

New Study Shows Cinnamon May Prevent Prostate Tumors

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Research published in the journal *Cancer Prevention Research* revealed cinnamon may help inhibit early-stage prostate cancer
- › Rats fed cinnamon for 16 weeks before cancer was induced had reduced development of prostatic hyperplasia and prostatic intraepithelial neoplasia, a precursor of prostate cancer
- › In 60% to 70% of the rats fed cinnamon, the prostate tissue was normal, with no precancerous changes
- › Prostate cancer cells treated with aqueous cinnamon extract and its active ingredient procyanidin-B2 also had a decrease in cell viability, reduction in angiogenic and anti-apoptotic markers, and an increase in apoptosis
- › The cinnamon compounds cinnamaldehyde, cinnamic acid and eugenol possess proteasome inhibitory activities, which suppress cancer cell proliferation and induce apoptosis

Cinnamon is enjoyed worldwide, prized not only for its warming aroma and flavor but for its powerful medicinal properties. With antioxidant, anti-inflammatory and anticancer effects,¹ cinnamon is also receiving increased attention for its potential role in cancer prevention.

Research published in the journal *Cancer Prevention Research* revealed the spice may help inhibit early-stage prostate cancer,² adding another tool to fight back against this

common chronic disease.

Cinnamon May Help Prevent Prostate Cancer

It's estimated that 12.9% of men will develop prostate cancer at some point during their lifetime.³ In the U.S., about 288,300 new prostate cancer cases may be diagnosed in 2023 alone, making up 14.7% of all new cancer cases.⁴ A study on rats suggests cinnamon – and two of its active ingredients, cinnamaldehyde and procyanidin – may help.

Rats fed cinnamon for 16 weeks before cancer was induced had reduced development of prostatic hyperplasia and prostatic intraepithelial neoplasia, a precursor of prostate cancer.⁵ Further, in 60% to 70% of the rats fed cinnamon, the prostate tissue was normal,⁶ with no precancerous changes.

Study author Ayesha Ismail, head of the endocrinology division at ICMR-National Institute of Nutrition, India, explained in a news release:⁷

“We tried to decipher the probable mechanism(s) for the chemopreventive effect and observed that cinnamon and its active components could mitigate oxidative stress [and] decrease spread of cancer cells in the prostate gland ... Interestingly, we also observed beneficial effect on bone mineral content and decrease in bone degeneration in these rats.”

Previous research has also highlighted cinnamon's anticancer effects, including inducing tumor cell death in cancer cell lines. Prostate cancer cells treated with aqueous cinnamon extract and its active ingredient procyanidin-B2 also had a decrease in cell viability, reduction in angiogenic and anti-apoptotic markers, and an increase in apoptosis.⁸

Further, the cinnamon did not harm normal cells, leading the research team to note, “Our data in the normal cells indicate no effect of ACNE and PCB2 on cell growth which underscores the use of alternative forms of medicine in the treatment of cancer.”⁹

Other research by Ismail and a colleague found the cinnamon compounds cinnamaldehyde, cinnamic acid and eugenol possess proteasome inhibitory activities, which suppress cancer cell proliferation and induce apoptosis.¹⁰ They explained:

“The cinnamon compounds inhibited the catalytic activities of the proteasome in prostate cancer cells, but not in normal cells ... In conclusion, proteasome inhibition by aromatic monophenols from cinnamon inhibits proliferation and leads to the death of prostate cancer cells by autophagy-dependent apoptosis.”

Cinnamon Extract Has Synergistic Anticancer Effects

As cinnamon’s anticancer effects have become apparent, researchers looked into cinnamon’s various bioactive compounds, including cinnamaldehyde, cinnamic acid and polyphenols, each of which has anticancer effects:¹¹

- **Cinnamaldehyde** – This phenylpropanoid gives cinnamon its flavor and odor, and is a major part of cinnamon essential oils. With both anticancer and anti-inflammatory properties, cinnamaldehyde is cytotoxic to cancer cells.¹²
- **Cinnamic Acid** – Also cytotoxic to cancerous cells, cinnamic acid may reduce the invasive capacity of cancer cells, possibly reversing malignant human tumor cells to benign cells. “Cancerous cells upregulate antiapoptotic signaling cascades, leading to increased survival, which can be reversed by cinnamic acid,” researchers explained in Evidence-Based Complementary and Alternative Medicine.¹³
- **Polyphenols** – Polyphenols are powerful organic compounds found in spices, as well as fruits and vegetables. Researchers believe the antioxidant effects of polyphenols help protect DNA from free radical damage,¹⁴ which can trigger cancer development. Polyphenols also reverse epigenetic markers in the DNA believed to reduce tumor growth. Polyphenols are also known for their anti-inflammatory effects, making them ideal for cancer prevention:¹⁵

“Cancer and inflammation are intricately linked; therefore, targeting inflammatory markers can help in chronic pathologic inflammation and in

cancers where inflammatory molecules exacerbate cancer progression.”

While each of these compounds is powerful in warding off chronic disease like cancer on its own, when combined they exert synergistic effects that may lead to even better outcomes. As noted in a review by researchers from Lovely Professional University, India:¹⁶

“The aqueous extract of cinnamon contains bioactive components that have significant protective effects against cancer and inflammatory conditions. The synergistic effects of these components have better therapeutic efficiency than when a purified component is used. Further studies are required to understand whether cinnamon extract should be used only as complementary and alternative medicine or if it could play a more significant role.”

