

A SUMMARY OF THE
LATEST INTEGRATIVE CANCER CARE RESEARCH
FOR MEN WITH PROSTATE CANCER:

WHAT YOU NEED TO KNOW

THIRD QUARTERLY REPORT AUG - OCT 2008

Funded by:

British Columbia Foundation
for Prostate Disease
#230 – 3689 East 1st Ave.,
Vancouver, BC, V5M 1C2

Prepared by:

InspireHealth
Integrated Cancer Care
#200 – 1330 West 8th Ave.,
Vancouver, BC, V6H 4A6

This report summarizes the scientific evidence, translated in easy to understand language, that the following is important information for men with prostate cancer to know to optimally support their health:

- Active surveillance is an underused treatment option that should be carefully considered by eligible men with early-stage prostate cancer.
- Active surveillance is a safe option for some men with early-stage prostate cancer.
- Acupuncture may help reduce urinary side effects in men treated with radical prostatectomy for prostate cancer.
- Although alcohol increases the risk of other types of cancer, it does not appear to increase the risk of developing prostate cancer.
- Overweight/obesity and high C-peptide concentrations both increase risk prostate cancer and the likelihood of dying from prostate cancer. Patients with both have the worst outcome.
- Men with high blood calcium levels are at increased risk of fatal prostate cancer.
- If you are already taking statins it is possible they may lower your risk of advanced prostate cancer.
- Men with low blood cholesterol levels have a reduced risk of aggressive prostate cancer.
- Resistance exercise is beneficial for men undergoing androgen deprivation therapy for prostate cancer; it does not impact testosterone suppression and can increase physical fitness.
- Longer and more intense exercise is needed to decrease risk of prostate cancer.
- High blood levels of IGF-1 moderately increase risk of prostate cancer.
- Telephone-based diet counseling decreases fat intake, and significantly increases vegetable intake and blood levels of carotenoids in men with prostate cancer.
- Plant-based diets may slow PSA increase in men with recurrent prostate cancer through weight loss and by improving hormone levels in the body.
- Other studies have shown some positive results with the amount of certain isoflavones in the diet. However, the actual blood levels of these compounds in the body do not correlate with cancer risk.

- Metabolic syndrome increases risk for prostate and other cancers and it also inhibits PSA levels which have to be interpreted in a different way, with lower levels of PSA indicating possible disease in men with this syndrome.
- PSA screening may cause psychological harms, and its benefits are uncertain.
- Stress-related psychological factors may increase cancer rates and cancer death rates, and decrease survival times.
- Certain interpersonal styles, specifically interpersonal sensitivity may complicate the recovery of sexual function after radical prostatectomy for prostate cancer.
- To improve the experience of prostate cancer care for patients, health care providers should identify and respond to each individual's information needs and preferences regarding decision-making.
- There was some preventive benefit for the men taking soy protein in this study.
- Soy protein isolate reduces androgen expression in the prostate, which may help prevent prostate cancer.
- Soy protein supplementation may benefit men at risk of developing advanced prostate cancer.
- Long-term vitamin E supplementation may reduce risk of advanced prostate cancer.
- A 'male lumpectomy' can successfully treat some prostate cancers, while preserving urinary continence and sexual potency.
- Prostate cancer patients treatments choices are determined by physician specialty rather than patient preference.
- Men who have had EBRT end up with a higher incidence of urinary and gastrointestinal symptoms than other men of the same age.

TABLE OF CONTENTS

ACTIVE SURVEILLANCE.....	p.6
➤ What Percentage of Patients with Newly Diagnosed Carcinoma of the Prostate are Candidates for Surveillance? an Analysis of the CaPSURE Database (p.6)	
➤ Active Surveillance for Early-Stage Prostate Cancer: Review of the Current Literature (p.7)	
ACUPUNCTURE.....	p.8
➤ Treatment of Frequent Urination and Nocturia Postprostatectomy (p.8)	
ALCOHOL.....	p.9
➤ Alcohol Consumption and the Risk for Prostate Cancer in the European Prospective Investigation into Cancer and Nutrition (p.9)	
BODY MASS INDEX.....	p.10
➤ Prediagnostic Body-Mass Index, Plasma C-Peptide Concentration, and Prostate Cancer-Specific Mortality in Men with Prostate Cancer: A Long-Term Survival Analysis (p.10)	
CALCIUM.....	p.12
➤ Serum Calcium and Incident and Fatal Prostate Cancer in the National Health and Nutrition Examination Survey (p.12)	
CHOLESTEROL/STATINS.....	p.13
➤ Review of Recent Evidence in Support of a Role for Statins in the Prevention of Prostate Cancer (p.13)	
➤ Association between Plasma Cholesterol and Prostate Cancer in the PSA Era (p.14)	
EXERCISE.....	p.15
➤ Endocrine and Immune Responses to Resistance Training in Prostate Cancer Patients (p. 15)	
➤ Physical Activity in Relation to Total, Advanced, and Fatal Prostate Cancer (p.16)	
HORMONES.....	p.17
➤ Insulin-Like Growth Factors, their Binding Proteins, and Prostate Cancer Risk: Analysis of Individual Patient Data from 12 Prospective Studies (p.17)	
NUTRITION.....	p.19
➤ The Men's Eating and Living (MEAL) Study: A Cancer and Leukemia Group B Pilot Trial of Dietary Intervention for the Treatment of Prostate Cancer (p.19)	
➤ Biological Mediators of Effect of Diet and Stress Reduction on Prostate Cancer (p.20)	

PHYTOESTROGENS.....p.21

- Lack of Prospective Associations between Plasma and Urinary Phytoestrogens and Risk of Prostate Or Colorectal Cancer in the European Prospective into Cancer-Norfolk Study

PSAp.22

- The Association between Metabolic Syndrome and Prostate-Specific Antigen Levels (p.22)
- Benefits and Harms of Prostate-Specific Antigen Screening for Prostate Cancer: An Evidence Update for the U.S. Preventive Services Task Force (p.23)

PSYCHOSOCIAL.....p.25

- Do Stress-Related Psychosocial Factors Contribute to Cancer Incidence and Survival? (p.25)
- Interpersonal Sensitivity, Partner Support, Patient-Physician Communication, and Sexual Functioning in Men Recovering from Prostate Carcinoma (p.26)
- Patient-Centred Care: What are the Experiences of Prostate Cancer Patients and their Partners? (p.27)

SOY.....p.28

- Effects of Soy Protein Isolate Consumption on Prostate Cancer Biomarkers in Men with HGPIN, ASAP, and Low-Grade Prostate Cancer (p.28)
- Isoflavone-Rich Soy Protein Isolate Suppresses Androgen Receptor Expression without Altering Estrogen Receptor-Beta Expression Or Serum Hormonal Profiles in Men at High Risk of Prostate Cancer (p.29)
- Soy Protein Isolate Increases Urinary Estrogens and the Ratio of 2:16alpha-Hydroxyestrone in Men at High Risk of Prostate Cancer (p.30)

SUPPLEMENTS.....p.31

- Vitamin E and Selenium Supplementation and Risk of Prostate Cancer in the Vitamins and Lifestyle (VITAL) Study Cohort (p.31)

TREATMENT OPTIONS.....p.32

- The "Male Lumpectomy": Focal Therapy for Prostate Cancer using Cryoablation Results in 48 Patients with at Least 2-Year Follow-Up (p.32)
- Predictors of Patient Preferences and Treatment Choices for Localized Prostate Cancer (p.34)

URINARY SYMPTOMS/QOL.....p.35

- Patient-Reported Lower Urinary Tract Symptoms, Urinary Incontinence, and Quality of Life After External Beam Radiotherapy for Localized Prostate Cancer--15 Years' Follow-Up. A Comparison with Age-Matched Controls (p.35)

Active Surveillance

Barocas, DA, J. E. Cowan, J. A. Smith Jr, P. R. Carroll and Investigators CaPSURE. **What Percentage of Patients with Newly Diagnosed Carcinoma of the Prostate are Candidates for Surveillance? an Analysis of the CaPSURE Database** *J Urol.* 2008 discussion 1334-5; Oct; 1804: 1330-1334.

Original Abstract:

PURPOSE: Active surveillance is an option for men with clinically localized prostate cancer and may be suitable for those with very low risk disease. We determined the percentage of men in a large prostate cancer registry who met criteria predictive of latent prostate cancer. We also assessed the percentage of men meeting these criteria who chose surveillance. **MATERIALS AND METHODS:** We conducted an observational study of 1,886 men diagnosed with clinically localized prostate cancer between 1999 and 2004 from the CaPSURE database. Outcomes were percent of men meeting Epstein surveillance criteria (prostate specific antigen less than 10 ng/ml, clinical T1 or T2a, prostate specific antigen density less than 0.15, fewer than 1 of 3 biopsy cores positive, and absence of Gleason pattern 4 and 5 on biopsy) and percent selecting surveillance stratified by risk group. **RESULTS:** Of 1,886 men with all 5 criteria documented 16.4% (310 of 1,886) met all 5 surveillance criteria and 9.0% (28 of 310) of men in this very low risk category actually chose surveillance compared with 4.3% (68 of 1,576) of patients in other risk groups ($p < 0.01$). On multivariable analysis of the entire cohort older age was the only demographic predictor of surveillance. Being in the very low risk group was also a predictor of surveillance. **CONCLUSIONS:** Of men presenting with localized prostate cancer 16% met the criteria for very low risk disease. However, only a small subset of eligible men chose active surveillance, suggesting that it may be underused in the management of very low risk prostate cancer.

WHAT YOU NEED TO KNOW:

Active surveillance is a treatment option for men with early-stage, low-risk prostate cancer. This study looked at a large group of men with prostate cancer to determine how many had latent prostate cancer (localized early cancer which needs no immediate treatment), and how many chose active surveillance.

Participants in this study were 1,886 men diagnosed with early-stage prostate cancer between 1999 and 2004. The researchers looked at which men met all 5 of the 'Epstein surveillance criteria':

1. PSA less than 10ng/ml
2. Prostate cancer stage T1 or T2a
3. PSA density less than 0.15
4. Less than 1 out of 3 biopsy samples positive for cancer
5. Gleason grade lower than 4 on biopsy

The results showed

- ❖ 310 men (16.4%) met all 5 criteria for surveillance. Of these 310 men, only 28 (9%) actually chose active surveillance.
- ❖ 68 men (4.3%) in other risk groups also chose active surveillance.
- ❖ Older men and men in the very low risk group were more likely to choose active surveillance.

