Introduction:

DM: Welcome everyone. This is Dr. Mercola. Today, I am joined with Carole Baggerly who is the director and founder of an organization called Grassroots Health which is primarily focused on educating and creating more awareness about the importance and the value of vitamin D and also developing and substantiating some research to support the use of that.

Carole, you got a really fascinating history personally and academically that sort of suits you really quite well for this role. I'm wondering if you can share with our viewers what your history is that makes you so appropriately suited for this task?

CB: As you were saying that the funny thought that came to mind most immediately was that which makes me most suited for this task is actually having been a mother taking care of all the things that one cares about with children and the intensity and the drive. Academically, I have a background in physics and mathematics.

DM: Hardcore science.

CB: I spent about four years running my own business in the aerospace industry. We were a software interface to help the aerospace companies become more efficient with doing business with their suppliers and their trading partners. That plays an enormous role in this because part of what we're doing with the whole vitamin D project is running a massive information technology study which I know how to do. Also, there is an awful lot of interfaces with experts and people who have vested interest in making this work.

DM: Just as a little side tangent, what was your specific role in that aerospace company?

CB: I ran it. I owned it.

DM: So you're responsible for all the moving parts making sure they worked.

CB: Yes. It's still in existence. It's a leading aerospace supplier of electronic data interchange services.

DM: Terrific.
CB: It still is.

DM: So you were running your business and doing very well and very happy and providing good value for many people including the aerospace industry and then something happened personally I would assume that redirected your efforts into this area.

CB: Actually in 2001 I had retired. I had started actually another business which both my husband and I have a big interest in which is various incendiary peace related activities and mediation. In 2005, I had breast cancer and that changed the world significantly. Would you like me to tell about that?

DM: Absolutely. Just to sort of put a frame on this. I mean you’re a woman and most of the people viewing this would be women in the United States and breast cancer is the leading cause of cancer in the Western world.

CB: It is.

DM: It’s a significant issue that many people watching this today are struggling with or have or will have.

CB: Unfortunately.

DM: I’m sure they will be interested in your experience.

CB: I was diagnosed with breast cancer in February of 2005. I had treatment for breast cancer. I had a mastectomy. I had radiation and I had chemo. I had the whole ball of wax.

DM: Cut, poison, burn.

CB: My total conclusion at that time or even during that time was that it was barbaric. I had no idea – I mean, back again kind of put that peace thing in mind. All of a sudden I realized the violence that was being done to my own body. That was just like – this is unacceptable.

One of the interesting things there just short whatever is I had a tumor that was literally 5 cm. That is an enormous sized tumor which was not detected by a mammogram. It was only much later that the doctor happened to tell me that well, you know, there are a lot of women that have dense breast and we don’t get that image with the mammogram and it turns out that those women with dense breasts occupy maybe 40% to 50% of all tissues that they look at. So it’s enormous.

DM: Just about half.

CB: It’s about half.
DM: That is 2-1/2 inches which is bigger than a golf ball.

CB: That’s about 2-1/2 inches. It was enormous. It was a stage 3 cancer which is a sizeable progression up the ladder of severity. The surgery was not too bad. The mastectomy was pretty bad but regardless, that wasn’t the thing. I was doing the chemo. And then at one point during the chemo I was taking a particular drug that was so painful. It was Paclitaxel and it caused extreme peripheral neuropathy which is pain in the hands and the feet. I couldn’t walk. I couldn’t feel. I just cried because my leg hurt so much.

I talked to the doctor about it and he says, you have only got two more treatments of that left. I did one and I said, I’m not going to do the next one, and he walked out of the room. That was my first score about the mental investment of a doctor in the treatment as opposed to the patient. I was appalled. I asked the nurse to send him back because I had some questions and she said, write them down. That was just kind of like shocking, stunning, I mean, just like hello. That was one. I did not take the last treatment because it was too painful and because I had also read that from time to time those side effects don’t go away. That’s one of the things you also learn as you go through those.

I then chose to do the radiation therapy. That is an angle they have certainly improved it so it doesn’t quite go head on but still I had no thyroid left. One day, I went home and I literally had sunburn on my back so you know the radiation is going all the way through. On my last session of that, I was literally laying there exposed bleeding on the table. I also did not have the full extent of radiation treatment.

After that, I was sufficiently appalled, incensed, angered – I mean, you name the emotion I had – that I knew that something had to be done. I mean something had to be done. I have a lot of resources. I’m blessed with those resources – friends that actually work in the cancer industry. A son that works at MD Anderson who is a very known biostatistician that I highly respect and adore. It’s like, okay guys, you got to help me figure out a way out of this because we just cannot have people, women especially particularly with breast cancer survive and live these long lives with these side effects because the side effects do not go away. You’re not curing cancer with this. I spent the next two years – I mean, I get up in the morning and I’m on my scientific papers and I read them and I download them and I call people. I talk to people. I read about all kinds of alternative treatments.

On February 12, 2007 – this day will go down in my memory forever – I went to the doctor and was called based on some tests that I had osteoporosis. I said, “Why? I’m not heavy. I workout every day. I do all these good things.” She says, “Maybe you have a vitamin D deficiency.” I said, “What’s that?” I went home back to work for me which was researching what could be done about this. I still apologize to my friends now saying it took me two hours before I keyed in vitamin D and cancer but it did. I just
decided to see what’s out there. And to this day, I get goose bumps thinking about what I saw. It was Dr. Cedric Garland from the UC San Diego…

**DM:** Which is where you’re from.

**CB:** It’s where I’m from. Morris Cancer Center had just published a paper saying that the risk of breast cancer could be cut by 50% if people had vitamin D serum levels – this is a blood level of how much vitamin D you’ve got – somewhere about 40 to 50 nanograms per milliliter. I just sat there and looked at that and I started crying which is kind of like, this can't be true. I have friends at UCSD of course. I picked up the phone and I said, “Is this guy a flake? This is unreal.”

