Give me 50 Minutes, I'll Tell Everything You Need to Know About LONG COVID Transcript

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Introduction to Long COVID Comorbidities

One of the problems that we see with not One of the problems that we see with not all, but some specialty clinics is they all, but some specialty clinics is they may even run the tests, but they'll find may even run the tests, but they'll find positives and say, "Well, that's normal positives and say, "Well, that's normal for people." It's not normal if you're for people.

Channel Intro and Long COVID Overview

" It's not normal if you're sick and not getting better to have sick and not getting better to have Welcome to the channel. I'm Dr. A. I've Welcome to the channel. I'm Dr. A. I've been researching and teaching in the been researching and teaching in the integrative and naturopathic communities integrative and naturopathic communities for 30 plus years now and seeing for 30 plus years now and seeing patients a long time in the chronic patients a long time in the chronic illness space and I use this channel to illness space and I use this channel to answer questions about those topics.

answer questions about those topics. Long COVID recovery and why is it taking Long COVID recovery and why is it taking so long? It seems like a glacier trying so long? It seems like a glacier trying to heal. Well, there's a number of to heal. Well, there's a number of reasons, but the first thing is that reasons, but the first thing is that long COVID is a constellation of signs long COVID is a constellation of signs and symptoms that are different amongst and symptoms that are different amongst different people, but what is in different people, but what is in common with them is they have COVID in the with them is they have COVID in the background and at some point after they background and at some point after they recovered from the acute COVID recovered from the acute COVID infection, they wound up with something infection, they wound up with something in the neighborhood of a chronically in the neighborhood of a chronically fatiguing illness, possibly brain fog, fatiguing illness, possibly brain fog, possibly chronic pain that comes up, possibly chronic pain that comes up, possibly organ dysfunction, possibly possibly organ dysfunction, possibly endocrine dysfunction, and on and on.

endocrine dysfunction, and on and on. There's many different lists that you There's many different lists that you can look up about long COVID, but it's can look up about long COVID, but it's basically a bodywide fatiguing illness.

basically a bodywide fatiguing illness.

Why Recovery Takes So Long

So, one of the biggest reasons why So, one of the biggest reasons why people have a long, protracted people have a long, protracted recovery from long COVID is the parts recovery from long COVID is the parts that sometimes, now not always, but that sometimes, now not always, but sometimes these other parts that we call sometimes these other parts that we call comorbidities are not looked at. And so, comorbidities are not looked at.

Endocrine and Hormonal Issues

And so, what I want to do in this brief video is what I want to do in this brief video is tell you what those comorbidities are. tell you what those comorbidities are.

These are very worth looking at in These are very worth looking at in regard to testing. And then, as another regard to testing. And then, as another commenter brought up last week on one of commenter brought up last week on one of the videos, it's not just about testing.

the videos, it's not just about testing. Someone commented, they say, "Oh yeah, Someone commented, they say, "Oh yeah, test, test, test, and then don't do test, test, test, and then don't do anything for me." I'm sorry that that anything for me." I'm sorry that that happened some places in medicine, but happened some places in medicine, but that's not what we do. So, what you need that's not what we do. So, what you need to do is you need to get these things to do is you need to get these things assessed and tested, and then you need assessed and tested, and then you need to find the practitioners actually going to find the practitioners actually going to do something about them so that it to do something about them so that it will help speed up the recovery process.

will help speed up the recovery process. And these don't go in any particular And these don't go in any particular order, but the first thing is your order, but the first thing is your endocrine system. The most common areas endocrine system. The most common areas we see in long COVID patients endocrine we see in long COVID patients endocrine is hormonal. Those can be things such as is hormonal. Those can be things such as thyroid deficiency or resistance, so thyroid deficiency or resistance, so that needs to be tested for. Again, we that needs to be tested for. Again, we have longer form content on that. You have longer form content on that. You can get derangements in your can get derangements in your reproductive hormones, male or female.

reproductive hormones, male or female. That can be decrease in testosterone, That can be decrease in testosterone, men or women, increase in estrogen, men or women, increase in estrogen, which can create problems in males or which can create problems in males or females, and any number of other things females, and any number of other things that go on there. So, checking the that go on there. So, checking the endocrine system is critically important endocrine system is critically important because if your thyroid has become because if your thyroid has become resistant or slowed down, and it wasn't resistant or slowed down, and it wasn't a problem before COVID, sometimes they a problem before COVID, sometimes they won't check it when you have long COVID.

won't check it when you have long COVID.

Toxic Exposures and Environmental Sensitivities

But if your thyroid slowed down because But if your thyroid slowed down because you have long COVID, you have to treat you have long COVID, you have to treat that to help you pull out of the that to help you pull out of the problem. The next would be toxic problem. The next would be toxic influences. I've seen people become very influences. I've seen people become very sensitive to mold mycotoxins in the sensitive to mold mycotoxins in the environment that weren't sensitive environment that weren't sensitive before they had COVID. I've seen people before they had COVID. I've seen people who have exposures, ongoing exposures to who have exposures, ongoing exposures to metals or chemicals. All of these things metals or chemicals. All of these things can be assessed. Are the tests perfect?

can be assessed. Are the tests perfect? No, they're not perfect, but it should No, they're not perfect, but it should be something if your case is not getting be something if your case is not getting better that you maybe find somebody who better that you maybe find somebody who does environmental medicine to look into does environmental medicine to look into toxicities. And again, it can be toxicities. And again, it can be environmental things like mold environmental things like mold mycotoxins, other biotoxin illness, mycotoxins, other biotoxin illness, chemicals, or metals that go on, and you chemicals, or metals that go on, and you weren't sensitive before COVID, but now weren't sensitive before COVID, but now you are after. Quick interruption from you are after. Quick interruption from the regular video. If you are a the regular video. If you are a healthcare practitioner and you have an healthcare practitioner and you have an interest in this topic, we're going to interest in this topic, we're going to put a link in the description below to put a link in the description below to my CE website, and specifically the my CE website, and specifically the webinar that is about this topic. So, webinar that is about this topic. So, see you over there. Thanks. The next see you over there. Thanks.

Infections and Autoimmune Triggers

The next area would be infectious {slash} area would be infectious {slash} autoimmune, two areas of the immune autoimmune, two areas of the immune system. So, in the autoimmune area, we system. So, in the autoimmune

area, we know by research now that people during know by research now that people during and after COVID infection have developed and after COVID infection have developed positive antinuclear antibodies that positive antinuclear antibodies that indicate autoimmunity, positive thyroid indicate autoimmunity, positive thyroid antibodies, positive other antibodies, positive other autoantibodies. The bottom line there is autoantibodies. The bottom line there is maybe you didn't have it before, and it maybe you didn't have it before, and it was never tested, but you have long was never tested, but you have long COVID, you're not getting better. This COVID, you're not getting better. This is something that should be looked at.

is something that should be looked at. What we do in people, regardless of What we do in people, regardless of their history, they didn't have them, their history, they didn't have them, did have them, whatever, we will screen did have them, whatever, we will screen the autoimmune markers, generally the the autoimmune markers, generally the ANA family, which you if it's positive, ANA family, which you if it's positive, they can do the other tests, the they can do the other tests, the rheumatic autoimmune families, the rheumatic autoimmune families, the thyroid autoimmune families, and just thyroid autoimmune families, and just look at them broadly, very, very look at them broadly, very, very critical, because if you have now a critical, because if you have now a comorbid autoimmunity that you didn't comorbid autoimmunity that you didn't used to have, that can be another used to have, that can be another explanation for why you're not getting explanation for why you're not getting better. The other infectious end of the better. The other infectious end of the immune system, and we know now lots of immune system, and we know now lots of people, so almost 100% of your humanity people, so almost 100% of your humanity by the age of 20 is exposed to chronic by the age of 20 is exposed to chronic viral things like Epstein-Barr and other viral things like Epstein-Barr and other stuff. What we see in the research is stuff. What we see in the research is that COVID has a way of unmasking these that COVID has a way of unmasking these and reactivating them. So, again, if and reactivating them. So, again, if you're fatigued, you got headaches, you you're fatigued, you got headaches, you got other stuff like that, and nobody got other stuff like that, and nobody has checked for chronic Epstein-Barr has checked for chronic Epstein-Barr infection, the other things that we infection, the other things that we check for other chronic infections, check for other chronic infections, Mycoplasma pneumoniae is very common, Mycoplasma pneumoniae is very common, Chlamydia pneumoniae, that's the one for Chlamydia pneumoniae, that's the one for the lungs, not the other one, and then the lungs, not the other one, and then we generally also will run a we generally also will run a antistreptolysin antibody ASO to see if antistreptolysin antibody ASO to see if there's any reactivity to chronic strep there's any reactivity to chronic strep going on. You can test for a whole bunch going on. You can test for a whole bunch of other stuff, but those are your of other stuff, but those are your basics. Now, if you had a chronic basics. Now, if you had a chronic infection before like Lyme or Lyme infection before like Lyme or Lyme co-infections, and now you have long co-infections, and now you have long COVID, please make sure you check back COVID, please make sure you check back up on those that you had before. Then, up on those that you had before.

Mitochondrial Dysfunction and Energy Loss

Then, the final one, which is a little harder the final one, which is a little harder to assess, are mitochondrial to assess, are mitochondrial dysfunctions, and you can kind of assume dysfunctions, and you can kind of assume anybody with a fatiguing non-healing anybody with a fatiguing non-healing illness has mitochondrial dysfunction.

illness has mitochondrial dysfunction. And the bottom line with that, there are And the bottom line with that, there are some kind of expensive, high-tech sort some kind of expensive, high-tech sort of tests you can do, which are great, of tests you can do, which are great, and you that's fine to do, but generally and you that's fine to do, but generally speaking, everybody with a non-healing speaking, everybody with a non-healing illness needs mitochondrial support. And illness needs mitochondrial support. And I'm not going to go into what those I'm not going to go into what those things are cuz we have tons of content things are cuz we have tons of content on supporting the mitochondria and on supporting the mitochondria and hyperbaric and red light therapy and hyperbaric and red light therapy and nutrients that support it. So, just go nutrients that support it. So, just go look at that other content, but that's look at that other content, but that's another big area. So, the first thing, another big area. So, the first thing, if things aren't getting better, is if things aren't getting better, is think about the undiagnosed think about the undiagnosed comorbidities. And as I said, the comorbidities.