THE BOTTOM LINE:

Active surveillance is an underused treatment option that should be carefully considered by eligible men with early-stage prostate cancer.

Original Abstract:

The natural history of prostate cancer is remarkably heterogeneous and, at this time, not completely understood. The widespread adoption and application of prostate-specific antigen (PSA) screening has led to a dramatic shift toward the diagnosis of low-volume, nonpalpable, early-stage tumors. Autopsy and early observational studies have shown that approximately 1 in 3 men aged >50 years has histologic evidence of prostate cancer, with a significant portion of tumors being small and possibly clinically insignificant. Utilizing the power of improved contemporary risk stratification schema to better identify patients with a low risk of cancer progression, several centers are gaining considerable experience with active surveillance and delayed, selective, and curative therapy. A literature review was performed to evaluate the rationale behind active surveillance for prostate cancer and to describe the early experiences from surveillance protocols. It appears that a limited number of men on active surveillance have required treatment, with the majority of such men having good outcomes after delayed selective intervention for progressive disease. The best candidates for active surveillance are being defined, as are predictors of active treatment. The psychosocial ramifications of surveillance for prostate cancer can be profound and future needs and unmet goals will be discussed.

[References: 66]

WHAT YOU NEED TO KNOW:

Prostate cancer is a complicated disease that is not completely understood. The widespread use of PSA screening has led to a large increase in early-stage, low-risk prostate cancer being diagnosed in men. Studies have shown that about 1 in 3 men over age 50 show evidence of prostate cancer; many of these tumours are small and clinically insignificant (no need for treatment). Several cancer centers are now able to identify more accurately patients who have low-risk cancer, and monitor them through active surveillance, allowing for the delay of various curative therapies and their respective side-effects.

The researchers performed a literature review to determine why active surveillance for prostate cancer is used, and to describe experiences with active surveillance procedures. The results showed that a small number of men on active surveillance eventually require treatment. The majority of men who require treatment because of disease progression respond well to treatment at that time.

Researchers are currently creating guidelines to determine the best candidates for active surveillance, and to predict which patients need active treatment. The psychological consequences of active surveillance can be great; this is discussed along with future needs and goals.

THE BOTTOM LINE:

Active surveillance is a safe option for some men with early-stage prostate cancer.

Acupuncture

Alban, J Acupuncture **Treatment of Frequent Urination and Nocturia Postprostatectomy.** *Medical Acupuncture.* 2008 01 Jun; 202: 119-121.

Original Abstract:

Background: Radical prostatectomy, while a successful treatment for prostate cancer, often results in chronic adverse effects. **Objective:** To report the use of acupuncture to treat frequent urination and nocturia following radical prostatectomy. **Design, and Patient:** A 62-year-old man reported frequent urination, nocturia, and urinary leakage. He had a history of overactive bladder for about 5 years, originally developed from type 2 diabetes. One year prior to acupuncture treatment, the patient underwent radical laparoscopic prostatectomy for early stage prostate cancer. After the surgery, his frequent urination and nocturia worsened, with the need to urinate every hour both day and night. Occasionally, he experienced urinary leakage, which he managed by wearing a pad. The nocturia caused poor sleep and chronic fatigue, as he awoke 5-7 times every night to urinate. **Intervention:** Acupuncture treatment was performed twice per week. Points included a front treatment of CV 3, CV 4, and KI 12 with pole moxa, and LR 5, SP 6. Back treatment was GV 4, GV 3, GV 2, UB 23, UB 32, and UB 33 with pole moxa, as well as UB 57. **Main Outcome Measure:** Change in urinary frequency and nocturia. **Results:** After 10 treatments, there was a great reduction in frequency of urination during both the day and night. In addition, this patient's ability to hold his bladder was also reported to have increased. He was awaking to urinate 0-2 times per night, a major reduction in nocturia. **Conclusions:** Traditional acupuncture was successful in helping this patient with frequent urination. This theory, background, and treatment can help stimulate more research into the treatment of frequent urination and nocturia following prostatectomy. copyright 2008 Mary Ann Liebert, Inc.

WHAT YOU NEED TO KNOW:

While radical prostatectomy may be a successful treatment for prostate cancer, it can result in chronic, unpleasant side effects. The objective of this study was to report on acupuncture as a treatment for side effects after radical prostatectomy.

The participant in this case study was a 62 year-old man with symptoms of frequent urination, nocturnia (the need to urinate frequently at night), and urinary leakage. For five years he had an overactive bladder as a result of diabetes. One year before beginning acupuncture treatment he was treated for early-stage prostate cancer with radical prostatectomy. After this surgery his frequent urination and nocturia became worse; he needed to urinate every hour, day and night. He also occasionally experienced urinary leakage. He did not sleep well and was chronically fatigued, because of his need to urinate 5-7 times every night.

For this study, the participant received acupuncture twice per week with the goal of reducing his need to urinate so frequently. After 10 sessions the patient's frequency of urination both during the day and night was much reduced. He only woke during the night to urinate 0-2 times, a major reduction in nocturia.

More research the use of traditional acupuncture in this area is needed.

THE BOTTOM LINE:

Acupuncture may help reduce urinary side effects in men treated with radical prostatectomy for prostate cancer.

Alcohol

Rohrmann, S, J. Linseisen, T. J. Key, et al. **Alcohol Consumption and the Risk for Prostate Cancer in the European Prospective Investigation into Cancer and Nutrition.** *Cancer Epidemiology, Biomarkers & Prevention.* 2008 May; 175: 1282-1287.

Original Abstract:

Alcohol is a risk factor for several types of cancer. However, the results for prostate cancer have been inconsistent, with most studies showing no association. Within the European Prospective Investigation into Cancer and Nutrition, detailed information were collected from 142,607 male participants on the intake of alcoholic beverages at recruitment (for 100% of the cohort) and over lifetime (for 76% of the cohort) between 1992 and 2000. During a median follow-up of 8.7 years, 2,655 prostate cancer cases were observed. Multivariate Cox proportional hazard models were used to examine the association of alcohol consumption at recruitment and average lifetime alcohol consumption with prostate cancer adjusted for age, center, smoking, height, weight, physical activity, and nonalcohol energy intake. Overall, neither alcohol consumption at baseline nor average lifetime alcohol consumption was associated with the risk for prostate cancer in this cohort of men. Men who consumed ≥ 60 g alcohol per day had a relative risk of 0.88 [95% confidence interval (95% CI) 0.72-1.08] compared with men with an intake of 0.1-4.9 g/d; the respective relative risk for average lifetime intake was 1.09 (95% CI, 0.86-1.39). For advanced prostate cancer (n = 537), the relative risks for ≥ 60 and 0.1-4.9 g alcohol per day at baseline were 0.98 (95% CI, 0.66-1.44) and 1.28 (95% CI, 0.79-2.07), respectively, for average lifetime intake. No statistically significant association was observed for alcohol intake from specific alcoholic beverages. Our results indicate no association between the consumption of alcohol and prostate cancer in this cohort of European men.

WHAT YOU NEED TO KNOW:

Alcohol is a risk factor for some types of cancer. For prostate cancer the results have been inconsistent, with most studies showing no association.

As part of a larger study, detailed information about intake of alcoholic beverages was collected from 142,607 male participants between 1992 and 2000. Lifetime alcohol intake was collected from 76% of the participants. During an average follow-up period of 8.7 years, 2,655 participants were diagnosed with prostate cancer. For this study, researchers looked at the association between alcohol consumption and prostate cancer. They adjusted for the age, height, weight, smoking status, physical activity level and calorie intake of each participant.

The results showed that overall alcohol consumption was not associated with prostate cancer risk. No significant association was found for alcohol intake from specific alcoholic beverages.

THE BOTTOM LINE:

Although alcohol increases the risk of other types of cancer, it does not appear to increase the risk of developing prostate cancer.

Editor's Comment:

This study did not look at the results of drinking alcohol on the risk of recurrence of treated prostate cancer or on survival times for advanced prostate cancer.

Body Mass Index

Ma, J, Haojie Li, Ed Giovannucci, et al. **Prediagnostic Body-Mass Index, Plasma C-Peptide Concentration, and Prostate Cancer-Specific Mortality in Men with Prostate Cancer: A Long-Term Survival Analysis** *The Lancet Oncology*,. In Press, Corrected Proof.

Original Abstract:

Background: Excess body-mass index (BMI) has been associated with adverse outcomes in prostate cancer, and hyperinsulinaemia is a candidate mediator, but prospective data are sparse. We assessed the effect of prediagnostic BMI and plasma C-peptide concentration (reflecting insulin secretion) on prostate cancer-specific mortality after diagnosis. **Methods:** This study involved men diagnosed with prostate cancer during the 24 years of follow-up in the Physicians' Health Study. BMI measurements were available at baseline in 1982 and eight years later in 1990 for 2546 men who developed prostate cancer. Baseline C-peptide concentration was available in 827 men. We used Cox proportional hazards regression models controlling for age, smoking, time between BMI measurement and prostate cancer diagnosis, and competing causes of death to assess the risk of prostate cancer-specific mortality according to BMI and C-peptide concentration. **Findings:** Of the 2546 men diagnosed with prostate cancer during the follow-up period, 989 (38.8%) were overweight (BMI 25.0–29.9 kg/m²) and 87 (3.4%) were obese (BMI ≥30 kg/m²). 281 men (11%) died from prostate cancer during this follow-up period. Compared with men of a healthy weight (BMI <25 kg/m²) at baseline, overweight men and obese men had a significantly higher risk of prostate cancer mortality (proportional hazard ratio [HR] 1.47 [95% CI 1.16–1.88] for overweight men and 2.66 [1.62–4.39] for obese men; *ptrend*<0.0001). The trend remained significant after controlling for clinical stage and Gleason grade and was stronger for prostate cancer diagnosed during the PSA screening era (1991–2007) compared with during the pre-PSA screening era (1982–1990) or when using BMI measurements obtained in 1990 compared with those obtained in 1982. Of the 827 men with data available for baseline C-peptide concentration, 117 (14%) died from prostate cancer. Men with C-peptide concentrations in the highest quartile (high) versus the lowest quartile (low) had a higher risk of prostate cancer mortality (HR 2.38 [95% CI 1.31–4.30]; *ptrend*=0.008). Compared with men with a BMI less than 25 kg/m² and low C-peptide concentrations, those with a BMI of 25 kg/m² or more and high C-peptide concentrations had a four-times higher risk of mortality (4.12 [1.97–8.61]; *pinteraction*=0.001) independent of clinical predictors. **Interpretation:** Excess bodyweight and a high plasma concentration of C-peptide both predispose men with a subsequent diagnosis of prostate cancer to an increased likelihood of dying of their disease. Patients with both factors have the worst outcome. Further studies are now needed to confirm these findings.