**DM:** It can’t be.

**CB:** It can’t be. I’m a very skeptical scientist. She says, “Oh no Carole, he is not a flake. He’s been doing this research for 30 years.” I said, “What? Thirty years, and I’m just finding out about it?” She says, “At this point in time, he’s really very depressed.” I said, “Why on earth is he depressed?” She said, “Because he thinks nobody is listening.” Can you imagine that? I said out loud I’m listening. I knew that I had some wherewithal to get something going – starting businesses and running stuff like that.

**DM:** It’s one of your experiences and your expertise.

**CB:** Yes. So in May of that year (2007) there was one of the best cancer conferences I have been to sponsored by the National Cancer Institute in Bethesda, Maryland on vitamin D and cancer.

[----- 10:00 -----]

For two solid days, I listened to reports by scientists from all over the world talking about vitamin D and cancer. Not all of them were things to jump up and down about but there was so much there that was so positive from what they were doing with rats, from what they were doing with all kinds of experiments that at the end of the session, when the session leader asked a group of scientist, what’s next? I was waiting for the action item. The action item that they had was – we need to do more research.

I sat there for a minute. I was an invited guest. I’m not a vitamin D researcher. I listened to people talk a minute and they had these absolutely beautiful microphones coming up on the table to everybody and if you wanted to speak you just press the button. To this day, I swear the microphone little button throbbed and I pressed it and I stood up. I only had a very few words. I just asked them, where is your sense of urgency? And I sat down.

The meeting was over and almost immediately, I had fully half of the scientists in that room come up to me and say, how can we help? Talk about other goose bumps. It’s like here is a group of people who got a message and they want to get it out and they
can’t get it out. It wasn’t just Dr. Garland. I said at that point in time I said, I don’t know. I don’t know what the message is yet. So Leo and I took off in our motor home and did a four-month trip.

DM: That’s your husband.

CB: Yes of course. Leo Baggerly, my delightful husband and partner. Leo is a physicist – that’s how I met him by the way – and researcher as well. He currently works with the kinetics of vitamin D. It’s easy to get excited about this project.

DM: Excellent.

CB: We took off in our motor home to go meet with the scientists around the country and in Canada to see what is the message. If I’m going to take on a public health project, what do we need to say? At that time, as there is now, this ongoing stuff about what dosage should I take was still the same which is like, shall I take 2000 IU? Shall I take 20,000 IU? What should I do? But that wasn’t what they come up with.

Every single one of them agreed. Every one of them, we now have 40 on this panel, that the focus should be on the serum level not the dosage. The reason being, if you focus on the serum level, you can have people take whatever it takes to get there. It does take something different for everybody. Everybody’s human body just responds differently. So we had our message. Our message for entire campaign was get your serum level to 40 to 60 nanograms per milliliter. That’s it. That’s really it.

DM: It’s a good action item.

CB: With that level, we really can reduce the incidence of cancer, heart disease, you name it. You get in that band of demonstrable evidence saying that you can prevent diseases. That’s how I got into it.

DM: Thank you for that explanation.

CB: It’s kind of long.

DM: No. It’s important to have a frame. It may not be obvious even from your explanation because you may appear to be a lay person so to speak but since you have committed essentially nearly four years now full time and interacting with your panel of experts which are some of the leading experts in vitamin D in the world.

CB: They are indeed.

DM: You’re doing this full time and you’re obviously very intelligent. You have an academic background. So it doesn’t take too long to get up to speed. You really do have a level of knowledge that is extraordinary, really at an expert level. We’re delighted to have you here and share your wisdom in that.
**CB:** Thanks you.

**DM:** I had one specific question and I would like to dialog with you on it because it’s been a concern of mine. I couldn’t agree more. Obviously, I have been promoting vitamin D for a long time now and I share your passion. I think that’s the central issue.

**CB:** I know you do.

**DM:** Our approach is to educate people and share the message. I think we were really one of the central roles to help catalyze this at least from a media perspective. But what is obvious to me is that there is an important subset of this because the tendency in American culture is to take a magic pill for everything – a pill solves something. So it’s great because there is a vitamin D solution but that’s not the way that it occurs in nature. I mean, yes, you can get oral vitamin D. It definitely happens and we do have the ability to increase our levels that way.

But the way that we mostly get it is through exposure to the sun. That’s a different mechanism than swallowing a pill. I don’t think any expert would disagree that it’s better to get that vitamin D from the sun and then secondarily through a safe tanning bed which is still superior to a pill. But then if there is no resort of course then the oral. It seems to me there is something magical that occurs that is actually beyond the level of vitamin D which is used as an arbiter or as a measure.

The question that I have is it actually useful – I mean, certainly you don’t have any other choice but do you get the same benefit from getting your level to 40 to 60 from the sun as you do by swallowing a pill and especially as it relates to your major focus which is the impact on cancer. I’m concerned and I’m not sure that there is a (indiscernible 15:31) of treatment, maybe prevention but in the treatment I just don’t think it works. I could be wrong. That’s my fear.

So I really encourage – my new passion and mission is to get people away from swallowing those pills and if for any way, shape, or form to get to the real source, to get the UVB exposure. That’s a long-winded question but take as long as you want to respond to that.

**CB:** I think that it is obvious that the reason that we have this deficiency is because we have become an industrialized nation. That may sound like, but that was a long time ago. I wasn’t that long ago. What we’ve done is we’ve come inside. We cover up. Even in San Diego where I live, when they measured my level it was 18 nanograms per milliliter.

**DM:** Dangerous. For those who don’t know, San Diego is considered I think the sunniest city in the country.

**CB:** It’s pretty sunny.
DM: Or close to it. It’s definitely top (indiscernible 16:26).

CB: It’s very nice. When we did a scientific test of what it’s going to make body to get enough sun in San Diego with the weather we have with my age – age has a factor in how much you absorb – we came to a test conclusion that it was going take 15 to 20 minutes a day in the prime time of UV between 10 and 2 during the day, each and everyday – and here was the hooker for me – with 40% of my body exposed. For me outside that was just not going to happen because it was chilly. San Diego is chilly at least along the coast of it where I live. But that doesn’t change the question and the source.

I think there are two major questions that go through my mind. One is what else you’ll be getting from the sun? That’s the big one to me because I think that you can get your serum level up with supplements of some kind or another. You can get it up with the sun. I think at that level, we got to say, to me I think it’s the same. On the other hand, I think the UVB does other things. And there is only recently some new research coming out to say, what else does the sun do?

