

# SELENIUM

## ***Should I take selenium supplements?***

**RECOMMENDATION:** Include selenium-rich foods in your diet but don't take high-dose supplements unless your doctor recommends it - low doses found in multi-vitamins are considered safe.

### **What's the evidence?**

#### **For Prostate Cancer *Prevention*?**

Having enough selenium from food might prevent prostate cancer:

- Studies show that selenium is linked to colon, breast and prostate cancers, as well as heart disease. People who get enough selenium from food have the lowest rates of almost every type of cancer.<sup>1</sup>
- Some studies suggest that higher blood amounts of selenium were linked to lower risks of prostate cancer. Other studies, however, have found no links between selenium intake and prostate cancer risk.
- The effectiveness of selenium supplementation in prostate cancer prevention is uncertain.<sup>2</sup>

#### **For Prostate Cancer *Treatment*?**

Having enough selenium from food might slow down progression or recurrence of prostate cancer, but selenium supplements can be harmful:

- Natural selenium from food is important for overall good health for everyone, including men diagnosed with prostate cancer.<sup>1</sup>
- However; there is growing evidence that taking individual selenium supplements does not stop the growth or return of prostate cancer and might even be harmful - especially for men who are already eating enough selenium.
  - Taking large doses (800 micrograms or mcg) of selenium raised the Prostate Specific Antigen (PSA) for some men on active surveillance suggesting that taking too much selenium in pills might actually increase the growth or return of prostate cancer.<sup>3</sup>

**More research is needed to see how much selenium can be safely taken in supplements and who would best benefit.**

#### **Selenium facts:**

- Selenium is an essential mineral and the Recommended Dietary Allowance (RDA) for adult men is 55 mcg per day. Canadians 60 years and older get about double that amount in their diets.
- The body's first lines of defence against cell-damaging free radicals are antioxidant enzymes. Without enough selenium, these enzymes don't work at peak levels, leaving the potential for cell damage that can lead to cancer.
- Men with low levels of selenium show the most benefit from supplementation, whereas men with normal or greater than normal levels of selenium show no benefit or even harm. This explains why taking supplements shows such a wide range of effects in groups of men.

Eating balanced diets that include a variety of whole, selenium-rich foods might help prevent prostate cancer in healthy men and might also reduce cancer progression or recurrence for men already diagnosed with prostate cancer.

## The bottom line: Eat food not supplements!

Because of the potential harm from taking too much selenium, it's best for men with prostate cancer to get their selenium from eating a balanced diet with a variety of foods.

- Most of our dietary selenium comes from eating plant-based foods such as, grains (including whole-wheat, oats & rye) and vegetables (including garlic & onions) with the rest from seafood (including fish & shellfish) and meat (including organ meat, chicken & pork).
- The selenium in soil determines the selenium found in grains and vegetables, and varies greatly across North America - however, Canadians who eat a wide variety of foods and a balanced diet get enough selenium from food.
- If you want to take selenium supplements, take a multivitamin with minerals. Most multivitamins have healthy and safe amounts of selenium, between 25 to 200 mcg.

Approximate selenium content for various foods in micrograms (mcg)

Food item	Serving/amount		Selenium content
Brazil nuts	¼ cup	60 ml	680 mcg
Mixed nuts (no peanuts)	¼ cup	60 ml	154 mcg
Shellfish (mussels, oysters)	2.5 oz	75 g	60-115 mcg
Tuna, canned in water	~½ can	75 g	60 mcg
Salmon	2.5 oz	75 g	20-30 mcg
Meat (beef, pork)	2.5 oz	75 g	20-30 mcg
Poultry (chicken, turkey)	2.5 oz	75 g	20-30 mcg
Pasta, whole wheat	½ cup	125 ml	20 mcg
Cottage cheese, 1%	½ cup	125 ml	12 mcg
Bread, whole grain	1 slice		10-20 mcg
Barley	½ cup	125 ml	7 mcg
Broccoli & other veggies	¼ cup	60 ml	3-5 mcg

Health Canada, Canadian Nutrition File, 2010: [www.healthcanada.gc.ca/cnf](http://www.healthcanada.gc.ca/cnf)

## Eat brazil nuts or snack on sunflower seeds!

If you are thinking of taking selenium supplements talk to your doctor - or just take a regular multivitamin.

- In general, individual selenium supplements are not recommended for anyone unless they don't eat enough selenium or have low selenium blood levels.
  - Selenium can be measured by a blood test or toenail analysis. If you are considering taking selenium supplements, talk to your doctor about checking to see if supplementation is necessary.
- The SELECT (SELenium and vitamin E Cancer prevention Trial) study found that neither supplements reduced the risk of prostate cancer in healthy men.<sup>2</sup>
  - In fact, excess Vitamin E might increase the risk of prostate cancer, and selenium supplements more than of 200 mcg per day might increase some men's risk for diabetes.
- While the 'Upper Limit' (UL) of safety for selenium is 400 mcg per day from food and supplements, selenium supplements with more than 200 mcg might be unsafe and are not recommended.
  - Taking unnecessary supplements may be harmful, and large amounts of selenium can lead to hair loss, brittle nails and other side effects.

1. Rayman MP. Selenium and human health. *The Lancet*. 2012; 379(9822):1256-1268
2. Dunn BK, et. al. A nutrient approach to prostate cancer prevention: The Selenium and Vitamin E Cancer Prevention Trial (SELECT). *Nutrition and Cancer*. 2010; 62(7):896-918.
3. Stratton MS, et. al. Oral selenium supplementation has no effect on prostate-specific antigen velocity in men undergoing active surveillance for localized prostate cancer. *Cancer Prevention Research*. 2010; 3(8):1035-43.

**This information is not meant to replace advice from your doctor or dietitian.**



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