

Advancements in prostate cancer research provide hope for finding a cure and lead to the discovery of new treatments to minimize the impact of a man's prostate cancer and maximize his quality of life. This regular *Hot SHEET* supplement includes some of the latest research from the Prostate Cancer Foundation (www.pcf.org).

Broccoli and Prostate Cancer: What's the Connection?

If you've been reading about prostate cancer for a while, you have probably heard that broccoli is good for your prostate. Let's dive into the science behind this thinking.

This is a good time to review some of the different types of scientific studies used in making recommendations for patients. We've got "preclinical" studies, or experiments in a lab with cell lines or animals. These studies can give us a sense of how (say) a chemical in broccoli affects prostate cancer cells in a test tube. Observational, or epidemiologic studies, follow large groups of people for many years and try to associate behaviors or exposures with health outcomes. The relevant example here is consumption of broccoli and development of prostate cancer, or, for patients diagnosed with prostate cancer, recurrence of the disease. Then we have interventional studies, where patients agree to take a specific medicine, or even to eat a food (broccoli!), and be followed over time to see what happens. There are limitations to each of these types of studies; you can read more about the "science of science" on www.pcf.org.

Why study broccoli and prostate cancer? Broccoli, as a cruciferous vegetable, is a rich source of natural plant chemicals called glucoraphanins, which are converted to isothiocyanates in the body. They've been shown in preclinical studies to help rid the body of cancer-causing toxins, interrupt pathways that cause inflammation, and act as antioxidants to protect cells and DNA from damage caused by free radicals.

So, that sounds promising! What do we see when we observe large groups of men over time? Some studies suggest that men who ate cruciferous vegetables were at lower risk of developing prostate cancer. There are lots of reasons to recommend a diet high in plant-based foods like crucifers. Men with prostate cancer are at risk for heart disease, based on their age and gender. Men on hormone therapy for prostate cancer are at risk for weight gain, which further increases their risk of heart disease. And there is strong observational evidence that a plant-based diet, including broccoli, decreases heart disease. Should you eat broccoli along with other plant foods to reduce your risk of death from heart disease? Absolutely!

Last, we've got the "gold standard" of intervention trials. One interesting study (<https://academic.oup.com/ajcn/article/109/4/1133/5455624>), led by PCF-funded investigator Dr. Richard Mithen, involved 49 men on active surveillance who were randomized to consume a broccoli "soup" – with regular broccoli or with broccoli containing enhanced amounts of glucoraphanin. After 12 months, researchers noted potentially beneficial, less cancer-promoting changes in genes in prostate tissue of the men taking the glucoraphanin-rich soup. Some substances, including antioxidants like lycopene, accumulate in the prostate. Another study (<http://www.nnuh.nhs.uk/news/2019/08/new-study-to-test-the-benefits-of-broccoli-and-garlic-for-prostate-health>) of broccoli and garlic supplements in men scheduled for prostate biopsy is nearing completion. We need more data, but these are fascinating examples of how food has the potential to act like medicine.

For more information visit www.pcf.org, email info@pcf.org, or call 1-800-757-2873.