DM: Well, enlighten us.

CB: What else of course…I don’t know. It’s like it’s barely there. The scientists that do this kind of research with the skin are just starting to ask the question which is like, you know, there is probably more to the sun than vitamin D. I encourage people to take advantage of the sun. The only message I have about the sun is don’t burn. That’s it.

DM: Yeah.

CB: Other than if you want to get that UVB, you really have to be out between 10 and 2 not evening walks and stuff like that. I think that’s ideal.

DM: That’s the key. I noticed you are concerned about yourself going out there because of the temperature but in my observation is even though it’s chilly – I tend to go to subtropical areas in the winter to get the sun but there are still chilly days but I noticed that if the sun is shining on you, you can tolerate relatively low temperatures even low 60s to even high 50s if the sun is directly on you. So it’s not that uncomfortable.

CB: The other thing that I have a major question about which we have talked about with our scientist panel is, what’s the ultimate public health step? I mean, if you think about the world which has a very severe vitamin D deficiency epidemic yet you have taken supplements, it’s ludicrous. I mean, that’s people who can pay the money kind of job.

DM: It’s still pretty inexpensive.
CB: It’s very inexpensive.

DM: It’s probably one of the least expensive supplements on the market.

CB: Right. It is inexpensive but I think the biggest answer probably again in a region of the world is going to be food fortification. That is one of my goals which is okay, let’s get ourselves supplemented. Let’s get up here and let’s make this a mass thing please. But I think that there needs to be a bigger push towards making the sun our friend again because it hasn’t been. It’s been scare tactics to make it, it’s the cancer creator of skin cancer. And yet the skin cancers that are associated with the sun; the basal and squamous cell can be cut off and burned off and we don’t even track them in the U.S. because they are so numerous.

DM: Right, and relatively non-dangerous.

[----- 20:00 -----]

CB: Right.

DM: I interviewed a Dr. Stephanie Seneff – you may or may not be familiar with her. She’s a full professor out at MIT for the last three decades and has recently become passionate about health and vitamin D and cholesterol. She theorizes that there maybe this interaction with the sun and vitamin D and sulfate and that when you get the vitamin D generated by UVB exposure, it actually interacts with the sulfate in your skin and forms vitamin D sulfate.

CB: Interesting.

DM: It’s a whole different mechanism of action which is not formed when you swallow it.

CB: No, of course not.

DM: She thinks that has a big role in it but there is just very little research on this.

CB: There is very little right now.

DM: That’s really one of the most exciting areas of this – this just goes back to the basics. For centuries, thousands of years, people have recognized the value of the sun. Certain cultures worship the sun. I’m not suggesting that we worship it but we should at least respect it and understand that it has an important influence on our own health personally instead of avoiding it like the plague.

CB: There are many cultural patterns where – in some Indian cultures, the first thing that happens with the newborn is the very first dawn, the grandmother has this role of taking that always naked infant out and holding the infant up towards the sun to be
blessed by the sun. This is the first day of that child’s life. When you start walking across the country and you see these things – there are also some rituals that were described from early Egypt. They had devised meditation practices and religious practices out in the sun facing exactly the right way to get the UVB rays at exactly the right time of day for the right amount of time not to burn. These were religious practices.

DM: That is fascinating.

CB: It’s just like whoa. It’s time to re-look very definitely. I totally agree.

DM: You have been passionate about this for a number of years. One of your early projects actually involved working with Canada. They have a socialized health system compared to the U.S. In some ways there is certainly some benefits of that with respect to implementing projects on a large public health perspective scale. Can you share with us your experience with that and what happened in the current project (indiscernible 22:29).

CB: Sure. We’re doing lots of great things in Canada. Initially in Canada I have been on many speaking tours. I speak all over the U.S. and all over the world actually just talking about vitamin D and its importance. They have quite a cadre of very interested physicians there that are very interested in doing something about this. Dr. Robert Banner, who is chair of the Complimentary Medicine section of the Ontario Medical Association – actually, their group took a position endorsing our call to action saying, we as complimentary medicine people are going to endorse it because we want us to be healthy.

I worked with the government of Ontario to counsel with them. Their issue with vitamin D is the cost of the testing. Testing does cost money.

DM: A lot more than the supplements.

CB: Yes. They had a lot of people taking the test. They called it delisting the test or not paying for these tests anymore. I counseled with them about whether or not they really should be doing that. At the very least, keep the testing paid for and therefore some of your key conditions whether it’s pregnancy or infancy or heart disease, I mean, pick some diseases if you want to, whatever. But they have chosen to do otherwise. So I had that experience.

DM: So it was compensated for and no charge…

CB: It was being paid for but now no longer is.

DM: And just at the request of the individual.

CB: Yes.
**DM:** Because of your educational efforts both professionally and in a lay version, the demand for that test started skyrocketing because people understood how important it was.

**CB:** Sure. And the science is there.

**DM:** They obviously don’t have an unlimited budget so they decided to put the breaks on that and they stopped paying for it.

**CB:** They had stopped paying for it. This is not the same in all the provinces though. We are still making considerable headway with keeping the provinces in charge. We’re also starting to run some major research projects in other provinces. We have just started one in Calgary. We will be starting another one soon in Vancouver where groups of doctors get together both in Calgary and in Vancouver. They’re working with our breast cancer prevention study to demonstrate very clearly that if we get women’s vitamin D levels up, the breast cancer rate is going to go down but we have to document this.

One other thing I might add though, one of my ongoing passions, what drives you or whatever is – I’ll call it a sense of freedom. The minute that I feel constrained and I can’t do what I think is best for me or something like that, I start breaking the bounds and starting my own businesses. Dr. Banner again from Canada, his group out of the Ontario Medical Association, the college of surgeons, have recently issued a document aimed at the Complimentary Medicine Association section saying, you can’t do anything. You can’t do any procedure that hasn’t had a randomized clinical trial to support it. The call is on to save the complimentary medicine people in Canada. It’s grotesque.