Inflammation, Clotting, and Nervous System Effects

And as I said, the biggest thing that happens is people biggest thing that happens is people that go into a clinic, and they'll say, that go into a clinic, and they'll say, "Well, you didn't have any thyroid or "Well, you didn't have any thyroid or autoimmune problems before, so we're not autoimmune problems before, so we're not going to check that." Or we'll do just going to check that." Or we'll do just rudimentary testing. Well, now you do.

rudimentary testing. Well, now you do. If you don't test, you don't know. So, If you don't test, you don't know. So, make sure that you get these areas make sure that you get these areas tested if you're not getting better. And tested if you're not getting better. And then, find a practitioner who's going to then, find a practitioner who's going to do something about the testing. One of do something about the testing. One of the problems that we see with not all, the problems that we see with not all, but some specialty clinics is they may but some specialty clinics is they may even run the tests, but they'll find even run the tests, but they'll find positives and say, "Well, that's normal positives and say, "Well, that's normal for people." It's not normal if you're for people." It's not normal if you're sick and not getting better to have sick and not getting better to have The most important thing I want to take The most important thing I want to take note of at the beginning is I want note of at the beginning is I want people to have hope because long COVID people to have hope because long COVID is a massive event in the world now, is a massive event in the world now, and there are ways to heal. There are and there are ways to heal. There are ways to crawl out of the hole that ways to crawl out of the hole that you're in, and so there is hope. It just you're in, and so there is hope. It just sometimes takes longer than you think it sometimes takes longer than you think it does because the problems are all does because the problems are all connected, and they all talk to each connected, and they all talk to each other. So, they need some help in the other. So, they need some help in the world of chronic illness care. But, I world of chronic illness care. But, I want to get into a few things to want to get into a few things to consider in this little deeper dive consider in this little deeper dive looking at long COVID and why the looking at long COVID and why the symptoms might be either silent or symptoms might be either silent or you're disconnected from I feel this you're disconnected from I feel this way. I don't know why that's going on in way. I don't know why that's going on in my body. But, I want to zero in on a few my body. But, I want to zero in on a few real big things here that I hear about real big things here that I hear about daily from people. The first is a loss daily from people. The first is a loss of energy. So, a lot of people with long of energy. So, a lot of people with long COVID can have a chronic fatiguing state COVID can have a chronic fatiguing state where maybe before they weren't the where maybe before they weren't the healthiest, but now they're just sort of healthiest, but now they're just sort of really, you know, they they just never really, you know, they they just never feel rested. That's really common. That feel rested. That's really common. That comes from a number of things. But, one comes from a number of things. But, one of the things that it comes from is a of the things that it comes from is a collusion between getting enough oxygen collusion between getting enough oxygen in, respiring enough carbon dioxide out, in, respiring enough carbon dioxide out, and operating the mitochondria on an and operating the mitochondria on an even keel, the the right speed. If your even keel, the the right speed.

Symptoms and Functional Impact of Long COVID

If your mitochondria are slower, you feel more mitochondria are slower, you feel more fatigued. You feel more tired. This is fatigued. You feel more tired. This is very normal. So, mitochondria are one very normal. So, mitochondria are one big area that have to be looked at and big area that have to be looked at and supported. And a lot of times it's more supported. And a lot of times it's more of a clinical trial to give you things of a clinical trial to give you things that may be helpful to the mitochondria, that may be helpful to the mitochondria, okay? Those things could be okay? Those things could be mitochondrial priming substances. We use mitochondrial priming substances. We use medically methylene blue. We use medically methylene blue. We use uh NAD, nicotinamide adenine uh NAD, nicotinamide adenine dinucleotide or precursors like dinucleotide or precursors like nicotinamide riboside or NMN. We use nicotinamide riboside or NMN. We use other things for the mitochondria.

other things for the mitochondria. There's tons of things that help them There's tons of things that help them out. But, you clinically give it a try out. But, you clinically give it a try and see if the body starts to work.

and see if the body starts to work. Well, what else can affect your energy Well, what else can affect your energy through the mitochondria? What if your through the mitochondria? What if your hormone system gets messed up? So, your hormone system gets messed up? So, your thyroid can be very important because thyroid can be very important because you can get new problems you never had you can get new problems you never had in your

whole life before, and you need in your whole life before, and you need to look at these other inhibitory areas to look at these other inhibitory areas like thyroid antibodies, reverse T3, and like thyroid antibodies, reverse T3, and then T3, T4, TSH, etc. And that's then T3, T4, TSH, etc. And that's because your thyroid runs your metabolic because your thyroid runs your metabolic rate, which is the speed of your rate, which is the speed of your mitochondria. So, very important there.

mitochondria. So, very important there. The next is your adrenal hormone output, The next is your adrenal hormone output, and that is cortisol primarily that we and that is cortisol primarily that we look at as screening. Different cortisol look at as screening. Different cortisol tests can be done, but a lot of people tests can be done, but a lot of people with uh long COVID will either have very with uh long COVID will either have very low or maybe elevated cortisol, and that low or maybe elevated cortisol, and that needs to be sorted out with blood tests.

needs to be sorted out with blood tests. The next thing is which is not commonly The next thing is which is not commonly looked at, but should be, are your looked at, but should be, are your primary reproductive hormones.

primary reproductive hormones. Testosterone, men or women, estrogens, Testosterone, men or women, estrogens, men or women, they're just tested a men or women, they're just tested a little differently. And then little differently. And then progesterone, men or women. Usually progesterone, men or women. Usually androgens like testosterone, you also androgens like testosterone, you also check DHEA. Why do I say that men or check DHEA. Why do I say that men or women? Because we both, males and women? Because we both, males and females, use all of those hormones, we females, use all of those hormones, we just use them in different ratios and just use them in different ratios and stuff. If your androgens, your stuff. If your androgens, your testosterone or DHEA or something have testosterone or DHEA or something have crashed, male or female, you will not crashed, male or female, you will not heal normal. We've known this in chronic heal normal. We've known this in chronic illness medicine for a long time. It's illness medicine for a long time. It's very common for androgens to crash when very common for androgens to crash when you've been very sick. If your estrogen you've been very sick.

Movement, Diet, and Hydration Support

If your estrogen progesterone, male or female, it's out progesterone, male or female, it's out of balance, testosterone's down, of balance, testosterone's down, estrogen's high, you become more estrogen's high, you become more inflamed, men or women, it doesn't inflamed, men or women, it doesn't matter, and the neurological matter, and the neurological inflammation will go on, etc. So, you inflammation will go on, etc. So, you want to have not just your thyroid and want to have not just your thyroid and adrenals looked at, you also want to adrenals looked at, you also want to take a look at uh your reproductive take a look at uh your reproductive hormones as well. They all need help hormones as well. They all need help probably, especially the longer that probably, especially the longer that you've been sick. The other way you can you've been sick. The other way you can look at these things I'm talking to you look at these things I'm talking to you about is these might be areas to turn about is these might be areas to turn over rocks and look under if you've over rocks and look under if you've gotten some help with your long COVID, gotten some help with your long COVID, but you're not getting where you feel but you're not getting where you feel like you need to go. Other things that like you need to go. Other things that that can affect your energy uh beyond that can affect your energy uh beyond just your mitochondria slowing down just your mitochondria slowing down would be an increase in sensitivity, would be an increase in sensitivity, maybe exposure, but sensitivity to maybe exposure, but sensitivity to toxicants in your body, toxins. See, a toxicants in your body, toxins. See, a lot of people didn't have any trouble lot of people didn't have any trouble before COVID, and now they're uh more before COVID, and now they're uh more sensitive to mold mycotoxins or sensitive to mold mycotoxins or chemicals in their environment or chemicals in their environment or metals. So, they'll have a mast cell metals. So, they'll have a mast cell activation that starts after or with activation that starts after or with long COVID, multiple chemical long COVID, multiple chemical sensitivity, all that stuff. That's sensitivity, all that stuff. That's another big thing. People say, "Well, another big thing. People say, "Well, why is this going on at same time?" It's why is this going on at same time?" It's because those things are sensitivity because those things are sensitivity levels that your body either gets levels that your body either gets symptoms to or doesn't. So, mast cell symptoms to or doesn't. So, mast cell activation can either not be present activation can either not be present before COVID and then present after or before COVID and then present after or present at a low level you don't notice present at a low level you don't notice and suddenly your body's just reacting and suddenly your body's just

reacting to everything. It's another reason it to everything. It's another reason it can really drag you down and make your can really drag you down and make your case much more complex because now you case much more complex because now you have chemical sensitivities, mast cell have chemical sensitivities, mast cell activation, all of those things that you activation, all of those things that you don't want, right? Another thing that don't want, right? Another thing that normally is looked at if you're getting normally is looked at if you're getting checked out for long COVID, or really checked out for long COVID, or really you should make sure it was, are the you should make sure it was, are the inflammatory markers in your vascular inflammatory markers in your vascular system and just globally in your body.

