A Special Interview with Ginny Bank
on Chlorella

DM: Dr. Joseph Mercola, DO
GB: Ginny Bank

DM: It has a lot of potential, many useful characteristics that you’ve just described. I’m wondering: What are some of the uses and benefits that you see for chlorella?

GB: One of the best benefits would be for specific populations like vegetarians and vegans who want proteins and B vitamins from a non-animal source, because protein and B vitamins usually come from animal sources.

So if you’re a vegetarian or especially if you’re a vegan, chlorella is a great way to get those proteins and get those B vitamins that you miss out on when you don’t eat any animal products.

Chlorella also is a detoxifier. It repairs nerve tissues. It’s a great immune enhancer. It can improve your digestion. It promotes a healthy pH in your gut, which helps the microorganisms, the good bacteria, in your gut thrive. So it has a lot of diverse potential nutritionally speaking.

DM: Spirulina is another algae that is frequently confused with chlorella and has many of the same characteristics.

GB: It does. It’s also a good vegetable protein source. In fact, it’s got slightly higher protein than chlorella.

Basically the difference between them—, they’re both algae, one is a blue-green algae, one is a green algae. They have different nutritional profiles. They both are high protein but spirulina is higher in B12. It has an antioxidant enzyme called superoxide dismutase which is important. It’s high in essential fatty acids.

Chlorella has more chlorophyll. It has higher levels of nucleotides RNA and DNA. It has higher levels of beta carotene. A lot of healthcare practitioners recommend taking both. There isn’t one over the other. It’s a combination, the two that’s really going to be the nutritional powerhouse.

DM: One of the benefits of chlorella, at least that I’m familiar with -- I received this understanding from Dietrich Klinghardt -- his relative discovery of it, as I understand, through industrial processes, is that chlorella was used in many mining operations to actually extract these metals. So it actually binds very powerfully to heavy metals. I don’t believe that’s a characteristic of spirulina.

GB: No it isn’t. It is not. That’s actually one of the interesting characteristics of chlorella-
-the cell wall, the material that the cell wall is made up of, has been found to attract heavy metal compounds.

In some cases, even certain pesticides.

When I talked about specific populations that would benefit from chlorella, it’s definitely people who are exposed to heavy metal or highly polluted air or water. For this reason alone, they should be taking chlorella.

DM: You mentioned this cell wall has, I believe, some polysaccharides (inaudible 3:33) that really bind these heavy metals. It’s a very small cell. It’s a single cell with chlorella. If you just swallow it whole, intact, this cell wall is not going to be able to bind. So you have to break this cell wall apart to sort of expose the jagged edges to the heavy metals. Can you explain that concept of the cell wall?

GB: The cell wall of chlorella is actually indigestible to humans. As you said, you could take it and it will just go right through you. It will come right out because the nutrients that is inside need to be out of the cell wall. So most chlorella products you see use the term “broken cell wall” to describe the fact that they’ve taken this tough indigestible portion of the cell wall and broken it apart so that you can digest the many nutrients that are found in chlorella.

This is done in different ways. But the most important part is you’ll see companies describe their unique way of breaking that cell wall and how it’s the most gentle and it’s this propriety method, but the key comparison to make is the nutritional profile.

DM: So from your perspective as long as the cell wall is broken and the internal nutrients are exposed, there is not really a lot of difference in the actual process that is used to break down the cell wall?

GB: Well there are different processes, and they all claim that our process protects the nutrients. So the only way you’re going to know--

DM: Is to look at the nutrients.

GB: Is to look at the nutrient levels. You know there are companies that use sound waves to break the cell wall. They say that’s the most gentle. There are companies that use a really gentle milling process that doesn’t expose the chlorella to light or high temperatures. They will both claim that they are better, but if you compare them side by side, their nutritional profile is very similar.

So it’s a matter of just doing it right, but there are many right ways to break the cell wall.

