org/10.3945/ajcn.2008.27029

#### Calcium and Fructose Intake in Relation to Risk of Prostate Cancer

Edward Giovannucci, Eric B. Rimm, Alicja Wolk, Alberto Ascherio, Meir J. Stampfer, Graham A. Colditz and Walter C. Willett Published February 1998

#### Fruit and Vegetable Intakes and Prostate Cancer Risk

Jennifer H. Cohen, Alan R. Kristal, Janet L. Stanford JNCI: Journal of the National Cancer Institute, Volume 92, Issue 1, 5 January 2000, Pages 61–68, https://doi.org/10.1093/jnci/92.1.61

#### The role of diet in prostate cancer

Lalita Kaul , Martin Y. Heshmat , Joseph Kovi , Marvin A. Jackson , Aaron G. Jackson George W. Jones , Mitchell Edson , John P. Enterline , Roger G. Worrell & Sophie L. Perry, Nutrition and Cancer, Volume 9, 1987 - Issue 2-3

#### Case-control study of diet and prostate cancer in China

Marion M. Lee Run-Tian Wang Ann W. Hsing Fung-Liu Gu Tao Wang Margaret Spitz

#### Diet and prostate cancer

Tomoyuki Shirai Makoto Asamoto SatoruTakahashi Katsumi Imaida https://doi.org/10.1016/S0300-483X(02)00260-3

## A case-control study of diet and prostate cancer in Japan: possible protective effect of traditional Japanese diet

Tomoko Sonoda Yoshie Nagata Mitsuru Mori Naoto Miyanaga ... First published: 19 August 2005 https://doi.org/10.1111/j.1349-7006.2004.tb02209.x

#### Impact of diet on prostate cancer: a review

G A Sonn, W Aronson & M S Litwin Prostate Cancer and Prostatic Diseases volume 8, pages 304–310 (2005)

#### Oxidative DNA damage in prostate cancer patients consuming tomato saucebased entrees as a whole-food intervention

Chen L, Stacewicz-Sapuntzakis M, Duncan C, Sharifi R, Ghosh L, van Breemen R, Ashton D, Bowen PE.. J Natl Cancer Inst. 2001 Dec 19;93(24):1872-9.

#### Arachidonic acid stimulates prostate cancer cell growth: critical role of 5lipoxygenase

Ghosh J, Myers CE.. Biochem Biophys Res Commun. 1997 Jun 18;235(2):418-23.

### Potential attenuation of disease progression in recurrent prostate cancer with plant-based diet and stress reduction

Saxe GA, Major JM, Nguyen JY, Freeman KM, Downs TM, Salem CE.. Integr Cancer Ther. 2006 Sep;5(3):206-13.

#### Intensive lifestyle changes may affect the progression of prostate cancer.

Ornish D, Weidner G, Fair WR, Marlin R, Pettengill EB, Raisin CJ, Dunn-Emke S, Crutchfield L, Jacobs FN, Barnard RJ, Aronson WJ, McCormac P, McKnight DJ, Fein

JD, Dnistrian AM, Weinstein J, Ngo TH, Mendell NR, Carroll PR. J Urol. 2005 Sep; 174(3):1065-9; discussion 1069-70.

Can diet in conjunction with stress reduction affect the rate of increase in prostate specific antigen after biochemical recurrence of prostate cancer? Saxe GA, Hébert JR, Carmody JF, Kabat-Zinn J, Rosenzweig PH, Jarzobski D, Reed GW, Blute RD. J Urol. 2001 Dec;166(6):2202-7.

Prospective studies of dairy product and calcium intakes and prostate cancer risk: a meta-analysis.

### Randomized, Placebo-Controlled Trial of Green Tea Catechins for Prostate Cancer Prevention

Kumar NB, Pow-Sang J, Egan KM, Spiess PE, Dickinson S, Salup R, Helal M, McLarty J, Williams CR, Schreiber F, Parnes HL, Sebti S, Kazi A, Kang L, Quinn G, Smith T, Yue B, Diaz K, Chornokur G, Crocker T, Schell MJ.. Cancer Prev Res (Phila). 2015 Oct;8(10):

**Green tea and prostate cancer: from bench to clinic.** Pandey M, et al. Front Biosci (Elite Ed). 2009.

**Cohort study of diet, lifestyle, and prostate cancer in adventist men.** Mills, P. K., Beeson, W. L., Phillips, R. L. and Fraser, G. E. (1989), Cancer, 64: 598-604. doi:10.1002/1097-0142(19890801)64:3<598::AID-CNCR2820640306>3.0.CO;2-6

Role of Diet in Prostate Cancer Development and Progression June M. Chan, Peter H. Gann, and Edward L. Giovannucci

Journal of Clinical Oncology 2005 23:32, 8152-8160

#### www.NutritionFacts.org

#### Images used are courtesy of pixabay.com

<sup>1</sup> "Carotenoids are pigments in plants, algae, and photosynthetic bacteria. These pigments produce the bright yellow, red, and orange colors in plants, vegetables, and fruits. Carotenoids act as a type of antioxidant for humans.

<sup>2</sup> cauliflower, cabbage, garden cress, bok choy, broccoli, Brussels sprouts and similar green leaf vegetables

<sup>3</sup> "Phytoestrogens are compounds that naturally occur in plants. They're also found in a wide range of plant foods. If you eat fruits, veggies, legumes, and some grains, you get phytoestrogens from your diet. A plant-based diet is very rich in natural phytoestrogens in healthy amounts, especially from soy."