Dr. Drew Sinatra: We have talked about COVID-19 a lot, and you're hearing about it endlessly in the media. But what we think it's important to do is take a step back, and directly answer some questions without the polarity and sensationalism that has crept into the conversation.

Dr. Steve Sinatra: Today, we'll bring back Dr. David Katz to our show. Dr. Katz is one of the most respected doctors studying COVID-19 in the nation.

Dr. Drew Sinatra: We'll talk to him about some of the most important questions floating out there. What does herd immunity really mean? Can you be re-infected with COVID-19, and is it as bad as it sounds?

Dr. Steve Sinatra: What can you do immediately to reduce your risk of complications if you do get COVID? And how beneficial will a vaccine really be once it is available?

Dr. Drew Sinatra: We'll also talk to Dr. Katz about some exciting news he has, a partnership that could potentially reach millions to articulate the ways fitness is absolutely essential to health and wellness. All of that and more on today's episode of **Be HEALTHistic**.

Narrator: Welcome to **Be HEALTHistic**, the podcast that's more than just health and wellness information — it's here to help you explore your options across traditional and natural medicine, so that you can make informed decisions for you and your family. This podcast illuminates the whole story about holistic health by providing access to the expertise of Drs. Steve and Drew Sinatra, who together have decades of integrative health experience. **Be HEALTHistic** is powered by our friends at Healthy Directions. Now, let's join our hosts.

Dr. Drew Sinatra: Hi folks…if you like what you hear today and you want to listen to future conversations on all things integrative and holistic health, subscribe to our podcast at **BeHealthisticPodcast.com**. Also, check out and subscribe to the Healthy Directions YouTube channel, which features video versions of our episodes, plus extra videos you won't want to miss. Finally, we have more with me, Dr. Drew Sinatra, my dad, Dr. Steve Sinatra, and other health experts at HealthyDirections.com.

Dr. Drew Sinatra: Hey everyone, welcome to another episode of **Be HEALTHistic**. Today on the show, we're bringing back a fascinating guest from Season Two, preventive medicine and public health specialist, Dr. David Katz — who is also the President of True Health Initiative, and the founder and CEO of Diet ID. Last time Dr. Katz was here back in the spring, which seems like eons ago, we discussed his valuable insights on where we stood with COVID-19. Plus, he provided helpful

diet and nutrition information and anecdotes from his book, *How To Eat*, with food journalist, Mark Bittman.

Dr. Drew Sinatra: Today, since Dr. Katz is still on the front lines of the global coronavirus pandemic, we wanted to pick his brain some more on where we're at with this health crisis now, several months later. We'll also ask him about his new partnership with Self Esteem Brands and Anytime Fitness. So welcome back to the show, Dr. Katz.

Dr. David Katz: Great to be with you, Drew. Thank you.

Dr. Drew Sinatra: Well, first, I just want to let you know, I'm so proud of what you are doing. I feel so much love inside and joy, knowing that what you're doing is the message that needs to get out to the people. And I know it's a very difficult thing to do because you're going against the grain. In a way, what you talk about is sort of talking about religion, politics, and vaccines — no matter what you say, there's going to be tremendous controversy around that.

Dr. Steve Sinatra: That's right.

Dr. David Katz: All the topics our parents told us to avoid at all costs, right?

Dr. Drew Sinatra: I commend you for all that you're doing, really, because I feel that you're speaking a language that a lot of people haven't heard before, and we really need to understand that language more. So from last time, we talked all about the pandemic, how we were handling it. We talked about your op-ed article in *The New York Times*. Where are we today, months later, with this coronavirus pandemic? Where are we at?

Dr. David Katz: Well, first of all, thank you for the kind words. It really has almost been surprising what a difficult place it has been to look at this from the middle, to be willing to actually reflect and look for the merits of both arguments. "No, we don't need to lock everything down, but we need to lock some things down." "No, we don't want to just liberate states, but we can liberate some things." There's truth to both sides, there's baby in bathwater to both sides. And you would think that's the easiest position to take, but the result has been basically projectiles hurled at my head from both camps. We're just that polarized.

Dr. David Katz: It's interesting, as a clinician for 30 years, in the early going of my clinical career, patients would come…and I think this is a common experience with health professionals. Patients would come, decades ago, and they didn't know much. And the expectation was that the health professional, the doctor, would be the expert. "Tell me what to do," and our job would be, essentially, to fill an empty

vessel. But you flash forward to the internet age, and everybody knows everything — and most of its wrong.