Notes:

- ❖ *Body Mass Index or BMI* measures body fatness.
- ❖ *Plasma C-peptide concentration* is a blood test that measures how much insulin is released from the pancreas.

WHAT YOU NEED TO KNOW:

It has been shown that men with prostate cancer who are overweight or obese have worse outcomes. This may be due to high levels of insulin in the blood (hyperinsulinaemia). This study looked at body mass index (BMI) and plasma C-peptide concentration (reflecting insulin secretion) in relation to death from prostate cancer.

Participants in this study were 2,546 men who developed prostate cancer in the 24 years after enrolling in the Physicians' Health Study. BMI measurements were measured for these men in 1982 and 1990. C-peptide concentrations were available for only 827 of the participants. The researchers controlled for differences amongst the men, such as age, smoking status and time between BMI measurement and prostate cancer diagnosis.

The results showed the following:

- ❖ 989 (38.8%) of the 2,546 men diagnosed with prostate cancer were overweight and 87 (3.4%) were obese.
- ❖ 281 men (11%) died of prostate cancer during the 24-year follow-up period.
- ❖ Overweight and obese men had a significantly higher risk of dying of prostate cancer.
- ❖ Of the 827 men with available C-peptide concentrations, 117 (14%) died.
- ❖ Men with the highest C-peptide concentrations had a higher risk of dying of prostate cancer than men with the lowest concentrations.
- ❖ Overweight or obese men with high C-peptide concentrations were 4 times more likely to die than normal weight men with low C-peptide concentrations.

THE BOTTOM LINE:

Overweight/obesity and high C-peptide concentrations both increase risk prostate cancer and the likelihood of dying from prostate cancer. Patients with both have the worst outcome.

Calcium

Skinner, HG and G. G. Schwartz. **Serum Calcium and Incident and Fatal Prostate Cancer in the National Health and Nutrition Examination Survey.** *Cancer Epidemiology Biomarkers and Prevention.* American Association for Cancer Research Inc. 2008 September; 179: 2302-2305.

Original Abstract:

We examined the association between serum calcium levels and the risk for prostate cancer using a prospective cohort, the National Health and Nutrition Examination Survey (NHANES) and the NHANES Epidemiologic Follow-up Study. Eighty-five incident cases of prostate cancer and 25 prostate cancer deaths occurred over 46,188 person-years of follow-up. Serum calcium was determined an average of 9.9 years before the diagnosis of prostate cancer. Comparing men in the top with men in the bottom tertile of serum calcium, the multivariable-adjusted relative hazard for fatal prostate cancer was 2.68 (95% confidence interval, 1.02-6.99; Ptrend = 0.04). For incident prostate cancer, the relative risk for the same comparison was 1.31 (95% confidence interval, 0.77-2.20; Ptrend = 0.34). These results support the hypothesis that high serum calcium or a factor strongly associated with it (e.g., high serum parathyroid hormone) increases the risk for fatal prostate cancer. Our finding of a >2.5-fold increased risk for men in the highest tertile of serum calcium is comparable in magnitude with the risk associated with family history and could add significantly to our ability to identify men at increased risk for fatal prostate cancer. Copyright 2008 American Association for Cancer Research.

WHAT YOU NEED TO KNOW:

This study looked at the association between blood levels of calcium and risk of prostate cancer. Participants in a large study were followed for many years; during this time there were 85 diagnoses of prostate cancer, and 25 deaths from prostate cancer. The men diagnosed with prostate cancer had their blood levels of calcium measured an average of 9.9 years before diagnosis.

The results showed that men with high blood calcium levels

- had only a slight increase in risk of prostate cancer in general
- had a 2.5-fold increased risk of fatal prostate cancer

This increased risk of fatal prostate cancer is similar in magnitude to the risk associated with family history and could help identify men at risk.

THE BOTTOM LINE:

Men with high blood calcium levels are at increased risk of fatal prostate cancer.

Cholesterol / Statins

Hamilton, RJ and S. J. Freedland. **Review of Recent Evidence in Support of a Role for Statins in the Prevention of Prostate Cancer** *Curr Opin Urol.* 2008 May; 183: 333-339.

Original Abstract:

PURPOSE OF REVIEW: We examine the potential chemopreventive role statins may have in prostate cancer, highlight the basic science supporting this role and analyze the human data regarding the association between statin use and prostate cancer. **RECENT FINDINGS:** Basic scientific evidence suggests that, through cholesterol and noncholesterol-mediated mechanisms, statins inhibit many pathways of cancer formation and progression. A handful of observational studies found statin use was associated with reduced prostate cancer risk, though others found no association. In the last year, however, four large prospective studies have observed similar reductions in the risk of advanced prostate cancer with essentially no reduction in the risk of overall prostate cancer. This may, in part, explain why previous studies, including large metaanalyses of clinical trials of statins in the prevention of cardiovascular outcomes, did not observe any association between statin use and overall prostate cancer risk. **SUMMARY:** The exact association between statin medication use and prostate cancer, and whether this association is causal in nature, remains unclear. Recent evidence, however, is encouraging, particularly for reducing the risk of advanced disease. Thus, while at present there are insufficient data to recommend all men start taking a statin medication regardless of their cholesterol profile, the rationale to move forward with further research is clear. [References: 58]

WHAT YOU NEED TO KNOW:

This review examined the potential role that statins (cholesterol-lowering drugs) play in preventing prostate cancer. Basic scientific evidence suggests that because of the way cholesterol works in the body statins help to stop cancer formation and progression. A few studies have shown that statin use was associated with a lower risk of prostate cancer; however other studies have found no link.

In the past year, 4 large studies have shown a reduced risk of *advanced* prostate in those taking statins, though there was no association to overall risk of prostate cancer. These results may explain why previous reviews have found no association between statin use and prostate cancer risk – they were measuring overall prostate cancer risk rather than advanced prostate cancer risk specifically.

The exact association between statins and prostate cancer risk remains unclear. It is also not clear if taking statins directly causes a lower risk of prostate cancer. However, recent studies suggest that risk of advanced prostate cancer may be lowered with statin use. Further research in this area is needed.

THE BOTTOM LINE:

If you are already taking statins it is possible they may lower your risk of advanced prostate cancer.

Platz, EA, S. K. Clinton and E. Giovannucci. **Association between Plasma Cholesterol and Prostate Cancer in the PSA Era.** *International Journal of Cancer.* 2008 01 Oct; 1237: 1693-1698.

Original Abstract:

We previously found that statin users had a lower risk of advanced and possibly high-grade prostate cancer compared with nonusers. We hypothesize that statins' effects on cholesterol synthesis may explain those findings because prostate cancer cells exhibit cholesterol dysregulation. Thus, we investigated whether low plasma cholesterol is associated with prostate cancer overall and by stage and grade. Participants were drawn from the 18,018 members of the Health Professionals Follow-Up Study who provided blood in 1993-1995. We ascertained 698 incident cases through January 2000. Controls were 698 men who had a PSA test and were matched to cases. Plasma cholesterol was measured enzymatically. Conditional logistic regression was used to estimate multivariable ORs and 95% CIs of total, clinically organ-confined (n = 518), advanced (T3b or worse; n = 61), low-grade (Gleason sum < 7; n = 386) and high-grade (Gleason sum [greater-than or equal to] 7, n = 247) disease. Low cholesterol (<25th percentile vs. [greater-than or equal to]25th percentile) was not associated with total (OR = 0.93, 95% CI: 0.72-1.20), organ-confined (OR = 0.87, 95% CI: 0.64-1.18) or low-grade (OR = 1.06, 95% CI: 0.75-1.51) disease. However, men with low cholesterol had a lower risk of high-grade disease (OR = 0.61, 95% CI: 0.39-0.98), especially if organ-confined (OR = 0.54, 95% CI: 0.29-0.99). The association for advanced disease appeared inverse, but number of cases was small (OR = 0.42, 95% CI: 0.13-1.36). Associations remained after excluding cholesterol-lowering drug users. These results coupled with prior statin findings suggest that mechanistic studies on cholesterol metabolism should be pursued to understand a possible target for preventing poorly differentiated prostate cancers. copyright 2008 Wiley-Liss, Inc.

WHAT YOU NEED TO KNOW:

Previous research has shown that men who take statins (cholesterol-lowering drugs) have a decreased risk of advanced prostate cancer. This study looked at whether low blood levels of cholesterol were associated with prostate cancer overall, as well as with different grades and stages of prostate cancer.

Participants were part of a large study of 18,018 people who provided blood for testing between 1993 and 1995. 698 men were diagnosed with prostate cancer up until January 2000. The control group was composed of 698 similar men without prostate cancer. Blood cholesterol levels were measured in all participants.

The results showed:

- Low cholesterol was not associated with total prostate cancer, early-stage prostate cancer, or low-grade (Gleason score less than 7) prostate cancer.
- Men with low cholesterol had a lower risk of high-grade (more aggressive) prostate cancer (Gleason score 7 or higher).

THE BOTTOM LINE:

Men with low blood cholesterol levels have a reduced risk of aggressive prostate cancer.

Exercise

Galvao, DA, K. Nosaka, D. R. Taaffe, et al. **Endocrine and Immune Responses to Resistance Training in Prostate Cancer Patients.** *Prostate Cancer & Prostatic Diseases.* 2008 112: 160-165.

Original Abstract:

This study examined the effect of 20 weeks resistance training on a range of serum hormones and inflammatory markers at rest, and following acute bouts of exercise in prostate cancer patients undergoing androgen deprivation. Ten patients exercised twice weekly at high intensity for several upper and lower-body muscle groups. Neither testosterone nor prostate-specific antigen changed at rest or following an acute bout of exercise. However, serum growth hormone (GH), dehydroepiandrosterone (DHEA), interleukin-6, tumor necrosis factor-alpha and differential blood leukocyte counts increased ($P < 0.05$) following acute exercise. Resistance exercise does not appear to compromise testosterone suppression, and acute elevations in serum GH and DHEA may partly underlie improvements observed in physical function.

