Diet and Lifestyle Interventions to Help Lower the Risk of Developing Lethal Cancers

A Guide to Lower *OneTest* (Premium)* Biomarker Levels:

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OneTest Biomarker	Studies Correlating Diet and Exercise Interventions w/ Lowering Biomarker Levels	Studies CorrelatingDiet and Exercise Interventions w/ Improved Cancer Outcomes
PSA	Prostate cancer patients randomized to a **plant-based diet** centered around **fruits, vegetables, whole grains, and beans,** plus daily walking for 30 minutes, saw decreases in PSA levels.[1]	Among prostate cancer patients, those eating a plant-based diet w/ exercise required far fewer prostatectomies.[2] Diets rich in total health plant foods and raw vegetables may protect against prostate cancer.[3]
	Tomato sauce consumption decreases PSA levels (and DNA damage in prostate tissue.)[4] High intake of plant foods, especially **tomato products** may lower PSA levels	Dietary intake of plant foods, especially lycopene (from tomato products) associated with reduced risk of lethal prostate cancer.[5]
	Flaxseeds eaten daily cause a significant decrease in PSA levels.[6]	Flaxseed is associated with biological alterations that may be protective for prostate cancer.[7]

**** OneTest for Cancer (Premium Version) is a multi-cancer early detection (MCED) blood test that measures the following Tumor Markers: CEA, CA125, CA 19-9, AFP, CYFRA 21-1, HE4, and PSA and Inflammatory Disease Markers: CRP, ApoA1, Prealbumin, and β2-Microglobulin. This test includes AI powered algorithms to predict cancer risk, based on results from previously tested individuals.***

[1] Ornish, et al. "Intensive lifestyle changes may affect the progression of prostate cancer" *J Urol* . 2005 Sep;174(3):1065-9

[2] Ornish, et al. "Clinical events in prostate cancer lifestyle trial: results from two years of follow-up" *Urology* . 2008 Dec;72(6):1319-23

[3] "Healthy Plant Foods Intake Could Protect Against Prostate Cancer Risk: A Case-Control Study" *Asian Pac J Cancer Prev* . 2017 Jul 27;18(7):1905-1912

[4] "Tomato sauce supplementation and prostate cancer: lycopene accumulation and modulation of biomarkers of carcinogenesis" *Exp Biol Med* (Maywood) . 2002 Nov;227(10):886-93

[5] "Dietary Lycopene, Angiogenesis, and Prostate Cancer: A Prospective Study in the Prostate-Specific Antigen Era" J Natl Cancer Inst. 2014 Feb;106(2

"Adherence to dietary and lifestyle recommendations and prostate cancer risk in the prostate testing for cancer and treatment (ProtecT) trial," *Cancer Epidemiol Biomarkers Prev.* 2014 Oct;23(10):2066-77.

[6] "Pilot study to explore effects of low-fat, flaxseed-supplemented diet on proliferation of benign prostatic epithelium and prostate-specific antigen" *Urology* . 2004 May;63(5):900-4

[7] "Flaxseed supplementation (not dietary fat restriction) reduces prostate cancer proliferation rates in men presurgery" *Cancer Epidemiol Biomarkers Prev* . 2008 Dec;17(12):3577-8

	Intake of **potatoes and seasoning** is correlated with decreases in PSA levels[8]	The American Institute for Cancer Research (AICR) recommends potatoes with skin (but not French fries).[9]
CEA	**Exercise** (2-3 days per week) decreases CEA levels in elderly women[10]	There is strong evidence that higher levels of physical activity are linked to lower risk of several types of cancer according to the National Cancer Institute. [11]
	Onions consumed daily over 8 weeks significantly decreased CEA and CA125 levels in the blood of women with breast cancer.[12]	A large data set from southern European populations shows an inverse association between the frequency of use of onions and garlic and the risk of several common cancers (colorectal, ovarian, breast,etc.and prostate cancer in men.)[13]
	Vitamin D and omega-3 fatty acid supplements significantly decreases CEA levels in colorectal cancer patients[14]	Vitamin D daily supplements may reduce likelihood of advanced (metastatic) cancer.[15] Fatty fish (salmon, tuna, etc.) are rich in vitamin D and omega-3s and may reduce cancer risk. Nuts and flaxseeds are good plant sources of omega-3s and mushrooms of vitamin D, and have each independently been shown to be anti-cancer. [16] [17]
	Intake of **vegetables** and **seasoning** is correlated with **decrease** of CEA in women.[18]	Numerous studies have documented the antioxidant, anti-inflammatory and immunomodulatory effects of spices, which might be related to prevention and treatment of several cancers.[19]
	Intake of **sugars & sweeteners** is correlated with **increase** of CEA in women.[20]	The Sugar and Cancer Connection - American Institute for Cancer Research (aicr.org)
CA 125	**Meat** intake correlates with **higher levels of CA125**, a biomarker of gynecologic cancers, in women[21]	Does Eating Less Meat Reduce Your Risk of Cancer? A New Study Adds Nuances to the Picture - American Institute for Cancer Research (aicr.org)

