Nutrition & Prostate Cancer

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Nutrition & Disease

- A healthy diet reduces the risk of chronic diseases, such as heart disease, diabetes, & obesity.

- It is estimated that 1/3 of cancer deaths in the U.S. can be attributed to diet in adulthood (CA Cancer J Clin 2012).
Nutrition & Prostate Cancer

“There is growing scientific evidence that diet & lifestyle practices may slow the growth and progression of prostate cancer”.

PCF, 2015.
Choose Mostly Plant Foods

Higher amounts of vitamins, minerals, fiber, prebiotics, and phytonutrients.

Less calories, animal fats and protein, processed foods, and added sugars.
Phytonutrients
The Nutrition Rainbow

Tips from Food for Life: The more naturally colorful your meal is, the more likely it is to have an abundance of cancer-fighting nutrients. Pigments that give fruits and vegetables their bright colors represent a variety of protective compounds. The chart below shows the cancer-fighting and immune-boosting power of different-hued foods.

<table>
<thead>
<tr>
<th>Colors</th>
<th>Foods</th>
<th>Colorful Protective Substances and Possible Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Tomatoes and tomato products, watermelon, guava</td>
<td>Lycopene; antioxidant; cuts prostate cancer risk</td>
</tr>
<tr>
<td>Orange</td>
<td>Carrots, yams, sweet potatoes, mangos, pumpkins</td>
<td>Beta-carotene: supports immune system; powerful antioxidant</td>
</tr>
<tr>
<td>Yellow-orange</td>
<td>Oranges, lemons, grapefruits, papayas, peaches</td>
<td>Vitamin C, flavonoids: inhibit tumor cell growth, detoxify harmful substances</td>
</tr>
<tr>
<td>Green</td>
<td>Spinach, kale, collards, and other greens</td>
<td>Folate: builds healthy cells and genetic material</td>
</tr>
<tr>
<td>Green-white</td>
<td>Broccoli, Brussels sprouts, cabbage, cauliflower</td>
<td>Indoles, lutein: eliminate excess estrogen and carcinogens</td>
</tr>
<tr>
<td>White-green</td>
<td>Garlic, onions, chives, asparagus</td>
<td>Allyl sulfides: destroy cancer cells, reduce cell division, support immune systems</td>
</tr>
<tr>
<td>Blue</td>
<td>Blueberries, purple grapes, plums</td>
<td>Anthocyanins: destroy free radicals</td>
</tr>
<tr>
<td>Red-purple</td>
<td>Grapes, berries, plums</td>
<td>Resveratrol: may decrease estrogen production</td>
</tr>
<tr>
<td>Brown</td>
<td>Whole grains, legumes</td>
<td>Fiber: carcinogen removal</td>
</tr>
</tbody>
</table>

Physicians Committee for Responsible Medicine
5100 Wisconsin Ave, NW, Suite 400 • Washington, DC 20016
202-686-2210 • PCRM.org
Recommendation:
- Eat ½ cup or more of cruciferous vegetables each day

<table>
<thead>
<tr>
<th>Food (raw)</th>
<th>Serving</th>
<th>Total Glucosinolates (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brussels sprouts</td>
<td>½ cup (44 g)</td>
<td>104</td>
</tr>
<tr>
<td>Garden cress</td>
<td>½ cup (25 g)</td>
<td>98</td>
</tr>
<tr>
<td>Mustard greens</td>
<td>½ cup, chopped (28 g)</td>
<td>79</td>
</tr>
<tr>
<td>Turnip</td>
<td>½ cup, cubes (65 g)</td>
<td>60</td>
</tr>
<tr>
<td>Cabbage, savoy</td>
<td>½ cup, chopped (45 g)</td>
<td>35</td>
</tr>
<tr>
<td>Kale</td>
<td>1 cup, chopped (67 g)</td>
<td>67</td>
</tr>
<tr>
<td>Watercress</td>
<td>1 cup, chopped (34 g)</td>
<td>32</td>
</tr>
<tr>
<td>Kohlrabi</td>
<td>½ cup, chopped (67 g)</td>
<td>31</td>
</tr>
<tr>
<td>Cabbage, red</td>
<td>½ cup, chopped (45 g)</td>
<td>29</td>
</tr>
<tr>
<td>Broccoli</td>
<td>½ cup, chopped (44 g)</td>
<td>27</td>
</tr>
<tr>
<td>Horseradish</td>
<td>1 tablespoon (15 g)</td>
<td>24</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>½ cup, chopped (50 g)</td>
<td>22</td>
</tr>
<tr>
<td>Bok choy (pak choi)</td>
<td>½ cup, chopped (35 g)</td>
<td>19</td>
</tr>
</tbody>
</table>

Source: http://lpi.oregonstate.edu/infocenter/phytochemicals/isothio/
Recommendation:
• Eat ½ cup or more of cooked tomatoes at least twice a week.