Dr. David Katz: There's Brandolini's law — the effort required to undo BS is 10 times greater than the effort to propagate it in the first place. So, massively more difficult. I would say much the same encumbers the pandemic. And so, I will answer your question as best I can, but I first want to say how hard it is to answer the question, "Where are we now?" because we have an infodemic, and it's not just news. By the way, the news is distorted, because the media love drama. Even when it's presented reasonably, it still skews toward drama.

Dr. David Katz: And I know, from my many years working with the media, comfort the afflicted, afflict the comfortable. If it bleeds, it leads. Those are the chants in the media war rooms — we want to titillate, we want to provoke. Maximize the drama, squeeze every drop of drama out of this we possibly can. So we don't just get news — we get news about news; we get opinion about news about news; we get opinion about opinion about news about news. And it's really difficult, no matter how hard you try, to just track data…where are we?

Dr. David Katz: So, I think we're in a much better place than we were. There's a lot of concern about second waves and what the winter will bring. But here's the reality check as I see it. We have already had a four-season experience with SARS CoV 2. It found us last winter. It was in the United States as far back as December of 2019. So we had December, January, February. We then went through the whole spring, the whole summer. We're well into the fall. It's a four season experience.

Dr. David Katz: Right now we're seeing case counts rise, but for two reasons. One, colleges have reconvened, a lot of people are back out in the world. And importantly, we're doing massively more testing than we were in the beginning. We're finding a lot of the asymptomatic cases in young, healthy people that had it in the early going too, but we never found it then. What we're not yet seeing, and I'm watching this very carefully because this could change, we're not seeing casualty counts rise with case counts the way we did in the early going.

Dr. David Katz: We're not seeing hospitals overwhelmed. We're not yet seeing ICUs fill up, and I hope we don't. And what this may mean is people have come to understand if you're elderly, if you have chronic illness, you're at high risk and you need to be really careful. Whether or not everybody else is looking out for you, you need to look out for yourself. You need to socially distance, wear a mask, stay the heck away from this bug. And young, healthy people may have learned, actually, we can be relatively cavalier. Certainly college students don't seem to be very concerned, and I don't think they're wrong.

Dr. David Katz: It's pretty clear, at this point, if we're honest about this, and it would be lovely if there were zero risk from this bug, there isn't. But to be at some risk of a bad thing happening to you today, all you need to do today is be alive…that life involves some risks. I think college students recognize that there are many far greater risks they face every day. The risk of harm to the average college student from alcohol, or hazings, or driving, is greater than the risk of this particular infection.

Dr. David Katz: So, we're seeing case counts that are rising, we're not seeing casualty counts rise. So far, I pretty much like that trend, and what it suggests to me is we are making considerable progress toward herd immunity. Which by the way, Drew, is a term that's taken on incredible political freight it does not deserve. There's nothing about herd immunity that says, "Throw vulnerable people to the wolves." In fact, herd immunity…it's funny, because it's the political left that's rejecting it at the moment, as if it's somehow sociopathic. It's usually the political left that embraces it, because it's actually rather socialistic.

Dr. David Katz: It's the idea that if I get this infection and get over it, it doesn't just mean that I'm immune and I'm okay — it means I can't give it to you. The concept of herd immunity is I protect you.

Dr. Drew Sinatra: Exactly. Yeah.

Dr. David Katz: The important thing is that when a vaccine campaign works, the reason it works is because it achieves or accelerates herd immunity. You don't vaccinate every last person, you never manage to do that. But the people who do get vaccinated become a dead end that prevents the pathogen from getting to somebody else. So we're protecting one another. That's very socialistic, it's very left on the political spectrum. But we're so polarized now and living in this surreal time that it's actually the political left that looks at herd immunity and says, "No, no, that's sociopathic. That's genocidal." Nothing could be further from the truth.

Dr. David Katz: I hope we get an effective vaccine before too long, I hope it speeds us on our way toward herd immunity. But so far, the trend I'm seeing is high case counts, low casualty counts, health systems, by and large, not overwhelmed. This appears to be true throughout the United States, it appears to be true in Europe. So…worrisome, turbulent, unresolved, and really hard to pierce through the fog of the infodemic to know exactly what's going on — but I'm reasonably optimistic.

Dr. David Katz: Unlike many of my colleagues, who are warning that the second wave is coming and it's going to be worse than the first — I'm not seeing those signs, so I'm hopeful we're far near the end of this than the beginning. And there will be a

light at the end of the tunnel, and it will not be an oncoming train. But we all have to stay tuned. And certainly, because of all the uncertainties, everybody needs to remain vigilant and careful.

