

CaPSURE™ Chronicles

Cancer of the Prostate Strategic Urologic Research Endeavor

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For study participants

Prostate Cancer and Nutrition: Initial Findings from the CaPSURE™ Nutrition Sub-study

Dear Sir,

We greatly appreciate your ongoing participation in the CaPSURE™ study. Because of your time and efforts, we are able to study novel hypotheses regarding quality of life and clinical outcomes in prostate cancer. We would like to take this opportunity to update you regarding the Nutrition Sub-study that has been ongoing in CaPSURE™, and highlight a few recent findings in the medical literature on the topic of diet and prostate cancer.

More than 186,000 new cases of prostate cancer are estimated to be diagnosed in the United States in 2008, and more than 28,000 deaths due to prostate cancer will occur. Heart disease remains the number one cause of death for men and women in the US, although cancer ranks second. Among American men, prostate cancer is the second most common cause of cancer death. Older age, African American race, and having a family history of prostate cancer are well-established risk factors for developing prostate cancer. Diet or exercise practices may also affect risk of developing the disease, and possibly may affect the risk of recurrence or progression after diagnosis.

In the US, African American men are at the greatest risk of developing

prostate cancer and approximately 1 in 5 African American men will be diagnosed in their lifetime (www.seer.cancer.gov; assuming a lifespan of 85 years). Similarly, 1 out of 6 non-Hispanic white men; 1 in 7 Hispanic men; and 1 in 9 Asian/Pacific Islander men will develop prostate cancer in the US during their lifetimes. Globally, prostate cancer is more common in the Americas, Western and Northern Europe, South Africa, Australia, and New Zealand. Asian and North African countries have historically lower rates of prostate cancer incidence.

However, prostate cancer is on the rise in some of these traditionally “low-risk countries.” For example, countries such as China and Japan have historically had very low occurrence rates of prostate cancer, sometimes 30-fold less than the US. However, in recent decades, prostate cancer has also been increasing in these countries. While their rates are still much lower than in the US, they have experienced dramatic



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50 to 100% increases in prostate cancer diagnosis and death rates 1,2. Researchers have hypothesized that some of this increase may be due to the “Westernization” of diet and lifestyle in these traditionally low-risk countries. This refers to several aspects of behavior, including eating more meat, fat, and refined grains, consuming fewer vegetables or fruits, and being less physically active in daily life.

Studies focused on immigrant populations and their cancer rates have also led scientists to focus on diet/lifestyle as risk factors for prostate cancer. In such studies, investigators examine the risk of prostate cancer in a low-risk country, such as China, and compare this to first-generation and second-generation Chinese immigrants who live in higher risk countries such as the United States. For example, one study reported that among Chinese men in Shanghai, there were only about 2 cases of prostate cancer per year for every 100,000 men in the population. In contrast, among Chinese men born in China but who now live in the United States, there were about 23 cases of prostate cancer per year for every 100,000 men; and for men of Chinese race who were born and living in the US, there were about 37 cases per 100,000 men annually. These rates demonstrate how within a single racial group there can be dramatic differences based on country of origin, birthplace, and country of current residence. Together, such data indicate that lifestyle factors that vary by culture and country may influence prostate cancer risk, even within a person’s lifetime.

Work by us and others indicate that consumption of more vegetables (including cruciferous vegetables, legumes/beans/pulses (including soy), tomatoes/tomato products), and fish; and less saturated fat, red

or processed meat (e.g. sausage, deli meats, beef), dairy/calcium, or poultry with skin might help protect against the development of prostate cancer 3,4,5. More limited data exist focused on how diet after diagnosis can influence prostate cancer progression or recurrence. A few studies reported that greater consumption of tomato products and fish, and less saturated fat intake were inversely associated with prostate cancer recurrence, progression, or death 6,7.