**DM:** Using that as an illustration, you have to wonder what they would recommend to someone who was in an airplane that was crashing and had a parachute because you know to the best of my knowledge there has not been a randomized controlled trial that says using a parachute will decrease your risk of dying when you’re jumping from a plane. It’s just insane that they can’t use common sense.

**CB:** I know. It is insane. In that particular situation it’s also insane because just in general practice, a regular physician, not a so-called complimentary medicine, they do all kinds of things that don’t have randomized trials. They use drugs off label. They do all kinds of things.

**DM:** Sure. Standard protocol.

**CB:** There is this going on.

**DM:** It’s a double standard.
CB: It is very much so but it’s active.

DM: I strongly agree with your promotion of getting vitamin D testing and having Canadians do that. Canada is particularly important because as most people know, it’s north of the United States. They have far less therapeutic window probably four months where they can actually get significant vitamin D from exposure and even less the further north you go in Canada. Really, the solution for this to not use testing is just get the sun. But Canadians can only do two to four of the year so they can’t but for those who don’t want to do testing – essentially I don’t think you can’t overdose from the sun. As far as I know, you can’t.

CB: That’s what the science says.

DM: There may be some people who will argue that but practically it’s almost impossible because the UVA will actually lower excess of vitamin D. You have just to be concerned about the sunburn of course.

If you’re going to take the pills, well, then you can’t do it without the testing but you’re going to need at least 4000 probably close 6000 and maybe 8000 to 10,000 for most people (indiscernible 27:57) test. It’s still even really low risk at those doses of overdosing. (indiscernible 28:04) because a few years ago even when Dr. Cannell was one of the leaders who started this. He was so careful. He tested hundreds of people before he would even go over 1000 units a day, you know, just stepping over because of the flawed research that most of us believed that was done in India that brought this concern about vitamin D toxicity from oral supplementation.

CB: Part of that research is something that Grassroots Health has now contributed to along with its thousands of people that are participating in the action study. We just published our very first paper thanks to all these beautiful participants in February. We have people in this study now that are taking 50,000 IU a day and they’re not reaching a potential toxicity level of 200 nanograms per milliliter. The study reported data on about over 3500 people.

DM: This is vitamin D3 orally?

CB: Yes. Not all orally because the people can tan as well. The message in the study is get your serum level up not how. We have quite a number of tanners in the study.

DM: But the 50,000 units you referenced was.

CB: Of course. The 50,000 definitely is a supplement.

One very significant thing shown by this research was that even with taking the supplement, the curve for the increase in the vitamin D level does not go linearly. It is curvilinear and it curves down which is why it’s even hard to get toxic with a
supplement. We had the first level at which there were any impending signs was when somebody who was taking 40,000 IU a day.

One more thing, the Institute of Medicine has been under great attack for their curious recommendation about intake but they stated in their report....

[----- 30:00 -----]

DM: That was earlier this year?

CB: That was November of 2010.

DM: So last year. Their revised report on vitamin D.

CB: Yeah. They stated in their report that 10,000 International Units a day is called a no observed adverse event level. In other words, even the IOM didn’t see anything wrong. They couldn’t find anything. The process for going to well anybody can take is a little bit better than throwing a dart. But they’re throwing a dart said, any adult can take 4000 IU a day and that’s considered the upper limit.

DM: Even though there were no reported adverse effects for below 10,000?

CB: Right. But they added a safety factor. On the good side that means if somebody just is totally – you know, I’m not going to test. I’m not going to do any of these sorts of things. I can’t afford to. I don’t want to whatever, go take 4000 IU a day.

DM: But more or likely it should be closer to 8000 or 6000.

CB: If we’re aiming again at that serum level, our data showed that it’s going to take about 8000 a day for the majority of the population to get above 40.

DM: That’s interesting. This is the data from your study.

CB: It is.

DM: Is this still open?

CB: This is published.

DM: Is it still open?

CB: Sure. We’re running it ongoing. That was just the first paper. It was published in February.

DM: How many people are enrolled in the study currently?
CB: Currently, we have 8000.

DM: That’s a lot of people.

CB: Yes. We want lots of people.

DM: So this trial of 8000 people, you are able to provide some very beneficial data. I wasn’t aware that you had published that, that 8000 is the dose that most people need to a therapeutic level.

CB: To get to 40 nanograms. So that you can say it as a population level, don’t worry about testing almost everybody.

DM: That is a very profound recommendation maybe one of the highlights of this interview. The new dose is 8000. Can you tell us a little bit more about your trial? We’ve been promoting people to enroll in it.

CB: Thank you.

DM: Curiously, it just kind of shocks me that people objected to the fact that they had to pay for their test. They thought it was some type of revenue generating when all they are being charged for was the wholesale cost of the test which is less than what they would pay for if they went to the doctor. It’s just kind surprising to me since everything else in the study has been funded.

CB: Most studies – and people come in with this mindset – most studies that people get involved in scientific studies are funded by the government or some external thing. We have no government funding.

DM: Right. This is all (indiscernible 32:44) privately.

CB: This is all funded either by yours truly. All of these participants…

DM: Are people who are donating to the project.

CB: Yes, exactly.

DM: So there is no government funding at all.

CB: That is right. The funding has to cover the test cost. It has to cover the publication and the writing and the consulting fees that we have to pay to get the thing out the door which are substantial.

DM: So this is not a profit generating…

CB: No. We are a non-profit in more ways than one.
DM: You have run many businesses and you know how to earn a profit. The design and intention of this project is nothing to do with revenue generation, absolutely nothing. You have done that. You’ve been there. You have generated that revenue you need to, to live a healthy life.

CB: I think people don’t understand that what they are paying when they help do this is they really are helping sponsor a major public health effort as opposed to paying for a test. Paying for a test who cares. Alright, I can complain about that. But we really wanted to reframe that and to helping people realize that their sponsorship and their doing this test and answering this questionnaire is helping us carry this message to the next step, to really change public health practices around the world.

We don’t need more clinical trials or yes, you can need more clinical trials but what really is needed right now is exactly what we’re doing which is a massive population trial where you get lots of people taking higher doses, getting more sunshine and getting their levels higher. So you can see what’s going to happen. We track the outcomes very seriously in all the time and we do pay attention on any adverse events. There haven’t been any.