DM: This is making the assumption however that the nutritional profile is in fact accurately reflects what’s in the bottle. There are certainly some less than high integrity suppliers who may not provide that information accurately or provide it from an older
batch that really is no longer reflective of what they’re currently producing.

Can you describe that process, and more importantly, if you explain it to us, how a typical consumer can confirm that what’s stated on the label is truly what’s in the product?

**GB:** Unfortunately, there is no way to really confirm it. There is a bit of faith in the company you buy the product from knowing that it’s a reputable company. The requirements for nutritional components in a natural product are that it has to be plus or minus 20%. So you might be getting 20% lower, you might be getting 20% higher. That’s by law but it’s very difficult to enforce.

So the truth is you want to look for chlorella from a company that you believe is reputable. There is just no way to guarantee that the B12 level in this brand of chlorella is exactly what they say it is on the label. You have to just know that it’s a reputable company.

**DM:** And there are ways to do that too. Reputable companies have certain processes in place to maintain that they’re reputable. There is a process. Basically, when a company sells chlorella, they’re not going out into making it themselves because there are really only a few producers of chlorella in the world. They provide it as a raw material to these manufacturers, and the manufacturers put it into capsules or whatever form it’s going to work.

It’s incumbent upon the person who is buying the raw material to get a certificate of analysis from the person who is selling that raw material. In our experience, we only work with vendors who will take that and do independent third-party laboratory evaluations on every new batch that they are receiving, to confirm that that’s the case.

That’s what I was referring to; that you can someone call up or find out, just to make sure that the company who is actually selling that product is in fact doing this third-party laboratory evaluation. Is that required with the new GMP (Good Manufacturing Practice) standards to do that?

**GB:** To do third party?

**DM:** Yeah.

**GB:** It is required to have a paper trail. Whether that includes a third part test I’m not sure. But you’re right, if you were to call the company--, which everybody’s phone number is on their label now, and ask them for a copy of the certificate of the analysis. Ask them how often they test lots.

Because, to be quite honest, testing a whole nutritional profile is really expensive. They don’t necessarily do good on every lot, but they do it on every third lot, or they do it randomly to guarantee that you’re getting the same levels.
Another key is the process in which the chlorella is made. You’re going to have variations if you’re in a climate that changes where you don’t have the same amount of sun during the winter time as you do in the summer, for instance. So you’ll have variations there. Most chlorella is grown in artificial ponds so they can control a lot of the growth and how much nutrients it gets.

**DM:** Most of it would tend to be more tropical environments since the sun is such an important variable in the production.

**GB:** Right. You want to look for places where it is grown away from pollution, because as you mentioned, chlorella binds to heavy metals. So you want to make sure your chlorella is from a place that has really clean water, because if the water has any polluted heavy metal levels, it’s going to just get bound right into your chlorella.

**DM:** That’s another good sign of a high quality producer of chlorella; that they will do a heavy metal analysis to confirm on a regular basis, which is relatively inexpensive to do but should be done on every lot, to make sure that there are no heavy metals in there.

**GB:** Yeah, that absolutely should be done on every lot because one, it’s an inexpensive test, two, it’s really important, especially as I said with chlorella because of the innate ability to bind to heavy metals.

One way to guarantee some quality is also organic chlorella, which is available.

As we all know, the term organic has very stringent rules that one has to follow to become certified. It’s become not just -- you know that there are no pesticides and you know that there are no organic solvents being used. There are no artificial fertilizers.

It’s really a test of quality because of the more stringent requirements to become organic certified.

It’s almost like in the food industry; it uses kosher. Kosher has cultural things about it that people look for; that kosher certification. But these days, most people look for kosher certification as a sign of quality and hygiene.

For chlorella or any supplement product, if you’re buying things that are organic, you know you’re going to have higher quality and credential.

**DM:** I think with chlorella it’s more about the process too because unlike most plants or herbs that are grown, I don’t think pesticides are ever used in the production of chlorella, even non-organic chlorella because it’s the way it’s grown.

