

The Benefits of Vitamin C in Cancer Treatment

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Examples of holistic therapies used for cancer include vitamin C alone and in combination with Artesunate (a malaria medication) and/or hyperthermia, curcumin, melatonin and mistletoe
- › One key point to be made about holistic oncology is that the earlier you start this kind of treatment, the better. Most patients who seek alternative strategies have already done tremendous damage to their bodies with one or more rounds of chemo, which makes natural remedies less capable of achieving complete healing
- › Whole food vitamin C and IV vitamin C serve two different functions. Whole food vitamin C is not suitable for the treatment of cancer, but does wonders for general health support, whereas high-dose vitamin C with sodium ascorbate has powerful drug-like effects suitable for acute and severe infections and cancers
- › Vitamin C has a wide variety of precision effects, which can be generally classified into genomic, epigenomic, transcriptomic, proteomic, metabolomic and immunomodulatomic effects
- › Vitamin C is typically thought of as an antioxidant, which is true orally and at lower doses, but in high doses, it becomes a pro-oxidant, and that's actually what allows it to kill cancer cells and gives it its significant antiviral and antibacterial properties

In this interview, Dr. Nathan Goodyear discusses the benefits of vitamin C in cancer treatment. We are both scheduled speakers at the [Vitamin C International Consortium Institute's annual conference in Tampa, Florida, September 9 and 10, 2022.](#)

Goodyear started out as a gynecologist and pelvic floor surgeon. Once out of residency, however, he noticed that a lot of what he'd been taught in medical school didn't work. Then, in 2006, he developed pheochromocytoma, a rare type of tumor that develops in the adrenal gland, causing it to excrete high amounts of norepinephrine, which in turn causes extremely high blood pressure and heart rate.

Holistic Oncology

That experience pushed him to make the transition into the field of cancer. The last five and a half years, he's been working with Brio-Medical, a holistic cancer clinic in Scottsdale, Arizona, of which the last six months he has served as medical director. He works with four other physicians – two medical doctors and two naturopathic physicians.

“The conventional approach seems to follow the logic ‘destroy to heal,’ and I just don't know where that really occurs in nature outside conventional cancer treatment. Healing has to be your focus and goal to achieve healing. You have to heal to heal. Our healing strategy focus in cancer is to tap into the body's designed capacity to heal itself through the targeting of the root causes,”
Goodyear says.

“When you look at holistic natural therapies, there's this assumption by many, including conventional medicine, that we are just throwing darts up on the wall and hope they stick.

But in actuality, we're following the science of genomics, epigenomics, transcriptomics, metabolomics and immunomodulomics. This is the future of medicine that's here now, and we're being incredibly specific and targeted for the dysfunction within the cancer, but with natural holistic or integrated therapy.”

Examples of Holistic Therapies for Cancer

Examples of holistic therapies used for cancer include vitamin C in combination with artemisinin or artesunate (a primary malaria medication). This combo is very good for prostate and breast cancer in particular. Curcumin and melatonin both also have significant anticancer effects. Goodyear likes to combine hyperthermia with high-dose vitamin C and curcumin.

“Studies have shown that when you give vitamin C with whole body hyperthermia, you actually achieve a higher plasma ascorbic acid concentration. So that’s going to impact the fight against cancer more,” he explains.

Mistletoe is another excellent cancer treatment. I’ve previously interviewed [Dr. Nasha Winters about the use of mistletoe in oncology](#), so for more in-depth information, see that interview.

One key point to be made about holistic oncology is that the earlier you start this kind of treatment, the better. Unfortunately, most patient who seek alternative strategies have already done tremendous damage to their bodies, particularly the immune system, with one, two or even three rounds of chemo, which really impairs your body’s ability to heal naturally.

“If we can get them earlier in the process ... before they get conventional chemo and/or radiation, the impact is huge,” Goodyear says.

