

Using Selenium And Chromium To Help Overcome Cancer

(Great For Prevention, As Well)

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Overview: For years I have known that two trace elements, selenium and chromium were important for helping to overcome cancer and for helping to prevent cancer.

But there has been a problem, (actually two related problems).

One: It has become increasingly challenging to get enough selenium from food. This is because almost all soil used to raise produce is so badly depleted that the selenium levels have dropped far below the amount that is effective. There are traditional foods that used to be high in selenium. Brazil nuts are one. But now the selenium levels in those nuts have dropped to the point where you would have to eat about a pound of them a day to have any therapeutic effect.

Supplements have not been the answer, either. At least the ones I found were not a solution. Almost all selenium supplements on the market are either in a form that is not sufficiently bio-available, or even worse, in forms that can be toxic when enough is taken to otherwise be effective.

Two: The “safe allowable levels” set for selenium were far too low to be effective in helping to overcome cancer. In fact, there has been a great deal of fear-mongering around selenium supplementation. The mainstream song has been one about toxicity being a serious danger, even at relatively low levels.

The truth is that when natural, bio-available forms of selenium are used, relatively high levels of supplementation do not pose a realistic risk of toxicity. In fact, they are essential to health and in even higher amounts can help significantly to overcome existing cancers. In somewhat lower amounts, they serve to help prevent cancers.

CAUTION – I meant what I said about the selenium in most supplements not being safe at the high levels needed to have any significant benefit when it comes to overcoming cancer. This also is true for the chromium that must be used with the selenium. So far, I have only found the selenium and chromium from Innate Response to be safe at those levels. Please **DO NOT** try to supplement either mineral at high levels from any other source!! I mean this as a most serious caution. That said, the selenium and chromium from Innate Response has been shown to be completely safe at very high levels. The practical details are included at the end of this article.

Background – Why It Works: Given the complex set of interrelated factors and chains of cause and effects involved in human biology, there are a number of reasons why high levels of selenium and chromium are effective. To cover all of them, at least the ones that are known at this point, would require a large book. In this article I am going to discuss just the most obvious and perhaps most significant one in relation to cancer.

If you are wondering at this point if this measure might be effective in helping to overcome and prevent type II diabetes, metabolic syndrome, insulin resistance and the like, the answer is a resounding “Yes!” For overcoming these issues, the recommended amounts for overcoming cancer would be appropriate. The amounts for preventing cancer would, likewise, be appropriate for preventing these conditions, as well.

To understand the main mechanism by which the selenium and the chromium help to overcome and prevent cancer, we need to look at one of the most significant characteristics of all cancers:

One of the primary differences between cancer cells and healthy cells is the difference in how they metabolize fuel to create the energy they need to live.

Healthy cells metabolize fuel by combining it with oxygen to generate energy. This involves a complex cascade of chemical reactions that take place in the mitochondria of the cells. The entire cascade is known as the “Krebs Cycle”, after Hans Krebs, who discovered it. Healthy cells have a lot of these tiny energy generators, known as mitochondria, scattered throughout the interior of the cell.

If you want to learn more about the Krebs Cycle, here is a pretty good article:
https://simple.wikipedia.org/wiki/Krebs_cycle

You don’t really need to understand the Krebs Cycle, (also known as the Citric Acid Cycle), in detail for the purposes of this article.

The important fact to take away, so far, is that healthy cells combine oxygen with fuels to generate their energy. This means that they are able to utilize a wide variety of fuels. They can metabolize proteins, fats, amino acids and sugars to generate sufficient energy to sustain life and support all of their necessary functions.

Cancer cells, in contrast, cannot utilize oxygen in the same way for their energy generation. Instead, they MUST rely on “anaerobic metabolism” – metabolism that does not include oxygen, or “glycolysis” which uses some oxygen, but not efficiently. Glycolysis can be thought of as a form of “aerobic fermentation.” It is highly inefficient, compared to normal, cellular metabolism. In fact, the difference in energy production is 16-fold. That is to say that the Krebs Cycle, sometimes referred to as the vitamin C cycle, generates 16 times as much energy as these other forms of metabolism for each unit of fuel metabolized.

In essence, cancer cells use a rapid form of anaerobic fermentation or they use glycolysis to create the energy they need in order to survive, grow and replicate.

Not only are these two methods of energy production inefficient, but they also generate far more metabolic waste than the healthier Krebs Cycle does. This metabolic waste overwhelms the detox pathways of the cells and leads to a highly toxic environment within the cell. In fact, this is what causes the DNA damage that is seen in cancer cells.