[8] "Relationship Between Serum Tumor-related Markers and Dietary Intakes in Korean Healthy Adults" *Clin Nutr Res* 2018 Jul;7(3):161-169

[9] Potatoes: Bad Guys or Cancer-Fighters? - American Institute for Cancer Research % (aicr.org)

[10] "Proper Exercise Decreases Plasma Carcinoembryonic Antigen Levels with the Improvement of Body Condition in Elderly Women" *Tohoku J. Exp. Med.,* 2014, 233, 17-23

[11] Physical Activity and Cancer Fact Sheet - NCI

[12] "Effects of Fresh Yellow Onion Consumption on CEA, CA125 and Hepatic Enzymes in Breast Cancer Patients: A Double- Blind Randomized Controlled Clinical Trial." *Asian Pacific Journal of Cancer Prevention* 16(17):7517-22

[13] "Onion and garlic use and human cancer" *Am J Clin Nutr.* 2006 Nov;84(5):1027-32

[14] "Effects of Vitamin D and Omega-3 Fatty Acids Co-Supplementation on Inflammatory Factors and Tumor Marker CEA in Colorectal Cancer Patients Undergoing Chemotherapy: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial" *Nutr Cancer.* 2020;72(6):948-958

[15] Vitamin D supplements linked to lower risk of advanced cancer - Harvard Health

[16] Fish and Cancer Risk: 4 Things You Need to Know - American Institute for Cancer Research (aicr.org)

[17] Current Uses of Mushrooms in Cancer Treatment and Their Anticancer Mechanisms - PMC (nih.gov)

[18] "Relationship Between Serum Tumor-related Markers and Dietary Intakes in Korean Healthy Adults" *Clin Nutr Res* 2018 Jul;7(3):161-169

[19] "Spices for Prevention and Treatment of Cancers" *Nutrients.* 2016 Aug; 8(8): 495

[20] "Relationship Between Serum Tumor-related Markers and Dietary Intakes in Korean Healthy Adults" *Clin Nutr Res* 2018 Jul;7(3):161-169

[21] "Relationship Between Serum Tumor-related Markers and Dietary Intakes in Korean Healthy Adults" *Clin Nutr Res* 2018 Jul;7(3):161-169

	Onions consumed daily over 8 weeks significantly **decreased CEA** and CA125 levels in the blood of women with breast cancer.[22]	Inverse association between the frequency of use of onions and garlic and the risk of several common cancers[23]
CRP	Each daily serving of **whole grains lowers CRP (C-Reactive Protein)** levels by about 7 percent.[24]	See Foods That Fight Cancer - American Institute for Cancer Research (aicr.org)
	A diet high in **dark green leafy vegetables decreases CRP** levels.[25]	
	Sweet cherry consumption over 28 days **decreases circulating CRP** concentrations by 25%[26]	
	Fish consumption is associated with **lower CRP** levels among healthy adults.[27]	See Fish and Cancer Risk: 4 Things You Need to Know - American Institute for Cancer Research (aicr.org)

[22] See note above re. yellow onions

[23] "Onion and garlic use and human cancer" *Am J Clin Nutr.* 2006 Nov;84(5):1027-32

[24] "Effect of whole grains on markers of subclinical inflammation" *Nutr Rev.* 2012 Jul;70(7):387-96

[25] "Rising Plasma Beta-Carotene Is Associated With Diminishing C-Reactive Protein in Patients Consuming a Dark Green Leafy Vegetable–Rich, Low Inflammatory Foods Everyday (LIFE) Diet" *Am J Lifestyle Med.* 2021 Nov-Dec; 15(6): 634–643

[26] "Consumption of Bing sweet cherries lowers circulating concentrations of inflammation markers in healthy men and women" *J Nutr* . 2006 Apr;136(4):981-6.

[27] "Fish Consumption Among Healthy Adults Is Associated with Decreased Levels of Inflammatory Markers Related to Cardiovascular Disease" *J Am Coll Cardiol.* 2005 Jul, 46 (1) 120–124