



Your Functional Medicine Expert®
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[#2: COVID-19: Fact vs. Fiction: What you need to know ...](#)

Text:

Dr. Jill 0:12

Awesome. Well, hey everybody! If you're listening live, you might have heard us a little as I got us going. I don't know exactly when the recording started, but we are so excited to be here with you this afternoon, at least in mountain time. It's afternoon, it's about 70 degrees here in Boulder, and it's just a gorgeous day, and I'm so excited to be with one of my favorite intellectuals, Dr. Mansoor. So good afternoon, and welcome! It's great to have you here, Doctor!

Dr. Mansoor 0:37

It's a wonderful pleasure. Thank you, Dr. Carnahan, and likewise. It's just such a pleasure to be with you, though not on quite a wonderful day here in Toronto. It's a blessed day, but it's kind of murky—the sunshine isn't there. And by the way, somewhere in this conversation, we're going to be talking about how important that is for us, despite [our] self-isolation and quarantining, to ensure that our listeners are getting as much sunshine as possible.

Dr. Jill 1:02

I love it. Yes, I want to talk about what other people aren't talking about because there's a ton of stuff out there: Stress, anxiety, and fear. I want to bring some positive news. I want to talk about what you can do to control whether it's your fear and anxiety or whether it's your health or your immune system. If you want to just give a little bit of an intro on how you've been framing this whole pandemic.

Dr. Mansoor 1:23

Sure. I wrote a paper on this about a month ago, and it was kind of just predictive because at the time we weren't quite sure where we were dealing with things. I'm not saying that it was anything special, but one of the things I did highlight looking back in this somewhat predictive realm was that I said there were going to be a few things about this Corona pandemic. Back then, we weren't sure if it was a pandemic or not, but there were going to be a few things. Number one, trying to keep it

positive. Okay, so we've got to understand the numbers. And a lot of folks don't appreciate what the numbers are, and they're getting a lot more hysterical or concerned when they read these percent mortality numbers. So the first thing I said was that I'm not saying that this is not a dangerous virus, no. I'm not saying that there's a subset of the population for whom this virus could be quite severe. But the first thing I want to point out to the listeners is this: When you read or see that a virus is killing 2% of the population, that's just for example, the first thing that we're going to understand is that 2% was computed based on the number of people that were positively tested, right?

Dr. Jill 2:39

Yes.

Dr. Mansoor 2:40

And of course, those people were positively tested because, for whatever reason, they were either ill enough or privileged enough in some way to go to a testing center or lucky enough to be tested. My point is this: For every 100 people that are tested, such that, God forbid, two people pass away, there are 500, 200, [or] 1000—we know that it's significantly more—the number of people that were positive that do have the virus. They do have the virus, and clearly, [they] did not get to the point of severity and certainly not to the point of mortality. So by no means [am I] diminishing or underestimating that this is something we have to control, that it is concerning, but it just allows the population to breathe a little easier when they see 2%. But really understand that 2% is in all likelihood an overestimation. That's the first thing that I'd like to say.

Dr. Jill 3:34

Yes. And if you don't mind, I'm going to comment really quickly on that because I remember the first week I was doing virtual patients on a Wednesday. [I saw] 10 patients in my day, and three of the 10 had presumptive COVID-19. What I mean by that is that they had the classic story clinically, [with] symptoms—everything lined up. They did not get tested because they were not high-risk, nor did our state recommend it. And my first thought was, just like you, "we knew this," but I thought, "Okay, that's 30% of my day." That means that about 100-fold more than what we're seeing, probably more, but just guessing based on my little tiny snippet... And then we see Germany, which is testing, testing, testing, and their percentage is about a 10-fold—at least—lower in mortality rate. But we think this virus is probably doing the same thing around the world. So I totally agree with what you're saying.

Dr. Mansoor 4:20

And initially, people were asking the question, "What are the Germans doing differently to keep their mortality so low?" Well, I'm not saying that they aren't doing beneficial things [or] that there aren't other probable health parameters, but just starting with the simple statistics that they tested more people [explains a lot]. They confirmed that more people had COVID, which we or other countries are not doing. And therefore, they had a much larger denominator, such that when you put the numerator of how many people God forbid passed away, their percentage seems so much lower. So for the listeners out there, this is a serious virus. It's more serious than the common flu for a percentage of people. For a majority of individuals, if you do get this virus, you'll probably end up with something about the severity of a flu. There are unique features of this virus, absolutely unique features, but I'm just trying to get the message, however we frame this, that we do need to frame this so that individuals understand. You know, there are people out there reading articles of people—God forbid, Dr. Carnahan—committing suicide because they found out they had a positive result, and they haven't even waited to understand what's going to happen next.

Dr. Jill 5:32

Wow.

