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The Benefits of Curcumin in Tumor Treatments

Analysis by Dr. Joseph Mercola ✔ Fact Checked | June 23, 2023

STORY AT-A-GLANCE

- Curcumin — a derivative of turmeric and the pigment that gives the curry spice turmeric its yellow-orange color — has been extensively researched
- Curcumin appears to be universally useful for just about every type of cancer, and has the most evidence-based literature supporting its use against cancer of any nutrient
- It has the ability to modulate genetic activity and expression, both by destroying cancer cells, and by promoting healthy cell function
- Research has also shown that it works synergistically with certain chemotherapy drugs, enhancing the elimination of cancer cells

Editor's Note: This article is a reprint. It was originally published March 2, 2014.

Cancer is one of the leading causes of death. What if there were a safe, natural herb that could work for nearly every type of cancer?

According to Dr. William LaValley, who focuses most of his clinical work on the treatment of cancer, curcumin — a derivative of turmeric and the pigment that gives the curry spice turmeric its yellow-orange color — may fit the bill. It's a natural compound that has been extensively researched, and has been found to have numerous health applications.

Like me, LaValley was trained in general medicine, but he's devoted a considerable amount of time to understanding the biochemical pathways that can support health

nutritionally. In 1982, he participated in an exchange program to the People's Republic of China, where he got first-hand experience with the ancient practices of traditional Chinese medicine and acupuncture.

> *"One of the important messages that I learned there was that natural products, natural molecules, from plants and animals that are already available in nature, have been used by the Chinese for at least hundreds, probably thousands of years. That deeply changed my perspective in the world of medicine,"* he says.

> *"I came back to medical school, and thereafter, looked at how I could integrate the perspective of conventional pharmaceutical administration as well as natural extract, natural product administration."*

Curcumin Has Potent Anticancer Activity

In 2005, he took a 75% sabbatical from clinical practice to immerse himself in the science of molecular biology, specifically the molecular biology of cancer. He also devoted approximately 9,000 to 9,500 hours building a relational database from the PubMed literature about the molecular biology of cancer.

One important lesson he learned through that venture is that the understanding of molecular biology can be applied across a range of diseases and symptoms described in the scientific literature. That knowledge can be applied by searching PubMed and other related databases, looking at the relevant molecular pathways involved.

> *"In learning the molecular biology of cancer pathways, and in learning that what the evidence actually shows for the effect of natural product extracts on various relevant molecular targets in various cancers, we see that there's actually quite a large amount of evidence that supports using various molecules, natural products, and pharmaceuticals that are already approved and that have been around for a long time to affect anti-cancer activity along that pathway at that target.*

That's called molecularly targeted anti-cancer treatment, and it's widely practiced in oncology today.

What's not widely practiced is the use of the natural products for the molecularly targeted anticancer activity. I provide that for my patients because the evidence base suggests and supports the use of these treatment recommendations."

Curcumin — A 'Universal' Cancer Treatment?

Interestingly, curcumin appears to be universally useful for just about every type of cancer,[1] which is really odd since cancer consists of a wide variety of different molecular pathologies. You wouldn't necessarily suspect that there would be one herb that would work for most of them. LaValley explains how he came to this conclusion:

"I went back to the literature and looked at how I can support the decision-making process and the recommendations that I'm making for treatment from the scientific literature, including literature that goes from the treatment of humans with oral products like pharmaceuticals or natural products.

This is where I learned about this molecule called curcumin, all the way down to its use in animals and then its use in test tubes or petri dish … One of the amazing things about curcumin is that this molecule has some profound anti-inflammatory activity and has activity in many molecular targets.

There are molecules that are in the cells, and those molecules interact with each other along certain pathways or tracks. The traffic of that interaction, the signals that are transferred in that trafficking of information in the molecules, presents many different targets or molecular-specific complexes."

As explained by LaValley, whether the curcumin molecule causes an increase in traffic or activity of a particular molecular target, or a decrease/inhibition of activity, studies repeatedly show that the end result is a potent anticancer activity. Furthermore, curcumin does not adversely affect healthy cells, suggesting it selectively targets

cancer cells. Research has also shown that it works synergistically with certain chemotherapy drugs, enhancing the elimination of cancer cells.

Curcumin Destroys Cancer in Multiple Ways

Curcumin has the most evidence-based literature[2] supporting its use against cancer of any nutrient, including vitamin D, which also has a robust base. Interestingly, this also includes the metabolite of curcumin and its derivatives, which are also anticancerous.

Curcumin has the ability to modulate genetic activity and expression — both by destroying cancer cells and by promoting healthy cell function. It also promotes anti-angiogenesis, meaning it helps prevent the development of additional blood supply necessary for cancer cell growth. As for its effect on molecular pathways, curcumin can affect more than 100 of them, once it gets into the cell. More specifically, curcumin has been found to:

Inhibit the proliferation of tumor cells	Decrease inflammation
Inhibit the transformation of cells from normal to tumor	Inhibit the synthesis of a protein thought to be instrumental in tumor formation
Help your body destroy mutated cancer cells so they cannot spread throughout your body	Help prevent the development of additional blood supply necessary for cancer cell growth (angiogenesis)

Why Whole Turmeric Is Ineffective

Unfortunately, while there's some curcumin in whole **turmeric**, there's not enough in the regular spice to achieve clinically relevant results. The turmeric root itself contains only about 3% curcumin concentration. Another major limitation of curcumin as a therapeutic agent is that it is poorly absorbed. When taken in its raw form, you're only absorbing about 1% of the available curcumin.