Most potential fuels, other than sugars, do not lend themselves to anaerobic metabolism or to glycolysis. Only sugar and one amino acid, glutamine, work well for this type of energy generation. This is why sugar is the primary fuel that allows cancers to grow and thrive. Glutamine, alone is generally not present in sufficient levels to fuel cancers. Sugars really are key.

Cancer cells will not thrive on fats or proteins as fuels. That is why cancers need sugar and/or carbohydrates. (The carbohydrates break down to become sugars, so they also need to be minimized by anyone dealing with cancer.)

Side note: If someone in the conventional medicine sector disputes this, ask them to explain how a PET scan works! You will soon see their eyes cross and their faces turn bright red.

What does this have to do with selenium and chromium? It turns out that when adequate amounts of selenium and chromium are present in the body in bio-available form, these work with the liver enzymes and particularly the pancreatic enzyme to keep the blood sugar levels low. The effect is actually quite dramatic. Yet, this does not lead to the typical low energy symptoms that someone with an unstable blood sugar problem is likely to experience.

The specific mechanisms by which the bio-available selenium and chromium control blood sugar are complex and beyond the scope of this article. But they are convincingly demonstrated by giving a person with type II diabetes high doses of bio-available selenium and chromium and observing how very quickly their blood sugar stabilizes at healthy levels and the type II diabetes appears to be completely resolved.

In a related effect, it has been observed that blood insulin levels normalize, as well.

These effects make high dose selenium with chromium very helpful to those wishing to more easily lose weight, as well. Of course, eating a healthy diet, with the right ratios of protein, fat and carbohydrates is still important. But the selenium and the chromium make it easier by suppressing hunger and cravings and by dramatically increasing the efficacy of a healthy diet.

Note: For most people who may be trying to overcome any cancer, I highly recommend considering a ketogenic diet along with the selenium and chromium supplements discussed in this article.

Further, and perhaps even more dramatically, the high levels of selenium and chromium affect the energy metabolism at the mitochondrial level in ways that strongly favor normal cellular respiration and metabolism over the ways that cancer cells generate

their energy as described above. So, these minerals have the potential to prevent the formation of new cancer cells as well as helping to repair the metabolism in new cancer cells, (essentially turning borderline cancer cells back into healthy cells).

Bio-Available Selenium And Chromium: Until recently, obtaining selenium supplements that are in the right form and that are highly bio-available has been a real challenge. The same has been true for chromium.

The answer for both is the selenium and the chromium manufactured by Innate Response Formulas. These supplements are made from whole foods, and are in the right form so that they are well absorbed, are effective and do not pose a significant risk of toxicity, even when taken in amounts well above the RDA.

CAUTION: Only the selenium and chromium from Innate Response Formulas have been shown to be safe and effective when taken at the high serving amounts described in the article. Absolutely do NOT do this using other selenium and chromium supplements. Doing so may cause serious harm!!

Before you actually place your order it is important to understand that you will need quite a bit of each. Be sure to read through the next section BEFORE you place your order!

How Much Do I Need: You will need a different amount, depending on whether you are working to overcome an existing cancer or to prevent a new or recurrent cancer.

Make sure you are sitting down when you read the next few sentences, detailing how many of these pills you will actually need!

Each selenium tablet contains 50 mcg of selenium, along with the various trace elements and minerals that make it bio-available and maximize its efficacy.

Each chromium tablet contains 100 mcg of chromium, along with the various trace elements and minerals that make it bio-available and maximize its efficacy.

For those working to overcome cancer, the selenium recommendation is 1,000 mcg to 1,200 mcg per day. That works out to 20 to 24 of the selenium tablets every day! One might ask why each tablet does not simply contain more selenium. The reason is that if they did, and it was in this natural and bio-available form, the resulting tablet would be too large to swallow easily. This is true for the chromium tablets, as well.

For the chromium, if one is working to overcome cancer, the recommendation is 400 mcg per day. That works out to 4 tablets each day.

It is best to spread both the selenium and the chromium out over the whole day.

Here is a simple and effective way to do this: For the first serving of the day, take 5 of the selenium tablets and 1 of the chromium tablets. It is fine to take these with food or without. They seem to be equally effective, either way.

Repeat that pattern 3 more times throughout the day.

Of course, I highly recommend working with an expert in this approach to dealing with cancer. Your expert can help you to fine-tune the above schedule, which is somewhat generic.

For those who may not have an active cancer and whose goal is to prevent a recurrence or a new cancer, the above amounts can be halved. That works out to 500 mcg of the selenium and 200 mcg of the chromium.

The first serving of the day would be 3 tablets of the selenium and 1 tablet of the chromium.