Dr. Mansoor 5:33

Yes, they're sometimes sensationalized, one-off news pieces, but we've got to understand the second point that I'd like to make, which is this: This is the first virus that is affecting [people] at a societal level. For most of us, if we're in our mid to late teens and we're living in North America, we've not had something that shook our social consciousness like this for about a generation. I'm even including the horrific incidents of 9/11. In terms of societally—societally broad, entire swathes of society in our consciousness because of the constant newsreels, because of the constant media around this—we're actually seeing, Dr. Carnahan, a little bit of an unwanted clinical trial playing out here. What is this clinical trial? And let me frame this to you this way: I'm going to use this unique subset to drive home a point. What's the age group... ? Again, I'm not saying they can't have severe symptoms, but clearly, they're nowhere at risk as the older population. I'm not saying that some younger folks can't get ill; we'll get to that shortly. But for the most part, it is clear that if we look epidemiologically, the younger population—let's say in those pre-teens and teens—are not getting as severe symptoms, generally speaking. Now, there are going to be some of those individuals that have pre-existing health conditions, which we can all miss, whether they have immune deficiencies, whether they're dealing with things like, God forbid, cancer, and they're currently on

immune-suppressing reagents, whether they've got an organ transplant, so, of course, they've got to be on immune-suppressing drugs. Clearly, those are unique individuals. But here's the point: In that young group, we're not focusing on them because they're not getting ill. But [those in] this young group, societally, are not in schools—schools have closed. They're isolating at home. They're isolating at home with parents that are probably not at their best because of fears, because of financial fears for all the wrong right reasons. And within this teenage population, societally, there are always going to be those teenagers that are at risk for anxiety [or] depression. There's a little bit of a reverb, Dr. Carnahan. Can you hear me?

Dr. Jill 8:10

Yes, I can.

Dr. Mansoor 8:11

Okay, sorry. What percentage—how many teenagers do you think we've got in the US? What's a number? I don't know whether they're 10% of the population, 15%, [or] 20% of the population. We're talking about a few million, tens of millions of teenagers, each with their own genetic predispositions for anxiety neurologically based, for depression. And we're not addressing their concerns or their feelings of being isolated from their peers and only having access to social media. This is just one example of what I call the ripple effect of this pandemic that we're not paying enough attention to. And granted, we have to pay attention to acute infections, for sure. But some group within the healthcare community, we must start speaking up and alerting parents, alerting our communities that look: Our teenagers haven't been put through this before. We've got to speak to them. We've got to ask how they're feeling. We've got to watch out for: Are they showing those aberrant signs of anxiety [or] depression? They're locked in their bedrooms. That's just the first in a series of what I call ripple effects. Would you agree, Dr. Carnahan?

Dr. Jill 9:30

I would totally agree. And we've looked at childhood ACE scores before, and the data clearly shows there's not one risk factor that's greater than childhood adverse events, which means the social isolation of the two-year-old who can't understand and the four-year-old who can't understand is significant, and we have to factor that in. In addition, community, touching, hugging, and being in close contact with those that we love are shown to boost your immunity. So we're not speaking to the fact of how things like social isolation affect the immune system. I'm not saying we should be doing things differently right now.

Dr. Mansoor 10:04

No. Agreed.

Dr. Jill 10:06

I'm not saying: "Go out and hug everybody you meet in the street." Please don't get me wrong. But what I'm saying is that there are other factors in the equation that we are not looking at that are equally important. And at the end of this pandemic, we're going to look back and we're going to say: "You know what? We did some things right. This is what we did right. We did a lot of things wrong, and this is what we did wrong. Hopefully next time we'll do better" because people are experiencing post-traumatic stress. Children—I have a colleague with a two-year-old daughter. She said, "I don't know how to explain to my daughter why she can't play with her friends. She doesn't understand, and she just gets angry or sad. And there's no way to tell her what's going on. I don't know how to tell her why she can't hug her grandmother." These things are really a big deal. Those of you with children are all dealing with it, and we're not talking about that piece of this. Again, there are reasons why we're all doing what we're doing. I'm all on board. But I think that the bigger picture is: How do we reduce stress and help our immune system in that way? How do we reduce social isolation and the fear, depression, and anxiety that creates? How do we take care of our children who may or may not understand this or who all of a sudden are away from their college friends and [are] completely isolated? These are real issues. Thank goodness psychologists and those kinds of therapists are still available and considered essential. I would highly recommend, if you're concerned for a family member, your marriage, or your children, that you get connected virtually with one of these professionals who can help you—it's so critical.

Dr. Mansoor 11:36

Absolutely. And here's the thing: Again, I'm not diminishing [the severity of this]—not! Please, [may] no listener think I'm diminishing the concern and severity that this virus can and will have for some individuals, but infections do come and go. The reason I highlighted the teenage population is because there are trigger points at places in development, such as in pubescent children, where a trauma at that particular time during their development will set the stage for mood and behavior, for the ability to screen and respond to other stresses—it will set the stage for the years to come. Usually, this is happening at the individual level; the teenager that was bullied; the teenager that was growing up in a home that had some marital strife. And you have these important but isolated cases. Here, it's happening societally. It's happening across millions of children, tens of millions of children.

Dr. Jill 12:39

And it's worldwide!