Dr. Drew Sinatra: Well, hey, I love that optimism. I mean, there's so many things I want to say about that. Dad, do you want me to lead this off?

Dr. Steve Sinatra: Yeah…I just want to just make two points with Dr. Katz. What I'm hearing you're saying is, do you feel that this virus has attenuated down in invasiveness? In other words, through mutations, through possible immunity, is the invasive nature of the virus, let's say, 2021 going to be less than 2020 or 2019?

Dr. David Katz: Steve, I don't know that there's any clear evidence that the virus itself has mutated in a way that makes it less virulent. It's possible. One of the things that people worried about in the early going in the pandemic is there'd be mutations and things would get worse. We'd wind up with the Andromeda Strain. The reality is that natural selection favors mutations that foster spread. The better that the virus can spread from person to person, the more virus there is around. Those are the genes in the virus that get favored. And so, those are the mutations that would survive.

Dr. David Katz: Usually…you can't know for sure, but usually those are associated with less virulence because if you kill your host, it's not so good for the parasite, either. So highly successful parasites are really good at spreading, but they actually don't tend to kill their hosts. So we would, if anything, expect that mutations would go in the direction you're talking about, less virulence. It's not yet entirely clear, but there's another potential explanation for why we're seeing high case counts and low casualty counts. And that is, those who are very vulnerable to severe infection may have gotten it right at the beginning.

Dr. David Katz: So the virus was spreading before we locked down, before we took precautions as a nation, a lot of people were exposed, and a lot of people who were prone to get very sick because they had no native immunity got very sick. We experienced that with hospital surges, in particular in the Northeast, but other parts of the country, as well. We now know this far into the pandemic that a lot of people, and the estimates in the literature, and this is the peer-reviewed literature, range from a low end of 30% to a high end of 80 or 90% of the population, has some degree of native resistance to this bug from before, Because this is a coronavirus, and it's not the only coronavirus.

Dr. David Katz: There are common cold coronaviruses. They're abbreviated in the literature, CCCs — common cold coronaviruses. Most of us have been exposed, and many people have T lymphocytes that react to SARS CoV 2, because of priming by

common cold coronaviruses. So I don't know that it's a change in the virus, I think it may be more a change in the epidemiology, that the highly vulnerable were affected right at the beginning.

Dr. David Katz: And now people who are getting exposed to this are faring much better, not getting sick. So young, healthy people didn't tend to get sick in the first place, but it may be that older people getting exposed to this now have some degree of native immunity. It may also be that some of the infections we're seeing now are actually re-infection. We do know this bug can re-infect you, which at first sounded like, "Oh my gosh, that's terrible." You can get this potentially deadly infection, and then you're not going to be immune, it can get you again.

Dr. David Katz: No, it doesn't look like that's the case. If you have a severe infection the first time around, you make IgG antibodies, you're robustly defended. If you have a mild infection the first time around, like, for example, college students were likely to do, you actually don't even get a bad enough infection to make IgG antibodies, and you can get re-infected. But it looks like most people who get re-infected have an even milder infection the second time than the first. And I think some of what we're measuring now may very well be that. I think there are a number of elements in epidemiology that explain high case counts, low casualty counts. Viral mutations may be in the mix, but that's less clear.

Dr. Steve Sinatra: One other consideration I had is that the public is very savvy. I mean, the public is smart. I mean, I know this from writing the newsletter at Healthy Directions for years. I mean, I am amazed how much lay people know. So what's been happening over the last several months? Well, vitamin D is in the news, vitamin C is in the news, and zinc. So if we've got more people taking like vitamin D and zinc, targeted nutraceuticals, I'm wondering what impact this has on lowering the complications, lowering the death rate, and stuff like that.

Dr. David Katz: Interesting, yeah. So yeah, well, I mean, the public is smart and not. As I said, I think it's hard for us to know exactly what's going on, and what to believe, and what's true today, and what's the best advice. We're reasonably smart and we're well-educated, and this is our field. So it's really, really tough. But you're right, certainly people are getting lots of information, and if they're sifting through it, they probably know vitamin D supplementation's a good idea, zinc supplementation's a good idea, and other precautions.

