



Tomato Sauce Put to the Test for Prostate Cancer?

Written By Michael Greger M.D. FACLM. May 2021

What happened when cancer patients were given three quarters of a cup of canned tomato sauce every day for three weeks?

"Occasionally...positive things happen in the field of cancer, prevention science to popular, good-tasting foods." Cruciferous vegetables like broccoli are wonderful, but they may be "a hard food for the public to swallow." By contrast, who doesn't like tomatoes?

Studies using high-dose supplements of lycopene, the antioxidant red pigment in tomatoes thought to be the active anti-cancer ingredient, failed over and over again to prevent or treat cancer. In fact, it may even end up promoting cancer, since lycopene may actually act as a pro-oxidant at the high levels one can get with supplements. But, lycopene in supplement form doesn't appear to be effective at lower doses either. "There is a strong inverse [protective] correlation between the intake of fruit and vegetables and the incidence of certain cancers." However, when we supplement with only a single compound isolated in pill form, we may upset the healthy, natural balance of antioxidants.

It's not about finding the one magic bullet, though. As one study title reads, "The anti-cancer effects of carotenoids and other phytonutrients resides in their combined activity." For example, at the low concentrations of the tomato compounds phytoene, phytofluene, and lycopene that are found in most people who eat normal amounts of tomatoes, there's very little effect on cancer cell growth in vitro when used separately. But, when they are combined together, a non-effective dose of phytoene and phytofluene plus a non-effective dose of lycopene somehow become effective, significantly suppressing prostate cancer cell growth. The same synergy can be seen across foods. Curcumin, the yellow pigment in turmeric and curry powder, tomato extracts, and the vitamin E found in nuts and seeds do little individually to inhibit pro-

*"A healthy
body is a
guest-
chamber for
the soul; a
sick body is
a prison."*

– Francis Bacon

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Helpful Foods to Support People with Autism

nutritionfacts.org/

The sulforaphane found in broccoli sprouts has been shown to benefit autism in a way no drug ever has in a randomized, double-blind, placebo-controlled study. Kids with autism tend to have higher target of rapamycin (TOR) activity in their bodies, and this hyperactive TOR signaling may play a role in causing autism. So, if broccoli blocks TOR and if we give it to those with autism, maybe it would block some of the synaptic dysfunction that contributes to the features of autism.

Can Cell Phone Radiation Cause Brain Cancer?

nutritionfacts.org

Since the turn of the century, there have been studies suggesting up to double the risk of brain tumors with long-term cell phone use on the side of your head you use to talk/listen.

Are Avocados Associated with Greater Risk or Reduced Risk of Cancer?

nutritionfacts.org

Men who ate the most avocado, more than about a third of an avocado a day, had reduced risk of prostate cancer—in fact, less than half the odds. So, with the data on improved artery function, lower cholesterol, and, if anything, an association with decreased cancer risk, I'd suggest including avocados with the other green-light foods.

Treating Asthma and Eczema with Plant Based Diet

nutritionfacts.org

Twenty patients with allergic eczema were placed on a vegetarian diet for 2 months and their disease scores, covering both subjective and objective signs and symptoms, were cut in half.

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growth signaling of prostate cancer cells—less than 10 percent—but all three together suppress growth signaling about 70 percent. The whole tomato is greater than the sum of its parts.

So, instead of giving cancer patients lycopene pills, what if we give them some tomato sauce? Researchers gave 32 patients with localized prostate cancer three quarters of a cup of canned tomato sauce every day for three weeks before their scheduled radical prostatectomy. In their bloodstream, prostate-specific antigen (PSA) levels dropped by 17.5 percent. PSA, is a protein produced by prostate gland cells, and elevated blood PSA levels are routinely used to monitor the success of cancer treatment. "It was surprising to find that the 3-week, tomato sauce-based dietary intervention" could decrease PSA concentrations in men with prostate cancer. As well, free radical damage of the DNA in their white blood cells dropped by 21 percent. Imagine how antioxidant-poor their diet must have been beforehand, if less than one cup of tomato sauce a day could reduce DNA damage by more than a fifth!

What did they find in their prostates, though? Human prostate tissue is thought to be "particularly vulnerable to oxidative DNA damage by free radicals, which are thought to play a critical role in all stages of carcinogenesis," that is, of cancer formation. This may be for a number of reasons, including fewer DNA repair enzymes. Well, the researchers had tissue samples taken from biopsies before the tomato sauce regimen started, as well as tissue samples from surgeries after three weeks of tomato sauce, and resected tissues from tomato sauce-supplemented patients had 28 percent less free radical damage than expected. What's interesting is there was no association between the level of lycopene in the prostate and the protective effects. Tomatoes contain a whole bunch of things, some of which may be even more powerful than lycopene.

Regardless, in contrast to the lycopene supplements alone, the whole food intervention seemed to help. To see if lycopene plays any role at all, one would have to test a lycopene-free tomato—in other words, a yellow tomato. So, what if you compared red tomatoes to yellow tomatoes, which have all the non-lycopene tomato compounds, to straight lycopene in a pill? Researchers fed people red tomato paste, yellow tomato paste, lycopene pills, or placebo pills, and then dripped their blood onto prostate cancer cells growing in a petri dish. The red tomato serum—the blood from those who ate red tomato paste—significantly decreased the prostate cancer cell's expression of a growth-promoting gene called cyclin D1, compared to those not eating anything. This down regulation of the gene by the red tomato consumption "may contribute to lower prostate cancer risk by limiting cell proliferation." The red tomato seemed to work better than the yellow tomato, so maybe the lycopene helped—but not in pill form. This gene "was not regulated" by the lycopene pill serum, indicating that it may be something else. And, lycopene alone significantly upregulated procarcinogenic genes. "Therefore, it can be stated that tomato consumption may be preferable to pure lycopene..."



Italian-style Tomato Sauce

Ingredients:

2 x 140 g can tomato paste	3 x 400 g can tomatoes
1T dried parsley	1T oregano
1T sweet basil	1t salt
4 cloves garlic, minced	1-2 T honey or dates
1 med onion, diced	1½ c water

Method:

Place all ingredients in a saucepan and simmer for 20 mins stirring occasionally. Blend with a stick blender for smoother sauce. Yield: 9-10 cups

Note: This sauce can be used for lasagne, spaghetti, pizza, burritos or anywhere you use tomato sauce. This sauce can also be made in larger quantities and bottled for later use. It will keep for about 10 days once opened. Keep refrigerated.

—Ref. What's Cooking with Natural Foods, p.50