**Food Sources of Lycopene**

<table>
<thead>
<tr>
<th>Product</th>
<th>Serving Size</th>
<th>Lycopene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomato juice</td>
<td>250 mL (1 cup)</td>
<td>25.0</td>
</tr>
<tr>
<td>Tomato ketchup</td>
<td>15 mL (1 tbsp)</td>
<td>2.7</td>
</tr>
<tr>
<td>Spaghetti sauce</td>
<td>125 mL (1/2 cup)</td>
<td>28.1</td>
</tr>
<tr>
<td>Tomato paste</td>
<td>30 mL (2 tbsp)</td>
<td>13.8</td>
</tr>
<tr>
<td>Tomato soup (condensed)</td>
<td>250 mL prepared</td>
<td>9.7</td>
</tr>
<tr>
<td>Tomato sauce</td>
<td>60 mL (1/4 cup)</td>
<td>8.9</td>
</tr>
<tr>
<td>Chili sauce</td>
<td>30 mL (2 tbsp)</td>
<td>6.7</td>
</tr>
<tr>
<td>Cocktail sauce</td>
<td>30 mL (2 tbsp)</td>
<td>5.9</td>
</tr>
<tr>
<td>Watermelon</td>
<td>368 g (1 slice)</td>
<td>14.7</td>
</tr>
<tr>
<td>Pink grapefruit</td>
<td>123 g (1/2)</td>
<td>4.9</td>
</tr>
<tr>
<td>Raw tomato</td>
<td>123 g (1 medium)</td>
<td>3.7</td>
</tr>
<tr>
<td>Papaya</td>
<td>1 cup</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Source: Heinz Institute of Nutritional Sciences
Question: What about Organics?

www.ewg.org
LEGUMES

1/2 cup split peas: 8.1g
1/2 cup lentils: 7.8g
1/2 cup black beans: 7.7g
1/2 cup chickpeas: 6.2g

VEGETABLES

1 cup sweet potatoes: 6.6g
1 cup broccoli: 5.1g
1 cup carrots: 4.7g
1 cup Brussels sprouts: 4.1g

FRUIT

1 cup raspberries: 8g
1 cup blackberries: 7.6g
1 medium pear: 5.5g
1 medium apple: 4.4g

WHOLE GRAINS

1 cup whole-wheat spaghetti: 6.3g
1 cup pearled barley: 6g
1 cup quinoa: 5.2g
1 cup steel cut oatmeal: 5g

FIVE EASY WAYS TO INCREASE FIBER IN YOUR DIET

#1 WAY
Choose fresh fruit over juice

#2 WAY
Choose whole grain bread over white

#3 WAY
Instead of white rice, eat brown rice or even quinoa

#4 WAY
Try substituting beans for the meat in some of your favorite recipes

#5 WAY
Aim to eat an extra serving of non starchy vegetables with dinner

WWW.DIETANDNUTRITIONBLOG.COM
Whole Grains

Examples of whole grains: Amaranth, barley, brown or wild rice, buckwheat, (kasha), farro, millet, oats, quinoa, rye, spelt, triticale, wheatberries
The 10:1 rule for choosing whole grain products

For every 10 grams of carbohydrate there should be at least one gram of fiber.

Why 10:1? That’s about the ratio of fiber to carbohydrate in a genuine whole grain.
Limit Added Sugars/Refined Grains

- Diets high in added sugars and refined grains
  =
  - High glycemic load
  - Low nutrient value
  - Negative effects on the immune system
  - Blood sugar fluctuations → swings in mood, energy and thinking ability.
  - Weight/fat gain
Sugar

Current US daily intake:

22 tsp Sugar Daily → 355 calories daily

Recommended Guidelines:
(added in processing, cooking or table)
≤100 calories daily – females
≤ 150 calories daily – males

How many teaspoons is that? Daily:
5 tsp for females
9 tsp for males

Source: American Heart Association 2009; USDA
Where’s the added sugar?