Dr. David Katz: What's not as clear to me…and this is interesting timing, we're recording this today. Just last night, I was the MC at the opening ceremony for the Virtual Lifestyle Medicine 2020 Conference. Our friend Dean Ornish was one of the participants, T. Colin Campbell, Caldwell Esselstyn, John McDougall. And then I

was the MC, introducing these legends of lifestyle medicine. And I gave opening remarks, and talked about the acute case for chronic health.

Dr. David Katz: In other words…we've devoted our lives, Steve, to trying to get rid of these chronic diseases people don't need to get — like heart disease, and diabetes, and obesity, and hypertension, so forth. And we have a hard time getting the public's attention because these conditions are chronic. "Oh, I can fix that tomorrow, or next year, or three years from now." People like their gratification immediately. COVID is an acute threat that activates the fight or flight response. COVID tickles the adrenal glands in the ways risk for heart disease tends not to.

Dr. David Katz: "You're going to get diabetes in five years if you don't change your ways." "Oh, Okay." People are blasé, complacent about that. They're not complacent about COVID. So by making these chronic liabilities an acute threat, we do in fact have everybody's attention. I think you're right, I think people are taking precautions, I think they're taking supplements selectively. It's not as clear to me that people have fully embraced the luminous promise of "lifestyle as medicine" in this moment.

Dr. David Katz: I mean, there are jokes about the COVID-19. It's the 19 pounds everybody's gaining in lockdown, because I'm anxious, and frustrated, and I'm worrying all the time, and I'm cooped up, and I'm fed up, and pass the potato chips. To some extent, the trends that we've been able to capture epidemiologically corroborate that people are gaining weight. That's a shame because this is actually the ideal time to say, "The things that I really ought to have been doing anyway to cultivate my vitality over time will help protect me and my loved ones at this time."

Dr. David Katz: So I hope in addition to the supplements, people are thinking about eating well, being active. I don't know whether your audience is particularly enlightened, but I hope the population at large recognizes this is the perfect time to prioritize health, because it is an acute defense against COVID. And, by the way, vitality is the gift that keeps on giving,

Dr. Steve Sinatra: Right, and our audience is privy to the dangers of sugar. I mean, Drew and I have been speaking about that for years. Even the data on the white blood cell activity, the phagocytosis after a sugary meal, and the immune system decline, I mean, it's just incredible. Drew, I had one other question, I'm sorry to ask...

Dr. David Katz: Actually, Steve, if I could just piggyback, I totally agree with you. Actually, there really is a lot of literature. First of all, if you have Type 2 diabetes, which is hyper endemic in the United States and much of the world, and you improve your glycemic control, you can reduce your mortality risk from COVID by a factor of

four. That's massive. That was published both out of China and out of New York City. So, better not to have Type 2 diabetes, but if you have it, you may think, "Oh, woe is me." No, absolutely not. Improving your glycemic control makes a huge difference.

Dr. David Katz: And I've seen a lot of arguments converge around that notion, that improving glycemic control, stabilizing blood insulin levels, and then the way that reverberates to influence the immune system has a massive influence. So if you had to single out just one thing to focus on, that would be right up near the top of the list.

Dr. Steve Sinatra: You're absolutely correct. I agree with you 100%, because that's what I'm talking on radio and TV all the time. I mean, if you have a borderline hemoglobin A1C or a blood sugar of 120, etc., etc. and you lose five, 10, or 15, or 20 pounds and you come back to normal, your risk of COVID-19 complications goes way down.

Dr. David Katz: Plummets, yeah.

Dr. Steve Sinatra: We're on the same page.

Dr. David Katz: Absolutely.

Dr. Steve Sinatra: Drew, the next question I want to ask, Dr. Katz, is this asymptomatic spread. I mean, how true is this age group from 10 to 20, maybe having a little runny nose, maybe a low grade fever, having a robust immune system where all of a sudden you're spreading it to Grandma and Grandpa, but you're asymptomatic at the same time. I mean, how valid or how real is that scenario?

Dr. David Katz: Yeah. The interesting thing is the context. Do kids tend to get asymptomatic infection with this bug? They do, overwhelmingly so. By the way, I think everybody does, actually. It's interesting. We've heard about the very high fatality rate, for example, in elderly people. But even in people over 80 who get SARS CoV 2, close to 80% recover. Now 20% is an extremely high fatality rate. Really, one in five people dying of an infection is really, really bad. But it still means that even if you're over 80, four times out of five, you get over this.