Dr. Mansoor 12:41

It's worldwide! It's being doubled down. We no longer live in a time where the family gathers around at 7 p.m. to turn on the one channel and watch the news—it's the news 10 ways [or] 100 ways from Sunday. And these children—think of it—they're in isolation. Most are in isolation with some type of personal social device. So now, rather than human connection, which you so beautifully pointed out... And look at the connectivity. It's not just about the mental framework; it goes right back into the physiologic immune response.

Dr. Jill 13:18

Yes, I was going to say that I could quote study after study with oxytocin, which is raised when we touch people—human touch!—so we're losing some of these pieces of our physiology by isolating. Again, I'm not saying we should be doing anything different, but we have to take it into account. I just want to call out because I see you guys are listening [and] commenting. Jessica [says]: "Nurse health coaches are here to help." Thank you, Joy Miller [says]: "Wonderful. Professional. Thank you." Thank you, guys, for listening and for your comments. I just want to make sure that you know we know you're there—you're listening. Please continue to comment, share your questions, [and] share this feed with your friends. I think it's really, really important information to get out. Let's shift to solutions. Okay, we're in social isolation. We're not saying we should be doing anything different for now. We need to obey our government in our areas.

Dr. Mansoor 14:01

That's 100%.

Dr. Jill 14:02

Right? But what do we do when we are in this situation? What are some tools that we can give our listeners?

Dr. Mansoor 14:11

Absolutely—to the solution. But I want to highlight two things now so we can compare [and] contrast, i.e., one way of doing it versus a different way. The first

thing now is to quickly contextualize what happens when we're in social isolation. We're typically not getting out and about as much as we should—typically. Now, not all of us live in homes where we can have at least some degree of sunlight. How many parts of our community, [such as] apartment buildings, are not getting the type of sun exposure [that is recommended]? If you're not getting that type of sun exposure, your vitamin D levels are going down—[there are] no two ways about it. Vitamin D, [is] radically important—directly radically important—back into your immune system, into your mood and behavior, into your circadian rhythms. What are we doing when we're home? We're binge-watching Netflix past our typical bedtime, so now we're throwing off our circadian rhythms. Your circadian rhythm—when you go to sleep [and] when you get up—the normalcy and the repetitive nature of that is also radically important in how our body responds with cortisol, which, by the way, leads right back to our immune response. Taking that first piece, and now, what do we do about it? So we're home. We are practicing social isolation. It is necessary, especially in some of our communities. But that doesn't mean that we throw our circadian rhythm out the door. It doesn't mean that we can't at least try to keep our family members, our loved ones, [and] keep up a healthy circadian rhythm. Try to get some type of sun exposure. Try to get these things that allow your body to stay "in as healthy a circadian rhythm as possible." The human body was designed to optimally work based on optimal circadian rhythms. [With] self-isolation [and] quarantining, one of the first things that goes out the window is our circadian rhythms. So, Dr. Carnahan, you've forgotten more about this than I know. Please comment to the audience on how important this is. What are some of the [reasons] why the circadian rhythm is so important?—and what we can do to keep it as healthy as possible.

Dr. Jill 16:19

Oh, I love this because I'm going to tell you some things that I do. I'm not saying that you should do what I do here, but I found some of these things to be really, really practical. First of all, this may shock you: I have not turned on my television for over six months, period. I do not watch television, [and] I do not watch the news. And guess what? I wake up, I'm optimistic, I'm happy—I'm not oblivious. What I do is get my information from selective sources like the CDC, the medical boards, [and] the government. I get information, but I selectively choose. On my phone—Instagram, Facebook, LinkedIn, et cetera, et cetera—all of my alerts are turned off. So that means, guess what? That phone doesn't control me, I control it. I go to it when I want to check Facebook. I choose when, but I never get those little ding, ding, dings, because, number one, to your immune system, it's a stress alert, [and] number two, it sets up a dopamine reward system. Do you know how the lotteries and gambling in Las Vegas, Nevada, or anywhere else get people hooked? It's a dopamine reward system. So every time you hear that ding of an alert on your

phone, your mind goes, "Oh, I've got to check that." It interrupts your train of thought, so whatever you're doing productively with your family or your work or whatever else—you go to that. It's a reward circuit because after about 10 times that you do that, something really cool is there. That's the way to create an addiction. So if you want to take back control, you take off the alerts on your phone. You can stop watching the news. And guess what? You're going to know the weather. I go outside and find out what the weather is every day. I literally do not watch the news, and it's been the best thing for my mental health ever. People are shocked because I have to run a business. I have to make decisions for employees, but I can find the information that I need from reliable sources, and I control it. I don't have anything else controlling my attitude [or] my mood. And I don't always trust mainstream sources to give me factual information. They're going to pick and choose [according to] what keeps people listening.