system and just globally in your body. So, some of these that we see that will So, some of these that we see that will trend up would be sedimentation rate trend up would be sedimentation rate and/or the C-reactive protein, the CRP, and/or the C-reactive protein, the CRP, LDH, LDH, LDH, state dehydrogenase, common thing on state dehydrogenase, common thing on chemistry panels to look at. Sometimes chemistry panels to look at. Sometimes alkaline phosphatase will go up. And alkaline phosphatase will go up. And then also other things that previously then also other things that previously we only associated with, you know, we only associated with, you know, clotting and other inflammation, be like clotting and other inflammation, be like fibrinogen and then the D-dimer, those fibrinogen and then the D-dimer, those can go up in people. They should just be can go up in people. They should just be ruled out, check, make sure. And then ruled out, check, make sure. And then there's other in global inflammatory there's other in global inflammatory markers like ferritin can go up, etc. We markers like ferritin can go up, etc. We normally look at all of these with normally look at all of these with somebody just as a baseline to make sure somebody just as a baseline to make sure we're not missing that, "Oh gee, you we're not missing that, "Oh gee, you know, their fibrinogen is elevated, know, their fibrinogen is elevated, their D-dimer is elevated. We need to their D-dimer is elevated. We need to watch, make sure they're not having watch, make sure they're not having microclots or macroclots. Need to do microclots or macroclots. Need to do something about that till we get the something about that till we get the inflammation down." And then those inflammation down." And then those things go back to normal. So, a lot of things go back to normal. So, a lot of those things are surrogate markers that those things are surrogate markers that we're winning with long COVID when those we're winning with long COVID when those other inflammatory labs go down. And you other inflammatory labs go down. And you might say, "Well, how could that affect might say, "Well, how could that affect me in the way I feel?" Well, there's a me in the way I feel?" Well, there's a number of ways they can affect you in number of ways they can affect you in the way that they feel, but the most the way that they feel, but the most dangerous thing that we are concerned dangerous thing that we are concerned about is the clotting spectrum.

about is the clotting spectrum. Obviously, if you get a big clot like a Obviously, if you get a big clot like a pulmonary embolism or some other thing, pulmonary embolism or some other thing, you'll be in the hospital, you know that you'll be in the hospital, you know that right away. But, there's a lot of papers right away. But, there's a lot of papers coming out now on micro clotting. And coming out now on micro clotting. And so, micro clotting can go on and it so, micro clotting can go on and it might slowly affect areas where there's might slowly affect areas where there's very sensitive vasculature. Your eyes very sensitive vasculature. Your eyes are one area, your kidneys are another are one area, your kidneys are another area, terminal blood vessels, fingers, area, terminal blood vessels, fingers, toes, you know, feet and hands, stuff toes, you know, feet and hands, stuff like that. Lots of areas, maybe even the like that. Lots of areas, maybe even the brain. So, this is why I always check brain. So, this is why I always check all of these inflammatory markers all of these inflammatory markers including the cardiovascular ones including the cardiovascular ones because if somebody has elevated general because if somebody has elevated general inflammatory markers, but the inflammatory markers, but the cardiovascular ones are elevated, we cardiovascular ones are elevated, we need to give them things to make sure need to give them things to make sure that they're not going to clot or they that they're not going to clot or they have the least chance of clotting until have the least chance of clotting until we work on the bigger issue of the long we work on the bigger issue of the long COVID syndrome, get the inflammation to COVID syndrome, get the inflammation to go down. And so, the nervous system go down. And so, the nervous system obviously controls everything. The obviously controls everything. The nervous system, we need to understand nervous system, we need to understand and this is in the neurology literature.

and this is in the neurology literature. This is not just some idea out there. This is not just some idea out there. COVID can affect the nervous system the COVID can affect the nervous system the same way a head trauma

does. And so, same way a head trauma does. And so, neurologists writing about this will neurologists writing about this will say, "COVID and long COVID can be the say, "COVID and long COVID can be the same neurological pathology as a same neurological pathology as a traumatic brain injury. But, people traumatic brain injury. But, people don't realize it because they didn't hit don't realize it because they didn't hit their head. They had COVID." That is not their head. They had COVID." That is not good because traumatic brain injuries good because traumatic brain injuries affect everything in your body. They affect everything in your body. They create chronic illness, they create all create chronic illness, they create all sorts of stuff and they're very slow to sorts of stuff and they're very slow to treat often. So, if you're getting treat often. So, if you're getting frustrated, we we all understand that, frustrated, we we all understand that, but the traumatic brain injury part of but the traumatic brain injury part of COVID as an event is something that COVID as an event is something that often gets overlooked. We we don't think often gets overlooked. We we don't think about how inflammatory that is and how about how inflammatory that is and how deregulating. So, that then can lead you deregulating. So, that then can lead you to changes in sensitivity of pain. You to changes in sensitivity of pain. You can get more pain. It can throw your can get more pain. It can throw your sleep off. It can make you more anxious sleep off. It can make you more anxious or depressed or if you have a little uh or depressed or if you have a little uh you know OCD or inattentive issues, it you know OCD or inattentive issues, it makes it worse sometimes. Anything your makes it worse sometimes. Anything your brain does, it may it worse. But, your brain does, it may it worse. But, your brain also helps you control other stuff brain also helps you control other stuff we talked about like your metabolic rate we talked about like your metabolic rate and your hormone. So, if the feedback is and your hormone. So, if the feedback is messed up between your peripheral system messed up between your peripheral system helping your metabolic rate, whether helping your metabolic rate, whether it's through hormones or uh other it's through hormones or uh other nutrient manipulation, etc., and your nutrient manipulation, etc., and your brain is involved in that, you could see brain is involved in that, you could see that harming your brain is going to have that harming your brain is going to have a big downstream effect. And in my a big downstream effect. And in my experience, getting the neurological experience, getting the neurological inflammation healed up and and back on inflammation healed up and and back on track is one of the core things you have track is one of the core things you have to do, but it's very slow for for some to do, but it's very slow for for some people with long COVID as well. I want people with long COVID as well. I want to remind you that although it may take to remind you that although it may take some searching, it may take some looking some searching, it may take some looking around, if you're not getting the help around, if you're not getting the help you need with long COVID, find people you need with long COVID, find people who are chronic illness-oriented in the who are chronic illness-oriented in the health-care space. They'll understand health-care space. They'll understand the language of chronic illness better the language of chronic illness better and they'll understand the language of and they'll understand the language of what creates long COVID better, and you what creates long COVID better, and you can be helped. As far as top symptomatic can be helped. As far as top symptomatic areas or top presentations, there's four areas or top presentations, there's four big ones, and then they can break down big ones, and then they can break down into a bunch of other ones. First one is into a bunch of other ones. First one is fatigue. A lot of people will liken long fatigue. A lot of people will liken long COVID to you know chronic fatigue COVID to you know chronic fatigue syndrome, CFS, has a lot of the same syndrome, CFS, has a lot of the same features. The next one, which is very features. The next one, which is very disturbing, is what we call brain fog.

disturbing, is what we call brain fog. Now, a lot of people have experienced Now, a lot of people have experienced brain fog from certain drug therapies.

brain fog from certain drug therapies. They might get it from chemotherapy or They might get it from chemotherapy or certain other things. But, if you certain other things. But, if you weren't having slow mentation, brain fog weren't having slow mentation, brain fog before and now you have long COVID and before and now you have long COVID and you feel like you have brain fog, it's you feel like you have brain fog, it's very, very frustrating because it's a very, very frustrating because it's a lot like the feeling as if you got a lot like the feeling as if you got a concussion or something. Your brain is concussion or something. Your brain is not working like it it ought to. The not working like it it ought to. The next are pain syndromes, and this can be next are pain syndromes, and this can be either peripheral pain where my muscles either peripheral pain where my muscles hurt or my digestive system is achy, or hurt or my digestive system is achy, or it can be central pain where my pain it can be central pain where my pain apparatus in the brain is just thrown apparatus in the brain is just thrown off because of inflammation, my pain off because of inflammation, my pain threshold has changed. So, I hurt more threshold has changed. So, I hurt more

than I used to. And then the last one, than I used to. And then the last one, which is a large area, would be other which is a large area, would be other neurological symptoms. Now, this could neurological symptoms. Now, this could break down into direct neurological break down into direct neurological problems, meaning things such as problems, meaning things such as peripheral neuropathy or changes in peripheral neuropathy or changes in taste and smell or other things like taste and smell or other things like that, or it could break down into more that, or it could break down into more of a neuro neuroemotional type of the of a neuro neuroemotional type of the change where now you're not sleeping change where now you're not sleeping well or now you're more anxious or now well or now you're more anxious or now you're more depressed or any number of you're more depressed or any number of other things, so neurological things.

other things, so neurological things. And so, what I want to look at here in And so, what I want to look at here in the first video is when somebody comes the first video is when somebody comes either, you know, I am directly working either, you know, I am directly working with them or I'm consulting clinic or with them or I'm consulting clinic or teaching them, you know, what what's the teaching them, you know, what what's the pathway to go through here. The first pathway to go through here. The first thing that we do, and it's stepwise, the thing that we do, and it's stepwise, the first thing is to rule out pathologies.

first thing is to rule out pathologies. So, for whatever reason, it might not So, for whatever reason, it might not even had anything to do with COVID, but even had anything to do with COVID, but people are allowed to have more than one people are allowed to have more than one reason for medical problems. What we reason for medical problems. What we know is people with long COVID can have know is people with long COVID can have pathological dysfunction. So, the first pathological dysfunction. So, the first thing is to rule out pathologies, thing is to rule out pathologies, meaning let's make sure your kidneys are meaning let's make sure your kidneys are functioning. Let's make sure your liver functioning. Let's make sure your liver is functioning. Let's make sure you is functioning. Let's make sure you haven't developed some new autoimmune haven't developed some new autoimmune disease. Let's make sure your disease. Let's make sure your cardiovascular system and your pulmonary cardiovascular system and your pulmonary system are not suffering in some way system are not suffering in some way pathologically, because we don't want to pathologically, because we don't want to launch into treating a whole bunch of launch into treating a whole bunch of other things which may still need to be other things which may still need to be treated and overlook the fact that you treated and overlook the fact that you have suffered lower kidney function or have suffered lower kidney function or overlook the fact that you have a overlook the fact that you have a neuropsychiatric disorder that's pretty neuropsychiatric disorder that's pretty hardcore that we need to get under hardcore that we need to get under control or overlook the fact that you control or overlook the fact that you have some restrictive disease in your have some restrictive disease in your lung or something like that. But a lot lung or something like that. But a lot of people come to other providers of people come to other providers because they are frustrated and they because they are frustrated and they say, well, thank heaven I don't have any say, well, thank heaven I don't have any hardcore pathology. My kidneys, liver, hardcore pathology. My kidneys, liver, heart, lungs, brain, they're all heart, lungs, brain, they're all supposedly working great based on the supposedly working great based on the test, but I still feel horrible. So, test, but I still feel horrible. So, then what do we do? Well, obviously, if then what do we do? Well, obviously, if there's a pathology, we're going to there's a pathology, we're going to start treating that and that if there's start treating that and that if there's functional or other things in the labs, functional or other things in the labs, we're going to start treating that. But we're going to start treating that. But then there's things that we can do for then there's things that we can do for ourselves that you might get really ourselves that you might get really frustrated and say, well, this didn't frustrated and say, well, this didn't help me or it doesn't seem very strong help me or it doesn't seem very strong or whatever, but it's going to help or whatever, but it's going to help anyway. So, these are things that we can anyway. So, these are things that we can work on, either you work on on your own work on, either you work on on your own or we work on together to help out. The or we work on together to help out. The first thing is trying to restore normal first thing is trying to restore normal sleep function. And nowadays, this used sleep function. And nowadays, this used to be really hard to track with people to be really hard to track with people because the sleep monitors were these because the sleep monitors were these giant things people would have at home giant things people would have at home and they wouldn't use them. Now, you can and they wouldn't use them. Now, you can use an Aura ring or you can use a watt.