Dr. David Katz: As you move down the age curve, and certainly as you move down the age curve and improve overall health, it looks like the infection fatality rate is a tiny, tiny fraction of a percent. And that's certainly true in healthy kids. So if they get this, they're asymptomatic, most of the time they don't know. And I've argued from the beginning of all of this, that the right response was essentially to match the cure to the disease, if you will, and that means to risk stratify.

Dr. David Katz: But to do that well at the level of a whole population means, first of all, we need grown-ups running the country, people who are concerned, compassionate, and willing to look at the big picture and say, "Differential risk means policies in place to protect the most vulnerable in the mix." So, kids interacting with other kids where everybody's healthy, the precautions are really not all that important. If the virus gets shared back and forth, kids are routinely passing germs back and forth.

Dr. David Katz: If they interact with their healthy parents, generally precautions are not going to be that important either. If, however, the parents have chronic illness, or the grandparents are in the home, everybody's behavior needs to adapt to accommodate the highest risk person in the mix. And so, the good news is, not only do kids tend to get asymptomatic infection, they also seem to have low viral loads and they don't transmit nearly as much as older people who get sick with it. But they can transmit. And certainly, if you've got a kid who's just got a slight sniffle and is cuddling with Grandma, Grandma's at some risk.

Dr. David Katz: So I think families need to be aware of that. I think as a nation, we needed to do a much better job of helping people understand, here's your risk tier — based on your age, your health, here's the risk tier you're in. Other people in your family may be in different risk tiers. And then, we need the national solidarity to say, "If I interact with you and I'm at lower risk than you, I will adapt my behavior to your risk level." I think all of us need to respect the highest risk person in the mix.

Dr. David Katz: I heard a terrible story in the news about an 80-year old man. I guess he needed a beer, went out to a bar, and maybe was waiting in the line to get in or something. But somebody near him who should have been wearing a mask wasn't, and he just asked, "Could you please put on a mask?" And the person got irate and knocked him down, and his head hit the floor, and he died.

Dr. Steve Sinatra: Oh, jeez.

Dr. David Katz: I mean, that's just a terrible testimony about our unwillingness to think in terms of, yeah, we've got one another's back. If you need me to be more careful because you are at high risk, sure, I can accommodate you. We need that to be our native inclination. We also need guidelines that account for that. You always hear about asymptomatic spread in the news, again, the media, looking for drama as doom and gloom, "Oh God, people can get this. They don't even know they had it and they can spread it." And I'm thinking, "Wait a minute. Asymptomatic spread is good news. It means a lot of people who get this infection don't get sick." So we just have to be careful about the people who are vulnerable to having symptomatic disease.

Dr. Steve Sinatra: Right. It's the reframe.

Dr. David Katz: But an asymptomatic disease is not a bad thing. You get it, you get over it, you're immune, and you never even knew you had it. Yay. So I think what's been systematically overlooked in the context of that story is there's actually some really good news in the mix there, too.

Dr. Drew Sinatra: Well, David, I want to go back to the herd immunity piece, because I'm having a hard time wrapping my brain around this. If we can be exposed to this virus more than once, and if we don't build up full immunity towards it, how do we build herd immunity if we're going to continue to be re-exposed to this?

Dr. David Katz: First of all, it does appear, Drew, that there is some degree of immunity. The very first reported case of confirmed reinfection was a 30-year-old guy from Hong Kong who had the virus in the Far East, right at the beginning of all this. Had mild infection, which might have gone undetected, except they were doing such a great job in that part of the world of active surveillance. So if he'd been in the United States, we never would have known he had it in the first place, but they found it.

Dr. David Katz: Months later, he was traveling, wasn't sick, and had a routine check at an airport, I believe, in Spain, and was found to have another strain of the virus. Two different parts of the world, the virus has mutated over time, two distinct strains of the virus. But his second infection was completely asymptomatic. So his first infection was mild, he did have symptoms, he felt like he had a cold, and it was detected because he was in Hong Kong.

Dr. David Katz: His second infection, he was completely unaware. In other words, he did have partial immunity. He had an even milder bout the second time around. Well, if that's the trend, what it means is if you have a severe infection the first time, severe enough to make you at all sick, seek medical care, be hospitalized — you're almost certainly going to make IgG antibodies and be fully immune. If you have an extremely mild infection the first time, it may not go deep enough into your immune system to provoke IgGs antibodies. You may fight it off superficially.

Dr. David Katz: So the first line of defense is just our skin, and secretory IgA in the nasal passages and so forth. And if that's enough, if you can win the war before ever the virus really gets into your bloodstream, you don't make IgG. But what it means is you didn't have a very hard time fighting it off the first time, and it looks like you're prone to have an even milder infection the second time. That's not a big worry. I think the explanation is immunity is different things in different people. If we immunize people, we want them to make IgG antibodies.