Dr. Jill 18:09

So the first thing: Turn off the news. The second thing: Turn off the alerts on your phone. The third thing: Every day, at least twice a day, get outside unless it's raining or snowing or you can't. I agree with Dr. Monsoor that vitamin D [is important]. If you can in your environment, go barefoot on the grass. That earthing will actually give you access to the earth's electromagnetic core, which helps our physiology. It's like recharging our batteries. If you have puppies or loved ones that are in your isolation circle, be with them, spend time with them, play games with them—all of those things. As far as your sleep patterns go, men may not be the same as us women, but us women, we usually go to bed, we get up, we do a shower, hair, makeup, et cetera. During this time of isolation, if you're working from home and not doing Facebook Lives or videos, you may think: "You know what? I don't have to wash my hair; I don't have to shower. I'm going to stay in my pajamas all day." You know what? I could be alone at home and never get on video, and every single day, 100% of the time, I get up at the same time. I make my coffee. I sit and meditate and sometimes read some sort of text or spiritual information in the morning. So I set my day, [and] I set my tone the same as I would if I were going to work. Then I get my coffee, take my shower, do my hair, do my makeup, [and] put on my clothes. Yesterday, I didn't go anywhere, and I wore a dress and a cute little jacket, and it was just for me. But you know what it does? It gets my mood to be feeling like I'm involved in life, [and] I'm involved in people. I'm the same person I was. There's something a little depressing about staying in your pajamas and not washing your hair. For me, I kind of feel gross. Maybe I'm a little obsessive about it, but that's a piece of my happiness, and my joy is the same routine.

Dr. Jill 19:47

The other thing is that if you're sitting around all day, you tend to get tired, you might take a nap, and then you end up staying up late watching. I've not turned on Netflix; I haven't watched a movie. Again, you don't have to be like me. I'd rather read or educate myself. But I choose to use activities like audible books, reading regular books, going outside, [and] learning a new activity. A lot of my friends have learned arts and crafts. Coloring—years and years ago, I said, "I don't have time for that." But [during] the last year, as I've learned to be still, I bought a ton of coloring books, crayons, and pencils. When I need to get creative, I'll pull out my coloring books and color. Those are the kinds of things that are going to energize you during this time and reconnect you to your purpose and your meaning. What I've found is that I've actually been more productive and busier. [I've had] more ideas. [There are] more new things for the clinic that are happening now in this time of pandemic than ever before.

Dr. Monsoor 20:40

Dr. Carnahan, we could literally have just stopped right there because, look, we took self-isolation [and] quarantining and gave them two different versions. One version that is entirely depressive to your immune system and depressive to your mental function as per the slipping around in the pajamas. And again, please, to the listeners out there, we know that there are so many individuals dealing with financial stresses, dealing with worry over loved ones that did go on to get quite ill. So we're not making light of the feeling of trauma over this. But as Dr. Carnahan has pointed out, it's that feeling that you can have some ownership of doing something—you particularly—choices that you don't make, choices that you do make; just that empowerment. And don't think of it as just a trivial exercise because it's going to go right back [to] affect your immune system [and] affect your stress levels. Dr. Carnahan, there's this little thing going on; I've heard about it: Netflix can now score the most watched movies. Do you know what's one of the most-watched movies in Canada now on Netflix? "Contagion."

21:50

Oh, Wow!

Dr. Monsoor 20:51

So what are people doing? They're messing with their circadian rhythm by staying up binge-watching things, but they're watching the very things that are now repopulating their consciousness. Fear—"Oh my God!" "The world is ending."

Dr. Jill 22:05

You know, there's a very clear mechanism to post-traumatic stress. What happens is as a child, you might have not got ice cream when your sister did or some minor thing or some major thing. Some of you have experienced horrendous trauma in your childhood or early in life; I don't want to make light of that. But what happens is that these peaks in trauma get populated together, so we have another peak that reminds us of an old trauma. It gets tagged together so that the nervous system is like: "Whoa, that feels very traumatic. I'm going to feel the same way I did when I was two," or four, or six, or eight. And these spikes get populated, and they get tagged. And so another trauma like this, like being quarantined or being away from family or friends or losing a job—we're all dealing with difficult situations—they get tagged to old things. And if you put on a movie that's going to scare the you-know-what out of you, it's going to tag and it's going to reinforce the trauma. You break that trauma cycle by saying, "Guess what? I still have control." I can choose to get up in the morning to shower [and] put on makeup. I can choose to take a bath at night and take care of myself. I can choose to color or do something creative. I can choose to learn a new skill. Maybe I wasn't going to the gym, but now that I'm home, I can choose to do an online workout every day and actually get myself in better physical shape than I've been before this. You can choose to take up the opportunity.

Dr. Jill 23:23

And I wanted to mention—we're not making light of the situation, but here's something important: The other day, I was walking. It was seven o'clock at night, and it was maybe a week or so ago. There was a lot of fear. I had my headphones on, and I had some fun music, and I just felt like dancing. I was alone. I just looked around; no one was there. I'm skipping and dancing like a little girl. And then, for a second, I stopped. First of all, I looked, and there was no one else out there. I thought: "What in the world? Why is nobody out? It's a beautiful evening at 7 p.m." But the second thought was: "Is it okay to be full of joy at this time? Is it okay for me to still have joy and happiness?" And all of a sudden I was struck by the fact of, "Is it okay for me to be happy when people are suffering?" And guess what? There is room for both. Just because I was happy, full of joy, and skipping in the evening on a beautiful night does not take away from your suffering. It's okay for me to have happiness or for me to have sadness and for you to do the same. I think there's almost this guilt—I felt it—about: Is it okay for me to have joy, or for us to talk about solutions and talk about joy and talk about positivity?