use an Aura ring or you can use a watt. Are they perfect? No, they're not, but Are they perfect? No, they're not, but

you can get a general idea of how long you can get a general idea of how long am I actually sleeping. You might be am I actually sleeping. You might be unconscious for at x amount of time, but unconscious for at x amount of time, but you may not be going into good, you you may not be going into good, you know, deeper sleep and all that. So, know, deeper sleep and all that. So, that's really good to look for and look that's really good to look for and look at. Now, you might say if if you're at. Now, you might say if if you're fatigued, well, I'm sleeping all the fatigued, well, I'm sleeping all the time. Well, then sleep normalization is time. Well, then sleep normalization is getting you some energy back. The next getting you some energy back. The next thing is movement. Now, people will say, thing is movement. Now, people will say, well, does this really make a lot of well, does this really make a lot of difference? Actually, it does and you difference? Actually, it does and you don't have to do a ton. The first thing don't have to do a ton. The first thing about movement is the most important about movement is the most important thing for you to move are your skeletal thing for you to move are your skeletal muscles that move your body. So, your muscles that move your body. So, your legs are huge and then the core muscles legs are huge and then the core muscles that move you around. The next thing that move you around. The next thing about movement is you don't have to do a about movement is you don't have to do a ton to make an impact. It's getting the ton to make an impact. It's getting the muscles moving. The next thing is you muscles moving. The next thing is you start where you're at. So, let's say start where you're at. So, let's say you're on one end of the spectrum and you're on one end of the spectrum and you were super athletic and you were you were super athletic and you were doing weightlifting and aerobic training doing weightlifting and aerobic training all week long and you were really there all week long and you were really there and now you got long COVID and you're and now you got long COVID and you're fatigued and you're you're at 25% of fatigued and you're you're at 25% of your previous capacity, you know, at the your previous capacity, you know, at the gym. Well, we start at 25%. So, you gym. Well, we start at 25%. So, you don't have to go back to 100%. You don't don't have to go back to 100%. You don't fatigue yourself more. You do baby fatigue yourself more. You do baby steps. And in the beginning, the baby steps. And in the beginning, the baby steps are very long. So, it's just a steps are very long. So, it's just a little bit more every day. What about little bit more every day. What about the other end of the spectrum? Let's say the other end of the spectrum? Let's say you've not worked out ever and basically you've not worked out ever and basically need to work out. You feel like you need need to work out. You feel like you need to work out, but you feel horrible cuz to work out, but you feel horrible cuz long COVID and you're way out of long COVID and you're way out of condition. You're deconditioned, etc.

condition. You're deconditioned, etc. Well, then we're starting with that. Well, then we're starting with that. You're deconditioned. We're going to You're deconditioned. We're going to just do enough to get your muscles just do enough to get your muscles moving for maybe a month or two. That moving for maybe a month or two. That might be what's your normal activity might be what's your normal activity during a day. A person might say, "Well, during a day. A person might say, "Well, I go up and down the stairs four or five I go up and down the stairs four or five times. I walk to the mailbox. I do all times. I walk to the mailbox. I do all these things." And that that's about all these things." And that that's about all I can handle. We might just add one I can handle. We might just add one thing. Make another loop to the mailbox.

thing. Make another loop to the mailbox. Make another trip up the stairs. And Make another trip up the stairs. And here's the thing. If you're that far here's the thing. If you're that far deconditioned, that one thing you add deconditioned, that one thing you add might need to be added and that's only might need to be added and that's only extra thing you do for one to two months extra thing you do for one to two months because the reconditioning is much because the reconditioning is much slower. And then when that becomes slower. And then when that becomes normal, then maybe we add a couple more normal, then maybe we add a couple more trips up and down the stairs or maybe we trips up and down the stairs or maybe we do other things, right? But it's all do other things, right? But it's all baby steps. You I don't care if you were baby steps. You I don't care if you were super conditioned and now you're at 25% super conditioned and now you're at 25% capacity. If you go back to 100% capacity. If you go back to 100% capacity of workouts like you did capacity of workouts like you did before, you're going to exacerbate your before, you're going to exacerbate your fatigue and everything else. So, you fatigue and everything else. So, you want to do baby steps towards 100. If want to do baby steps towards 100. If you're totally deconditioned, you're you're totally deconditioned, you're going to do baby steps towards going to do baby steps towards something. Well, the actual movement of something. Well, the actual movement of muscle does a number of things. One is muscle does a number of things. One is it changes your biochemistry and your it changes your biochemistry and your signaling so that you have less signaling so that you have less inflammation. Number two, and this is inflammation. Number two, and this is some newer work done uh early in COVID some newer work done

uh early in COVID where the neurological research has where the neurological research has shown that moving the skeletal muscle shown that moving the skeletal muscle actually heals the brain inflammation actually heals the brain inflammation that happens. And this brain that happens. And this brain inflammation huge reason for long COVID.

inflammation huge reason for long COVID. Diet. Now, we could do hours on diet, Diet. Now, we could do hours on diet, etc. But here's the bottom lines of etc. But here's the bottom lines of diet. Number one, make sure that the diet. Number one, make sure that the food that you're eating has the least food that you're eating has the least amount of added junk to it. Take out amount of added junk to it. Take out processed foods. Take out convenience processed foods. Take out convenience foods essentially that have a bunch of foods essentially that have a bunch of additives, eat real food, all of that.

additives, eat real food, all of that. So, the first thing is just take the So, the first thing is just take the junk out. The next thing is that we want junk out. The next thing is that we want to remove empty calories. So, that would to remove empty calories. So, that would be high sugar drinks or high sugar be high sugar drinks or high sugar candies, sweet stuff like that. The next candies, sweet stuff like that. The next thing though is that you want to add in thing though is that you want to add in more high fiber plant material because more high fiber plant material because that's going to help you on a number of that's going to help you on a number of levels. So, you're going to add in levels. So, you're going to add in plants, but we want to kind of minimize plants, but we want to kind of minimize starchy plants and maximize high fiber starchy plants and maximize high fiber plants. You can think of things, you plants. You can think of things, you know, like broccoli and cabbage. And know, like broccoli and cabbage. And then the next thing is is that we want a then the next thing is is that we want a low insulinogenic diet. And so, a lot of low insulinogenic diet. And so, a lot of people know, you can look up online a people know, you can look up online a low glycemic diet and it gives you, you low glycemic diet and it gives you, you know, a list of foods range from low to know, a list of foods range from low to high glycemic. You can also look up low high glycemic. You can also look up low insulin stimulating foods. But why insulin stimulating foods. But why insulin? Why do we want to tame insulin?

insulin? Why do we want to tame insulin? It's because if we can tame insulin in It's because if we can tame insulin in our diet, then we have less insulin our diet, then we have less insulin being pushed out by our pancreas and we being pushed out by our pancreas and we have we lower our inflammation just have we lower our inflammation just naturally by doing that. Also, it helps naturally by doing that. Also, it helps the brain, it helps lots of stuff. We the brain, it helps lots of stuff. We clean up the diet, we add more high clean up the diet, we add more high fiber types of plants, we get a low fiber types of plants, we get a low insulinogenic diet going on, and then insulinogenic diet going on, and then everything after that would be more everything after that would be more specific. Things like it certainly if specific. Things like it certainly if you're sensitive to a food, don't eat you're sensitive to a food, don't eat it. If you have a particular way that, it. If you have a particular way that, you know, you eat culturally or you know, you eat culturally or traditionally. If you are a vegetarian traditionally. If you are a vegetarian or a vegan or if you eat certain types or a vegan or if you eat certain types of like a Mediterranean type eating or of like a Mediterranean type eating or whatever. You can morph all of this into whatever. You can morph all of this into a healthy type of a diet. The diet's a healthy type of a diet. The diet's huge. And then the last thing goes with huge. And then the last thing goes with diet and that's hydration. Most people diet and that's hydration. Most people are dehydrated and you think, "Oh, yeah, are dehydrated and you think, "Oh, yeah, I drink drink more water, blah, blah, I drink drink more water, blah, blah, blah." There was actually research now blah." There was actually research now and it's sort of one of those things and it's sort of one of those things that's like, "Well, this makes so much that's like, "Well, this makes so much sense and why they even research it?" sense and why they even research it?" But they did. A lot of it comes from the But they did. A lot of it comes from the tumor biology world where if a human is tumor biology world where if a human is dehydrated, then exclusive of all the dehydrated, then exclusive of all the other things with cancer that can go on, other things with cancer that can go on, you don't have as much fluid pushing you don't have as much fluid pushing into the extracellular space and into into the extracellular space and into the cell, and that means you don't have the cell, and that means you don't have as much fluid taking the garbage out and as much fluid taking the garbage out and putting it back in the venous system to putting it back in the venous system to remove it. Well, a lot of cancer remove it. Well, a lot of cancer production in the body is very much production in the body is very much sensitive to not taking the trash out of sensitive to not taking the trash out of the cell. And so, when you look at this, the cell. And so, when you look at this, it doesn't have to be cancer. That can it doesn't have

to be cancer. That can be just your whole body's inflamed. The be just your whole body's inflamed. The more hydrated you are, the better that more hydrated you are, the better that transfer goes. Now, there's a million transfer goes. Now, there's a million other things you can do to those are other things you can do to those are just places to start. The other thing is just places to start. The other thing is you you have agency over generally what you you have agency over generally what you're eating and sleeping and drinking you're eating and sleeping and drinking and all of that. But, if you need help, and all of that. But, if you need help, you can get specific uh counseling in you can get specific uh counseling in those areas. The first thing I want to those areas. The first thing I want to talk about is confusion around long talk about is confusion around long COVID. So, one of the problems in COVID. So, one of the problems in looking at the research around long looking at the research around long COVID is people present differently.