If you have a significant symptomatic infection the first time around and recover, you're likely to have IgG antibodies. If you have an extremely mild infection the first time around, you probably won't make IgG antibodies — but you're still more protected for a re-exposure than you were the first time. And, some significant portion of the population has a native resistance to this thing before getting it at all, because of exposure to common cold Coronaviruses.

Dr. David Katz: Herd immunity is the aggregation of all of that. And so, when all of that is enough to drive viral circulation down to near zero, this thing, it doesn't disappear completely. Just like other pathogens, mononucleosis, lots of people are immune, some people are not. It doesn't disappear…but it settles into the background noise of epidemiology, where it's just part of what's out there. And every now and then, somebody gets this infection, it's no longer a pandemic. So herd immunity, we need to think of in terms of that combination.

Dr. David Katz: And yes, there is absolutely a role for a vaccine to play. Those people who are vulnerable, who've carefully shielded themselves away from this, who've not been exposed, who've not been infected, who've not made antibodies, and who can't afford to get this because if they do, they're likely to get very sick — they need to wait for the vaccine. But there are very large segments of the general population in those other categories, who are becoming immune to this one way or another. Sometimes with IgG antibodies, we can measure, sometimes without.

Dr. David Katz: And by the way, this notion of these various flavors of immunity, if you will, this has been confirmed in studies out of Iceland, which has done a massive serial prevalence study. Just recently I saw a paper out of Tokyo showing much the same — more and more evidence to suggest that there really isn't just this one variety of immunity, you either have antibodies or you don't. There are these different versions. So we're moving in the right direction. Yes, reinfection is part of the mix, but it's not as if we remain perennially vulnerable to reinfection that could be more severe than at the beginning. If anything, it looks like it gets less and less severe over time.

Dr. Drew Sinatra: Can you clear up for our audience, what is it going to mean when we have a vaccine available? Is it going to be a one-time thing? Is it going to be multiple times a year? And what will that vaccine do in terms of the immunity piece? Will it completely prevent you from getting coronavirus, or will you still perhaps get coronavirus, but it'll be a milder version of it?

Dr. David Katz: Yeah, so effective vaccines usually do either of those things. You think of the flu vaccine, and there are multiple elements involved in the transmission of an infectious agent, including dose. And so, for example, we've all heard terrible

stories about young, healthy health professionals who've gotten really sick with COVID and even died. Well, what's going on there? Young, healthy people aren't supposed to get really sick.

Dr. David Katz: Well, everything comes down to the exposure dose. You can overwhelm anybody's immune system with a large enough dose. And so, if a young healthy person is doing bronchoscopy, in very sick people in the emergency room or the ICU, the exposure dose to COVID is vastly greater than what you get walking down the street. And that may overwhelm even a young, healthy immune system.

Dr. David Katz: Similarly, you can get vaccinated and it protects you, but if you have a massive exposure dose, it may be enough to infect you anyway. But your antibodies are primed, you will do a far better job fighting off the infection. So, yes, you got infected, but it was milder than it would have been. So that can be one form of vaccine success.

Dr. David Katz: Generally, what you're aiming for, though, is to prime antibodies so that you just don't get infected at all. You repel the virus before it can set up shop in your body, and effective vaccines achieve that. So that's what this is intended to do, and the vaccines that are under investigation are all aimed at producing IgG antibodies, that definitive protection where, when this enemy army confronts the gates of your immune system, it's repelled and can't enter.

Dr. David Katz: But we've never had a vaccine that is completely effective in everybody because the vaccine, however good it is — and we don't know yet because nobody's won this race yet, as far as we can tell, to produce a highly effective SARS CoV 2 vaccine — but when you produce a good vaccine, it still has to interact with your immune system. And here's the rub, the people who most need the protection of a vaccine are least capable of responding to it. That would be people who are both old and sick. They have the weakest immune systems, and so, they have the feeblest antibody response. Very often, we have found they need more, they need a booster dose. For example, with an influenza vaccine, there's actually a higher dose influenza vaccine for older people, to try and boost the antibody response to protect them. And the people who are most vulnerable to flu, it's actually recommended they get two doses of the flu vaccine during any given season.