“Before you destroy the immune system, one can actually heal with the immune system. I can’t tell you how many ladies with breast cancer have been able to preserve their breasts with this cancer healing strategy. You can actually heal the body, not destroy it. That is a novel concept because when you destroy the immune system through conventional therapy, you’re going to see cancer recur and spread.”

How Cancer Kills

Typically, it's not the initial cancer that kills you. What kills is when the cancer spreads (metastasizes) to other areas of your body. Also, most cancer patients don't actually die from the cancer, but from the treatment that conventional oncologists use to treat the cancer.

"The literature is very clear – especially in the last five to 10 years – that 90% of morbidity and mortality associated with cancer is when it spreads," Goodyear says. "Thankfully, research has provide a good understanding of how this chemotherapy and radiation-induced metastasis process occurs.

So, let's look at maximum tolerated chemotherapy. The literature is very clear on this and ... shows the mechanisms in how it [contributes to death]. Maximum tolerated chemotherapy actually induces the mechanisms to spread the cancer. In breast cancer, maximum to tolerated chemotherapy will reduce the primary tumor, yet at the same time, cause it to spread to distant locations in the body.

Thus, that leads to 90% of morbidity and mortality associated with cancer. So, the very treatment being used in conventional oncology to treat the tumor is actually resulting in 90% of morbidity and mortality associated with cancer ... That is in unforced error.

A lot of people that come to us, they're so surprised. They ask, 'Why didn't I know about this? Why didn't I know that surgery can cause metastasis? Why didn't I know chemotherapy and radiation can cause metastasis?'"

Vitamin C Basics

The story of vitamin C demonstrates that the devil's in the details. Roughly 50 years ago, Linus Pauling demonstrated that intravenous vitamin C (10 grams a day for 10 days) improved cancer survival. Later, researchers at the Mayo Clinic tried to reproduce the results, but didn't use IV vitamin C. They instead gave 10 grams orally, and found no benefit.

In the academic battle that followed, Mayo won and for the next several decades, the conventional thought was that vitamin C doesn't work. That began to change around 2000, when Dr. Ping Chen, a conventional oncologist started looking into vitamin C and publishing papers on its pharmacokinetics.

Since then, there's been a combination of pushback against the idea that vitamin C works on the one hand, and on the other, growing research that points to vitamin C's effects as powerful as any drug.

Vitamin C Is Natural but Has Drug-Like Effects

Vitamin C does have drug-like effects, and I like to refer to it as a pharmaco-mimetic, but it's still a natural biological molecule that cannot be patented, and hence cannot be a drug. Also, to be clear, there are distinct differences between whole food vitamin C and ascorbic acid.

They really have two very different purposes. Whole food vitamin C is not suitable for the treatment of cancer, but does wonders for general health support, as it interacts favorably with copper and iron in your cells and mitochondria. I only recommend and use high-dose IV vitamin C in cases of acute infection or illness, as it does have very potent "drug-like" effects. Goodyear adds:

"It's actually inducing metabolic changes and epigenetics. That's the great thing about natural therapies. Conventional medicine will take an approach to kind of throw a monkey wrench in to the body's physiology to shut everything down ... without a holistic perspective of how that affects the whole body. It's a very compartmentalized approach.

A holistic approach is like a pebble thrown into a calm pool in the morning. Its effects ripple throughout the physiology of the body. That is the beauty of natural therapies.

Now in cancer and sepsis ... when we're dealing with the major dysfunction found in cancer, where things have metabolically, genetically, immunologically

gone off the rails, we have to come in and really work to turn the tide. That's where the intravenous vitamin C delivery is required. That's where the sodium ascorbate comes in, because that's the only way we're going to be able to change that tide."

Oral Versus IV Vitamin C

When treating cancer, IV needs to be used because you simply cannot take the high dosages required orally. Doses over 10 to 20 grams of ascorbic acid will cause loose stools when taken orally, but IV administration bypasses the limitation of the gut. It also allows the vitamin C to get directly into the blood to the extracellular fluid, into the tumor microenvironment, to penetrate the tumor and saturate the entirety of the tumor.