To further our understanding of the role of lifestyle factors after diagnosis of prostate cancer, we developed the CaPSURE™ Nutrition Sub-study in 2004. We invited 5,585 men to complete a comprehensive food frequency and exercise questionnaire. 2,467 participants agreed to receive this questionnaire, and 2,134 (87%) completed the survey. We are currently conducting studies examining what food groups, dietary patterns, exercise practices, and specific nutrients may help delay or deter the occurrence of prostate cancer recurrence, progression, or death in this sub-study. Unpublished preliminary analyses from the CaPSURE™ Nutrition Sub-study suggest that vegetables, in particular cruciferous vegetables, might be beneficial to delay prostate cancer progression or recurrence in men with prostate cancer. Cruciferous vegetables include broccoli, cauliflower, kale, Brussels sprouts, and cabbage. Other studies in different populations of men without prostate cancer also provide support that cruciferous vegetables may be protective against the risk of developing prostate cancer in the first place. Cruciferous vegetables are rich in specific phytochemicals (e.g. isothiocyanate sulforaphane and indole-3-carbinol) that may have anti-cancer properties. Other research from our group conducted within CaPSURE™ suggest that eating less poultry with skin may also help

deter or delay prostate cancer recurrence or progression; although this is a newer finding and requires further investigation.

It is likely that normal genetic variation in humans also influences how we metabolize the food and nutrients in our diets, and that together these factors may determine our risk of certain diseases. In human population studies, scientists have uncovered variants in genes that appear to interact with intake of cruciferous vegetables (e.g. glutathione S transferase gene variants 8), fish (e.g. variants in COX-2 9), and antioxidants (e.g. variants manganese superoxide dismutase 10) to affect prostate cancer risk. Identifying such normal genetic variants that appear to modify the effects of diet helps to substantiate our hypotheses that certain foods or nutrients are important for cancer development and progression.

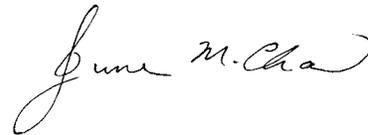
In conclusion, evidence to date suggests that specific vegetables (e.g. cruciferous, tomatoes, soy/legumes/pulses) may beneficially influence the risk of developing

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prostate cancer, whereas calcium/dairy, saturated fat, and red or processed meats may increase risk. Emerging data also suggest that diet after diagnosis may help delay recurrence or progression of cancer in men with localized disease, and further research is warranted. To that end, we are indebted to the ongoing participation from men like you and are grateful for your time and interest.

Thank you.



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June Chan, ScD earned her AB at Harvard College in applied mathematics, followed by a doctorate in science from the Harvard School of Public Health. She was a Fulbright Scholar in Sweden and completed a postdoctoral fellowship at the Department of Epidemiology & Nutrition at the Harvard School of Public Health. Dr. Chan also received a CapCURE Young Investigators Award and is a member of the UCSF prostate cancer center.

Background about a Future Study



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Dear Sir,

We are trying to plan for future research studies that look at the way diet and exercise might shape your health. For this new research we would like to know if you would be willing to donate some of your cells from inside your mouth (also called a buccal or cheek sample). This sample will allow the researchers to look at your genes. Your genes are inherited from your parents and influence your personal traits such as eye and hair color. Everyone's genes are slightly different. At this time, there is no standard gene test that is used in prostate cancer. Therefore all findings would be used for research purposes only, and would not be released to you or your physician. Information obtained from your cheek swab would then be combined with your clinical information in CaPSURE™ and the diet and lifestyle information you have reported in the past.

Your response does not commit you to be in any future study. You always reserve the right to decline or withdraw from any part of a research study. Also this does not necessarily mean we will be conducting this study in the future.

Poll about Being in a Future Research Project about Genes, Diet and Lifestyle

If you were to participate, we would mail to you a small kit that contained a Q-tip-like brush. The kit will include instructions on how to use it to swab inside your mouth on your cheeks. We will provide you with a container, envelope and postage to then mail this back to us. Since this can all be done by mail it does not require a visit to your doctor.

All data collected in this fashion would as usual continue to be kept confidential. Whether or not you participate will not affect your ongoing participation in other parts of the CaPSURE™ study nor your clinical care.

Please indicate, by filling the bubble below, if you might be willing and interested to be contacted to be in a future research that would involve donation of a buccal (cheek) sample.

Please include this form with your questionnaire and return in the envelope provided.

Yes, I would be willing to donate a buccal (cheek) sample for research.

No, I would not be interested to donate a buccal (cheek) sample for research.

Name: _____

State:

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