COVID is people present differently. Now, you can have 10 people with the Now, you can have 10 people with the same diagnosis of chronic illness, and same diagnosis of chronic illness, and you have 10 different presentations. So, you have 10 different presentations. So, one of the problems is that this doesn't one of the problems is that this doesn't lend itself to researching easily lend itself to researching easily because it's so individualized. So, if I because it's so individualized. So, if I take a hundred people and the symptoms take a hundred people and the symptoms are, you know, of 50 different are, you know, of 50 different varieties, so different phenotypes of varieties, so different phenotypes of symptoms, it's harder to drill down and symptoms, it's harder to drill down and say that's what long COVID is or that's say that's what long COVID is or that's not, right? So, it's very not, right? So, it's very individualized. The next thing is that individualized. The next thing is that for some people it's a fairly shorter for some people it's a fairly shorter problem, and for some people it's been problem, and for some people it's been burning on for, you know, years at this burning on for, you know, years at this point. The other problem that we have is point.

Research Review on Spikeopathy and Long COVID

The other problem that we have is chronic illness before COVID was not chronic illness before COVID was not well treated or understood in the well treated or understood in the general medical community. And so, long general medical community. And so, long COVID has just brought a huge number of COVID has just brought a huge number of patients forward who are also patients forward who are also chronically ill into a system that chronically ill into a system that generally doesn't treat chronic illness generally doesn't treat chronic illness very well. So, you can be misunderstood very well. So, you can be misunderstood maybe by your primary care or specialty maybe by your primary care or specialty providers because they weren't really providers because they weren't really treating chronically ill people before treating chronically ill people before or they didn't know they were. So, or they didn't know they were. So, confusion is a big issue. Also, the confusion is a big issue. Also, the biochemical changes and the pathologic biochemical changes and the pathologic changes at the chemistry level in your changes at the chemistry level in your body that happen with COVID are very body that happen with COVID are very unique. And how can they be so unique unique. And how can they be so unique and different? And this is one of the and different? And this is one of the slams about long COVID you see with some slams about long COVID you see with some commentators will say, "Well, they did commentators will say, "Well, they did this big research study and they looked this big research study and they looked at all of these, you know, parameters in at all of these, you know, parameters in the blood in the person biochemically the blood in the person biochemically and there's not a pattern. There's not and there's not a pattern. There's not one thing that goes wrong. So, how do we one thing that goes wrong. So, how do we call that a disorder if if there's not call that a disorder if if there's not one unifying pattern for the problem?

one unifying pattern for the problem? The biochemical changes and so, you The biochemical changes and so, you might ask yourself and you probably might ask yourself and you probably have, how can one insult, let's say an have, how can one insult, let's say an infection, lead to all these different infection, lead to all these different manifestations of biochemical change and manifestations of biochemical change and pathology? Well, it's because your pathology? Well, it's because your immune system, when it gets dysregulated immune system, when it gets dysregulated or challenged, has multiple potential or challenged, has multiple potential outputs from the challenge. And outputs from the challenge. And depending on your health prior, depending on your health prior, depending on underlying diseases or the depending on underlying diseases or the absence of them, depending on certain absence of them, depending on certain genomic, genetic factors and all sorts genomic, genetic factors and all sorts

of other things, you can have one input of other things, you can have one input go in and again in 10 people, you can go in and again in 10 people, you can have 10 different outputs. What does an have 10 different outputs. What does an immune output look like? It's symptoms immune output look like? It's symptoms that our body has or sign presentations, that our body has or sign presentations, okay? So, that means I'm not going to okay? So, that means I'm not going to have one unifying symptom picture for have one unifying symptom picture for the most part. Now, there are things the most part. Now, there are things that are very common such as fatigue, uh that are very common such as fatigue, uh brain fog, certain types of uh physical brain fog, certain types of uh physical findings and maybe a few other things.

findings and maybe a few other things. But a lot of people have very different But a lot of people have very different uh presentations and manifestations. So, uh presentations and manifestations. So, long COVID is a post-viral syndrome that long COVID is a post-viral syndrome that is in some ways more complex than a lot is in some ways more complex than a lot of previous post-viral syndromes. So, of previous post-viral syndromes. So, what are the some of the things that can what are the some of the things that can happen downstream? Well, one is a change happen downstream? Well, one is a change in your clotting functions, which can in your clotting functions, which can either be short-term or long-term. This either be short-term or long-term. This doesn't sound good, and it's not. So, if doesn't sound good, and it's not. So, if I'm having more propensity towards I'm having more propensity towards clotting, then I might develop, as we clotting, then I might develop, as we see in the research coming out now, see in the research coming out now, micro clotting, okay? Now, obviously, micro clotting, okay? Now, obviously, big clots are not a good thing. Micro big clots are not a good thing. Micro clotting is just what it says. It's very clotting is just what it says. It's very small types of clots that can go. And small types of clots that can go. And so, they won't stop an organ from so, they won't stop an organ from working, but they may decrease the working, but they may decrease the functionality of a number of organs in functionality of a number of organs in the body. So, clotting changes go on. A the body. So, clotting changes go on. A lot of times in the long COVID lot of times in the long COVID population that we see, we look at their population that we see, we look at their clotting uh laboratory tests, and clotting uh laboratory tests, and there's a number of things that you can there's a number of things that you can look at. But, a lot of times, until look at. But, a lot of times, until their immune system goes back to being their immune system goes back to being calmed down, the clotting abnormalities calmed down, the clotting abnormalities we see in the beginning of long COVID we see in the beginning of long COVID will not go down until the immune system will not go down until the immune system is calmed down. And that's because is calmed down. And that's because clotting is triggered by immune clotting is triggered by immune chemistry. Okay, very important to keep chemistry. Okay, very important to keep in mind. So, we often watch those as a in mind. So, we often watch those as a sign that we're finally getting ahead in sign that we're finally getting ahead in the immune balancing game. So, where the immune balancing game. So, where does this come from? Comes from does this come from? Comes from deregulation of the immune system. There deregulation of the immune system. There is often found an imbalance in the is often found an imbalance in the cell-mediated immunity, the T cell cell-mediated immunity, the T cell families. And so, there are T cells that families. And so, there are T cells that are directly uh cytotoxic, the killer are directly uh cytotoxic, the killer type T cells, if you will. There are type T cells, if you will. There are memory T cells, and there're helper memory T cells, and there're helper family of T cells. The T help helper family of T cells. The T help helper cells, often called TH, are numerous cells, often called TH, are numerous subfamilies, and their job is to go and subfamilies, and their job is to go and help you when you have this immune help you when you have this immune response to talk to the immune system, response to talk to the immune system, so that we have a big response in the so that we have a big response in the beginning, but then we start to shut it beginning, but then we start to shut it down and just have immune memory. And down and just have immune memory. And that's what happens with T cell that's what happens with T cell response. They can kind of go off the response. They can kind of go off the rails. And when T cell responses go off rails. And when T cell responses go off the rails, you get either over or under the rails, you get either over or under activity downstream in your immune activity downstream in your immune system, and then that can lead to system, and then that can lead to increased inflammation, increased increased inflammation, increased clotting problems, increased pain, all clotting problems, increased pain, all of these other things. So, an imbalanced of these other things. So, an imbalanced T system, especially the T helper T system, especially the T helper system, is one of the core problems that system, is one of the core problems that goes on more at the beginning of your goes on more at the beginning of your physiologic or biochemical changes.

physiologic or biochemical changes. Then, if you look at the way the immune Then, if you look at the way the

immune system works, there's a communication system works, there's a communication between your cell-mediated immunity, between your cell-mediated immunity, your T cells, and then your humoral or your T cells, and then your humoral or antibody immunity, the B cells. And if antibody immunity, the B cells. And if we disengage the communication, or if we we disengage the communication, or if we confuse the communication between those confuse the communication between those two big parts of your innate immune two big parts of your innate immune system, we get a abnormal output or a system, we get a abnormal output or a triggering problem in the antibody triggering problem in the antibody immunity community as well. And that's immunity community as well. And that's going to feed into another pathology going to feed into another pathology we'll talk about in just a few seconds we'll talk about in just a few seconds here. So, the T cells are there for here. So, the T cells are there for cell-mediated immunity, and that's cell-mediated immunity, and that's largely the cytotoxic killer type T largely the cytotoxic killer type T cells, and then the memory and helper cells, and then the memory and helper families. But then they talk to the the families.