DM: I want to go exactly (indiscernible 34:29) in a moment. But if someone is interested in participating in this public health trial that they could sponsor and get enormous benefit because they’ll know what their levels are and literally you only do this test a few times and you kind of know what your dose should be. It’s really beneficial. It’s a win-win for everyone. How would they get involved and what does it look like? What do they do for a test? How frequently is the test? How long is their participation?

CB: First of all, the simplest thing they can do is log on to our website which is www.GrassRootsHealth.net. Right there, bold front, it says, “Join D action.”

That’s wide open to anybody in the world. The study protocol is that people will do a vitamin D test. We mail them a test kit they can do at home.

DM: So you don’t have to go to a blood drawing center.

CB: They don’t have to do a blood draw.

DM: The blood is not drawn. It’s just a little pin prick.

CB: It’s just finger prick which hurts.

DM: We want to be honest. We need a drop of blood.

CB: They have to answer an online questionnaire with various health questions twice a year, each six months. After the first six months, we send them a reminder saying it’s time for the next one so forth and so on. People can be a sponsor for one time only but
the real desire is to have people choose to stay in the process for five years so we can really see what the health outcomes are.

**DM:** What is the cost for each test?

**CB:** The cost for each one if they are in the five year study is $60 or $120 a year plus shipping. That’s it. And they are helping sponsor the study.

**DM:** Terrific. It’s just great.

**CB:** We very much appreciate it.

**DM:** If you’re watching this and this is something that will interest you, I would strongly recommend you consider doing that. We know that the test being used (indiscernible 36:14) pinch your finger? It is an accurate test. We looked very carefully at the methodology as I’m sure you did.

**CB:** Yes we do.

**DM:** There are two lab companies in the country that do this test for vitamin D that do the blood test and one that we recommend is LabCorp. The other, we don’t recommend. This other test, the third test, the pin prick test is actually more accurate than the other company from our experience. I haven’t looked at it for a few years. They may have changed their methodology but they are seriously over reporting the numbers. So if you got a high number, it would actually be 40% lower. So test works. That is the end point of that.

**CB:** We validate it regularly as well as the company that performs it.

**DM:** That’s great.

**CB:** It’s very good.

**DM:** You’ve had 8000 people enrolled in trial. What other observations or analyses have been able to identify at this time?

**CB:** In terms of analysis of the data itself within about a year’s time it’s pretty short to look at the health outcomes but we’re paying attention to that. Hopefully, within the next 12 months we’ll have enough data to really talk about health outcomes which is like how many people – what their average blood pressure, so forth and so on.

**DM:** Are you looking at cancer too?

**CB:** Of course.
DM: Have had any initial observations? I’m particularly curious because I still don’t believe that oral vitamin D works really well for the treatment of cancer. I mean if you didn’t have any choice, I would use it in a heartbeat. Does it really work? (indiscernible 37:46).

CB: The thing that I would say to support that it’s bound to work somewhat – I wouldn’t call it treatment of cancer but I would call it prevention of cancer…

DM: They are two different things.

CB: I understand. I’m talking about prevention though. I am not talking about treatment.

DM: Okay.

CB: With regards to prevention, I’m very convinced it works as a result of a randomized trial that was done in which results were published in 2007 by Joan Lappe out of Creighton University where they had a group of about 1100 post menopausal women who started out with no cancer and they had their control groups. One of them had vitamin D and one of them of course you have a placebo.

DM: Oral vitamin D.

CB: Right, oral vitamin D. At the end of four years, there was a 77% difference between those that had the vitamin D and calcium versus the placebo. So something is working.

DM: That is powerful.

CB: It was on all cancers. So something happens.

DM: I would agree with that. Oral vitamin D seems to work for prevention but when you get to treatment that’s my question.

CB: I don’t know that. More to come.

DM: Is it possible that your study would be able to (indiscernible 39:00)?

CB: It is very possible because we have quite a number of people in the study who have had and do have cancer right now. One of the things that’s interesting to observe right now is something I can see right now is what happens like they’ve got their vitamin D level and then between test 1 and test 2 or 2 and 3 or something like that. In that time period there, they get diagnosed with cancer.

What is interesting is the behavioral observation. We’ve had a few people who have had been diagnosed with breast cancer and two out of – I think four or five of them –
two out of them immediately, the diagnosis was here and all of a sudden they say they have reduced their intake of vitamin D. I guarantee you that came from the physician telling them no don’t take that.

DM: Which in future years will likely be actionable malpractice, negligent malpractice.

[----- 40:00 ------]

CB: Something has got to give. The others again back to watching the behavioral outcomes right now is two of the others they were taking let’s say 2000 IU a day. They were diagnosed with breast cancer, it went to six. I’m just going, you got the message. Those things we can see all the time now. They are paying attention.

DM: That’s good. It’s making a dent.

CB: It is.

DM: It’s really penetrating the media. It seems to me the largest remaining barrier is the fear of sun issue that is really so strongly promoted by the media, the dermatologist. Most physicians have this phobia of sun exposure, of it being so toxic when it is just the exact opposite. We still have work in front of us.

CB: Yeah, we’ve got lots of work to do.

DM: There is just no question, this is the single most important nutrient – if you’re going to focus on any nutrient individually which we don’t like to because we tend to take a holistic perspective but it’s the one that you can’t ignore without serious consequences.

CB: As a woman it has enormous payback. There aren’t many nutrients right now that we are so deficient in addressing that single nutrient would make such an enormous difference. If you could truly reduce the risk of cancer by 40%, 50%, even 20%, my God, you’re better off than any drug can do anything. It’s profound in terms of just that size.

DM: And the mechanism for those who may not be familiar with them and you can expand on this is its ability to serve as a regulator of gene expression. So it actually influences the expression of 2000 to 3000 genes which is like 10% of our genes either suppressing them or turning them on. Would you have any comment on that?

