

[IMAGE]

## How Fat Affects Prostate Cancer

By James P. Meschino, DC, MS

K.M. Di Sebastiano and M. Mourtzakis published [a review paper](#)<sup>1</sup> examining the role of dietary fat on prostate cancer development and progression late last year that does a stellar job of summarizing the available data on fat and prostate cancer. Their review paper sheds light on the importance of counseling men on the dangers of consuming too much bad fat in regard to prostate cancer prevention and adjunctive management in prostate cancer survivors. Let's highlight the key findings from their literature review.

Di Sebastiano and Mourtzakis suggest too much bad fat negatively influences the signal transduction pathway within prostate cells known as the insulin-like growth factor (IGF)-Akt signaling pathway. When this pathway is overstimulated or dysregulated, it is known to promote prostate cancer development and progression. However, saturated fat, trans fats and obesity itself have been shown to promote prostate cancer via other mechanisms as well, which are outlined below.

In general, the scientific literature shows that specific categories of fats – saturated and animal fats – appear to pose the greatest risk for prostate cancer development, while EPA (eicosapentaenic acid from fish and fish oil) may have a protective effect.

Additionally, obesity itself is associated with increased incidence of high-risk or aggressive prostate cancer, as well as increased incidence of prostate cancer recurrence. A great paradox of prostate cancer treatment is that androgen deprivation (or ablation) therapy tends to encourage more body-fat deposition, which in turn may promote prostate cancer recurrence. The authors conclude, "There are numerous nutritional factors associated with obesity and prostate cancer risk, including positive energy balance, red meat and dairy intake, saturated fat, trans-fatty acid intake and total dietary fat intake. Conversely, [n-3 fatty acids](#) have been identified as having a potentially protective effect against prostate cancer."

### Fat Intake and Cancer Survival

It is too early to confirm that bad fats promote cancer recurrence in prostate cancer survivors, but preliminary studies suggest fat intake, specifically saturated fat intake, may decrease disease-specific survival. In one study, Fradet and colleagues followed a group of men diagnosed with prostate cancer for an

average of 5.2 years. After controlling for cancer grade, clinical stage, treatment age and total energy intake, men in the lowest tertile of saturated fat intake had a decreased risk of dying from prostate cancer, as compared to those in the highest tertile of saturated fat intake.

Findings such as these may prompt health practitioners to encourage prostate cancer patients to reduce their intake of total animal fat (with the exception of fish) and saturated fat, while we await the findings of well-designed intervention studies needed to confirm if manipulating dietary fat can have positive effects on survival rates.

Other studies have combined a low-fat diet with supplementation of flaxseed, noting beneficial effects on prostate health. For instance, Demark-Wahnefried, *et al.*, demonstrated decreased proliferation rates in men supplemented with flaxseed, and that the low-fat-diet group had significantly reduced serum cholesterol levels following ~30 days of supplementation. Heymach, *et al.*, demonstrated that compared to the control arm, a low-fat diet, a flaxseed-supplemented diet and a low-fat diet with a flaxseed supplementation for 30 days each decreased a number of angiogenic factors, although results were greatest in the group consuming the low-fat diet alone.

### **What We Know**

The emerging data tends to support the findings that dietary fat and, in particular, high intake of animal and saturated fats, may be associated with prostate cancer risk. The IGF-Akt signaling pathway appears to be the key signaling pathway moderating malignant cell growth and changes in androgen receptor signaling.

Overall, saturated fat and trans fatty acids appear to promote prostate cancer development, while omega-3 fats may exert a protective effect. For prostate cancer survivors, a diet low in fat and particularly low in saturated fat may be beneficial, as it may reduce tumor angiogenesis and cancer recurrence. The addition of flaxseed supplementation also may be beneficial in these cases.

In my view, the evidence linking a high-animal-fat / saturated-fat diet with increased prostate cancer risk is sufficient to advise men to make appropriate dietary changes that would eliminate or greatly reduce their intake of these fats. Reducing these fats also helps to reverse obesity, another documented risk factor for the development of advanced prostate cancer.

### *Reference*

1. Di Sebastiano KM, Mourtzakis M. The role of dietary fat throughout the prostate cancer trajectory. *Nutrients*, 2014 Dec;6(12):6095-6109.
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*Editor's Note:* Interested in learning more about the science behind fat consumption and prostate cancer? Read the longer, (even) more technical version of Dr. Meschino's article by [clicking here](#).

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