Assessment and Graded Treatment Approach

But then they talk to the the antibody side, and antibodies are going antibody side, and antibodies are going to be something that comes along and to be something that comes along and binds to a bad guy in your immune system binds to a bad guy in your immune system and tries to alert other parts of the and tries to alert other parts of the immune system to eliminate that bad guy.

immune system to eliminate that bad guy. And then of course, your B cells, And then of course, your B cells, antibody immunity cells, come in many antibody immunity cells, come in many different types, and they will make different types, and they will make memory against the bad guys. Well, memory against the bad guys. Well, imagine this is like a giant orchestra, imagine this is like a giant orchestra, and if it all works together, it sounds and if it all works together, it sounds great. If it's not working together, great. If it's not working together, it's not going to sound very good. And it's not going to sound very good. And that's what happens with your immune that's what happens with your immune system in long COVID. It can get sort of system in long COVID. It can get sort of jumbled, and all of this nice crosstalk jumbled, and all of this nice crosstalk and feedback goes out the window. So, and feedback goes out the window. So, the T and the B cells are doing their the T and the B cells are doing their job, and then they get confused in their job, and then they get confused in their job, and then we have downstream job, and then we have downstream problems. So, what are some of the problems. So, what are some of the problems? Well, the biggest problem problems? Well, the biggest problem underneath is global inflammation in the underneath is global inflammation in the body, and that can then lead downstream body, and that can then lead downstream to inflammatory changes in your big to inflammatory changes in your big organ systems. So, your brain, your organ systems. So, your brain, your lungs, your kidneys, your heart, all lungs, your kidneys, your heart, all over your muscles, you know, all over over your muscles, you know, all over your body. Digestive tract can be your body. Digestive tract can be inflamed as well. As we said, the inflamed as well. As we said, the inflammation, the inflammatory chemistry inflammation, the inflammatory chemistry in your immune system can lead to big in your immune system can lead to big clots or little micro clots, which have clots or little micro clots, which have their own problems. The other thing that their own problems. The other thing that is getting a little bit more notice now is getting a little bit more notice now is COVID often opens the door through is COVID often opens the door through this immune dysregulation to chronic this immune dysregulation to chronic coinfections that either you might have coinfections that either you might have before, and and we have we all have a before, and and we have we all have a lot of infectious material in our body lot of infectious material in our body that just hangs out that's not making us that just hangs out that's not making us sick. But if we get run down, could sick. But if we get run down, could happen with the flu, too, or pneumonia happen with the flu, too, or pneumonia or something. But with COVID, often you or something. But with COVID, often you get run down, you mess up the immune get run down, you mess up the immune system's response, then these little system's response, then these little infections that weren't a problem before infections that weren't a problem before now are are infecting us on top of the now are are infecting us on top of the COVID. So, a lot of times in our long COVID. So, a lot of times in our long COVID population, we will screen people COVID population, we will screen people for chronic infections because they are for chronic infections because they are almost always there. Problem is, they're almost always there. Problem is, they're not always the same thing because the not always the same thing because the immune dysregulation that happens for immune dysregulation that happens for one group of people might increase one group of people might increase viruses like Epstein-Barr or something.

viruses like Epstein-Barr or something. And in other group of people, it might And in other group of people, it might be more fungal problems. Resistant be more fungal problems. Resistant fungal problems are on the rise. Or fungal problems are on the rise. Or other issues that go on. And another big other issues that go on. And another big picture problem that often, if you had picture problem that often, if you had it before, might get way worse, but a it before, might get way worse, but a lot of people didn't have it before and lot of people didn't have it before and now they do in long COVID, is mast cell now they do in long COVID, is mast cell disorder. So, you've heard about mast disorder. So, you've heard about mast cell activation syndrome, MCAS, or mast cell activation syndrome, MCAS, or mast cell disease, mast cell disorders. These cell disease, mast cell disorders. These used to be thought to be extremely rare.

used to be thought to be extremely rare. Even before COVID, we knew that they Even before COVID, we knew that they weren't as rare as we thought they were.

weren't as rare as we thought they were. It's very hard to diagnose in some It's very hard to diagnose in some cases. Mass cells are part of a cases. Mass cells are part of a four-part activation system that four-part activation system that includes mass cells and then basophils includes mass cells and then basophils and eosinophils and then a another and eosinophils and then a another subclass of cell called CD40 that are subclass of cell called CD40 that are triggering one of the B cell triggering one of the B cell populations, the IgE like Edward, which populations, the IgE like Edward, which is we think of for allergy and you know, is we think of for allergy and you know, anaphylaxis and things but also is part anaphylaxis and things but also is part of the mass cell quartet there. Well, it of the mass cell quartet there. Well, it turns out that the COVID experience can turns out that the COVID experience can deregulate your immune system so you deregulate your immune system so you become hypersensitive and the mass cell become hypersensitive and the mass cell quartet, so it's mass cells plus the quartet, so it's mass cells plus the other three, start to pump out immune other three, start to pump out immune information that you don't want, very information that you don't want, very inflammatory, very dysregulating to your inflammatory, very dysregulating to your system. That's a real common system. That's a real common complicating factor in long COVID. So, complicating factor in long COVID. So, what do we do about this? It's nice to what do we do about this? It's nice to maybe know the underlying complexity of maybe know the underlying complexity of it. The first thing that you want to it. The first thing that you want to think about is some people, and if think about is some people, and if you're having great luck with a long you're having great luck with a long COVID clinic, please keep going there.

COVID clinic, please keep going there. You know, people are getting help at You know, people are getting help at some of those. But if you've been some of those. But if you've been checked out and they basically said, checked out and they basically said, "Look, your organs are fine." Well, "Look, your organs are fine." Well, great. That's really wonderful and maybe great. That's really wonderful and maybe they offer some symptomatic treatment or they offer some symptomatic treatment or they don't, depends on the long COVID they don't, depends on the long COVID clinic. What we find is usually if that clinic. What we find is usually if that approach is not cutting it, you need to approach is not cutting it, you need to find an integrative practitioner. There find an integrative practitioner. There are more and more integrative health are more and more integrative health practitioners in the world and even if practitioners in the world and even if they weren't doing a lot of chronic they weren't doing a lot of chronic illness things before with long COVID, illness things before with long COVID, they're seeing more of them. They're they're seeing more of them. They're just more likely to take a step back and just more likely to take a step back and look more in a whole body, you know, look more in a whole body, you know, kind of systems approach to what's going kind of systems approach to what's going wrong with you as opposed to a specialty wrong with you as opposed to a specialty approach where you start with the organ approach where you start with the organ system and dive, you know, deeper. Both system and dive, you know, deeper. Both are necessary, but a systems approach is are necessary, but a systems approach is probably better for long chronic probably better for long chronic illness. So, looking for integrated illness. So, looking for integrated practitioners, that might be a practitioners, that might be a physician, nurse practitioner, physician, nurse practitioner, physician's assistant, You might see a physician's assistant, You might see a uh acupuncture oriental medicine person uh acupuncture oriental medicine person who has specialized in long COVID. There who has specialized in long COVID. There are some chiropractic physicians and are some chiropractic physicians and other types of physicians that work other types of physicians that work there. Licensed naturopathic physicians there. Licensed naturopathic physicians do a really good job with this in many do a really good job with this in many cases and other integrated cases and other integrated practitioners.

So, having somebody so practitioners. So, having somebody so they can they may not need to do they can they may not need to do everything with you, but they can kind everything with you, but they can kind of give that macro look and guide thing.

of give that macro look and guide thing. going to mention some therapies that going to mention some therapies that people try and and first we need to people try and and first we need to remember this is not medical advice. I'm remember this is not medical advice. I'm just giving what I've seen other people just giving what I've seen other people do and people might consider. One that do and people might consider. One that sounds unusual, but it's because of sounds unusual, but it's because of receptor binding that people have done receptor binding that people have done is nicotine therapy. So, a lot of people is nicotine therapy. So, a lot of people use low-dose nicotine patches and that use low-dose nicotine patches and that can be quite helpful because nicotine can be quite helpful because nicotine the receptors that it binds to are not the receptors that it binds to are not only in your brain, but elsewhere in only in your brain, but elsewhere in your body. You have to be very careful your body. You have to be very careful with nicotine therapy because especially with nicotine therapy because especially if your body isn't used to nicotine, if your body isn't used to nicotine, it's very easy to overdose on nicotine it's very easy to overdose on nicotine and so you really want to do that with and so you really want to do that with some guidance, but nicotine therapy is some guidance, but nicotine therapy is on the rise and helping a lot of people.

on the rise and helping a lot of people. Things that go and help your Things that go and help your mitochondria, which are where we make mitochondria, which are where we make our energy and it helps us recharge our our energy and it helps us recharge our body. Some therapies like NAD therapy, body. Some therapies like NAD therapy, that is a common type of approach for that is a common type of approach for mitochondrial support. There are oral mitochondrial support. There are oral therapies like nicotinamide riboside or therapies like nicotinamide riboside or nicotinamide mononucleotide that can be nicotinamide mononucleotide that can be done. There's IV therapies, other things done. There's IV therapies, other things that goes directly to your mitochondria that goes directly to your mitochondria to help. Another one that goes to your to help. Another one that goes to your mitochondria that we're seeing more on, mitochondria that we're seeing more on, we got a bunch of videos on all these is we got a bunch of videos on all these is methylene blue, which is the oldest methylene blue, which is the oldest synthetic drug that we have at least in synthetic drug that we have at least in medical history. It's a dye, but it also medical history. It's a dye, but it also is used if you have a pharmaceutical is used if you have a pharmaceutical grade to go into your body and help the grade to go into your body and help the mitochondria kind of kick back in. Now, mitochondria kind of kick back in. Now, it helps your whole body, but we've seen it helps your whole body, but we've seen a lot of benefit in people, especially a lot of benefit in people, especially where they have neurological symptoms of where they have neurological symptoms of long COVID. So, that's something to keep long COVID. So, that's something to keep in mind as well. Another one that I've in mind as well. Another one that I've had a lot of people do at home is red had a lot of people do at home is red light or red light near infrared pad light or red light near infrared pad therapy. We use a lot with people with therapy. We use a lot with people with specific organ areas. So, that'd be a specific organ areas. So, that'd be a pelvic dysfunction, uh chest and lung, pelvic dysfunction, uh chest and lung, etc. Again, these are things that you etc. Again, these are things that you can often get and and do as at-home can often get and and do as at-home therapies. Again, work with your therapies. Again, work with your practitioner on that. Sauna and heat practitioner on that. Sauna and heat therapies, you may not tolerate it, so therapies, you may not tolerate it, so work with your practitioner on that.