Dr. Monsoor 24:29

Yes.

Dr. Jill 24:29

Is it okay? We don't have to apologize, Dr. Monsoor, because it is okay. We can bring light and hope to those who are suffering. Granted, I have days where I'm overwhelmed; I have days where I'm stressed, so I'm not all joy and bubbles. But I realized on that walk that it's okay for me to be happy and joyful in the midst of suffering because there's so much heaviness [and] anxiety—we need a little bit of that infused. If I can be the one, I will gladly be the one to encourage you.

Dr. Monsoor 25:00

Again, [based on] what that anecdote means, it could have been the place we stopped. I want to add, obviously, [for] the geneticists in the room, if you think to yourself: "You know what? I don't get worked up over looking at something like a contagion or something else; that's not me. It doesn't bother me." Please understand that if you're in a family context and you're all indoors now, of course, you've got this sense of: Where are you going to go? Please understand there are profound genetic precursors that indicate why one person might emotionally fixate on something—their ADRA2B gene, their rate of dopamine metabolism, [or their] rate of adrenaline metabolism. So my point is this: Underlying, what is going on, we might have individuals who are saying: "Oh, this is not bothering me. I could look at this. I could..." But your children, your spouse, and others around you will tend to mimic what we see. We tend to imbibe what others are doing around us." Even if you're not doing it for yourself because you think it's not impacting you, it certainly can. There are genetic classifiers that superbly differentiate between risks, linking past fears [and] anxieties. That's the whole point of PTSD. PTSD is that person now having God forbid been deployed to horrible parts of the world. They've come back to their hometown; they're walking down the street. A siren of an ambulance goes by, [having] nothing to do with them. They're safe, but that links to when the siren was involved [and] when they were involved with something. So please, to the listeners out there, take this seriously for your loved ones and your children. For me, my passion here is that as adults, to some degree, more or less, we have the tools—or we should have the tools, or at least we have more tools than our youth, our children, that are watching how we are behaving. And they're being exposed to how we behave far longer, far more than the average. They're not within the context of the normal situation of friends and connectivity, and the classroom recesses and playing. As adults, we've got to be more mindful of this component, and as Dr. Carnahan has pointed out, there's a lot that can be done.

Dr. Monsoor 27:33

Now, Dr. Carnahan, [some might say] "Here's what we're doing!" Here's how to do it right, [and] here's how to do it wrong. So it amazed me when I looked at what was

happening. First, when the panic buying started happening, everyone said, "We've got to go prepare to go lock ourselves away." I'm not speaking of the toilet paper. Let's put it aside. What was disappearing from the grocery shelves? It was all of the non-perishable foods, right? So it was the pastas and the rice. It was canned foods, chock-full of salt and preservatives, and so on and so forth. So here's the other factor now. And again, please, I'm not scoffing if that's what you can afford, and you have to try to get some nutrition and nourishment for your family in these times for prolonged periods. But we've got to stop for a moment here, Dr. Carnahan, and remind the population: What are the two biggest comorbidities for a poor outcome if you contracted COVID? Hypertension and type 2 diabetes. And what are the very foods we're stocking up on when we go into quarantine? Foods that are preserved with chock-fulls of salt, [and] foods that have chock-fulls of processed sugar. And by the way, we're at home, [and] we're snacking when we're binge-watching Netflix. So we are creating a physiology in quarantine that is the exact physiology that leaves you ill-prepared to handle a virus, which, by the way, for the majority of us, we will be able to handle were we to have been exposed to it.

Dr. Jill 29:13

Correct. Yes, and even more so. What I found to be fascinating is that... I was teaching this weekend to a group of doctors on [the topic of] metabolic endotoxemia. Now that's a really long, fancy word to say. It's when gut bacteria leak from your gut lumen—the tube inside your gut—through a leaky gut membrane into your bloodstream. And this LPS molecule is just a coating of bacteria. And guess what? It is the number one risk factor for the things that we see and that we just talked about: Heart disease, diabetes, obesity, and then all kinds of mood disorders too, [like] insomnia, anxiety, depression, and even bipolar and schizophrenia. And guess what? When LPS goes into the bloodstream, it triggers the exact same cytokine cascade as we are seeing with the virus, with IL-6 and IL-8 and TNF-alpha and some of these cytokines. I'm doing this for my patients because I know so many of my patients and clients have gut issues and have these kinds of risk factors. If you're eating processed foods, foods full of glyphosate, GMO-based corn, and soy processed products, high sugary things, or even a lot of alcohol, ibuprofen, NSAIDs, or all of these things that create more leaky gut, you're contributing towards that inflammatory process. It's priming you. If you were, God forbid, to get the virus, that priming would make you more at risk for a worse cytokine response. So your gut does matter; the food does matter. This might be the most important thing you can do.