WHAT YOU NEED TO KNOW:

The aim of this study was to examine the effect of 20 weeks of resistance training (using weights, machines, or body weight to strengthen muscles) on hormones in the blood and markers of inflammation in the body. Participants were 10 prostate cancer patients undergoing androgen deprivation therapy. They exercised twice a week at high intensity, working both upper and lower-body muscle groups. The researchers measured the hormones and inflammation markers in the men immediately after intense exercise and at rest.

The results showed that:

- ❖ There was no change in testosterone or prostate-specific antigen (PSA) after exercise or at rest.
- ❖ Growth hormone, DHEA, and some other measures increased after intense exercise, all of which signal positive health effects.

Resistance exercise does not appear to have a negative impact on testosterone suppression (part of androgen deprivation therapy). Higher levels of growth hormone (GH) and DHEA may be due improved physical fitness in the participants.

THE BOTTOM LINE:

Resistance exercise is beneficial for men undergoing androgen deprivation therapy for prostate cancer; it does not impact testosterone suppression and can increase physical fitness.

Moore, SC, T. M. Peters, J. Ahn, et al. **Physical Activity in Relation to Total, Advanced, and Fatal Prostate Cancer.** *Cancer Epidemiology Biomarkers and Prevention.*American Association for Cancer Research Inc. 2008 September; 179: 2458-2466.

Original Abstract:

Physical activity has been inconsistently related to total prostate cancer and few studies have examined whether this association varies by disease aggressiveness. We examined physical activity in relation to total, advanced, and fatal prostate cancer in the NIH-AARP Diet and Health Study. At baseline (1995-1996), 293,902 men ages 50 to 71 years completed a questionnaire inquiring about current frequency of vigorous exercise of at least 20 min of duration, as well as frequency of exercise during adolescence (ages 15-18). We used proportional hazards regression to calculate multivariate relative risks (RR) and 95% confidence intervals (95% CI). During up to 8.2 years of follow-up, 17,872 prostate cancer cases were identified, including 1,942 advanced and 513 fatal cases. Comparing frequent (5+ times per week) versus infrequent (less than once per week) vigorous exercise, exercise at baseline was not associated with risk of total prostate cancer (RR, 1.01; 95% CI, 0.96-1.07; Ptrend = 0.78), advanced prostate cancer (RR, 1.14; 95% CI, 0.97-1.33; Ptrend = 0.25), or fatal prostate cancer (RR, 0.90; 95% CI, 0.67-1.20; P trend = 0.12). Increasing level of vigorous exercise during adolescence was associated with a small 3% reduction in total prostate cancer risk (frequent versus infrequent exercise during adolescence: RR, 0.97; 95% CI, 0.91-1.03; Ptrend = 0.03) but was not associated with risk of advanced prostate cancer (RR, 0.95; 95% CI, 0.78-1.14; Ptrend = 0.18) or fatal prostate cancer (RR, 0.96; 95% CI, 0.67-1.36; Ptrend = 0.99). Neither vigorous exercise at baseline nor exercise during adolescence was related to risk of total, advanced, or fatal prostate cancer in this large prospective cohort. Copyright 2008 American Association for Cancer Research.

WHAT YOU NEED TO KNOW:

Some previous studies have shown an association between physical activity levels and prostate cancer, while others have not. Few studies have examined whether this association varies by the aggressiveness of the disease.

This study looked at physical activity in relation to total, advanced, and fatal prostate cancer. At the beginning of the study (1995-1996) 293,902 men ages 50-71 completed an exercise questionnaire. The questionnaire asked how often the men currently participated in vigorous exercise for at least 20 minutes at a time. It also asked about frequency of exercise during adolescence (ages 15-18). During the next 8.2 years, 17,872 of these men were diagnosed with prostate cancer, including 1,942 advanced cases and 513 fatal cases.

The researchers compared those who exercised frequently (5+ times/week) with those who exercised infrequently (less than once a week). The results showed no association between frequency of exercise and total, advanced, or fatal prostate cancer. Higher levels of physical activity during adolescence produced a small (3%) reduction in overall (but not for advanced or fatal) prostate cancer risk.

Editor's comment: The daily amount of exercise in this study (20 min.) is not adequate for prostate related effects. In other studies that show positive results for exercise, the duration and intensity of the exercise period is much higher.

THE BOTTOM LINE:

Longer and more intense exercise is needed to decrease risk of prostate cancer.

Hormones

Roddam, AW, N. E. Allen, P. Appleby, et al. **Insulin-Like Growth Factors, their Binding Proteins, and Prostate Cancer Risk: Analysis of Individual Patient Data from 12 Prospective Studies.** *Annals of Internal Medicine.* American College of Physicians. 2008 07 Oct; 1497: 461-471.

Original Abstract:

Background: Some, but not all, published results have shown an association between circulating blood levels of some insulin-like growth factors (IGFs) and their binding proteins (IGFBPs) and the subsequent risk for prostate cancer. Purpose: To assess the association between levels of IGFs and IGFBPs and the subsequent risk for prostate cancer. Data Sources: Studies identified in PubMed, Web of Science, and CancerLit. Study Selection: The principal investigators of all studies that published data on circulating concentrations of sex steroids, IGFs, or IGFBPs and prostate cancer risk using prospectively collected blood samples were invited to collaborate. Data Extraction: Investigators provided individual participant data on circulating concentrations of IGF-I, IGF-II, IGFBP-II, and IGFBP-III and participant characteristics to a central data set in Oxford, United Kingdom. Data Synthesis: The study included data on 3700 men with prostate cancer and 5200 control participants. On average, case patients were 61.5 years of age at blood collection and received a diagnosis of prostate cancer 5 years after blood collection. The greater the serum IGF-I concentration, the greater the subsequent risk for prostate cancer (odds ratio [OR] in the highest vs. lowest quintile, 1.38 [95% CI, 1.19 to 1.60]; $P < 0.001$ for trend). Neither IGF-II nor IGFBP-II concentrations were associated with prostate cancer risk, but statistical power was limited. Insulin-like growth factor I and IGFBP-III were correlated ($r = 0.58$), and although IGFBP-III concentration seemed to be associated with prostate cancer risk, this was secondary to its association with IGF-I levels. Insulin-like growth factor I concentrations seemed to be more positively associated with low-grade than high-grade disease; otherwise, the association between IGFs and IGFBPs and prostate cancer risk had no statistically significant heterogeneity related to stage or grade of disease, time between blood collection and diagnosis, age and year of diagnosis, prostate-specific antigen level at recruitment, body mass index, smoking, or alcohol intake. Limitations: Insulin-like growth factor concentrations were measured in only 1 sample for each participant, and the laboratory methods to measure IGFs differed in each study. Not all patients had disease stage or grade information, and the diagnosis of prostate cancer may differ among the studies. Conclusion: High circulating IGF-I concentrations are associated with a moderately increased risk for prostate cancer. copyright 2008 American College of Physicians.

WHAT YOU NEED TO KNOW:

Some previous research has shown an association between blood levels of certain insulin-like growth factors or IGFs (hormones), their binding proteins or IGFBPs and risk of prostate cancer. The purpose of this review was to evaluate this association.

The researchers identified and compiled data from previous studies according to specific criteria. This study included data on 3,700 men with prostate cancer. On average these men were 61.5 years of age when they gave blood for testing and were diagnosed with prostate cancer approximately 5 years later. The study also included 5,200 control participants without cancer.

The results showed that men with the highest blood levels of IGF-1 had a higher risk of prostate cancer. Higher IGF-1 levels were associated more with low-grade (slow-growing) prostate cancer. No other significant associations were found.

Because this study compiled data from many previous studies it had certain limitations (which might have impacted the results):

- Only one blood sample per participant was measured.
- Lab methods for measuring IGFs differed in different studies.
- There was not complete prostate cancer disease stage or grade information for all participants.

THE BOTTOM LINE:

High blood levels of IGF-1 moderately increase risk of prostate cancer.

Editor's Comment:

IGF-1 is associated with insulin release and the blood levels of insulin our body. When insulin levels rise so does IGF-1 and it is an inflammatory compound which increases cell proliferation in the body. Sugar, white flours, breads, and pastas are high glycemic index foods which increase insulin and IGF-1 levels. Eliminating these types of foods will decrease insulin and IGF-1 and reduce risk.

Nutrition

Parsons, JK, V. Newman, J. L. Mohler, et al. **The Men's Eating and Living (MEAL) Study: A Cancer and Leukemia Group B Pilot Trial of Dietary Intervention for the Treatment of Prostate Cancer.** *Urology.* 2008 Sep; 723: 633-637.

Original Abstract:

OBJECTIVES: To evaluate the feasibility of implementing a diet-based intervention in men with prostate cancer. **METHODS:** Seventy-four men aged 50 to 80 years with biopsy-proven adenocarcinoma of the prostate were randomized to receive either telephone-based dietary counseling or standardized, written nutritional information. Telephone dietary counseling targets included increased intakes of vegetables (particularly cruciferous vegetables and tomato products), whole grains, and beans/legumes. Dietary intakes and plasma carotenoid levels were assessed at baseline and at 6 months' follow-up. **RESULTS:** In the intervention arm, mean daily intakes of total vegetables, crucifers, tomato products, and beans/legumes increased by 76%, 143%, 292%, and 95%, respectively, whereas fat intake decreased by 12% ($P = 0.02$). In the control arm, there were no significant changes in mean intakes of total vegetables, tomato products, crucifers, beans/legumes, or fat. Similarly, in the intervention arm, mean plasma levels of alpha-carotene, beta-carotene, lutein, lycopene, and total carotenoids increased by 33%, 36%, 19%, 30%, and 26%, respectively ($P < 0.05$). In the control arm, there were no significant changes in plasma levels of alpha- or beta-carotene, lutein, lycopene, or total carotenoids. **CONCLUSIONS:** Telephone-based dietary counseling increases vegetable intake, decreases fat intake, and significantly increases plasma levels of potentially anticarcinogenic carotenoids in men with prostate cancer. These data support the feasibility of implementing clinical trials of dietary intervention in men with prostate cancer.

WHAT YOU NEED TO KNOW:

The objective of this study was to determine how easy or difficult it would be to implement a diet program for men with prostate cancer. Participants in this study were 74 men with prostate cancer aged 50 to 80 years. Half of the men received telephone-based diet counseling, while the others received standard written nutritional information (control group). The goal of the telephone counseling was to increase intakes of vegetables (especially cruciferous vegetables like broccoli & kale, and tomato products), whole grains, and beans & legumes. All the participants gave dietary information at the beginning of the study and six months later. The researchers also measured levels of carotenoids (pigments found in plant foods) in the blood.