work with your practitioner on that. But, sauna can be incredibly good. But, sauna can be incredibly good. Usually, you start really tiny and work Usually, you start really tiny and work your way up dose-wise. Hyperbaric oxygen your way up dose-wise. Hyperbaric oxygen is another one that really helps.

is another one that really helps. There's some big universities that are There's some big universities that are doing trials on hyperbaric. And there's doing trials on hyperbaric. And there's actually some hyperbaric research that's actually some hyperbaric research that's come out during COVID that's compelling.

come out during COVID that's compelling. And then all sorts of other things that And then all sorts of other things that can just be supportive to the body, uh can just be supportive to the body, uh such as nutritional therapies, such as nutritional therapies, dietary adjustments, etc. Now, keep in mind this adjustments, etc. Now, keep in mind this isn't medical advice, this is what we isn't medical advice, this is what we see in patients. And you need

to see in patients. And you need to remember not everyone can do these. You remember not everyone can do these. You certainly generally wouldn't do all of certainly generally wouldn't do all of them, but sometimes it's finding like them, but sometimes it's finding like the the two or three keys to go into the the the two or three keys to go into the two or three locks that are your two or three locks that are your particular part of the problem with long particular part of the problem with long COVID. And once you find them, then your COVID. And once you find them, then your body can be supported and you can kind body can be supported and you can kind I wanted to take a couple of minutes and I wanted to take a couple of minutes and go over a new publication that reviews go over a new publication that reviews 139 peer-reviewed scientific references 139 peer-reviewed scientific references and goes through both the background, and goes through both the background, the assessment, and then the treatment the assessment, and then the treatment of people with both long COVID and of people with both long COVID and spikeopathies, which we'll talk about in spikeopathies, which we'll talk about in just a moment. First off, this is a just a moment. First off, this is a review that I published last month, so review that I published last month, so it is very recent and new. And as I said it is very recent and new. And as I said in going through this to try and gather in going through this to try and gather all of the latest science with this very all of the latest science with this very emerging problem, I went through 139 emerging problem, I went through 139 peer-reviewed references from the peer-reviewed references from the scientific literature and merged that scientific literature and merged that with my own and others personal clinical with my own and others personal clinical experience and came up with a systematic experience and came up with a systematic discussion and treatment algorithm for discussion and treatment algorithm for long COVID and spikeopathies. So, the long COVID and spikeopathies. So, the first thing is long COVID and spike first thing is long COVID and spike protein damage have a lot of crossover.

protein damage have a lot of crossover. So, as we know, we can get spike and So, as we know, we can get spike and spike increases in the body from a COVID spike increases in the body from a COVID infection. We can get spike and spike infection. We can get spike and spike increases from vax. We can get them from increases from vax. We can get them from both together. One of the common cores both together. One of the common cores is the damage that the spike protein can is the damage that the spike protein can possibly do, and that can be primary possibly do, and that can be primary damage such as restrictive pulmonary damage such as restrictive pulmonary disease, inflammatory disease of the disease, inflammatory disease of the heart or the kidneys, etc. brain heart or the kidneys, etc. brain dysfunctions, secondary things such as dysfunctions, secondary things such as cytokine reactions, and all manner of cytokine reactions, and all manner of other disruptions, and then also other disruptions, and then also aggravation of pre-existing conditions aggravation of pre-existing conditions that go on. So, what we look at in this that go on. So, what we look at in this review is in the first part, we go review is in the first part, we go through the science and the data that through the science and the data that talks about what do we know as far as talks about what do we know as far as what comes from the post-infectious what comes from the post-infectious era. So, you had an infection with era. So, you had an infection with COVID, now you have these signs and COVID, now you have these signs and symptoms. What do we know about the symptoms. What do we know about the relationship of your COVID infection to relationship of your COVID infection to those signs and symptoms? And then also, those signs and symptoms? And then also, either alone or with a COVID infection, either alone or with a COVID infection, we look at what are the spikeopathies we look at what are the spikeopathies that are potentially possible based on that are potentially possible based on the current research that we have the current research that we have available for vax and vax injury available for vax and vax injury potentially. And also, we look at the potentially. And also, we look at the collage effect of what if we have both collage effect of what if we have both things going on. So, we look at all of things going on. So, we look at all of the data behind that. That's all in the the data behind that. That's all in the beginning in the introduction. We look beginning in the introduction. We look at the possibilities for different types at the possibilities for different types of collateral health problems that may of collateral health problems that may come from one or both of those triggers come from one or both of those triggers for these problems. And we look at what for these problems. And we look at what the research says about what we know the research says about what we know about them to date. The next thing that about them to date. The next thing that we look at are ways to test to see we look at are ways to test to see indirectly at this moment anyway, what indirectly at this moment anyway, what the spike protein load the spike protein load on the immune system is. And we look at on the immune system is. And we look at ways that are based on the research to ways that are based on the research to say, is that load more likely from the say, is that load more likely from the COVID infection itself, or is that load COVID infection itself, or is that load more likely from the vax, or a little more likely from the vax, or a little bit of both? And there are ways using bit of both? And there are ways using immunologic tests that not only look at immunologic tests that not only look at spike effect, but also the presence or spike effect,

but also the presence or absence of the nucleocapsid or N absence of the nucleocapsid or N protein, which we can then use to protein, which we can then use to decipher is this more likely coming from decipher is this more likely coming from the infectious trigger or a the infectious trigger or a non-infectious trigger. So, all of that non-infectious trigger. So, all of that is gone through in the very beginning of is gone through in the very beginning of the article, and it goes into some depth the article, and it goes into some depth because there's been a lot of conjecture because there's been a lot of conjecture and a lot of interesting proposed ideas and a lot of interesting proposed ideas out there in the world. And what I was out there in the world. And what I was trying to do is get through the trying to do is get through the conjecture and look at the science and conjecture and look at the science and look at the published data and see, look at the published data and see, well, what do we really know from what's well, what do we really know from what's been published up to this point? And it been published up to this point? And it would take us probably an hour to go would take us probably an hour to go through all of that. So, we're going to through all of that. So, we're going to put a link in the description below to put a link in the description below to the article. You can go through there the article. You can go through there and take a read if you want to. Now, and take a read if you want to. Now, this is on a public access web server.

this is on a public access web server. And so, if you're not a member of the And so, if you're not a member of the particular site, there's no charge. You particular site, there's no charge. You just log in as a guest, and it will take just log in as a guest, and it will take you right to this publication. So, the you right to this publication. So, the next thing is, what is a rational way next thing is, what is a rational way that I and others who work with this that I and others who work with this clinically have found to approach clinically have found to approach people, regardless of where the people, regardless of where the spikeopathy came from, whether from spikeopathy came from, whether from post-infectious illness or vax-induced post-infectious illness or vax-induced spikeopathy or a little bit of both. At spikeopathy or a little bit of both. At the point where you're sick, it doesn't the point where you're sick, it doesn't matter as much because we have to do matter as much because we have to do something about that. So, what does the something about that. So, what does the research tell us about ways to look at research tell us about ways to look at and assess and then potentially treat and assess and then potentially treat patients? And what does my and others' patients? And what does my and others' experience tell us about ways to assess experience tell us about ways to assess and potentially treat these patients?

and potentially treat these patients? So, in the paper, in the second 2/3 of So, in the paper, in the second 2/3 of the paper, again relying heavily on the paper, again relying heavily on current research plus all of the current research plus all of the clinical experience of myself and clinical experience of myself and others, what we go through is a graded others, what we go through is a graded dysfunction-based assessment. And while dysfunction-based assessment. And while there are a couple of published ways to there are a couple of published ways to assess post-COVID illness, long COVID, assess post-COVID illness, long COVID, whatever you'd like to call it, what I whatever you'd like to call it, what I have used all through since we started have used all through since we started getting people with post-infectious getting people with post-infectious illness, etc., is a particular rating illness, etc., is a particular rating scale by Clock et al. And that is listed scale by Clock et al. And that is listed in the paper as well. It's very simple in the paper as well. It's very simple rating scale, but it has a five-part rating scale, but it has a five-part rating, zero being no real problems, one rating, zero being no real problems, one being mild disability, and all the way being mild disability, and all the way up through four being severe disability.

up through four being severe disability. And what we know in the spikeopathy, And what we know in the spikeopathy, long COVID, post-COVID world is that long COVID, post-COVID world is that some people are not affected, obviously.

some people are not affected, obviously. Some people are mildly affected, and Some people are mildly affected, and some people are very extremely affected, some people are very extremely affected, and we have everything in between. So, and we have everything in between. So, based on the research, we have a way of based on the research, we have a way of assessing people, and you can actually assessing people, and you can actually take a look in the paper and see the take a look in the paper and see the level of dysfunction and disorder level of dysfunction and disorder disease, and you can see it's pretty disease, and you can see it's pretty easy to categorize into one of those, easy to categorize into one of those, especially four pathologic categories.