CB: That statement is certainly true and supported. One of the things that Dr. Garland has presented has been specifically with the epithelial cell cancers like breast cancer is. I mean, almost all of it is. Almost all breast cancer is an epithelial cell. There is a substance which holds cells together as they grow and that it’s called cadherin. It’s made up primarily of calcium and vitamin D.
If those nutrients in our body are low which they are in many people, instead of that substance being this net to hold these growing cells together to keep them well behaved, all of a sudden it falls apart. And the cells go off and act like rogue cells. It’s just kind of like it’s a free for all. It’s a very normal behavior. It’s not an aberrant behavior at all. It’s what cells should do. But in this environment, and then our bodies what it does is it ends up creating cancer.

It’s by reestablishing the strength of that net to hold the growing cells together that keeps us from having cancer and – this is really what’s exciting for me and also supported by studies – even if you have had cancer you can prevent a recurrence by reestablishing that netting through supplemental vitamin D whether it’s by sunshine or supplements in a capsule. So that’s profound.

**DM:** It’s profound because you’re addressing a foundational cause of disease.

**CB:** Yes you are.

**DM:** Unlike your experience which was cut, poison, burn which is a really powerful documentary that really highlights what is the traditional approach to cancer in this country which in no way, shape, or form addresses the cause. It does nothing to enhance your body’s ability to protect against a disease which it was designed to protect against.

Have you found anything else – I mean, you’re just engulfed and engaged in the literature on this subject. It’s massive.

**CB:** I know.

**DM:** I’m wondering if you have any new highlights or appreciations or understandings that isn’t widely known that you can share with our audience?

**CB:** What isn’t widely known is – many of what I now consider ordinary things about vitamin D because we still have this widely known question that you put in there. Most people still don’t know the basics.

**DM:** At least within our audience. Our audience is a little more educated. Maybe you can even expand on that because our audience is a significant subset of your 8000 people enrolled in your trial. Maybe just comment on that now.

**CB:** Let me tell you a little bit about your audience. You put out a call to people last year some time to enroll in this project and a number of people did. I’m very excited about that. What was interesting or what is interesting is that we tracked many things but one of the things we can see is okay, what’s the average serum level of the first time test? The average serum level of the first time tester – how many people are below 40 is really what I wanted to address.
Mercola people came in with fully 40% of that group below 40 nanograms per milliliter but out of our whole population, it’s more like 50%. So the Mercola people that were coming in weren’t high enough yet but they were taking supplements and doing something to get – you could see that there was something going on. By their second test, the Mercola group raised itself up higher than the average group did by the second test. So you already have a beautiful group of listeners who are paying attention.

DM: They are paying attention and they are benefiting.

CB: Yes, they are benefiting.

DM: My passion and it is one of the primary reasons we started the site is to take this leading edge research that the scientists are just so frustrated, they can’t share the message and to provide an audience for them so they can devour that, apply it and get the benefits.

CB: Yes.

DM: It’s a little bit different audience because they like to get in and there certainly is a need for. Is there anything you can offer this audience that they may not…

CB: I don’t have anything brand new today other than what I have already talked about. I think the things to watch out for or to keep alert to is all the different diseases that keep coming up. It’s like pick your disease and it’s probably impacted by vitamin D whether it’s asthma, whether it’s cognitive decline in the elderly. There is now substantial evidence on almost any disease showing that vitamin D is a part of it and we need to address that.

The big new thing to me right now, again, I’m still trying to solve the world’s problems is the initiation to the best of my knowledge the world’s first breast cancer prevention project as a project and as a study.

DM: This is a new project of yours?

CB: This is a new project.

DM: Why don’t you tell us a little bit about that?

CB: I’m so glad you asked. What has been interesting to watch even though I started with breast cancer, the whole vitamin D issue is so big and it affects so many things. That’s where we started. And then it became clearer and clearer as I tried to work – I have tried to work with almost every breast cancer group around the country. I have met with them, talked with them, whatever. There is one – it’s called www.KnowBreastCancer.net – that is paying attention to prevention.
But I actually had the experience of meeting with one very recently and the comment about – I wanted to talk to them about prevention – was we don’t do prevention. I said, “How can you not do prevention?” The answer was everybody does prevention. I said, “What are you talking about? Nobody is doing prevention.” I was told, everybody is doing mammograms and I’m going [laughs]. It really was with that that we kicked off our – it’s really a subpiece of our existing project but it’s called a Breast Cancer Prevention Study. Because I guarantee you, I know I’m sounding like a screaming whatever at the moment, but I guarantee you that women of this world care.

If the organizations haven’t yet seen fit to deal with the women will because all we as women or any other person looking for health need is give me a viable option, give me good data and help me take charge of my health. They want to do it. So we have kicked off that study. We are looking now for some really serious funding to support that as a major research project. I’m very excited about it because it’s back again to where the heart and the mind were with the breast cancer.

I still care about all of the other vitamin D issues. But I felt like, I really felt like the breast cancer people had been deserted and I just couldn’t desert them. I’m one of them. It’s just kind of like, there is a way. So I’ve got to look for help to get the message out to people dealing with breast cancer. That’s what we’re doing.

DM: What does a trial look like?

[----- 50:00 -----]

CB: The trial is essentially identical to what we’re doing now. It’s just about this thing on breast cancer.

DM: So you’re just, any more questions or...

CB: We have a few more question but it’s still get your vitamin D tested every six months, make sure you get your serum level up to the 40 to 60 (nanograms). We will be doing some more analyses with Dr. Garland and some of the other scientists on the panel to publish the results specifically with regards to breast cancer.

DM: Good. Perfect.

CB: It’s very exciting.

DM: Sort of an interesting question is you have mentioned the 40 to 60 a number of times and that’s pretty much the accepted consensus among most of the experts. But there is a question if there is any additional benefit from like 80 to 100? I’m wondering what your experience is and if you can comment on it especially if you have a serious illness like cancer or heart disease or some other condition that would benefit from vitamin D?
CB: When one looks at what are called the physiological ranges of vitamin D as from sun exposure, there really are quite a lot of people that get into that 80 to 100 range but we don’t have at this point in time any documented – and they are healthier than. Those kinds of studies haven’t been done and the populations aren’t that massive.