Dr. David Katz: Your other questions — would this be a one-time thing or a repeat thing? Well, the goal with vaccination is for it to be a one-time thing, and then lasting immunity — which you don't know until you know. Will this protect people? First of all, if this virus is circulating in the epidemiologic background, what level

is that? Is this like flu, where we have to worry about it every year? Is it not as bad as flu? Is it worse than flu?

Dr. David Katz: There's some level where this becomes a worry every year, and we're not going to know how long the protection of the vaccine lasts until we've had that longitudinal experience. I mean, if we're hoping this protects people for five years, let's reconvene five years from now, and you can ask me that question again. I mean, otherwise you're just guessing. So we don't know for sure. For example, the flu is unique because that virus changes. The proteins that wears on its surface change every year, which is why we need a new vaccine every year.

Dr. David Katz: But there is an effort underway to produce a permanent flu vaccine, to identify what are proteins on this virus that don't change every year? Can we redesign the vaccine to target those rather than the H and N protein? So we don't have to get a new flu vaccine every year. That work is underway, it hasn't succeeded yet. That's the hope of SARS CoV 2. The goal would be protect most people from getting infected at all. Those people who get a large exposure dose, at a minimum, make sure that the vaccine helps them have a milder experience than they otherwise would have had. And one vaccine for long-term protection. Those are the goals. But we won't know until somebody wins the race.

Dr. Drew Sinatra: Well, we could talk forever about coronavirus. I mean, I wish we could talk longer, but we need to transition over to the next topic right now. Which is, we'd love it if you could talk about the Self Esteem Brands, and Anytime Fitness partnership that you're a part of now, and what that really means in terms of lifestyle changes, diet, nutrition, and exercise.

Dr. David Katz: Well, I'm really delighted about this. This was a relationship that developed between my company, Diet ID, where we're on a mission to make diet a vital sign, and Anytime Fitness, their CEO, Chuck Runyon and his team at Self Esteem Brands. Chuck is a really interesting guy who's very committed to health promotion. I mean, we would all get along extremely well. And of course, they're wrestling with the reality of their business at the moment, which is can people come back to gyms, yes or no? On again, off again, depends on the state.

Dr. David Katz: And so, what can be done while we're waiting to get back to some semblance of life as we knew it before? So we've been interacting in that space, and they've developed a campaign, which I love. Again, last night at the opening of the Lifestyle Medicine 2020 Conference, I talked about the acute case for chronic health. Well, what they call it at Anytime Fitness and Self Esteem Brands is "fight it with fitness." I love that. The idea that fitness is its own prize, it's its own goal.

And certainly people who go to the gym are interested in fitness for fitness' sake.

Dr. David Katz: But they basically have launched a social media campaign to help people realize, actually, the things that you're worried about right now — including the pandemic, and the stress of this fraught political season, whatever it is — you can fight it with fitness. I mean, physical activity is a great stress reliever. It's my go-to…

Dr. Drew Sinatra: It is.

Dr. David Katz: ...for stress relief, it really is. This is really, I think, the beauty of this, because, again, Americans, and maybe everybody, likes their gratification immediately. You can alter some of the key indicators of your vascular health and your immune system response with a single good meal — avoiding all that excess sugar, for example. And you can do it with a single bout of exercise, as well. And Steve, of course, you're familiar with endothelial function as an acute dynamic measure of vascular health — it can change, one good meal versus one bad meal, one walk versus time spent on the couch.

Dr. David Katz: And so, that's really important because, obviously, the delivery of oxygen, nutrients has a major influence on the immune system. But we also have more direct measures of immune system function that are equally responsible...responsive, rather, to one good meal or one bout of exercise, like chemotaxis. These are usually cell culture studies where you take cultured white blood cells, and you stimulate them with an antigen and you see how briskly they respond. And if you harvest those, you basically take a blood sample after a bout of exercise, as opposed to after a couple hours spent on the couch, you actually get a better white blood cell response following the exercise.

Dr. David Katz: So that's what we're looking at together, is what can we do to help reach people digitally, virtually, while waiting to get everybody back in the gym? Because that's coming, that'll happen. They're doing all sorts of really interesting things, I think they've made some of their sites available for people to essentially get exercise equipment on loan, like you would get a library book. I think that's really cool. Sorry, we're not going to convene at the gym — but you can come by the gym, pick up the equipment that you would have been using here, and use it in the safety of your own home. I think that's really nice.

