

## Information Sheet 16: Pomegranates



### Key Points

- A daily glass of pomegranate juice may slow the progression of prostate cancer
- For the best health benefits, choose pomegranate juice made from whole fruit with no added sugar

### Introduction

There is increasing interest in the potential anti-cancer effects of drinking pomegranate juice. Evidence suggests that drinking a daily glass of pomegranate juice may reduce the risk of prostate cancer progression in men with early prostate cancer [1, 2]. These results look promising, but this is still a relatively new area of research and more research is required.

### Antioxidant Properties of Pomegranates

Commercially available pomegranate juices have potent antioxidant activity which may protect the body from harmful oxidative damage and hence, provide protection against prostate cancer. Compared to red wine or green tea, the antioxidant activity of commercially available pomegranate juice is three times greater [3].



The antioxidant properties of pomegranates are due to its high content of polyphenols. In particular, more than 50% of the antioxidant activity of pomegranate juice is attributed to the polyphenol, ellagic acid. In the laboratory setting, pomegranate juice extracts inhibit prostate cancer cell growth, promote prostate cancer cell death, and inhibit prostate cancer tumour growth in mice [4].

### Drinking Pomegranate Juice

Pomegranates can be consumed as whole fruits or as juice [1]. Studies have found that in men who had undergone surgery or radiation therapy for their prostate cancer, drinking a daily glass of pomegranate juice slowed the time it took for PSA levels to double [1, 2]. This suggests a daily glass of pomegranate juice may slow prostate cancer progression and reduce the risk of reoccurrence.

In these studies, drinking a glass of pomegranate juice per day was not associated with any serious adverse events [1, 2]. For the best health benefits, choose pomegranate juice made from whole fruit with no added sugar [5].

## Summary of Research

There have been three reported clinical studies investigating the effects of pomegranate juice intake and PSA levels. PSA levels are measured because rising PSA levels are often used as a marker for prostate cancer progression or reoccurrence.

In a 2006 study, Pantuck et al. investigated the effects of drinking pomegranate juice in men with rising PSA levels following surgery or radiation therapy for localised prostate cancer. After drinking 8 ounces (236.56 ml) of pomegranate juice per day for 33 months, the median PSA doubling time increased from 15 months to 54 months [1]. Prolongation of PSA doubling time suggests slowing of prostate cancer progression.

A similar study was performed by Paller et al. in 2013. In this study, eight ounce and 24 ounce doses of pomegranate extract were given to men with rising PSA levels following surgery or radiation therapy for prostate cancer. Results found that consumption of pomegranate extracts slowed PSA doubling time by more than 6 months. No difference in PSA doubling time was found between the two dose groups, suggesting that the effects of pomegranates are not dose dependent.

A 2013 study by Stenner-Liewen et al. investigated the effects of drinking 500ml of pomegranate juice in men with advanced prostate cancer [6]. Men who drank pomegranate juice had no significant differences in PSA levels compared to the placebo group. This result contrasts with the results of the two studies mentioned above. There are several important differences between these studies which may explain the difference in results. The study by Stenner-Liewen et al. investigated the effects of pomegranate juice in men with more advanced prostate cancer and higher PSA levels ( $>5\text{ng/ml}$  compared to  $<5\text{ng/ml}$ ). Many of these men also had their next therapy coming up soon, so the length of this study was shorter than the other two studies (2 months compared to 12 and 18+ months) [6].

The limited number of clinical studies currently available warrants further research into the effects of pomegranates on prostate cancer progression.

## References

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2. Paller, C.J., et al., *A randomized phase II study of pomegranate extract for men with rising PSA following initial therapy for localized prostate cancer*. Prostate Cancer & Prostatic Diseases, 2013. **16**(1): p. 50-5.
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5. Zhang, Y., et al., *International multidimensional authenticity specification (IMAS) algorithm for detection of commercial pomegranate juice adulteration*. Journal of agricultural and food chemistry, 2009. **57**(6): p. 2550-2557.
6. Stenner-Liewen, F., et al., *Daily Pomegranate Intake Has No Impact on PSA Levels in Patients with Advanced Prostate Cancer - Results of a Phase IIb Randomized Controlled Trial*. Journal of Cancer, 2013. **4**(7): p. 597-605.