especially four pathologic categories. Now, why would we do this? The reason is Now, why would we do this? The

reason is that, like any complex chronic illness, that, like any complex chronic illness, post-COVID issues, spikeopathies, long post-COVID issues, spikeopathies, long COVID, whatever we're calling it, have a COVID, whatever we're calling it, have a lot of potential laboratory lot of potential laboratory investigations that may need to be done, investigations that may need to be done, examinations that may need to be done, examinations that may need to be done, history that needs to be taken, and even history that needs to be taken, and even imaging and other types of studies that imaging and other types of studies that need to be done. And sometimes people need to be done. And sometimes people will come to other practitioners, and will come to other practitioners, and they will have had pieces of the workup they will have had pieces of the workup done, but maybe not everything they done, but maybe not everything they need. But to help the practitioners need. But to help the practitioners prioritize by using this validated scale prioritize by using this validated scale from the medical research, if you are at from the medical research, if you are at a grade one, we're going to do some a grade one, we're going to do some basic laboratory tests, etc., that are basic laboratory tests, etc., that are appropriate to that level of appropriate to that level of dysfunction, but they're going to be dysfunction, but they're going to be very different than the list of things very different than the list of things we're going to consider at a grade three we're going to consider at a grade three or a grade four. And that's because the or a grade four. And that's because the level of dysfunction is completely level of dysfunction is completely different. Now, everybody essentially different. Now, everybody essentially gets the same basic testing algorithm, gets the same basic testing algorithm, and then things are added on as there is and then things are added on as there is a higher level of dysfunction. That's a higher level of dysfunction. That's just the way that it works. So, this just the way that it works. So, this helps to save from testing in things helps to save from testing in things that you don't need, but also to give that you don't need, but also to give ideas to you and your practitioners as ideas to you and your practitioners as to what should we include if I'm still to what should we include if I'm still at a heavier level of illness or at a heavier level of illness or disability. So, that's the reason for disability. So, that's the reason for using a graded approach. So, the first using a graded approach. So, the first part of the graded approach is what's part of the graded approach is what's the assessment, what grade are you in as the assessment, what grade are you in as far as dysfunction, etc., and then what far as dysfunction, etc., and then what kind of testing and other stuff do we kind of testing and other stuff do we need to do. Then the next part is to need to do. Then the next part is to look at the therapeutics that are look at the therapeutics that are appropriate for that level of disability appropriate for that level of disability and disease state. So, if you are in a and disease state. So, if you are in a grade one, the level of therapeutics you grade one, the level of therapeutics you need might come from a broad list that need might come from a broad list that you can pick from to see what works you can pick from to see what works best, but it may be less intense than best, but it may be less intense than somebody who's a grade three or four somebody who's a grade three or four needs, which is usually the case. And needs, which is usually the case. And the people who have the most intense the people who have the most intense sort of experience and progressive sort of experience and progressive disability, etc., usually are going to disability, etc., usually are going to wind up being a grade three or grade wind up being a grade three or grade four. They're going to have a lot more four. They're going to have a lot more options as far as what might be needed options as far as what might be needed to be tested and treated. Regardless of to be tested and treated. Regardless of where you are in that spectrum of where you are in that spectrum of disability and disease as far as long disability and disease as far as long COVID post COVID spikeopathy, we're COVID post COVID spikeopathy, we're going to look at what we can do in the going to look at what we can do in the following areas. So, one is to identify following areas. So, one is to identify and treat comorbid conditions. So, this and treat comorbid conditions. So, this might be something you already knew might be something you already knew about. You had a thyroid problem or about. You had a thyroid problem or hormone imbalance or blood sugar hormone imbalance or blood sugar problem. Maybe you already knew you had problem. Maybe you already knew you had Epstein-Barr virus or some other chronic Epstein-Barr virus or some other chronic thing. Long COVID spikeopathies, etc.

thing. Long COVID spikeopathies, etc. can make all of that worse. So, our idea can make all of that worse. So, our idea is we need to treat the rest of you. The is we need to treat the rest of you. The other thing is that there's a lot of other thing is that there's a lot of research showing that you can get a research showing that you can get a person who didn't have any trouble with person who didn't have any trouble with Epstein-Barr and just picking on that as Epstein-Barr and just picking on that as one example. And after you start one example. And after you start treating that person, you'll find out treating that person, you'll find out that the the spike protein, the that the the spike protein, the spikeopathy, wherever it came from, is spikeopathy, wherever it came from, is reactivating those types of virus. So, reactivating those types of virus. So, they have to be treated at the same they have to be treated at the same time. Just one of many examples. The time. Just one of many examples. The next thing, which is very

critical, is next thing, which is very critical, is to support coagulation and clotting to support coagulation and clotting issues that are going on. It's almost issues that are going on. It's almost universal that people with any level of universal that people with any level of spikeopathy are going to have an spikeopathy are going to have an increased potential towards clotting.

increased potential towards clotting. And we want to take a look at potentials And we want to take a look at potentials for clotting and either just be doing for clotting and either just be doing some preventive things that are very some preventive things that are very global or even doing some clotting global or even doing some clotting assessment and maybe doing some direct assessment and maybe doing some direct treatments. And all of those things are treatments. And all of those things are listed in the algorithm in the listed in the algorithm in the publication. The next two areas that are publication. The next two areas that are critical is to potentially block the critical is to potentially block the spike protein from entering cells and spike protein from entering cells and then degrade the spike protein that's then degrade the spike protein that's there. One of the problems that we see there. One of the problems that we see now in the research and we see it now in the research and we see it clinically is spikeopathies that tend to clinically is spikeopathies that tend to be from treatment as opposed to be from treatment as opposed to infection can continue to produce spike infection can continue to produce spike protein we now know over 200 days after protein we now know over 200 days after the treatment was given. And so we not the treatment was given. And so we not only need to look at spike protein only need to look at spike protein impact on the immune system, but we need impact on the immune system, but we need to do treatments to both break it down to do treatments to both break it down and block it from entering. And again, and block it from entering. And again, those agents are listed in the review as those agents are listed in the review as well. The other thing that is universal well. The other thing that is universal with COVID either during the acute COVID with COVID either during the acute COVID infection or the post-COVID spikeopathy infection or the post-COVID spikeopathy period is it causes a lot of immune period is it causes a lot of immune dysregulation, immune imbalance. And as dysregulation, immune imbalance. And as we go along, immune imbalance has to be we go along, immune imbalance has to be addressed and treated so that we have an addressed and treated so that we have an easier time of our body getting back easier time of our body getting back into a healing state. So when we address into a healing state. So when we address and we treat the rest of the problems and we treat the rest of the problems going on, we need to remember that the going on, we need to remember that the immune system has to be addressed so immune system has to be addressed so it's not getting too over or it's not getting too over or under-stimulated. And that's something under-stimulated. And that's something that is spoken about in the review as that is spoken about in the review as well. Antioxidant nutrient status, we well. Antioxidant nutrient status, we take a big hit in the area of just our take a big hit in the area of just our general nutrients, but also antioxidant general nutrients, but also antioxidant nutrients in the body. And usually those nutrients in the body. And usually those don't go totally away or you wouldn't be don't go totally away or you wouldn't be here, but they can get depleted through here, but they can get depleted through the process. And so we want to make sure the process. And so we want to make sure that we have support for that going on.

that we have support for that going on. And then a universal need is the support And then a universal need is the support of mitochondrial function. And this is of mitochondrial function. And this is something that certainly is a range of something that certainly is a range of thing. We have a ton of mitochondrial thing. We have a ton of mitochondrial information on the YouTube site here, information on the YouTube site here, but we have this big range of but we have this big range of dysfunction that can go from primary dysfunction that can go from primary mitochondrial inherited illness to mitochondrial inherited illness to functional mitochondrial illness to functional mitochondrial illness to simply disease associated mitochondrial simply disease associated mitochondrial dysfunction, meaning it's not an dysfunction, meaning it's not an inherited disease or anything, but your inherited disease or anything, but your mitochondria which produce all the mitochondria which produce all the energy in your body are still not energy in your body are still not working the way that they used to. So working the way that they used to. So we're going to need to at some point, we're going to need to at some point, maybe from the beginning, maybe a little maybe from the beginning, maybe a little later as as heal up, address the level later as as heal up, address the level of mitochondrial function and it might of mitochondrial function and it might need to be supported through the need to be supported through the process. And then the last thing process. And then the last thing discussed in the paper is really discussed in the paper is really timelines and expectations for timing of timelines and expectations for timing of healing, etc. So, when we think about healing, etc. So, when we think about this, it is somewhat, in my personal this, it is somewhat, in my personal experience, analogous to the initial experience,

analogous to the initial disability and disease assessment that disability and disease assessment that we're going to do. So, you kind of have we're going to do. So, you kind of have lower-grade and higher-grade problems.

lower-grade and higher-grade problems. Lower-grade problems usually are going Lower-grade problems usually are going to resolve more quickly. Higher-grade to resolve more quickly. Higher-grade problems are going to take a longer time problems are going to take a longer time to resolve. And so, we give some to resolve. And so, we give some guidelines around the amount of time guidelines around the amount of time that on average people are taking to not that on average people are taking to not only go through the process, but to only go through the process, but to implement the healing strategies. So, implement the healing strategies. So, again, what we're going to do here in again, what we're going to do here in the description box below is put a link the description box below is put a link to this paper. It's a free link. If you to this paper. It's a free link. If you go to the site and you're not a member, go to the site and you're not a member, you can sign in as a guest. You don't you can sign in as a guest. You don't need to be a subscriber. You can sign in need to be a subscriber. You can sign in as a guest, and you'll get free access as a guest, and you'll get free access to the paper. And again, it's a number to the paper. And again, it's a number of pages long and it has 139 of pages long and it has 139 peer-reviewed references that are cited peer-reviewed references that are cited and related to what we're saying in the and related to what we're saying in the paper, and also related to what we're paper, and also related to what we're saying about assessment and treatment saying about assessment and treatment for people in anywhere in the spectrum for people in anywhere in the spectrum of post-COVID, long-COVID, spikeopathy, of post-COVID, long-COVID, spikeopathy, etc. Really glad that we were able to etc. Really glad that we were able to get this paper out. It's been able to get this paper out. It's been able to help a lot of clinicians work their way help a lot of clinicians work their way through this very complex problem that through this very complex problem that people are having. And it is open people are having. And it is open access. I wanted to get it out and make access. I wanted to get it out and make it published that way, so it was easy to it published that way, so it was easy to get by anybody who wanted it. And it is get by anybody who wanted it. And it is free for access for you, your free for access for you, your clinicians, anybody who's interested.

clinicians, anybody who's interested. Thank you very much. Please do Thank you very much. Please do subscribe, like, share, do all the subscribe, like, share, do all the things. We love that the community is things. We love that the community is growing here. Check out the link below, growing here. Check out the link below, and we'll put some other video links up and we'll put some other video links up here for you as well. Thank you very here for you as well. Thank you very much.