Dr. Jill 30:44

So what do I do, and what do I recommend? I'm in the aisles, where there are plenty of leafy greens, fresh broccoli, Brussels sprouts, cauliflower, peppers, and carrots. I'm in the fresh aisle, and I'm thinking, "Okay, in a week or two, these things are going to go bad, and they won't have food." But I'd rather have fresh, healthy food, and then I freeze some of it too so that I have some things. I literally don't eat processed foods at all; I don't have one can in my pantry, so if we really get into trouble, guys, I might need your donations because all I have is fresh and frozen. But what I learned is [that for] smoothies, a good-quality protein powder from whey or collagen or some organic pea or rice source—if you have that on hand—saves very well. If you throw that in a blender with leafy greens, like kale or spinach, et cetera, and then fresh blueberries, strawberries, et cetera, you can freeze all those things. Even kale, which typically wouldn't freeze and cook, it's awful, but if you throw it frozen into smoothies, it works. So what I did to prepare for something, since I don't have any canned foods at all, was freeze kale and spinach, blueberries, strawberries, bananas, [and] all kinds of fruits. I have protein powders and coconut milk in containers that won't go bad. So, literally, I could get by for a month or two with protein smoothies if I had to. And if you want to avoid canned foods, that's a great way to do it. I just found that to be an incredibly helpful way because I was like, "What am I going to do? I don't eat canned foods."

Dr. Monsoor 32:07

So again, we're faced with a situation where we do need to do what we're doing, the self-isolation, but as Dr. Carnahan has just said, the way you go—literally, there is a fork here. We can go down the, "Well, let's go stock up on the bread and the flour and the pasta," and please, I'm not decrying if you have to do some of those things, but just think about it. It's not trivial. And it's not for one day, a guilty day, your treat day. This is not happening not one day, not one week, not two weeks, a month, [or] two months even. What you can do in terms of shifting the body, either positively or negatively, over the course of 30 or 40 days will have ripple effects for months, if not years, to come.

Dr. Jill 32:56

Yes, instead of this being something that's happened to us, we can take back control and use it as an opportunity to make our lives better. So I love that. And Dr. Mansour, I know we didn't talk a lot about genetics, but I know you wanted to talk a little about the genetics of this. So why don't you dive in a little bit in the last 10 minutes or so about the genetics? And then I want both of us to talk about the sequelae that we might see afterward.

Dr. Monsoor 33:20

Yes. Someone asked me, and Dr. Carnahan and I were speaking before we went live, and I said: "Look, I'm not trying to be the on-screen optimist always, but there was a silver lining for me in this pandemic, which has been traumatic to so many. But the silver lining, among many others, that Dr. Carnahan has mentioned, is that we, as a community [and] as a society, are going to be more mindful of our health moving forward. Why? Every single one, with the rare exception of the individuals who go on to develop severe progression of this infection up to and including mortality, had underlying metabolic dysfunction, i.e., underlying health concerns that in and of themselves are things that we can impact—things that we can impact with healthy living [and] healthy lifestyle choices. So what I've been doing, Dr. Carnahan, is I've been using this as an opportunity to remind people, not about the genetics... People keep asking me, "Dr. Monsoor, is there a genetic variation in the ACE2 gene that makes the virus more likely to enter the human cell or not? I've actually said, by the way, from an infection perspective, there does not seem to be variations in the ACE2 gene, as far as we currently know, that is allowing the virus easier or less easy entry into the human cell. And even if there were, you know what I would say? I would say: "That's not what you should be focusing on. What you should be focusing on is understanding what are your—genetically starting—innate tendencies to develop hypertension, cardiovascular concerns, [or] pulmonary concerns. For the first time in your life, own that. Own that and understand that, [by] optimizing your health [and] diminishing those symptomologies, you're not just going to be a healthier version of yourself; that healthier version of yourself is precisely the version that can deal with this virus.

Dr. Monsoor 35:22

By the way, most of us, if we were healthy, could deal with that virus. I can't say that enough—I can't. And yes, we are seeing media reports of that strapping young man or woman saying: "I never smoked. I was a CrossFit runner, and I got this virus, and it laid me up, and I'm in the hospital." Okay. I am not diminishing the suffering of that particular person, but here's the truth of it: Number one, those are far rarer events. And again, our media wants to find those events, as is their job. Fine. Number two, those individuals certainly may have outwardly been healthy, but did they take a moment? Did they ever understand that there were latent health concerns? The only way you're going to detect latent health concerns, and I'm not here to sell a genetic test, is that's where genetics comes in so that you can understand: What are your latent concerns? What are the symptomologies of latent concerns?—that you can do something about it sooner rather than later. Every single one of those things that Dr. Carnahan has mentioned here about watching out for and about what that leaky gut then triggers—pro-inflammatory cascades—we can do so much about if we know our individual tendencies. So to conclude, Dr. Carnahan, what I mean is that there are genetics not surprisingly

related to the infection per se but to the underlying physiology. I hope there's a wake-up call to our societies so that we begin to own our health more than we've ever owned it before.