What we do have is a lot of data in the 40 to 60 range where you can actually find a research study that has somebody there that says there was a benefit. Since we have this panel of people that I wanted and I thought it was essential and I still think it is that they agree. Those were the levels at which they would agree.

I personally think and a lot of the people on our panel think it ought to be 50 to 80. That’s fine. As long as we can establish a norm so that the public doesn’t have to say, who do I believe? That’s really important in a public health issue.

DM: Sure. So there may be some benefit.

CB: Yes.

DM: It’s just unknown at this point.

CB: We don’t know what it is.

DM: Personally, I shared with you earlier personally I have been able to get my own vitamin D level up to well over 100 – 110, 115 just by sun exposure with no oral vitamin D. Not everyone can do that because you need enough sun exposure and you have to be healthy. As you age of course the ability to produce vitamin D decreases so you have to have the substrate and a healthy metabolism to do that.

I would be somewhat nervous and skeptical of producing that level through oral means but if you’re going to get it through natural means, it seems that there maybe some benefit to be at that level.

CB: I can’t argue with you.

DM: With your experience with mammography I would like to comment on a question that the National Breast Cancer Coalition recently released their analysis of a randomized trial stating that in individual women that they can be assured that screening mammography will be effective for her. From a public health perspective, the harm and the public health cost of screening mammography may outweigh the modest benefits of the intervention.

I’m wondering, you know, considering your experience with this dense breast is the fact that half the women have dense breast that may miss a larger than golf ball-sized tumor like you had. What are your thoughts on that?
CB: Mammography is a very uncertain science. There was another report published out of the – it’s published in the Annals of Internal Medicine in 2009 showing that for every single life saved by having a screening mammogram, it took 1000 women to have a mammogram. It’s one out of a thousand which is a very high cost for public health.

On the other hand, what is the cost other than just the cost of the thing? One of them is that fully 10% of those or a hundred of those women would have had what’s called a false positive. They would have been told that they had cancer and they didn't. The false negatives are even worse. The percentage there is at least 15% to 20% which just means you have another 200 women who are told you don’t have cancer but they might.

It’s a very expensive proposition with very uncertain results. The National Breast Cancer Coalition took a position which is pretty much it’s up to you. I don't argue with that choice which is like if a woman wants to have a mammogram, if her doctor says, I really want you to do this, fine. But as a general screening practice, it's not particularly valuable.

On the other hand, I think that it is incumbent upon us as people involved with the health of women to help them find other choices. What else can I do because I’m afraid I have breast cancer, how can I find out before out lap off my breast? I mean, there has got to be some other way.

Again, to that one organization I talked about KnowBreastCancer.net, they have a whole series of things on their site about some possible alternatives to mammograms that I would encourage people to take a look at.

DM: I believe one of the other national recommendations was that they showed, it didn’t really get much media exposure was that mammography is not recommended in women under 50 now as a routine screen. Yet, many women do get it despite the fact that it's been proven not to be effective. I couldn’t agree more. I think it’s a freedom of choice issue that women should be given the freedom to choose somewhat similar to vaccinations. There is a lot of pros and cons on it but at least get educated, understand the risk, the benefits and then make your choice.

Dr. Samuel Epstein has documented much of these problems in The Politics of Cancer. Tom Daschell actually documented that the industry lobbying effects that impacted mammography device approval. The medical industry has somehow painted mammography is the only option and they consider this as a measure of prevention.

CB: There are some interesting choices out there. Again, you can see this on KnowBreastCancer.net. Certainly, the choices is a mammogram, a choice is tomography and one that’s coming up that I have read about recently is there is being developed a breath test.
They have actually demonstrated in some trials that dogs have such a powerful sense of smell that they were 99% right in testing by breathing a breath sample from a woman that they have breast cancer. That’s what we need. We need something simple and sweet to tell us we’ve got it so that then you can decide what to do next.

**DM:** We just published a video of a dog sniffing out cancer.

**CB:** Did you?

**DM:** Yeah. It was really fascinating. And it worked. It does make sense to access these biological functions. If they exist, we should just utilize it.

Because of your experience with breast cancer and thankfully, you’re still here. You have a vested interested in this and you’re highly motivated to carefully research the literature. I’m wondering if you can share with us your experience with the literature and what it has to tell us about mammography.

**CB:** I think I already told you that too. I already answered that. Whether I meant to or not, I already answered that one.

**DM:** This is one last question then unless you want to wrap. Is there another point you want to make?

**CB:** I don’t know. What’s your last question or what is the last question?

**DM:** What keeps you going but that’s just an ending things. It’s a personal thing. Is there any other thing that we didn’t talk about that you want to mention?

**CB:** The what’s keep me going we’ll get to that. That would be fine.

**DM:** I have another question before that though.

**CB:** Sure. Go for it.

**DM:** We started out this interview by your mentioning your struggle with breast cancer and going to the cut, poison, burn strategy. Obviously since then you have learned a lot with the understanding that many people watching this right now are undergoing the same process or will undergo the same process very soon or in the near future. What would be your recommendation now as a survivor of breast cancer to a woman who has just been recently diagnosed or will be diagnosed?

**CB:** The single biggest thing I would recommend, the very single biggest things I would recommend is first of all you women have to know if you have a very aggressive growing form of cancer or if you have the 80% garden variety which is just some invasive cancer. For the very aggressive kind I do not have a recommendation. For the
garden variety kind which is 80% of the women, the biggest recommendation I can make is take a deep breath, take your time, and get informed.

Because the industry has a built in fear to rush you through treatment options and rush you into decisions to do things that you may look back on with great regret which may be harmful to you. Had there been less fear on the part of the doctors, I certainly would have taken more time and I would made different decisions.

[----- 1:00:00 -----]

I think that’s key because I think there is also an opportunity.

Back again to the mammogram question, one of the reasons for not doing so many mammograms because it’s already been demonstrated that quite a number of these early tumors go away of their own accord. I think there is even the option for a watch and wait which didn’t used to be so obvious. If there is any option at all to wait and watch, I would recommend that option.