The results showed that men who received telephone counseling increased total vegetable intake significantly. Specific increases were: cruciferous vegetables=143%, tomato products=292%, beans/legumes=95%. Fat intake decreased by 12%. Blood carotenoid levels also increased; alpha-carotene=33%, beta-carotene=36%, lutein=19%, lycopene=30%, carotenoids total=26%.

The control group showed no significant changes in dietary intake of vegetables, beans/legumes or fat. There were no significant changes in blood levels of carotenoids.

This study suggests that it is feasible and beneficial to implement a dietary counseling program for men with prostate cancer.

THE BOTTOM LINE:

Telephone-based diet counseling decreases fat intake, and significantly increases vegetable intake and blood levels of carotenoids in men with prostate cancer.

Saxe, GA, J. M. Major, L. Westerberg, S. Khandrika and T. M. Downs. **Biological Mediators of Effect of Diet and Stress Reduction on Prostate Cancer.** *Integrative Cancer Therapies.* 2008 Sep; 73: 130-138.

Original Abstract:

Background. A 6-month pilot intervention trial was conducted to determine whether adoption of a plant-based diet, reinforced by stress reduction, could reduce the rate of prostate-specific antigen (PSA) increase, a marker of disease progression, in asymptomatic, hormonally untreated patients experiencing consistently increasing PSA levels after surgery or radiation. **Methods.** A pre-post design was used to examine (1) the effect of intervention on potential mediators of disease progression, including body composition and weight-related biomarkers (sex steroid hormones and cytokines), and (2) whether changes in these variables were associated with change in rate of PSA increase. The baseline rate of PSA increase (from the time of posttreatment recurrence to the start of intervention) was ascertained from medical records. Body composition and biomarkers were assessed at baseline (prior to intervention), during the intervention (3 months), and at the end of the intervention (6 months). Changes in body composition and biomarkers were determined and compared with rates of PSA increase over the corresponding time intervals. **Results.** There was a significant reduction in waist-to-hip ratio ($P = .03$) and increase in circulating sex hormone binding globulin ($P = .04$). The rate of PSA increase decreased from the preintervention period (PSA slope = 0.059) to the period from 0 to 3 months (PSA slope = 0.002, $P < .01$) and increased slightly, although not significantly, from 0 to 3 months to the period from 3 to 6 months (0.029, $P = .43$). **Conclusions.** Adoption of a plant-based diet and stress reduction may reduce central adiposity and improve the hormonal milieu in patients with recurrent PC. Changes in the rate of increase in PSA were in the same direction as changes in waist-to-hip ratio and opposite those of sex hormone binding globulin, raising the possibility that the effect of the intervention may have been mediated, in part, by these variables. copyright 2008 Sage Publications.

WHAT YOU NEED TO KNOW:

This study examined whether adopting a plant-based diet, reinforced by practicing stress-reduction could slow the rate of increasing PSA levels (a marker of disease progression) in men previously treated with surgery or radiation for prostate cancer.

The participants were men who had consistently increasing PSA scores and had never received hormonal therapy as a treatment. The researchers measured body composition and certain hormone levels as well as levels of PSA increase at the beginning of the study, after 3 months, and after 6 months (at the end of the study). Information about initial PSA increase rates was gathered from the participants' medical records.

The results showed that participants significantly decreased waist-to-hip ratio (signifying abdominal fat loss) and increased blood levels of circulating sex hormone binding globulin, which is a positive effect of weight reduction. The rate of PSA increase decreased after 3 months, and increased again slightly (but not significantly) after 6 months.

THE BOTTOM LINE:

Plant-based diets may slow PSA increase in men with recurrent prostate cancer through weight loss and by improving hormone levels in the body.

Phytoestrogens

Ward, H, G. Chapelais, G. G. C. Kuhnle, R. Luben, K. -T Khaw and S. Bingham. **Lack of Prospective Associations between Plasma and Urinary Phytoestrogens and Risk of Prostate Or Colorectal Cancer in the European Prospective into Cancer-Norfolk Study.** *Cancer Epidemiology Biomarkers and Prevention.*American Association for Cancer Research Inc. 2008 October; 17(10): 2891-2894.

Original Abstract:

Dietary phytoestrogens are suggested to reduce the risk of prostate and colorectal cancer, but the results of epidemiologic studies have not yielded consistent support for this proposed effect, possibly due to inadequate databases of phytoestrogen levels in foods. Biomarkers of phytoestrogen intakes may provide a clearer insight into the relationship between phytoestrogen exposure and the risk of prostate or colorectal cancer risks. From the European Prospective into Cancer-Norfolk cohort (ages 45-75), serum and urine samples were analyzed for seven phytoestrogens [daidzein, enterodiol, enterolactone, genistein, glycitein, O-desmethyldangolensin (O-DMA), and equol] among 193 cases of prostate cancer and 828 controls, and 221 cases of colorectal cancer with 889 controls. Summary variables of total lignans (enterodiol and enterolactone) and total isoflavones (daidzein, genistein, O-DMA, equol, and glycitein) were created and analyzed in conjunction with individual phytoestrogens. Logistic regression analyses revealed that there was no significant association between prostate cancer risk and total serum isoflavones [odds ratio (OR), 1.01; 95% confidence interval (CI), 0.93-1.10] or total serum lignans (OR, 0.94; 95% CI, 0.86-1.04) or between colorectal cancer risk and total serum isoflavones (OR, 1.01; 95% CI, 0.94-1.08) or total serum lignans (OR, 1.03; 95% CI, 0.94-1.12). Similarly, null associations were observed for individual serum phytoestrogens and for all urinary phytoestrogen biomarkers. In conclusion, we have found no evidence to support an inverse association between phytoestrogen exposure and prostate or colorectal cancer risk. Copyright copyright 2008 American Association for Cancer Research.

WHAT YOU NEED TO KNOW:

Dietary phytoestrogens are found in plant foods and can have estrogen-like effects on the body. Research has suggested that phytoestrogens may reduce the risk of prostate and colorectal cancers; however, not all studies have supported this idea, possibly because there is not enough information about phytoestrogen levels in foods. The researchers of this study suggest that measuring phytoestrogens in blood and bodily fluids may more accurately highlight the relationship between phytoestrogens and risk of prostate and colorectal cancer.

Participants in this study were 193 prostate cancer patients and 828 controls without prostate cancer, as well as 221 colorectal cancer patients and 889 controls without colorectal cancer; all were between the ages of 45 and 75. 7 individual phytoestrogens were measured in the participants' blood and urine samples.

The results showed no significant associations between prostate or colorectal cancer risk and blood and urine levels of individual or total phytoestrogens.

THE BOTTOM LINE:

Other studies have shown some positive results with the amount of certain isoflavones in the diet. However, the actual blood levels of these compounds in the body do not correlate with cancer risk.

Editor's Comment:

Not all the effects of certain foods can be correlated with their blood levels. They also have local and tissue accumulation effects.

PSA

Kim, Y., Y. -J Cho, J. -E Oh, Y. -S Jeon, S. -C Lee and W. -J Kim. **The Association between Metabolic Syndrome and Prostate-Specific Antigen Levels.** *International Journal of Urology*. Blackwell Publishing. 2008 October; 1510: 905-909.

Original Abstract:

Objectives: Prostate-specific antigen (PSA) levels are affected by many factors. Metabolic syndrome (MS) is a common metabolic disorder related to the increasing prevalence of obesity. The relationship between MS and PSA is currently unknown, however. The aim of this study was to examine whether PSA levels were affected by MS. **Methods:** We evaluated the association between MS and PSA in a group of 2007 men (aged 30 to 79 years) without prostate cancer who received a general health checkup. Men with abnormal digital rectal examination findings or PSA values higher than 3.0 ng/mL were considered abnormal and excluded from the study. MS was defined according to the modified National Cholesterol Education Program Third Adult Treatment Panel guidelines. Eligible men were classified according to the number of each component and the presence or absence of MS. **Results:** PSA levels, as a whole, were inversely correlated with MS ($P = 0.043$). An increased number of MS components was significantly associated with linear decreasing trends of PSA levels ($P\text{-trend} < 0.001$). When a multivariate analysis was performed with age and each MS, age ($P < 0.001$), abdominal obesity ($P = 0.001$), and an impaired fasting glucose level ($P = 0.047$) were strongly associated with PSA levels. **Conclusions:** MS is associated with decreased PSA levels. When determining whether to perform prostate biopsy as part of early prostate cancer detection, MS should be considered as a factor associated with reduced PSA in men presenting with marginal PSA levels. copyright 2008 The Japanese Urological Association.

WHAT YOU NEED TO KNOW:

PSA levels are affected by many factors. Metabolic syndrome (MS) is a collection of disease risk factors in an individual; it is related to obesity. The relationship between MS and PSA levels is unknown; the goal of this study was to determine whether MS affected PSA levels.

Participants in this study were 2,007 men aged 30 to 79 years without prostate cancer who received a general health checkup. Men with abnormal digital rectal exam findings or PSA scores higher than 3 were excluded from the study. MS was defined and rated in the participants according to specific guidelines.

The results showed that higher levels of MS were associated with lower PSA scores. In particular 2 risk factors, abdominal obesity and an impaired fasting glucose level, were strongly associated with lower PSA levels. These lower PSA levels may be "false", hiding prostate cancer with false negative PSA results.

Doctors should take this into account when examining men with borderline PSA levels.

THE BOTTOM LINE:

Metabolic syndrome increases risk for prostate and other cancers and it also inhibits PSA levels which have to be interpreted in a different way, with lower levels of PSA indicating possible disease in men with this syndrome.

Lin, K, R. Lipsitz, T. Miller, S. Janakiraman, U.S and Force Preventive Services Task. **Benefits and Harms of Prostate-Specific Antigen Screening for Prostate Cancer: An Evidence Update for the U.S. Preventive Services Task Force.** *Ann Intern Med.* 2008 Aug 5; 1493: 192-199.