For the mid-day, take 2 tablets of the selenium and no tablets of the chromium.

For the serving at supper time, or closest to supper time, take 3 tablets of the selenium and 1 tablet of the chromium.

For the last serving of the day, take 2 tablets of the selenium and no tablets of the chromium. The above is a good, general maintenance and preventive regimen.

How To Order: As of this revision of this article, dated 08/28/2018, there are some issues with finding the best supplier for selenium and chromium from Innate Response Formulas. Until these are resolved, you can order both products from Amazon. This is NOT an endorsement of Amazon or their business practices. It is merely a practical way to get what you need. You can also use any Internet search method you wish to find sources for these products. I also like supporting local businesses when possible – consider asking your local health food store to stock these for you. Perhaps share this article with them so that they will understand the importance of these very specific supplements.

Selenium by Innate Response Formulas, sold by Amazon:

https://www.amazon.com/INNATE-Response-Formulas-Selenium-Metabolism/dp/B000UV0YYQ/ref=sr_1_1_sspa?ie=UTF8&qid=1530374896&sr=8-1-spons&keywords=Selenium+by+Innate+Response+Formulas&psc=1

GTF Chromium by Innate Response Formulas, sold by Amazon:

https://www.amazon.com/INNATE-Response-Formulas-Chromium-Regulation/dp/B00HSTENK4/ref=sr_1_1_s_it?s=hpc&ie=UTF8&qid=1530374948&sr=1-1&keywords=GTF+Chromium+by+Innate+Response+Formulas

Here is another source for the selenium, My Health Store, (no relation to my practice, which is My Health Optimizer.) They may offer slightly better pricing:
<https://www.myhealth-store.com/selenium90caps.html>

Here is the My Health Store link for the GTF Chromium:
<https://www.myhealth-store.com/gtfch100mcg9.html>

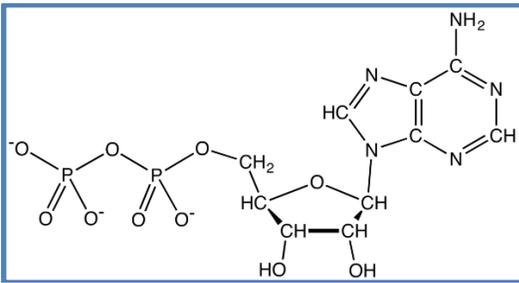
As more viable suppliers become available, I will update this article accordingly.

For Bio-Geeks, Only: For those who want to geek out on the Krebs Cycle, or Citric Acid Cycle discussed above, there is a great diagram on the following page that shows the complex cascade of chemical reactions that actually do the magic of generating our biological energy for us. Keep in mind that each of our cells has many miniature energy generating plants within it, and that all of these mitochondria use this chemical cascade to generate energy when they are healthy.

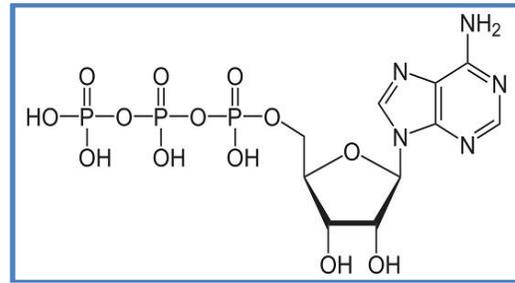
Also, keep in mind that one of the key distinguishing characteristics of cancer cells is that they have fewer mitochondria than healthy cells. Further, the mitochondria they do have are mostly damaged and unable to utilize aerobic metabolism. In a somewhat complex chain of effects, this not only means that cancers MUST have sugars to grow, but it also damages both apoptosis and growth regulation. Apoptosis is the pre-programmed cell death that normal cells have. This is why cancer cells live long after their “normal” life-span for whatever type of cells they are, e.g. kidney cells, liver cells, etc. It also explains why cancer cells generally proliferate at a far greater rate than healthy cells.

Keywords for understanding the Krebs Cycle are: “adenosine tri-phosphate” or “ATP and “adenosine di-phosphate” or ADP. ADP and ATP “cycle” back and forth to store energy and to release energy. You can think of them as acting as a sort of biological battery that is rechargeable.

When fuel is metabolized in a normal cell, (that is one that has a healthy metabolic function), the ADP gets an extra phosphate, so it is elevated as a store of energy from two phosphates, which is not a high energy state, to three phosphates, which has a high energy state. Then, when the cell needs energy it converts the ATP back to ADP and energy is released. This cycle goes back and forth between the two states as the extra phosphate is added and released from the adenosine molecule. You can see why this may be considered as a sort of biochemical “rechargeable battery.”