Now, if you feel like you're coming down with an infection, such as a flu or cold, oral vitamin C is plenty adequate. Oral dosing of vitamin C, using a nonliposomal product, can double your blood level of vitamin C, and using liposomal vitamin C – which is what I've been recommending for years – can increase it three- to fivefold – up to about 300 micromolar. So, liposomal vitamin C can make a big difference.

However, when you're dealing with cancer, you need a minimum 1,000 micromolar, or 1 millimolar, in the extracellular fluid to kill cancer cells, which is why you really need to use IV. In the case of large tumors, or significant cancer spread, much higher plasma concentrations are required.

While the dosage is highly individual to each patient, as a general benchmark, Goodyear typically starts at 1.5 grams per kilogram, which for the average person would be somewhere between 100 and 200 grams per dose, three times a week.

So, to be clear, I do not advise taking ascorbic acid for daily vitamin C requirements. I strongly suggest you use whole food vitamin C which is far superior as a daily supplement.

Actions of Vitamin C

Vitamin C has a wide variety of effects, which can be generally classified into the following: genomic, epigenomic, transcriptomic, proteomic, metabolomic and immunomodulatomic.

“The point here is that vitamin C is not just directly killing cancer cells, what we would call cytotoxic effects. Vitamin C is actually working to change the metabolism of the cancer.

What that means is, it creates an energy crisis. It actually depletes the body of certain intermediates that make it so this cancer, which is addicted to sugar, cannot use [the sugar] efficiently to make energy (ATP), so it ... dies. It also depletes [the cancer] of its ability to detoxify.

So, to be specific, research shows that vitamin C depletes the cancer of reduced glutathione. And getting rid of that glutathione in that cancer eliminates its ability to handle the high oxidative stress that this pro-oxidative vitamin C therapy induces, which kills the cancer cell.

It also disrupts how cancer makes energy. And it's fascinating because everybody looks at this and they ask, ‘Well, how will this affect my healthy cells?’ This is the paradigm changer with vitamin C.

The environment – as much as the dose, as much as the delivery, as much as the tumor saturation – the environment encountered by that vitamin C dictates the result as much as the dose itself. So, you can induce a pro-oxidative effect, a detoxification crisis, an energy crisis, in cancer cells, and healthy cells do just fine.”

Using Pro-Oxidation to Kill Cancer Cells

When you think of vitamin C, you're probably thinking it's an antioxidant, which is true, but in high doses only available through IV, it actually becomes a pro-oxidant, and that's what allows it to kill cancer cells and gives it its antiviral and antibacterial properties.

Goodyear explains:

“Everybody's familiar with the buffer system related to acid and base. When you look at redox – reduction oxidation – that's really just the flow of electrons. It's a buffer system, very similar to that acid base balance. So, in oral doses, even in a lower dose, in an environment that allows it, vitamin C is antioxidative.

And there's plenty benefits of that. That's why it's so helpful in viral and bacterial infections. It's countering that cytotoxic burst found in infection. It's donating an electron and becomes oxidized [which neutralizes oxygen] ... That's why vitamin C ... can help people with sepsis, including COVID sepsis, and the associated COVID cytokine storm that causes most of the lung damage and the associated increase in mortality.

But in the higher doses – again, its different effects are dictated by the different environments – it can become pro-oxidative. It's very different in that it's delivering the oxidative stress to the tumor and creating it through hydroxyl free radicals, hydrogen peroxide, superoxide anions.”

Melatonin for Cancer

Goodyear also uses melatonin for cancer, and monitors patients' melatonin levels to ensure proper dosage. Typically, patients will start off with IV melatonin at a dose of 10 to 20 milligrams daily for two weeks, to get the level up as quickly as possible, while simultaneously taking oral melatonin at a dose of about 60 mg per day. The oral dose is then titrated upward, based on bodyweight and other parameters.