> *"The natural product industry has developed a standard of a 95% concentration of curcumin,"* LaValley explains. *"Initially, years ago, that was what we had available for patients. Even at that, taking a 95% concentration orally in a capsule, only 1% of that could be absorbed. In order to get amounts of curcumin in the bloodstream that are reasonable to have therapeutic effect, people had to take large amounts of curcumin …*
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> *In searching the literature, I found that a way to change that, to dramatically increase the bioavailability, is actually a very simple process of bringing water to a boil, putting those capsules or some dry powder (I use it by the teaspoon), and boiling it for 10 to 12 minutes. That increases the amount of curcumin dissolved in water from that 1% amount up to 12% or so.*
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> *That amount is a vast number of curcumin molecules that are now in a bioavailable or absorbable form."*

However, while this is certainly doable, it's really inconvenient, and great care must be taken to prevent staining your clothes and kitchen surfaces. It's a significant enough problem to have been dubbed "yellow kitchen syndrome," as it's virtually impossible to get the stains out. Turmeric is in fact an excellent dyeing agent for fabrics, rendering them a yellow-orange color.

Convenience and efficiency has driven many of the changes in the forms of curcumin in later years. Because it's a fat-loving or lipophilic molecule, many newer preparations now include some sort of oil or fat, which improves its absorbability and bioavailability. Such preparations typically have seven to eight times higher absorption than the raw, unprocessed 95% concentration of dry powder. There are also newer sustained release preparations, which LaValley prefers and recommends.

The Connection Between Cancer and Insulin Resistance

If you are overweight, or have high blood pressure, high cholesterol, and/or diabetes, then in all likelihood insulin and leptin resistance is a factor. Insulin and leptin resistance

is also a very common factor among cancer patients.

From my perspective, a ketogenic diet (with or without intermittent fasting) would be a prudent treatment strategy to resolve that underlying problem. Once you've normalized your insulin and leptin, you don't necessarily need to maintain a **ketogenic diet**, if you find it too restrictive.

> *"I agree with you that a ketogenic diet is really appropriate in many cases, probably the significant majority of cases,"* LaValley says. *"It's been known for probably 80 years or longer that solid tumors, and some of the blood cancers, are sugar-loving. Another term is that they are addicted to sugar.*
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> *I use [a] PET scan to demonstrate to patients that here is objective proof that the tumors you have in your body are sugar-avid. They're taking up sugar at a rate much higher than the other regular healthy cells. I want to drive home that message, so that they are motivated to alter their diet to have a low, low carb intake, causing their body to generate additional nutrient supply molecules called ketones …*
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> *What that means is that we're trying to provide an anticancer antagonistic pressure on the cancer cells by reducing the amount of sugar that's readily available for uptake by reducing the easily available sugar in the diet and compensating for the nutrient reduction and sugar [reduction] by increasing healthy fats."*

Cutting Down on Protein May Be Useful for Cancer Patients

It would also be prudent to assess your protein intake. Many Americans eat far more protein than required for optimal health. The reason for this is because your body can actually use excess protein to stimulate carbohydrate production.

Excess protein also stimulates the mammalian target of rapamycin (mTOR) pathways, which are useful for building muscles but can be detrimental when treating cancer, as mTOR is a pathway that increases cellular proliferation. (Interestingly, the

pharmaceutical drug metformin, which has anticancer activity, also inhibits mTOR, and it turns out that curcumin has a very similar effect.)

The formula I recommend for assessing how much protein you might need in your diet is from nutritionist Dr. Ron Rosedale, which calls for 1 gram of high-quality protein per kilogram of lean body mass, or about half a gram per pound of lean body mass.

As an example, if your body fat mass is 20%, your lean mass is 80% of your total body weight. So, if your total weight is 200 pounds; you would then divide 160 by 2.2 to convert pounds to kilograms and come up with 72.7 grams of protein. If you are doing vigorous exercises or are pregnant, you can add up to another 25% or another 18 grams in this illustration to increase your total to 90 grams per day.

More Information

LaValley is available for consultation on a wide variety of health challenges, including cancer, and he's licensed to practice medicine in the U.S. and Canada. His medical clinic is located in Chester, Nova Scotia, where he sees patients. Americans can fly there either through Chicago or Newark. His office number in Canada is 902-275-4555. In the U.S. it's 512-794-8907.

He also spends time in Austin, Texas, where he conducts research. When there, he's available to consult for other physicians and their patients. He currently is completing a book explaining the science and benefits of molecular integrative oncology (what he calls "the other half of cancer treatment"), to be published in 2023.

> *"For instance, if a patient has pancreatic cancer and the physician wants to implement one of the protocols that I provide, I will do a consultation with that physician's patient and then make recommendations to that physician for implementation,"* he explains. *"In that way, patients are able to get it locally without having to travel to Nova Scotia …*
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> *It's a challenge right now because there's so much information that's not readily known by so many physicians that they become afraid. I think one of the*

biggest issues, certainly in U.S. and Canada, is that when a physician wants to administer one of these natural products, or several of them, as well as some of the off-label pharmaceuticals for their anti-cancer usage, they are afraid of recriminations or disciplinary actions.

That is, I think, very unfortunate, because the evidence base does exist for it, and it's consistent with the way that other types of conventional medicine or practice using off-label pharmaceuticals as well.

I think that the most important movement that needs to occur is for the patients to recognize their own value in the decision-making process and demand that they have access to these therapeutic choices because they're available, they're supported in the evidence base, and they have the right to ask for them rather than to just accept whatever the physician is otherwise offering in the conventional realm."

Sources and References

- [1] Journal of Cancer Research and Therapeutics 18(1):p 19-26, Jan–Mar 2022
- [2] Foods. 2017 Oct; 6(10): 92