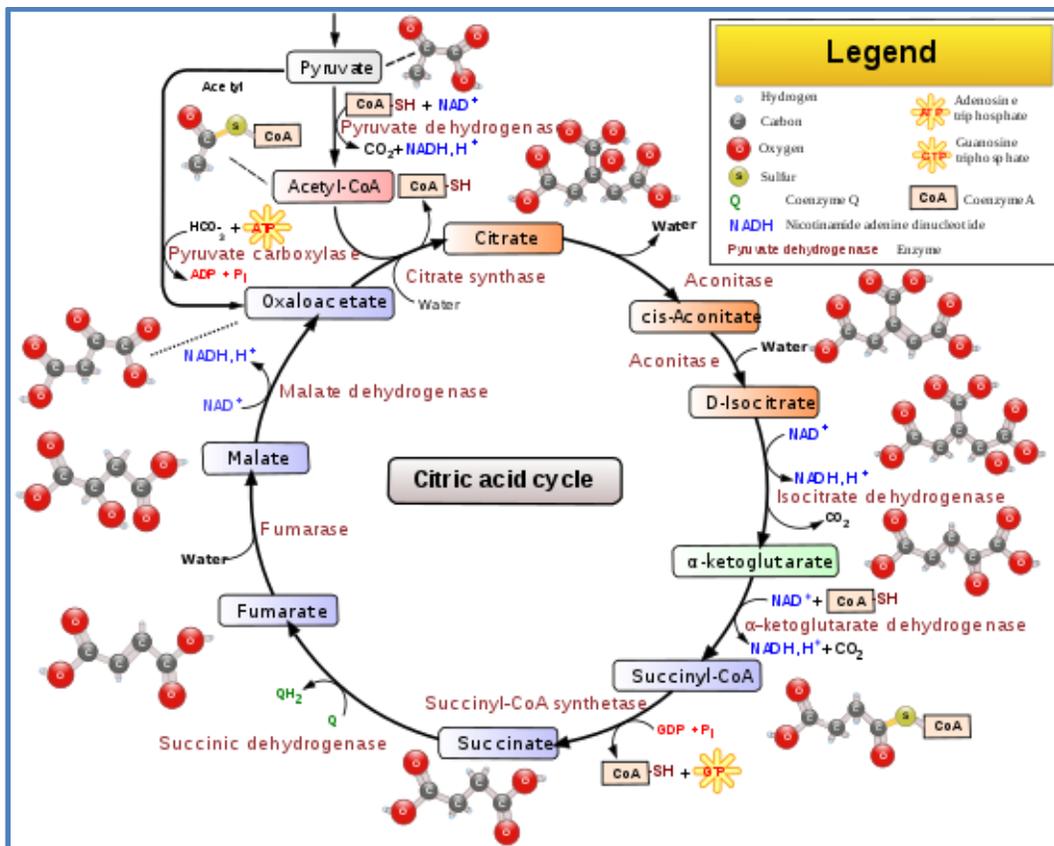


Here is an ADP diagram. Note that there are only 2 phosphates here.



Here is an ATP diagram. Note that there are 3 phosphates here.

Extra credit to those who understand the chart on the following page! There will **not** be a test! You are on the honor system!



A Crucial Note: Although optimizing the selenium and chromium levels is a key and powerful measure for cancer prevention, helping to overcome cancers, and for helping to reverse type II diabetes it does NOT take the place of the many other general health habits needed to attain and maintain good health. Key among these are regular, vigorous physical activity, aggressively limiting sugars and foods that convert to sugars

in the body, avoiding preservatives and other harmful chemicals and more.

Please do not use the primary measure described in this article and then jump to the conclusion that doing so makes it safe to consume lots of sugar. That is flat out wrong, would be dangerous and counter-productive.

Two Important Practical Tips:

If you are dealing with cancer, and you choose to include this in your protocol, you could be taking as many as 28 tablets each day. For many people that will be a real challenge. An alternative to swallowing all those tablets is to use a mortar and pestle to crush them. Then they can be added to food, mixed into some low-glycemic veggie juice, or used in some similar manner.

If you choose to do this, I recommend that you only grind up the amount that you will use for the current dose or serving. For example, if your protocol calls for you to take 4 selenium tablets and 1 chromium tablet, then that would be the number of tablets you would grind up. Then grind up the next dose right before you are ready to take them.

There are lots of sources for mortar and pestle sets. The ones made for lab use are quite expensive, (well into the hundreds of dollars range). However, these are not needed for this purpose. Instead, you can use a reasonably priced mortar and pestle set that is intended for grinding up herbs and spices. They will work just fine.