So that’s not going to be an issue. It’s really one of the primary reasons why one would want it organic to avoid those pesticides.
In chlorella, it’s really the process and the intention of the high quality product that’s the end result.

**GB:** Right. And maybe they don't use pesticides but conventional grown. There is a big difference between what kind of approved fertilizers are allowed to use in organic, so there is a difference.

There is a fertilizer that's a sodium nitrate. It’s a form of sodium nitrate. You want nitrate in your fertilizers, especially for something like chlorella that’s high in protein, because the nitrates help improve the protein content.

But there is a natural source of nitrate called Chilean nitrate that’s used in a number of conventional food products, as well as an algae product that is actually not allowed for organic for a couple of reasons, but not necessarily health reasons. But because this particular extraction and mining of this Chilean nitrate, it comes from cliffs in Chile and Peru, it has really adverse ecological consequences.

Whenever you buy organic, you’re also not just buying for the health reasons, you’re buying for ecological reasons and for the health of workers, to make sure there is no run off from pesticides or from fertilizers. So there is more involved than just the health benefits of purchasing organic as well.

**DM:** Kind of slipping back to the --, one of the reasons that someone might consume chlorella would be for heavy metal detoxification. I’m wondering if you’re familiar with any of the specifics with respect to dosing and timing of the chlorella to optimize for that indication?

**GB:** You want to be taking it every day, that’s for sure. It’s not something that you just take occasionally like some herbs or some supplements. Chlorella is something you want to be taking everyday. The dosage is actually high. You need to be getting at least 4 grams each day of chlorella to get the benefits that it provides.

**DM:** Is it best to take that and divide the doses, or take it all at once?

**GB:** You could do either, but I think you should take it all at once. I think it’s going to work best when it’s all taken at once, probably at the beginning of the day.

**DM:** Chlorella is frequently sold in these tiny tablets; I forget how many milligrams of chlorella. It is typically compressed.

**GB:** 500 mg doses.

**DM:** So that would be 8 tablets then.

**GB:** Yup.
DM: That’s the really tiny tablets that are 500 mg?

GB: Yeah, most of them are 500 mg.

DM: That’s still a lot. Many people, in my experience, tend to become slightly nauseous when they’re first taking chlorella. What’s your experience with that and do you have any recommendations?

GB: One of the reasons might be because they’re pulling toxins from their body. They often will get nauseous or have diarrhea. That should go away over time. A lot of that is the result of actually pulling out, detoxifying your body.

DM: So is it helpful to take it in smaller doses initially as you’re first starting it?

GB: Yeah and then increase this over time. That’s actually a very good idea.

DM: How about taking it with food or without food, does it make a difference?

GB: Some people do have a reaction without food just like you do with a lot of supplements, just the fact that it’s taken on an empty stomach. I think it’s better to take with food just to avoid the nausea. But that doesn’t happen to everybody.

DM: But it can happen. It would be sort of negligent not to mention that it’s a possibility. It is the minority of people. Most people do really well with it, and it’s not an issue, but don’t be surprised if that happens.

You had mentioned that this organic chlorella is manufactured differently through different (inaudible 15:59) it’s a higher quality product for health reasons, but then also for environmental or ecological reasons. Are there any other reasons that one might choose an organic chlorella? What might other benefits be?

GB: Because of the location where organic chlorella is grown, it’s in an area where the water, it’s very pristine. It’s an island in the Indian Ocean that it’s really pristine. It’s sort of the Hawaii of that area. You know you’re going to have lower levels of heavy metals in the water, lower pollution.

If you look at a map of this area and you look at -- there is ways to look at the pollution levels. This particular area where this chlorella is grown has virtually half or less than half the pollution levels that you would see in the other places that chlorella is grown. So you’re just guaranteed higher quality than you would be with conventional.

DM: How does the organic chlorella designation or certification process compare to Fair Trade Certified seal?