“Ideally, your blood level is supposed to peak at around midnight. So, with that in mind, if you're going to do the oral dose, you want to take the highest dose right before bed, maybe 45 minutes before, and then right before bed.

The other doses, if you're going to do it three times a day, would be maybe 10 a.m. and 4 p.m. You really want to keep it away from solar noon. Otherwise you're going to [impair your] chronobiology.

When patients go home, we do work more toward a more appropriate circadian rhythm of the delivery of melatonin. But when patients come to us, so many of them are in an advanced stage, so, in that acute setting, we have to use these therapies in combination and sequence, together, to really turn the tide against the cancer.”

What Kind of Results Can You Expect From Holistic Oncology?

Goodyear and I cover a lot more ground in this interview than I’ve summarized here, so I encourage you to listen to the full interview. In closing, what kind of results might you get using a holistic approach to cancer treatment? Goodyear says:

“I’d say probably 90% of our patients are metastatic and [have had] prior treatment. In those patients, in a six-week or maybe eight-week cycle, we can see a significant reduction in tumor burden. What I tell them is, ‘When you come into our clinic, my goal is [for you to have] no evidence of disease when you leave.’

They ask, ‘Is that possible?’ Well, as that one case study I mentioned, it was achieved. Now, she ended up being with us for nine weeks, but the point is she came in a wheelchair, she walked out, her PET-CT scan [showed no sign of disease], and her tumor markers [were] normal upon discharge.

Our goal is no evidence of disease, but we’re going to typically see – in most of our patients, well over 50% – a significant reduction in that tumor burden while they’re here with us. The after-care, is very important to continue that process. What we’re talking about here is at least a 50% reduction in the tumor that you can see clinically, through labs and through imaging.

And so, many of our patients will come in where the breast is a whole tumor, [or] their spine lights up like a Christmas tree. So, it’s not like we have a patient coming in and they have a small little nodule, OK? These are patients that have

failed chemotherapy twice or more, [have had] surgery, radiation [and the cancer] recurred, not just once, but often two or even more times.

It's a tough spot to be in, but if we can set a goal of 'no evidence of disease' and see a 50% reduction in these patients, hey, that's something that we can work with, because we're not destroying the body; actually we're working to heal the body."

As mentioned earlier, most of the patients have destroyed much of their bodies' innate healing ability through repeated toxic treatments, which makes holistic treatment far less effective. Once chemotherapy damages your immune system it becomes extraordinarily difficult to treat it.

I know how panic-stricken one can get when given a cancer diagnosis, but if you're in the early to mid-stages, you have virtually nothing to lose by going holistic FIRST. Your chances of total remission will be far greater than waiting until all other treatments fail, and you may be able to save your breasts and other parts of your body that would otherwise be cut out.

A Case History

To make his point, Goodyear offers the case history of a woman with bilateral breast cancer who'd been told she needed a bilateral mastectomy, bilateral radiation with chemo, and lymph node dissection – six to 12 months of brutal and toxic treatments that would have left her disfigured.

"When I was talking to her before she came, I said, 'Let me tell you my approach. Since you've not had any treatment, if we take this in a healing perspective and through a holistic integrative approach, you may just save your breasts, and you may negate the need for any of those other harmful therapies.'

And in fact, now she's over two years out – cancer-free, no breasts removed, no lymph nodes removed. So, here is a person who was headed down that road that would be life changing in a negative way. We hit the pause button.

She took a chance to think, she took a chance to read. And then she said, 'You know what? I want a different approach.' We addressed it with a holistic evidence-based, integrative approach ... and now she has both breasts and she's living cancer-free.

She even had COVID and did great ... When the immune system is not destroyed, things work so much better, and full-dose chemo destroys the immune system."

More Information

If you'd like to book an appointment, schedule a free phone consultation, or simply get more information, you can do that through his website, [Brio-Medical.com](https://www.Brio-Medical.com).