Original Abstract:

BACKGROUND: Prostate cancer is the most common nonskin cancer in men in the United States, and prostate cancer screening has increased in recent years. In 2002, the U.S. Preventive Services Task Force concluded that evidence was insufficient to recommend for or against screening for prostate cancer with prostate-specific antigen (PSA) testing. **PURPOSE:** To examine new evidence on benefits and harms of screening asymptomatic men for prostate cancer with PSA. **DATA SOURCES:** English-language articles identified in PubMed and the Cochrane Library (search dates, January 2002 to July 2007), reference lists of retrieved articles, and expert suggestions. **STUDY SELECTION:** Randomized, controlled trials and meta-analyses of PSA screening and cross-sectional and cohort studies of screening harms and of the natural history of screening-detected cancer were selected to answer the following questions: Does screening for prostate cancer with PSA, as a single-threshold test or as a function of multiple tests over time, decrease morbidity or mortality? What are the magnitude and nature of harms associated with prostate cancer screening, other than overtreatment? What is the natural history of PSA-detected, nonpalpable, localized prostate cancer? **DATA EXTRACTION:** Studies were reviewed, abstracted, and rated for quality by using predefined U.S. Preventive Services Task Force criteria. **DATA SYNTHESIS:** No good-quality randomized, controlled trials of screening for prostate cancer have been completed. In 1 cross-sectional and 2 prospective cohort studies of fair to good quality, false-positive PSA screening results caused psychological adverse effects for up to 1 year after the test. The natural history of PSA-detected prostate cancer is poorly understood. **LIMITATIONS:** Few eligible studies were identified. Long-term adverse effects of false-positive PSA screening test results are unknown. **CONCLUSION:** Prostate-specific antigen screening is associated with psychological harms, and its potential benefits remain uncertain. [References: 37]

WHAT YOU NEED TO KNOW:

Prostate cancer is the most common cancer after skin cancer in men in the U.S. and prostate cancer screening has increased in recent years. In 2002, the U.S. Preventive Services Task Force concluded that there was not enough evidence to recommend for or against screening for prostate cancer using PSA (prostate specific antigen) tests. The aim of this review was to look at new evidence on the benefits and harms of screening healthy men for prostate cancer using PSA testing.

The researchers looked for high quality articles published between 2002 and 2007 about the harmful aspects of screening, and the natural history of prostate cancers detected through screening. 'Natural history' refers to what happens when these cancers are not treated. The researchers wanted to answer the following questions:

- ❖ Does PSA screening decrease the number of prostate cancers detected each year?
- ❖ Does PSA screening decrease deaths from prostate cancer?
- ❖ What are the harms associated with PSA testing (other than overtreatment)? Are these harms major or minor?
- ❖ What is the natural history of PSA-detected, nonpalpable (unable to feel), localized prostate cancer?

The results showed:

- ❖ No good quality trials for screening of prostate cancer have been published.
- ❖ 3 fair to good quality studies showed that false-positive PSA tests caused psychologically harmful effects to patients for up to 1 year after testing.
- ❖ The natural history of PSA-detected prostate cancer is poorly understood.

Limitations to this review were not enough eligible studies to analyze, and that long-term effects of false positive PSA test results are not known.

THE BOTTOM LINE:

PSA screening may cause psychological harms, and its benefits are uncertain.

Psychosocial

Chida, Y, M. Hamer, J. Wardle and A. Steptoe. **Do Stress-Related Psychosocial Factors Contribute to Cancer Incidence and Survival?** *Nature Clinical Practice Oncology*. 2008 Aug; 58: 466-475.

Original Abstract:

A substantial body of research has investigated the associations between stress-related psychosocial factors and cancer outcomes. Previous narrative reviews have been inconclusive. In this Review, we evaluated longitudinal associations between stress and cancer using meta-analytic methods. The results of 165 studies indicate that stress-related psychosocial factors are associated with higher cancer incidence in initially healthy populations ($P = 0.005$); in addition, poorer survival in patients with diagnosed cancer was noted in 330 studies ($P < 0.001$), and higher cancer mortality was seen in 53 studies ($P < 0.001$). Subgroup meta-analyses demonstrate that stressful life experiences are related to poorer cancer survival and higher mortality but not to an increased incidence. Stress-prone personality or unfavorable coping styles and negative emotional responses or poor quality of life were related to higher cancer incidence, poorer cancer survival and higher cancer mortality. Site-specific analyses indicate that psychosocial factors are associated with a higher incidence of lung cancer and poorer survival in patients with breast, lung, head and neck, hepatobiliary, and lymphoid or hematopoietic cancers. These analyses suggest that stress-related psychosocial factors have an adverse effect on cancer incidence and survival, although there is evidence of publication bias and results should be interpreted with caution. [References: 36]

WHAT YOU NEED TO KNOW:

Although there has been lots of research into the associations between stress-related psychological issues and cancer outcomes, previous reviews have shown inconclusive results. For this study the researchers reviewed and analyzed the data from hundreds of studies in order to evaluate the association between stress and cancer.

The results showed:

- ❖ Stress-related psychological issues were associated with higher cancer rates in otherwise healthy people.
- ❖ Cancer patients with stress-related psychological issues had shorter survival times and higher death rates.
- ❖ People who had experienced stressful life events were no more likely to get cancer than anyone else; however, if they did get cancer they had shorter survival times and higher death rates than average.
- ❖ People with stress-prone personality types, or unhealthy coping styles and negative emotional responses, or poor quality of life were more likely to get cancer; they also had shorter survival times and higher death rates from cancer.
- ❖ Psychological factors were associated with higher rates of lung cancer, and higher death rates for patients with breast, lung, head and neck, liver, lymph and blood cancers.

THE BOTTOM LINE:

Stress-related psychological factors may increase cancer rates and cancer death rates, and decrease survival times.

Siegel, SD, I. Molton, F. J. Penedo, et al. **Interpersonal Sensitivity, Partner Support, Patient-Physician Communication, and Sexual Functioning in Men Recovering from Prostate Carcinoma.** *J Pers Assess.* 2007 Dec; 893: 303-309.

Original Abstract:

Prostate carcinoma (PC) is the most commonly diagnosed cancer in men. Treatments for localized PC are associated with side effects including sexual dysfunction, which has been linked to decrements in health-related quality of life and elevated distress levels. In this study, we examined the relationship between 2 personality traits, interpersonal sensitivity and lack of sociability, assessed by the Inventory of Interpersonal Problems (IIP; Pilkonis, Kim, Proietti, & Barkham, 1996) and recovery of sexual functioning in 121 men (M age = 60.6 years) recently treated with radical prostatectomy. Interpersonal sensitivity refers to the predisposition to perceive and elicit criticism and rejection from others; lack of sociability refers to chronic difficulties taking the initiative in interpersonal situations. After adjusting for relevant covariates, interpersonal sensitivity, but not sociability, was significantly associated with lower levels of sexual functioning. Patient-physician communication and partner perceived social support were explored as mediators of this relationship. Although interpersonal sensitivity was significantly associated with both poorer patient-physician communication and lower levels of partner support, the results did not support mediation. This study provides preliminary evidence that certain IIP-assessed interpersonal styles may complicate the recovery of sexual functioning after surgical treatment for PC. Copyright copyright 2007, Lawrence Erlbaum Associates, Inc.

WHAT YOU NEED TO KNOW:

Prostate cancer is the most common cancer diagnosed in men. Treatments for early-stage prostate cancer often cause side effects, including sexual dysfunction, which is associated with a decreased quality of life and increased levels of distress. This study looked at the association between 2 personality traits: *interpersonal sensitivity* and *lack of sociability*, and the recovery of sexual function in 121 men (average age=60.6 years) recently treated with radical prostatectomy.

People who are high in *interpersonal sensitivity* are “too sensitive” to others; they perceive that people are being critical toward them and may feel rejected and abandoned. People with a *lack of sociability* feel uncomfortable in social situations and have trouble taking initiative around others.

The results showed that interpersonal sensitivity only was significantly associated with lower levels of sexual functioning. Interpersonal sensitivity was also associated with poorer patient-doctor communication and lower levels of partner support.

THE BOTTOM LINE:

Certain interpersonal styles, specifically interpersonal sensitivity may complicate the recovery of sexual function after radical prostatectomy for prostate cancer.

Sinfield, P, Richard Baker, Shona Agarwal and Carolyn Tarrant. **Patient-Centred Care: What are the Experiences of Prostate Cancer Patients and their Partners?** *Patient Educ Couns.* 2008 10; 731: 91-96.

Original Abstract:

Objective: To gain an in depth understanding of the experiences of care of men with prostate cancer and their partners. **Methods:** The study design was a qualitative analysis of semi-structured interviews of men (35) who had been diagnosed and treated for prostate cancer and their partners (10). They were recruited from two hospitals in the East Midlands of England and two charities. **Results:** The interviews showed that although there was no widespread dissatisfaction with care, patients reported problems throughout care. The two main problems were that throughout care patients' and partners' information needs were often not identified or met, and patients' preferred role in decision-making about testing and treatment was not explored. **Conclusions:** If patients' experiences of prostate cancer care are to be improved, clinicians need to identify, and respond to, the information and decision-making needs of individual patients and their partners. **Practice Implications:** Clinicians should identify and meet the needs of patients individually, use appropriate language and formats for communicating information, fully prepare patients for tests, explore and meet the needs of patients for involvement in decision-making, and recognise the important role that their partner plays. Systems and pathways of care should be designed to enable patients and partners to obtain information and participate in decision-making throughout all stages of care. (PsycINFO Database Record (c) 2008 APA, all rights reserved)

WHAT YOU NEED TO KNOW:

The aim of this study was to gain a better understanding of how prostate cancer patients and their partners feel about their experience of receiving care for this disease.

The participants in this study were 35 men who had been diagnosed and treated for prostate cancer and 10 partners. The format of this study was a semi-structured interview with each participant.

The results showed that although patients were not dissatisfied with care in general there were problems throughout the experience of care. The 2 main problems were:

- Patients and their partners' information needs were often not identified by health care providers. And even if their information needs were identified they were often not fully satisfied. Ultimately they did not receive all the information they wanted.
- The patients' preferred role in decision-making (for example whether they wanted to play an active, passive, or shared role in the decision-making process) in regards to testing and treatment was not considered by the health care providers.

Health care providers may be able to improve patient satisfaction with care by communicating effectively and appropriately, fully preparing patients for testing and treatment, respecting their decision-making styles, and recognizing the important roles that their partners play.

THE BOTTOM LINE:

To improve the experience of prostate cancer care for patients, health care providers should identify and respond to each individual's information needs and preferences regarding decision-making.

Soy

Hamilton-Reeves, JM, S. A. Rebello, W. Thomas, M. S. Kurzer and J. W. Slaton. **Effects of Soy Protein Isolate Consumption on Prostate Cancer Biomarkers in Men with HGPIN, ASAP, and Low-Grade Prostate Cancer.** *Nutrition & Cancer.* 2008 Jan-Feb; 60(1): 7-13.