Breakfast: Sweetened yogurt

Lunch: Salad with bottled dressing

Snack: Energy Bar

Dinner: Chicken with teriyaki sauce

Added Sugar per serving

10 grams
8 grams
21 grams
14 grams

Daily Total: 53 grams (212 calories)
Various Names for Added Sugar Used in Processed Foods & Beverages

- agave
- barley malt syrup
- brown sugar
- brown rice syrup
- cane crystals
- cane sugar
- corn syrup
- corn sweetener
- crystalline fructose
- dehydrated cane juice
- dextrose/dextrin
- evaporated cane sugar
- fructose
- fruit juice concentrate
- high-fructose corn syrup
- honey
- invert sugar
- lactose
- maltose/maltodextrin
- maple syrup
- molasses
- nectars
- raw/powdered sugar
- sorghum syrup
- sucrose
- turbinado sugar
Low Glycemic Load Diet

• **Eat real, whole foods!**

• Avoid eating “naked” carbs; combine carbs with protein/healthy fats (ex: nuts and fruit or whole grain bread with nut butter).

• Eat foods in their natural packages \(\rightarrow\) Vegetables, fruits, whole grains, beans, etc….

• Minimize processed foods \(\rightarrow\) Refined grains, added sugars, desserts, fried, fast foods

• Limit/avoid sugary beverages \(\rightarrow\) Fruit juices, juice drinks, sweetened tea/coffee, sodas
Recommendation:

- Avoid processed meats completely
- Avoid or limit red meat
Healthy Fats

Omega-3 (EFA-PUFA) rich foods:
- Cold water fatty fish: salmon, sardines, black cod, trout, herring – Include 2 x week
- Ground flax seeds, walnuts, pumpkin seeds, chia seeds

Omega-9 (MUFA) rich foods:
- Olive oil, olives, almonds, avocado, canola oil, macadamia nut oil
Balance Your Essential Fatty Acids (EFAs)

**Omega-6 fatty acids**
- **Decrease Sources:** Meats (especially grain-fed), dairy fat, egg yolks, sunflower oil, safflower oil, cottonseed oil, corn oil, & processed foods made with these oils.

**Omega-3 fatty acids**
- **Increase Sources:** Cold-water fish (wild salmon, trout, sardines, herring, black cod), flaxseeds, chia seeds, walnuts, pumpkin seeds, & purslane.

**Standard American Diet (SAD) contains far more omega-6 than omega-3 fats.** Imbalance can have negative affects on various aspects of health.

- **Pro-Inflammatory Compounds:** Promote inflammation, tumor growth, progression & angiogenesis
- **Suppress immune function**

- **Anti-Inflammatory Compounds:** Inhibit tumor growth & angiogenesis
- **Immune enhancing**

**Eicosanoid Production**
### Breakfast #1
- Coffee cake with nuts, 1 slice
  - Calories: 420, Total fat: 23g, Sat fat: 13g
- Café Mocha made with 2% milk and whipped cream, 16 oz
  - Calories: 330, Total fat: 15 g, Sat fat: 8g
- Apple, 1 medium
  - Calories: 80, Total Fat: 0 grams

**Total**
- Calories: 830
- Total fat: 38 grams
- Saturated fat: 21 grams

### Breakfast #2
- Whole Grain Bread, 2 slices
  - Calories: 250, Total fat: 1.5g, Sat fat: 0g
- Hummus, 2 Tbsp
  - Calories: 54, Total fat: 2.0g, Sat fat: 0g
- Tomato, 6 slices
  - Calories: 25, Total fat: 0g,
- Apple, 1 medium
  - Calories: 80, Total Fat: 0 grams
- Latte made with soy milk, 12 oz
  - Calories: 130, Total Fat: 4g, Sat Fat: 0.5g

**Total**
- Calories: 539
- Total fat: 7.5 grams
- Saturated fat: 0.5 grams
Ingredients: ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE [VITAMIN B1], RIBOFLAVIN [VITAMIN B2], FOLIC ACID), WHOLE GRAIN WHEAT FLOUR, SOYBEAN OIL, SUGAR, PARTIALLY HYDROGENATED COTTONSEED OIL, HIGH FRUCTOSE CORN SYRUP, LEAVENING (CALCIUM PHOSPHATE, BAKING SODA), SALT, SOY LECITHIN (EMULSIFIER).
Other Animal Foods of Concern
What about Alcohol & Coffee?