DM: That’s great advice. For the 80% of the women, the vast majority who have it is to get informed. But if we could sort of accelerate their information gathering phase, I’m wondering if you could summarize what you have learned in your experience. Clearly, my guess is at the top of the list would vitamin D.

CB: Sure. I should probably put it at the very top of the list – go take your vitamin D no matter what.

DM: So normalizing your vitamin D level may help those cancers disappear.

CB: That’s right.

DM: So it’s not just watchful waiting, it’s watchful waiting and application of wise preventive principles. The number one on the list is vitamin D. What other things have you learned?

CB: Major dietary issues. There is lots of literature on making sure that you have decreased or eliminated alcohol and sugars from your diet. Those are really big heavy hitters. Eliminate HRT and/or estrogen intake. That is big.

DM: This is conventional based HRT (hormone replacement therapy).

CB: Yes.

DM: Synthetic progesterones, plant or…

CB: Just a ballpark.
DM: Animal based estrogens (Premarin). You want to stay away from those things. Actually they have black box warnings now. They (indiscernible 1:02:01) for that for cancer and for heart disease.

CB: For my own learning – and this was whatever I am quite convinced that my own cancer was very much a result of over aggressive HRT treatment. I was taking more than twice as much as an ordinary person would be taking. I had a very rough menopause and the doctor just kept adding more. It was actually in the course of a prescription change there that this lump I had became noticeable to me and we took care of it. That’s a major issue.

DM: The subtle distinction here is that on an alternative form, the natural form with bioidentical hormone therapy is properly done and carefully done with the appropriate follow up could be really useful. One of my mentors and I think one of the leaders in this field is Dr. Jonathan Wright. I think he wrote a book called Stay Young and Sexy. That is really the best book I have ever seen on bioidentical hormone replacement. He’s actually the physician who brought that form of therapy into the United States. He’s out of Washington – a really profoundly knowledgeable individual. So HRT, another good point. Anything else that you would want to summarize with?

CB: I just finished a book called Brain Rules – how the brain operates, exercise trumps. It’s at the top of the list for health of the brain and for everything. If the person or woman does not currently exercise or is overweight or something like that, I would put it in the same category as vitamin D.

DM: It’s a powerful tool. I have been exercising for close to 45 years. I don’t think most people understand the connection between exercise and cancer but it’s definitely there. I have known about it for awhile. When I first learned of it, it just doesn’t make sense. It’s not intuitive.

CB: I want to add one particular thing about my treatment in this whole scenario right here. One of the things that amazed me was when you’re doing chemo, you’re in a room at least major hospitals have this kind of setup. There were 16 chairs that you can lean back in and go to sleep if you want to. Anyway, you have this tube stuck in you and this stuff is dripping down and it usually takes several hours, three to four hours that you are confined to that room.

While you’re there, you can get up, you can move around. This thing moves around with you so forth and so on. One of the times that I was there, I walked around in a particular day, it was all women there and most of them were being treated for some form of breast cancer, most of them, not all of them. I asked them, “What are you doing besides this treatment?” I did.

DM: I’m sure you did. I think I know what the answer is.
CB: Fifteen out of 16 of them were doing some kind of alternative therapy. One lady, we live in San Diego remember – one lady was going down to Mexico every week for some kind of special thing, somebody is doing acupuncture which is still considered alternative in some cases. Somebody was taking some kind of herb whatever.

Then I went back and I said, “Have you told your oncologist?” Absolutely not one of them had told their oncologist. I said, “Why not?” “Because he would tell me not to do it.” I was appalled. I had told my oncologist, I was doing acupuncture. I was doing whatever and so forth and so on but I had by that time gone through three oncologists to find what I could work with.

Then I asked one of the chemo room nurses who are holy people, I guarantee you. You have as part of this medical institution here a whole nutrition department. We’re stuck here for four hours. Why don’t you have somebody from there in here available to us or going around telling people, here are some of the nutrients that could help you at this point in time. She said, “There is an extra charge for that service.” We have got to change this. We’ve got to get to where nutrition is the key and not the “Oh my gosh, there is an extra charge for that service.”

DM: It’s a bit shortsighted considering the fact that we have spent I believe 2-1/2 trillion dollars now for healthcare in the United States. It maybe closer to 3. We’re not getting the value for that. I have no problems spending that much money or more if you’re getting great value but we’re just not. We’re basically endorsing treatments that are very expensive that don’t address the cause in any way, shape or form and really enrich the drug companies that provide the bulk of those therapies.

What keeps you going? You’ve done so much now. What’s your motivation? What drives you out of bed in the morning?

CB: My husband usually.

DM: That’s good.

CB: Somebody asked me that the other day and I said fear. I am highly motivated by fear which is like I don’t want to have this again. But that’s not really it. My fear if it had that kind of component on it is for freedom to make my decision. When I go around the country and I give talks and I sit here and I have people in the audience say to me, “Carole, what can I do? My doctor won’t give me a vitamin D test.” “I beg your pardon? What do you mean he won’t give you a vitamin D test? Who is in charge here?”

I think that what gets me out of bed each and everyday is the desire to exert the choices that I do have wisely and safely as best I can but to help anybody who is having trouble with that clear the stuff out of the way so that they can take charge because they want to. That’s it.
DM: That’s a noble goal. It’s great to have a purpose because that’s one of the things that keeps us healthy.

CB: I hope so.

DM: It’s really an essential element of the whole process. Thank you for all you do. Thank you for your commitment. If anyone who is interested, we’ll have a link on this page that one can participate in your D action trial. If your physician refuses to provide you the vitamin D test, you can get it yourself. There is no law against it. You can get it anywhere in the world.

CB: Ask the physician to join our project. We have a lot of clinics now joining the project too.

DM: Right. Not only will you help yourself personally but you’ll sponsor this trial which provide useful data that’s already showed that the dose that you should take if you’re not going to do a blood test is not 4000 not 6000 but 8000 units if you are normal sized adult. We know that’s the case now. Some people take 2000 and think they’re getting too much. That’s 1/4 of what you should be on. I thank you for doing that.

CB: My pleasure. Thank you for listening.

DM: I really appreciate you joining us today and helping educate us about this important topic.

CB: My pleasure.