Original Abstract:

Fifty-eight men at high risk of prostate cancer or with low-grade prostate cancer were randomly assigned to consume 1 of 3 protein isolates containing 40 g protein: 1) soy protein (SPI+, 107 mg isoflavones/d); 2) alcohol-washed soy protein (SPI-, <6 mg isoflavones/d); or 3) milk protein (MPI). Proliferating cell nuclear antigen (PCNA), epidermal growth factor receptor, B-cell non-Hodgkin lymphoma-2 (Bcl-2), and Bcl-2-associated X protein (Bax) were assessed in baseline and ending prostate biopsy cores. Serum collected at 0, 3, and 6 mo was analyzed for total and free prostate specific antigen (PSA). Consumption of SPI+ did not alter any of the prostate cancer tumor markers. Bax expression decreased from baseline in the SPI- group, resulting in lower Bax expression than the MPI group. PCNA expression also decreased from baseline in the SPI- group, but this was not different from the other 2 groups. PSA did not differ among the groups at 3 or 6 mo. Interestingly, a lower rate of prostate cancer developed in the soy groups compared to the milk group ($P = 0.01$). These data suggest that 6-mo SPI+ consumption does not alter prostate tissue biomarkers, SPI- consumption exerts mixed effects, and less prostate cancer is detected after 6 mo of soy consumption regardless of isoflavone content.

WHAT YOU NEED TO KNOW:

This study looked at the effects of soy protein in the diet on prostate cancer markers. Participants in this study were 58 men at high risk of prostate cancer, or with low-grade prostate cancer. They were each randomly assigned to one of 3 dietary protein supplement groups. Each group consumed 40 grams of protein (in different forms) per day for 6 months. The 3 protein groups were:

1. Soy protein containing high amounts of isoflavones (plant chemicals that have a weak estrogen effect in the body).
2. Soy protein with low amounts of isoflavones.
3. Milk protein (no isoflavones).

The researchers took prostate biopsies of the participants at the beginning and end of the study in order to measure several prostate cancer markers. They also took blood samples at the beginning of the study, and again after 3 and 6 months, to measure PSA levels.

The results showed that:

- ❖ Group 1 had no change in tumor markers.
- ❖ 2 tumour markers decreased in group 2.
- ❖ PSA scores were the same in the groups at 3 months and 6 months.
- ❖ Groups 1 and 2 (soy groups) had lower rates of prostate cancer develop than group 3 (milk group).

THE BOTTOM LINE:

There was some preventive benefit for the men taking soy protein in this study.

Hamilton-Reeves, JM, S. A. Rebello, W. Thomas, J. W. Slaton and M. S. Kurzer. **Isoflavone-Rich Soy Protein Isolate Suppresses Androgen Receptor Expression without Altering Estrogen Receptor-Beta Expression Or Serum Hormonal Profiles in Men at High Risk of Prostate Cancer** *J Nutr.* 2007 Jul; 1377: 1769-1775.

Original Abstract:

The purpose of this study was to determine the effects of soy protein isolate consumption on circulating hormone profiles and hormone receptor expression patterns in men at high risk for developing advanced prostate cancer. Fifty-eight men were randomly assigned to consume 1 of 3 protein isolates containing 40 g/d protein: 1) soy protein isolate (SPI+) (107 mg/d isoflavones); 2) alcohol-washed soy protein isolate (SPI-) (<6 mg/d isoflavones); or 3) milk protein isolate (0 mg/d isoflavones). For 6 mo, the men consumed the protein isolates in divided doses twice daily as a partial meal replacement. Serum samples collected at 0, 3, and 6 mo were analyzed for circulating estradiol, estrone, sex hormone-binding globulin, androstenedione, androstenediol glucuronide, dehydroepiandrosterone sulfate, dihydrotestosterone, testosterone, and free testosterone concentrations by RIA. Prostate biopsy samples obtained pre- and postintervention were analyzed for androgen receptor (AR) and estrogen receptor-beta expression by immunohistochemistry. At 6 mo, consumption of SPI+ significantly suppressed AR expression but did not alter estrogen receptor-beta expression or circulating hormones. Consumption of SPI- significantly increased estradiol and androstenedione concentrations, and tended to suppress AR expression (P = 0.09). Although the effects of SPI- consumption on estradiol and androstenedione are difficult to interpret and the clinical relevance is uncertain, these data show that AR expression in the prostate is suppressed by soy protein isolate consumption, which may be beneficial in preventing prostate cancer.

WHAT YOU NEED TO KNOW:

The aim of this study was to determine the effect of soy protein isolate consumption on the circulating hormones and hormone receptor expression patterns in men at high risk of developing advanced prostate cancer. Participants were 58 men; they were each randomly assigned to one of 3 dietary protein supplement groups. Each group consumed 40 grams of protein (in different forms) per day for 6 months. The protein was divided into 2 doses and taken as a partial meal replacement. The 3 groups were:

1. Soy protein containing high amounts of isoflavones (plant chemicals that have a weak estrogen effect in the body).
2. Soy protein with low amounts of isoflavones.
3. Milk protein (no isoflavones).

The researchers took blood samples from the participants at the beginning of the study, and again after 3 and 6 months, in order to measure circulating hormones. They also took prostate biopsies of the participants at the beginning and end of the study, to measure hormones receptor expression (androgen and estrogen).

The results showed that group 1 had reduced androgen expression. Estrogen expression and circulating hormone levels did not change. Group 2 had some increased hormone levels and reduced androgen expression.

THE BOTTOM LINE:

Soy protein isolate reduces androgen expression in the prostate, which may help prevent prostate cancer.

Hamilton-Reeves, JM, S. A. Rebello, W. Thomas, J. W. Slaton and M. S. Kurzer. **Soy Protein Isolate Increases Urinary Estrogens and the Ratio of 2:16 α -Hydroxyestrone in Men at High Risk of Prostate Cancer.** *J Nutr.* 2007 Oct; 13710: 2258-2263.

Original Abstract:

Specific estrogen metabolites may initiate and promote hormone-related cancers. In epidemiological studies, significantly lower excretion of urinary estradiol (E2) and lower ratio of urinary 2-hydroxy estrogens to 16 α -hydroxyestrone (2:16 OH-E1) have been reported in prostate cancer cases compared to controls. Although soy supplementation has been shown to increase the ratio 2:16 OH-E1 in women, no studies to our knowledge have investigated the effects of soy supplementation on estrogen metabolism in men. The objective of this randomized controlled trial was to determine the effects of soy protein isolate consumption on estrogen metabolism in men at high risk for developing advanced prostate cancer. Fifty-eight men supplemented their habitual diets with 1 of 3 protein isolates: 1) isoflavone-rich soy protein isolate (SPI+) (107 mg isoflavones/d); 2) alcohol-washed soy protein isolate (SPI-) (<6 mg isoflavones/d); or 3) milk protein isolate (MPI), each providing 40 g protein/d. At 0, 3, and 6 mo of supplementation, the urinary estrogen metabolite profile was measured by GC-MS. Both soy groups had higher E2 excretion than the MPI group at 3 and 6 mo. After 6 mo of supplementation, the SPI+ group had a significantly higher urinary 2:16 OH-E1 ratio than the MPI group. Increased urinary E2 excretion and 2:16 OH-E1 ratio in men consuming soy protein isolate are consistent with studies in postmenopausal women and suggest that soy consumption may be beneficial in men at high risk of progressing to advanced prostate cancer as a result of effects on endogenous estrogen metabolism.

WHAT YOU NEED TO KNOW:

Sometimes estrogen in the body can cause and/or feed hormone-related cancers. In previous studies prostate cancer patients (when compared with healthy control subjects) have shown significantly lower levels of certain estrogen measures in urine. Studies on women have shown that soy supplementation increases these estrogen measures; however, no studies have been done in men.

The aim of this study was to determine if soy supplementation would affect estrogen in men at high risk of developing advanced prostate cancer. The 58 men participating in this study were assigned to 1 of 3 protein supplement groups:

1. Soy protein isolate with a high isoflavone (acts like estrogen in the body) content.
2. Alcohol-washed soy protein (low in isoflavones, less estrogen effect).
3. Milk protein isolate (no isoflavones or estrogen effect).

Each participants consumed 40g of supplemental protein every day for 6 months; urine estrogen levels were measured before the study, and after 3 and 6 months of protein supplementation.

The results showed that both soy supplements groups (1 & 2) had higher estrogen measures after 3 and 6 months of supplementation than group 3 (milk protein). After 6 months group 1 had significantly higher estrogen measures than group 3.

These results are consistent with previous studies in women.

THE BOTTOM LINE:

Soy protein supplementation may benefit men at risk of developing advanced prostate cancer.

Supplements

Peters, U, A. J. Littman, A. R. Kristal, R. E. Patterson, J. D. Potter and E. White. **Vitamin E and Selenium Supplementation and Risk of Prostate Cancer in the Vitamins and Lifestyle (VITAL) Study Cohort.** *Cancer Causes and Control*. 2008 Feb; 191: 75-87.

Original Abstract:

Objective: Vitamin E and selenium are promising nutrients for the prevention of prostate cancer, and both are currently being tested in a large randomized trial for prostate cancer. However, results are not expected for at least 6 years. We aimed to investigate the association of vitamin E and selenium supplementation with prostate cancer in the VITamins And Lifestyle (VITAL) study, a cohort study specifically designed to examine supplement use and future cancer risk. Methods: In a prospective design, 35,242 men recruited between 2000 and 2002 from western Washington State completed a questionnaire, including detailed questions about vitamin E and selenium supplement intake during the past 10 years from brand-specific multivitamins and single supplements. Using linkage to the western Washington SEER cancer registry, we documented 830 new cases of prostate cancer from baseline through December 2004. Results: A 10-year average intake of supplemental vitamin E was not associated with a reduced prostate cancer risk overall [hazard ratio (HR) 0.86, 95% confidence interval (CI) 0.65-1.1 for [greater-than or equal to]400 IU/day vs. non-use, p for trend 0.36]; however, risk for advanced prostate cancer (regionally invasive or distant metastatic, n = 123) decreased significantly with greater intake of supplemental vitamin E (HR 0.43, 95% CI 0.19-1.0 for 10-year average intake [greater-than or equal to]400 IU/day vs. non-use, p for trend 0.03). There was no association between selenium supplementation and prostate cancer risk (HR 0.90, 95% CI 0.62-1.3 for 10-year average intake >50 mug/day vs. non-use, p for trend 0.97). Conclusions: In this prospective cohort, long-term supplemental intake of vitamin E and selenium were not associated with prostate cancer risk overall; however, risk of clinically relevant advanced disease was reduced with greater long-term vitamin E supplementation. copyright 2007 Springer Science+Business Media B.V.