- Drinking coffee is safe and may even have some health benefits → Consider what you put in your coffee.
- Alcohol in moderation is also fine, limit to guidelines → Men: ≤2 drinks/day, Women: ≤1 drink/day
Supplements and Cancer Risk

- No strong evidence that supplements reduce cancer risk.

- Best to get nutrients from food whenever possible.
  - Supplements have been linked with an increased risk of cancer in some studies. For example:
    - Vitamin E and Prostate Cancer
    - Excess Calcium and Prostate Cancer

- Supplements may be important for other health concerns.
Vitamin D

- Important for →
  - Bone Health
  - More research needed but has been associated with lower cancer risk (colorectal, breast, and others)
  - Immune System Function

- Sources: Sunlight, fatty fish, fortified foods & dietary supplements

- Adults requirements = ≥600 IU Vitamin D3/day.

- 75% of Americans are estimated to have low blood levels of Vitamin D.

- Test blood **25-OH vitamin D level**, especially if undergoing ADT.
Body Weight & Exercise

- Higher body mass & physical inactivity may contribute to prostate cancer risk.
  - A cohort study reported obese men to have a 20% increased risk of dying from prostate cancer & those men who were severely obese had a 34% elevated risk (NEJM 2003).

- A UCSF study of over 2,000 men found that men who maintained a healthy body weight had a lower risk of recurrence (Urol 2005).
  - Obese men ↑ recurrence by 30%
  - Very obese men ↑ recurrence by 69%
Exercise

- Build at least 30 minutes of exercise into your schedule on most days.
- Prostate cancer survivors who performed ≥3 hours per week of vigorous activity had a 60% lower risk of death from prostate cancer compared to those getting <1 hour of activity per week.
- Men who walked ≥3 hours per week at a brisk pace (≥3 mph) after diagnosis had a 57% lower risk of prostate cancer recurrence compared to men who walked <3 hours per week at an easy pace (<2 mph).
Eat more and weigh less!

1575 Kcal
High Energy Density

1575 Kcal
Low Energy Density
What Can A Healthy Diet Do For Me?

- May help to inhibit prostate cancer growth
- Reduce risk of chronic diseases
- Enhance immune system
- Increase energy levels
- Facilitate recovery \( \rightarrow \downarrow \) toxicities of treatment
Healthy Prostate Cancer Diet

Plant-Based

- 8-10 COLORFUL fruit & vegetable servings daily
  - Eat 1 cup or more vegetables with at least 2 meals
  - Include cruciferous vegetables daily
  - Include cooked tomatoes at least twice a week

- Beans/legumes & whole grains
  - 30-45 grams of fiber daily

- Limit meats, poultry skin, eggs & dairy, avoid processed meats

- Limit processed & refined foods → avoid WHITE
Healthy Prostate Cancer Diet (cont.)

- **Healthy fats** → cold-water fish, flaxseed, walnuts, almonds, pumpkin seeds, other nuts and seeds, olive oil, avocados
  - Eat at least 1 servings of plant based fat daily:
    - 1 T olive oil, 1 oz of nuts/seeds, ¼ avocado
  - Include Fish – 2 x week but limit the high mercury fish such as swordfish, shark, ahi tuna, king mackerel

- **Green Tea** → 1-4 cups daily

- **Vitamin D** (1000 IU or more if needed)
  - Consider serum 25-OH test

- **Physical activity** to achieve or maintain a healthy body weight.
Sample Meal Plan

**Breakfast:** Oatmeal mixed with walnuts, ground flaxseed, cinnamon and berries, low sodium tomato juice

**Lunch:** Salad with dark, leafy greens, tomatoes, peppers, free range chicken breast or lentils, avocado, olive oil, turmeric, black pepper and lemon juice

**Dinner:** Baked wild caught salmon or tempeh with wild rice cooked with herbs and garlic and roasted broccoli/ greens

**Snacks:** Handful of almonds with an orange OR humus with chopped vegetables

Drink plenty of water throughout the day.
Practice Precaution

- Always discuss changes in diet & supplement use with your health care practitioner(s).
Words of Wisdom

“Let food be your medicine & medicine be your food.”

- Hippocrates
Resources

**Cookbooks**
- Cancer Wellness Cookbook – written by Kimberly Mathai, 2014
- Eat to Beat Prostate Cancer – written by David Ricketts, 2006

**Websites**
- [http://www.aicr.org](http://www.aicr.org)
- [http://cancer.ucsf.edu/crc](http://cancer.ucsf.edu/crc)
- [http://www.consumerlab.com](http://www.consumerlab.com)