Cinnamon Has Anti-Diabetes Effects

Cinnamon is also heralded for its insulin-like effects, making it useful for maintaining healthy blood sugar and fighting diabetes. While a diet high in refined carbohydrates is linked to prediabetes, when cinnamon supplements were given to prediabetic participants after they consumed a high-carb meal, they experienced lowered abnormal fasting glucose levels.¹⁷

The cinnamon helped reduce high blood glucose levels, improved glucose tolerance and had a tendency to slow the progression of prediabetes to Type 2 diabetes.^{18,19} In another study, blood glucose levels decreased by an average 15.95 after drinking cinnamon tea. A1C levels and triglycerides also were significantly reduced.²⁰

Even among healthy individuals, consuming 3 grams to 6 grams of cinnamon a day led to improvements in preprandial and postprandial blood glucose.²¹ As explained by researchers with Istanbul Medipol University Institute of Health Sciences in Turkey:²²

“Cinnamon exhibits characteristics that mimic insulin, such as the activity of biologically active substances to activate insulin receptor kinase, increasing glucose uptake, autophosphorylation of the insulin receptor, and glycogen

synthase activity. It has been stated that cinnamon increases glycogen storage by affecting the glycogen synthesis activity.

In a study, it was found that the cinnamon peel extract would increase insulin sensitivity and raise glucose intake. Water-soluble components of cinnamon have been found to enhance the effectiveness of the insulin signaling pathway.”

Cinnamon Is a ‘Multifaceted Medicinal Plant’

Using cinnamon liberally as a spice in your meals, sipping it as a tea or considering it in supplement form may have multiple health benefits, with researchers describing it as a “multifaceted medicinal plant”:²³

“In addition to being an antioxidant, anti-inflammatory, antidiabetic, antimicrobial, anticancer, lipid-lowering, and cardiovascular-disease-lowering compound, cinnamon has also been reported to have activities against neurological disorders, such as Parkinson's and Alzheimer's diseases.”

Traditionally, cinnamon was used for oral health to freshen breath and relieve toothaches. It's also valued for tissue regeneration and as a coagulant to prevent bleeding, while its essential oils have antimicrobial and antifungal effects.²⁴

Cinnamon may also be useful for cardiovascular diseases and has positive effects on the lipid profile. In one study, consuming 1 gram, 3 grams or 6 grams of cinnamon daily led to a reduction in glucose, triglycerides, total cholesterol and LDL cholesterol levels in adults.²⁵

Cinnamon also has neuroprotective properties and may be useful for migraine headaches.²⁶ Among 50 people with migraines, those who took three 600-milligram capsules of cinnamon daily for two months had reduced inflammation, frequency, severity and duration of headaches. “Cinnamon could be regarded as a safe supplement to relieve pain and other complications of migraine,” the researchers concluded.²⁷

The spice may even be a promising therapeutic agent for Alzheimer's, with research suggesting it may inhibit tau accumulations and accumulation of amyloid- β peptides. Further, researchers explained in *Pharmacological Research*, "Cinnamon possesses neuroprotective effects interfering multiple oxidative stress and pro-inflammatory pathways. Besides, cinnamon modulates endothelial functions and attenuates the vascular cell adhesion molecules."²⁸

Due to potent anti-inflammatory and other beneficial effects, it's also possible that cinnamon could be useful for COVID-19, with one review suggesting it may "ameliorate complications that are associated with severe cases of COVID-19."²⁹

In another instance, research found cinnamon supplementation was a safe adjunctive treatment in women with rheumatoid arthritis. The randomized double-blind clinical trial found those receiving cinnamon for eight weeks had significant reductions in tender and swollen joints.³⁰ Improvements in inflammation and diastolic blood pressure were also noted.

Which Type of Cinnamon Is Best?

There are about 250 species of cinnamon around the world,³¹ but most of the cinnamon you find on grocery store shelves is not actually true cinnamon. Rather, what's on store shelves belongs to the *Cinnamomum cassia* species, otherwise known as Chinese cinnamon or cassia cinnamon.

Cinnamomum verum, which is native to Sri Lanka, is known as Ceylon cinnamon, and its name translates to "true cinnamon." Cassia is darker and has a stronger flavor, while Ceylon is lighter in color with a more delicate flavor.³²

While Ceylon is less common than Cassia cinnamon and therefore tends to be more expensive and harder to find, it's considered to be a "richer spice"³³ and, importantly, contains lower levels of a chemical called coumarin, a powerful anticoagulant with potentially carcinogenic and toxic properties.

Cassia cinnamon can contain up to 1% coumarin while Ceylon typically contains only trace amounts (about 0.004%).³⁴ Using cassia as a dietary spice does not pose significant health challenges. However, when considering cinnamon as a dietary supplement in larger doses, it is important to seek out Ceylon cinnamon that has less coumarin than cassia and is therefore less likely to cause liver injury.

There are several ways of enjoying the health benefits from cinnamon, including drinking cinnamon tea, flavoring your food, taking supplements or making an infused cinnamon bark oil. If you're considering supplementing with cinnamon, whether as an oil, supplement or using daily in your food in larger quantities, it is wise to use Ceylon cinnamon.

One soothing way to enjoy cinnamon is by making a cup of cinnamon tea. Simply place one cinnamon stick in 1.5 cups of hot water in a pot on the stove. Bring the water to a slow boil over medium-low heat, which should take about 15 to 25 minutes. Remove the pot from the heat and let it cool for about 15 minutes. Strain the tea, then sip it at your leisure. For variation and even more flavor, you can add a piece of fresh, peeled ginger, organic apple peels or raw honey.

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