Dr. Jill 36:55

Yes. Gosh, I couldn't agree more with you. I love that. Dr. Monsoor is part of a DNA company. I know when we first talked about my genetic test, I was like, "Wow, this is amazing!" It's really, really good information. I love it for my patients too, because it helps with pathways as far as figuring out what kinds of things are also unique. That's part of this: We don't have a one-size-fits-all. One of our comments here from Steve asked, "Have you seen the theory of hypoxia—lung inflammation?" This is a whole other can of worms, guys. I'll tell you what: You know that I try to bring you the latest information; I am working on writing a very science-based article on this right now. It will be out next week. So I do believe there's some validity to this [idea on] hypoxia. The bottom line is that what we're seeing is very different from the classic ARDS and lung inflammation, and instead, we're seeing this low oxygen because of the oxidation of the iron. So basically, your hemoglobin is red blood cells. They're like little boats in a river carrying oxygen around to your body, and this virus in particular likes to attach to the iron there and decouple it from that little boat. Iron is critical there for carrying the oxygen. When that iron is decoupled, it becomes a reactive oxygen species that causes massive collateral damage around the body. This is a really big part of the problem because what we're seeing looks a lot more like altitude sickness.

Dr. Monsoor 38:22

Yes.

Dr. Jill 38:23

And is it any wonder? As I looked at this, in a lot of the ski resorts here in Bail and Aspen, there was a huge percentage of people that got it that were at higher altitudes in the beginning. And in Colorado, those cities that are at a higher altitude, like 8,000–10,000 feet, are shifting their patients to lower altitudes because they know they're doing better in lower altitudes. They don't have to worry so much about those boats carrying the oxygen. This is a big part of it. I think as we investigate and dig further, we're going to find out what's going on. The other thing that's very interesting is that it's not so much the fluid, the inflammation. That's all part of it, but what we're thinking is happening is at the tissue level, that hypoxia, the lack of oxygen, is really what's causing the damage. So maybe in the future, some of our treatments will revolve around: How do we get oxygen to the

tissues?—because a ventilator without getting oxygen to the tissues is not going to be the answer. So this is brand new, hot off the press. You haven't heard it anywhere else, but I promise you, stay tuned to the page, and stay tuned for the blog because literally I had a two-hour meeting this morning with my research group and we are on it. You're going to hear next week more about this.

Dr. Monsoor 39:28

Dr. Carnahan, I've been writing, and I've been asked to write addendums to the first letter that I released, which again was somewhat very predictive. A month ago, literally, this topic was my next addendum.

Dr. Jill 39:39

I love it. You and me—we're both there.

Dr. Monsoor 39:41

Literally, you've nailed all of the first points. And again, here to the viewers and listeners, the individuality with which we deal with ROSs—the reactive oxygen species—and what we call our redox balance, and what that does to then cascade into inflammation, is going to be key. Listeners, we have hugely important and expressed genetic differences ethnically—so different individuals [and] different geographies—to how we deal with oxidative stressors. When those heme groups become decoupled from the erythrocytes, they're marauding very potentially dangerous ROS—contributing ROSs. Not to mention that then the decoupled erythrocytes themselves behave in a way that they shouldn't be behaving. So we get here, and we've made analogies, "we" meaning [us] in the scientific community, and this is where we've got to be careful—the analogies we've been making to previous flu-like viruses or even previous coronaviruses. This particular bugger, this little one, is being a bit naughty in these unique ways. But to understand the particulars of it is to understand: Do we just jump in the same old? You know, is it ventilators? Is it just oxidizing the lungs when we don't realize where the inflammation is? Are we even getting oxygen into the body in the first place? So, whoever asked that question, [it's a] brilliant question.

Dr. Jill 41:18

I'm so excited to hear [this] because I know you and I were on the cutting edge, and literally this morning I was like, "Emergency meeting." This information has to get out. And I'll tell you why: Because of this information explains the things that I already know are likely going to help: IV vitamin C. IV vitamin C—when you can keep the frequency of dose, either liposomally, orally, or IV, at a frequent level so

that the intracellular level of vitamin C is high in your body, that will neutralize the free radicals of this iron oxidation. We're going to see some relief. Surprise, surprise: Plaquenil (hydroxychloroquine)—which we've seen in the news—with zinc, is a zinc ionophore, which means it allows zinc to go into the cells. Intracellular zinc is also critical for restoring homeostasis in the body, and so is magnesium. So these nutrients that we've known to work now actually make sense in light of the virus.

Dr. Jill 42:07

I really believe if we can get the message and the data out and build the science on this, we're going to see a shift in medicine. You guys all know what I stand for. I'm all about finding the root cause and reversing disease. To me, this is a really exciting opportunity if we get it right, because there are some great solutions, and most of them are nutrients. They're things like glutathione, raising glutathione status either orally or nebulized, where you could breathe it into your lungs. They're things like hyperbaric oxygen, which can push oxygen into the tissues. They're things like ozone, which can also create more oxygen and kill viruses and [other] things. And these things aren't on the nightly news, but we're going to bring them to you. We're going to talk about them. I always feel like a lot of these new things, if they're fairly safe and we don't yet have a 30,000-human randomized controlled trial, I'm willing to try this, with informed consent, with patients. The data is good; the data is really strong.