Here are a couple that are appropriate for this purpose: (Note that the links shown here are from Amazon. This does not mean that I condone Amazon. Mortar and pestle sets are available from other sources, as well. These are just examples of suitable mortar and pestle sets.)



VonShef 07/062 Solid Granite Mortar and Pestle Spice Herb Grinder Set - 5.5 Inch Diameter

- Solid 100% Granite Mortar and Pestle
- Perfect for crushing and grinding herbs and spices
- Best way to create your own curry pastes, pestos and dressings
- Tough and durable

Link: https://www.amazon.com/VonShef-07-062-Granite-Grinder/dp/B008O5DG3Q/ref=sr_1_9?ie=UTF8&qid=1534861600&sr=8-9&keywords=mortar+and+pestle+granite



Health Smart Granite Mortar and Pestle

- Heavyweight construction of solid granite stone weighs approx. 5 pounds
- Mortar measures 5-1/8" diameter x 3-1/4", with 5-1/8" Pestle

Link: https://www.amazon.com/Health-Smart-Granite-Mortar-Pestle/dp/B00VRUHDXE/ref=sr_1_10?ie=UTF8&qid=1534866976&sr=8-10&keywords=mortar+and+pestle+granite

I also want to comment on the increasing use of Metformin, (an established drug originally designed to help control the blood sugar levels of those dealing with type II diabetes), as an anti-cancer drug. First, let me acknowledge that although more research and clinical use is needed to establish its safety and benefits, it does seem to work. It is off-label use, but that should not be a deterrent. Here is a very brief summary of how it works in the body:

Metformin hydrochloride is a type of antidiabetic medicine called a biguanide. It works in a number of ways to lower blood sugar levels in people with type 2 diabetes. It increases the sensitivity of muscle cells to insulin. Metformin also imposes controls on some liver functions, which reduces the amount of sugar produced by the liver.

Another benefit of Metformin for those dealing with cancer is that it tends to reduce the amount of insulin in the blood. It does this by increasing muscle cell insulin sensitivity so that the body produces and secretes less insulin. This is important because in many cancers, higher blood levels of insulin can cause cancers to grow at faster rates.

Sounds good, doesn't it ! Not so fast. Metformin can have a number of side effects, some of them serious. Here is just a small list:

- Heartburn or GERD
- Stomach pain
- Nausea and/or vomiting

- Bloating
- Gas
- Diarrhea
- Weight loss (not a problem for too many of us, but could be for those dealing with cancer)
- Headaches
- Unpleasant metallic taste in mouth

The list may be daunting, but in my view, if these were the only common side-effects, and if Metformin can be shown to provide **long-term benefits** for those dealing with cancer, it would be attractive and a terrific measure. However, there is a more subtle effect that I think needs to be considered: A good part of the efficacy of Metformin is based on altering the metabolic function at the cellular level. To me, this raises a red flag, particularly for those dealing with cancer. If one accepts the work of Otto Warburg, (going back to the early 20th century – won him the Nobel Prize in Medicine in 1931), which is the foundation of the “Metabolic Model Of Cancer”, then Metformin may not look so attractive.

As in so many areas of health, we can use natural herbs, supplements and related means to restore balance and health. Or we can use pharmaceutical measures. I am not opposed to all pharmaceuticals, not by any means. They have their place and can provide benefits that are significant and sometimes not available via more natural means.

In this area, I prefer using the selenium and chromium method over any pharmaceuticals that I know of, including Metformin, for the following reasons:

1. There are no side-effects at all from the selenium and chromium.
2. It does not increase liver stress at all.
3. It actually helps to restore healthy metabolic function in cells that have just begun to make the transition to being full-on cancer cells.
4. It can help to prevent healthy cells from becoming cancerous.
5. It helps to lower blood sugar levels, which suppresses and slows the growth of cancers.
6. It helps to suppress angiogenesis, which is the ability of cancer tumors to force the body to grow the extra blood supplies they need to keep growing.

For now, I'll keep an eye on Metformin and several similar drugs. There may come a time when their use will be more compelling than it seems to be at present. Given everything I have been able to find out, to date, I'll stick with using selenium and chromium as outlined in this article for now.

Please feel free to send your questions or comments to: jeff@myhealthoptimizer.com

To your great health!

Jeff Bell

The Cancer Breakthrough Coach

Please visit www.MyHealthOptimizer.com for more valuable health information.

Consider applying to our closed Facebook Group: Getting Real About Cancer:
<https://www.facebook.com/groups/GettingRealAboutCancer>

You can friend me or follow me first to make it easier to add you to the group:
www.facebook.com/jeffreybell

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