WHAT YOU NEED TO KNOW:

Vitamin E and selenium are promising supplements for the prevention of prostate cancer. Both are currently being tested in a large trial for prostate cancer; however, results are not expected for at least 6 years. The aim of this study was to look at the association between Vitamin E and selenium supplementation and prostate cancer risk.

Participants were 35,242 men from western Washington State. Between 2000 and 2002 each participant completed a detailed questionnaire about vitamin E and selenium supplement use over the previous 10 years. Between 2000 and December 2004, 830 of the participants were diagnosed with prostate cancer.

The results showed that participants who took Vitamin E for an average of 10 years did not have a reduced risk of prostate cancer overall. However risk of advanced prostate cancer decreased significantly with higher vitamin E intake. The results showed no association between selenium supplementation and prostate cancer risk.

THE BOTTOM LINE:

Long-term vitamin E supplementation may reduce risk of advanced prostate cancer.

Treatment Options

Onik, G, D. Vaughan, R. Lotenfoe, M. Dineen and J. Brady. **The "Male Lumpectomy": Focal Therapy for Prostate Cancer using Cryoablation Results in 48 Patients with at Least 2-Year Follow-Up.** *Urol Oncol.* 2008 Sep-Oct; 265: 500-505.

Original Abstract:

BACKGROUND: The use of breast sparing surgery, i.e., "lumpectomy", revolutionized management of breast cancer. Lumpectomy confirmed that quality of life issues can successfully be addressed without compromising treatment efficacy. Complications of prostate cancer treatment, including impotence and incontinence, affect the male self image no less than the loss of a breast does a woman. Traditional thinking held that prostate cancer was multifocal and therefore not amenable to a focal treatment approach. Recent pathology literature indicates, however, that up to 25% of prostate cancers are solitary and unilateral. This raises the question of whether these patients can be identified and treated with a limited "lumpectomy" or focal cancer treatment. **METHODS:** Focal cryoablation was planned to encompass the area of known tumor based on staging biopsies. PSAs were obtained every 3 months for 2 years and then every 6 months thereafter. **RESULTS:** Forty-eight patients with at least 2-year follow-up had focal cryoablation. Follow-up ranged from 2 years 10 years with a mean of 4.5 years; 45 of 48 patients (94%) have stable PSAs [American Society of Therapeutic Radiology and Oncology (ASTRO) criteria] with no evidence for cancer, despite 25 patients being medium to high risk for recurrence. Of the 24 patients with stable PSAs who were routinely biopsied (n = 24) all were negative. No local recurrences were noted in areas treated. Potency was maintained to the satisfaction of the patient in 36 of 40 patients who were potent preoperatively. Of the 48, all were continent. **CONCLUSION:** These preliminary results indicate a "male lumpectomy" in which the prostate tumor region itself is destroyed, appears to preserve potency in a majority of patients and limits other complications (particularly incontinence), without compromising cancer control. If confirmed by further studies and long-term follow-up, this treatment approach could have a profound effect on prostate cancer management.

WHAT YOU NEED TO KNOW:

The use of the breast 'lumpectomy' surgery revolutionized the way breast cancer was treated. Lumpectomy surgery showed that quality of life could be improved without reducing the effectiveness of the treatment. Prostate cancer patients are faced with self-image issues such as impotence and incontinence, as are women who face losing a breast to cancer. Traditional thinking stated that prostate cancer was not treatable with lumpectomy surgery because it was multifocal (in multiples spots). However, recent pathology studies have shown that up to 25% of prostate cancers show up as a single spot on one side of the prostate. The aim of this study was to determine if it was possible to identify these patients and treat them with a 'lumpectomy' approach.

Participants in this study were 48 patients who received cryoablation therapy (freezing the tissue to kill cancer cells) directly on the prostate tumour. The men's PSA scores were monitored every 3 months for 2 years and the every 6 months after. The men were followed an average of 4.5 years.

The results showed that 45 of 48 patients (94%) had stable PSAs with no evidence of cancer, even though 25 patients had medium-to-high risk of recurrence. 24 patients with stable PSA who had routine biopsies showed no evidence of cancer. None of the patients had a cancer recurrence in the treated area. None of the men experienced incontinence and of the 40 men who were sexually potent before treatment, 36 were satisfied with their potency after.

THE BOTTOM LINE:

A 'male lumpectomy' can successfully treat some prostate cancers, while preserving urinary continence and sexual potency.

Sommers, BD, C. J. Beard, A. V. D'Amico, I. Kaplan, J. P. Richie and R. J. Zeckhauser. **Predictors of Patient Preferences and Treatment Choices for Localized Prostate Cancer.** *Cancer.* 2008 Oct 15; 1138: 2058-2067.

Original Abstract:

BACKGROUND: Little is known regarding how patients select treatment for localized prostate cancer. This study examined determinants of patients' preferences for health states related to prostate cancer, and assessed whether preferences and/or other factors predict treatment choices. **METHODS:** A survey of 167 patients with newly diagnosed localized prostate cancer was conducted in 4 academic medical practices from 2004 to 2007. The authors assessed demographic and health factors, and used a time-tradeoff method to elicit preferences in the form of quality-adjusted life years (QALYs) regarding health states related to prostate cancer. Linear regressions identified predictors of preferences (in QALYs) for erectile dysfunction (ED), urinary incontinence, rectal/bowel symptoms, and metastatic prostate cancer. Linear probability models identified predictors of treatment choice. **RESULTS:** Patient preferences were affected by a range of behavioral, demographic, and health factors. For example, sexually active men reported significantly lower QALYs for living with ED, and men with family members who died of cancer reported lower QALYs for metastatic disease. The strongest predictor of treatment was the type of physician seen (radiation oncology vs urology) at the time of the survey. Age and tumor grade also were found to be strongly predictive of treatment. In general, QALYs were not found to predict treatment choice. **CONCLUSIONS:** Patient preferences, as reported in QALYs, are shaped by reasonable behavioral and demographic influences. However, actual treatment choices appear to bear little relation to these patient preferences, and instead demonstrate a strong association with clinician specialty. More attention to variation in preferences among patients, as well as the use of decision-support technologies, may enable physicians to facilitate more optimal individualized treatment choices for patients with prostate cancer. (c) 2008 American Cancer Society.

WHAT YOU NEED TO KNOW:

Little is known about how men with localized prostate cancer select treatment. This study looked at patient preferences regarding health states related to prostate cancer and whether these preferences or other factors predicted treatment choice.

Participants in this study were 167 newly diagnosed prostate cancer patients who were surveyed between 2004 and 2007. The researchers measured demographic and health factors to see patient preferences in regards to health states related to prostate cancer such as erectile dysfunction, urinary incontinence, rectal/bowel symptoms, and metastatic prostate cancer.

The results showed that a range of factors affected patient preferences; for example sexually active men had a lower tolerance for erectile dysfunction. However, in general patient preferences were not found to predict treatment choice. The strongest predictor of treatment was the type of physician seen by the patient (radiation oncologist vs. urologist). Age and tumour grade also predicted treatment choice.

THE BOTTOM LINE:

Prostate cancer patients treatments choices are determined by physician specialty rather than patient preference.

Urinary Symptoms/QOL

Fransson, P **Patient-Reported Lower Urinary Tract Symptoms, Urinary Incontinence, and Quality of Life After External Beam Radiotherapy for Localized Prostate Cancer--15 Years' Follow-Up. A Comparison with Age-Matched Controls.** *Acta Oncol.* 2008 475: 852-861.

Original Abstract:

BACKGROUND: To prospectively examine the urinary toxicity and quality of life (QOL) in patients 15 years after external beam radiotherapy (EBRT) for localized prostate cancer (LPC) and compare the outcomes with results for age-matched controls. **MATERIAL AND METHODS:** Urinary symptoms were assessed using the symptom-specific Prostate Cancer Symptom Scale (PCSS) questionnaire, and QOL was assessed with the European Organization for Research and Treatment of Cancer (EORTC)'s Quality of Life Questionnaire (QLQ-C30). Both questionnaires were sent to the surviving 41 patients (25%) and the PCSS questionnaire was sent to 69 age-matched controls for comparison. **RESULTS:** The response rate was 71% in the patient group and 59% in the control group. Two patients and four controls were excluded due to other cancer diagnoses, resulting in a total of 27 patients and 37 controls for inclusion in the analyses. The mean age in both groups was 78 years. In the patient group, incontinence had increased between the 8-year (mean 0.6) and the 15-year follow-up (mean 2.1; $p=0.038$). No other differences in urinary problems were seen between these two follow-ups. Increased incontinence, stress incontinence, and pain while urinating were reported by the patients in comparison with the controls at 15 years. Role function was worse in the patient group (mean 67.3) compared with the controls (mean 82.4; $p=0.046$). The patients also reported more appetite loss, diarrhea, nausea/vomiting, and pain than the controls. **CONCLUSION:** EBRT for LPC has divergent effects on urinary symptoms and QOL in comparison with age-matched controls. In our patient population, urinary incontinence increased between 8 and 15 years of follow-up. Otherwise, no differences in urinary symptoms were seen between 4 and 15 years. Incontinence, stress incontinence, and pain while urinating were increased after EBRT in comparison with the controls. Conventional EBRT did not result in a major deterioration in QOL 15 years after treatment.

WHAT YOU NEED TO KNOW:

The objective of this study was to examine the urinary problems and quality of life in patients 15 years after being treated with external beam radiotherapy (EBRT) for early-stage prostate cancer. Questionnaires to assess urinary symptoms and quality of life were sent to 41 patients and 69 control subjects (similar men not treated for prostate cancer). After excluding several patients due to other cancer diagnoses, the questionnaires of 27 patients and 37 controls (average age=78 years) were included in the analyses.

The results showed that, compared to the controls, the patient group had:

- ❖ increased incontinence between 8 and 15 years after EBRT
- ❖ increased incontinence, stress incontinence, and pain when urinating 15 years after EBRT.
- ❖ more appetite loss, diarrhea, nausea/vomiting and pain.

THE BOTTOM LINE:

Men who have had EBRT end up with a higher incidence of urinary and gastrointestinal symptoms than other men of the same age.