GB: It’s very different. Fair Trade is something completely different.
You’ve heard of Fair Trade coffee and you’ve heard of Fair Trade chocolate. These types of products that are grown in third world countries. You want to also be sure from a social standpoint that there is a commitment to develop these products where people are getting a fair wage, where they are following environmental standards. You only are going to get that with a third-party independent verification.

So it’s like organic in a way that there is an organization that’s completely separate from the industry that comes in and certifies you organic. The same is true for Fair Trade.

There is an organization called the Institute of Marketecology that comes in and looks at the quality of the product, looks at your social and environmental standards, how you help the local people, how you pay their fare wages, how you make sure that there is the social aspect of the growers.

Even little things like having education for those people and hospitals and clinics, equal treatment; that they have good health and safety aspects in their work.

Fair Trade is more of a social than a health related thing. I think it’s just as important.

**DM:** Well from a global health perspective, it certainly is and from a humanitarian perspective. I mean, it’s certainly wise to want to take care of yourself but as you make sure of the hierarchy of values, you certainly want to adopt that philosophy for everyone. Thank you for the explanation with Fair Trade on this.

Are there different certification mechanisms for Fair Trade?

**GB:** I think there are just a few Fair Trade organizations. To be honest, I don’t know how many but this one, the IMO is the largest Fair Trade. They also depend on like the coffee guys have their own Fair Trade certifiers and chocolate might have their own.

The IMO tends to be the dietary supplement in the food industry.

**DM:** So that’s not just chlorella, that’s the one for the diet.

**GB:** It’s not just chlorella, they do spirulina, and they do a lot of supplement products. Because again, it’s the same thing as the coffee and the chocolate, you want to be sure where we’re producing materials in these third world countries that we’re not raping the land, we’re not exploiting the population, that we’re providing them with a living wage.

It’s very similar to what you would see when you see Fair Trade coffee which has become a household term.

**DM:** I think you’ve really covered the spectrum of the different details about chlorella and helping us understand some of those specifics because really the devil is in the details.
Are there any other points of information that you would like to share with us about chlorella or convey to the listeners?

**GB:** Just back to being an educated consumer. That as an educated consumer, you can go to your health food store, you can go to whole foods and you’ll see eight different chlorella products. Do some research. Look at the companies’ websites. You can talk to them. You can see what kind of science they have on their products and then make your decision.

As you said, the devil is in the details and there are a lot of details. If you’re an educated consumer, you’ll make the right choices.

**DM:** And especially if you’re going to do this for the long term. If you’re just going to try one bottle of a supplement or just kind of play with it, then it’s not as crucial or critical. But if you’re really going to make a commitment to this long term and you’re really interested in doing this for yourself or someone, your family, then I think it’s really incumbent upon you to really take the extra step.

Yes, it’s going to take some time, effort and energy. It might take a few phone calls or send a few emails off but at least you’ll feel comfortable and confident that you have independently evaluated. You have confirmed this and you haven’t relied on someone else, because ultimately, you are responsible for your own health.

You really shouldn’t be trusting everyone to tell you the information. You really need to do some independent investigation yourself.

That’s what we seek to empower you with on our site; to tell you and explain all these details so that you can do it yourself. To really give you the tools so that you can make the decision independently and not tell you which is the right or wrong way.

Do your own analysis. Google is an amazing search tool.

Google, which is clearly the dominant search engine, started actually after our website did. So they started a little bit after we did. But obviously, they’ve become an amazing resource that empowers you with the ability to do independent analysis and investigation.

Clearly, everything on the net is not going to be valid, but you know you can get a sense and the flavor and the quality, which is doing some cursory reviews. You’ll be astounded by what you can find, but you do have to take the step.

You have to invest the time, effort, and energy to reach your own conclusions.

That’s why we’re so grateful to have people like you on our program to help us get this information, which is admittedly somewhat challenging to get unless you really have industry experts and insiders to speed up the process, and then, once you know what
the process is, you can validate it much more easily once you understand what the broader scope is.

So thank you.

**GB:** Thank you for having me. I enjoyed it.

**DM:** I appreciate you joining us.