Dr. David Katz: We're working together to develop a full array of coaching and guidance delivered digitally. And people can learn more about their specific campaign at **fightitwithfitness.org.** But that's the gist of this, and we're looking to evolve this over time. And then, ideally, this campaign will remain in place even when

everybody is back to the gym, doing everything they were doing before. So we've got the combination of ongoing coaching, support, education…making this more comprehensive. It's not just physical activity, it's not just diet. It's the holistic approach to health promotion.

Dr. David Katz: So, I love that they're moving in that direction. I think it's a really responsible, mature view of what fitness can and should be, you know? All too often I think it's as simple as, "How much weight can I lift?" Okay, that's great. But there's so much more to the value proposition of fitness than most people realize, and I think they're doing a great job of spreading that gospel.

Dr. Drew Sinatra: Well, David, thank you so much for sharing that. I mean, I can share with our listeners that I've been doing an online circuit training, and I've been doing it with my kids, in fact. It's something that has brought so much joy to my life because, like you, I use exercise as a way to reduce stress, and we know it reduces a lot of these comorbidities or at least the risk factors associated with them. So it's really what a lot of people need to be doing more of these days, is exercise. And if you can't go outside, well, then you can do it inside your home.

Dr. Drew Sinatra: Well, David, thank you so much for taking the time today to talk with us about all these topics. Greatly appreciated.

Dr. David Katz: Well, first of all, Drew, Steve…thank you. It really is a pleasure joining you guys in conversation. That's what it feels like, and I know we're recording this and other people are watching, but it just feels like we're getting together, having a conversation. And it's really a pleasure, so thank you very much.

Dr. Drew Sinatra: Well, Dr. Katz, for our **Wellness Wisdom** segment, if you had one big "pearl" of wisdom to share with our audience for maintaining mental health during the pandemic, what would it be?

Dr. David Katz: I think I would circle back to the beginning of this discussion, Drew, and say, it's pause and reflect. I think we hurt ourselves and one another when we rush to judgment. Nobody wants their point of view rejected, and we benefit when we listen to opinions we don't already happen to own. It's incredibly calming to say, "I'm going to listen before I react, I'm not going to have this reflex of, 'Wait a minute. That's not the point of view sanctioned by my camp.'" Because the more we do that, the more we drive one another to the polls. The more I reject your point of view, the more you're going to reject my point of view.

Dr. David Katz: And then we wind up isolated, alienated, frustrated. It's hard to sleep, it's hard to concentrate, and then our stress just mounts up and up. I would say the one bit of advice I would offer in this fraught, polarized, divisive time, is recognize

that everybody's put together just like you are. Everybody loves their family, everybody wants to be safe and well and get through this, and people are fundamentally good. Steve, you said people are fundamentally smart.

Dr. David Katz: So, let us all do a better job taking a deep breath, pausing, and reflecting. Let's listen to one another before we react. I don't know that we're all going to wind up singing Kumbaya, but, I mean, if we could come a little closer together in the middle and not be quite so estranged from one another, there's tremendous comfort and tremendous strength in human solidarity. And I think we can all make a small contribution to that.

Dr. Steve Sinatra: Very well said.

Dr. Drew Sinatra: Yeah, that's beautiful, David. I've got to say that I've been thinking, too, about tolerance. We need more tolerance for one another, just like we need to improve our immune tolerance, we need tolerance as a society.

Dr. David Katz: Yeah, that's a great analogy. Exactly right, yeah. A little bit of immunity to opinions we don't already own, so that we can process them effectively. Amen to that, Drew.

Dr. Drew Sinatra: All right. Well, thanks again for coming on the show.

Dr. David Katz: Thanks for having me. Stay well.

Dr. Steve Sinatra: It was a real pleasure to have the discussion with you. It was really great.

Dr. David Katz: Likewise, Steve. Thank you.

Dr. Drew Sinatra: That's our show for today, folks. If you have a question or an idea for a show topic, please send us an email or share a post with us on Facebook. Remember, if you like what you heard today and you want to be an active member of the **Be HEALTHistic** community, subscribe to our podcast at **BeHealthisticPodcast.com**, or on Apple Podcasts, or wherever you download your favorites. You can also find more great content and information from us and the Healthy Directions team at HealthyDirections.com.

Dr. Drew Sinatra: I'm Dr. Drew Sinatra.

Dr. Steve Sinatra: And I'm Dr. Steve Sinatra.

Dr. Drew Sinatra: And this is **Be HEALTHistic**.

Narrator: Thanks for listening to **Be HEALTHistic**, powered by our friends at Healthy Directions, with Drs. Drew and Steve Sinatra. See you next time.