Dr. Monsoor 43:04

Bless you, for saying that, Jill, because here's the other silver lining that I've seen. Listen, viewers, listeners: Are there snake-oil charms that really have no business being spoken about in [the context of] health but are peddled by individuals, intentionally or unintentionally? The answer is yes. But once and for all, our societies have to wake up to the fact that there are a plethora of well-studied uses of micronutrients—vitamin C [for example]. How many times have you had the average patient, Dr. Carnahan, so confused? "Is there any real benefit to vitamin C?—because I always hear in these articles that it's never been shown to help with this." There are meta-analyses showing the benefit of vitamin C, especially being used [through] IV in this current SARS-CoV-2 infection. So to the listener, two things: Do not be swayed by things that clearly have no place in medicine, but on the other hand, also open up and open your minds and recognize that—let's see how to say this carefully—there are things that are quite easily accessible, that are not coming at massive price tags, that are not controlled by certain agencies, that also have a benefit to the human body. And refreshing, having leaders like Dr. Carnahan bring you this so that you know it's being vetted, this is going to be something, Dr. Carnahan, that you have a responsibility of doing, as you always do.

Dr. Monsoor 44:37

I want to add one thing too, Dr. Carnahan, and here I'm adding one plus one and getting four. But [because of] the researcher in me, the geneticist in me, I can't let this go. When we noticed the strong correlation, and by the way, there was a strong correlation... When we looked at the fatalities in places like the south of the US, they definitely seemed to be higher than in the rest of the country. What are we seeing? We're seeing obesity. We're seeing metabolic disease. We're seeing type 2 diabetes. One of the things we do when we look at the way your body processes sugar, your hemoglobin A1C measurement... Well, what is this? That same heme group has the ability to attract and bind glucose over time. We're now finding out that the virus is decoupling the heme group from the erythrocytes. I'm personally asking the question: Is that happening easier? Is the hemoglobin being turned into a reactive oxygen species easier in the presence of glucose?—because to me, those two things are too glaring when you see the increased risk factors for type 2 diabetics with poor outcomes with hypoxia. And again, researchers aren't asking these questions because they don't think functionally. So, Dr. Carnahan, I'll be writing some information. We probably should share our information and get something solid out there.

Dr. Jill 46:04

I would love that because I respect you so much as a brilliant clinician, researcher, [and] geneticist. Let's share those. I will share your information here. So stay tuned to this page. You'll get Dr. Munster's information. Of course, you'll get my blog too. What I'm going to try to do with the blog is write it on a level that any person who doesn't have a science background can understand. And I'm sure Dr. Munster will take [it to] a whole other level, so both of us are going to bring you that information. And I really think it's important as this virus progresses because what that means is that there are solutions—really, really good solutions—that are going to keep you healthy and keep you out of the hospital.

Dr. Monsoor 46:42

Dr. Carnahan, this is why, speaking with you, I learn. Every time I speak with you, I learn so much more. I'm not sure I've contributed anything, but just being able to share this with you, share this with your audience, and bring back something that is not trivially optimistic for optimism's sake but to really show that there's ownership here—not trivializing things. After all of the science and clinical things we've spoken about, I'm going to leave this conversation today with the anecdote that you gave about listening to that music and feeling happy. And that discordance, that sense of: "Can I actually feel a degree of happiness? Can I feel happy even though there are

reasons to be sad?" That anecdote that you shared to your community, I hope your community that listened to this realized how personal that was and how powerful that was. That, more than anything else, is what I'm going to leave this conversation with. Thank you for sharing that with me.

Dr. Jill 47:41

Oh, thank you. Thank you. Thank you. And thank you, everyone, for listening and joining us. We had so many conversations and lots more comments and questions. But this recording will be live. You can come back and watch it. You can share it with friends. I hope that you found it really informative, and if you did, please share it because this information needs to drown out some of the negativity. And I will say this: Things are changing on a moment-by-moment basis. So what you hear today in a week, I might say: "Well, guess what? This changed a little. I learned more information," but I promised to always bring you the up-to-date truth as I hear it, just like Dr. Monsoor. So again, it could change, but for now, there is hope. There are lots of answers; genetics do play into this because it sets the stage for how you interact in an environment. And if you want to know, we'll be sure and link up with Dr. Monsoor's page and his company. So if you want to know more about what he does, you can do that as well. We're actually working in our clinic on a COVID pack. I don't know if I can call it that legally, but it's basically some of the basics that are: Glutathione, NAC, vitamin C, zinc, some of the bare probiotics—very, very basic core stuff that all of us should be taking right now. So check that out at DrJillHealth.com or my website, JillCarnahan.com. And thank you all for joining us. This was really, really fun. And, Dr. Monsoor, thank you so much.

Dr. Monsoor 48:55

No, thank you. A blessing to everyone who listened to this. Bye-bye.

Dr. Jill 48:59

Bye-bye. Take care.