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** * * Intro Music * * **

Hello, and welcome to Supplementing Health, a podcast presented by Advanced Orthomolecular Research. I'm your host, Dr. Paul Hrkal. This show is all about applying evidenced-based and effective dietary lifestyle and natural health product strategies for your optimal health. We are going to feature some very engaging clinicians and experts from the world of functional and naturopathic medicine to help achieve our mission to empower people to lead their best lives naturally.

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[1:43] **Dr. Paul Hrkal:** Hello, everybody. My name is Dr. Paul Hrkal, and welcome back to Supplementing Health. We have a great show in store for you today. We're going to talk all about antivirals. We'll also talk about chronic viruses, and I'm here, joined by Dr. Courtney Ranieri.

[2:00] I work with Dr. Courtney in the capacity that she actually works in, the field of naturopathic medicine. She is a naturopathic doctor, and she has this unique practice. She also has experience with antiviral therapies from a testing perspective as she works as a consultant for the lab industry, and she has a practice that's focused on female health, hormonal health, public health; she's also a public health therapist, which is a pretty cool combo. I'd like to welcome Dr. Courtney. Thanks for joining me today.

[2:38] **Dr. Courtney Ranieri:** Thanks for having me, Paul. I'm excited.

[2:42] **Dr. Paul Hrkal:** Yeah, we work together in the context of testing, and one of the things that we have seen through talking to experts throughout the world on tackling infections and primarily chronic infections. One of the things that really came out to us was chronic viral infections are one of the big issues. A lot of people are focused on Lyme and intercellular

bacteria, but viruses are like the classic intercellular meaning inside of our cell's microorganisms. How did you get introduced to the antiviral and viral testing worlds?

[3:27] **Dr. Courtney Ranieri:** Good question and really interesting because we do know that it does affect so many people. When you start to dig into why your patients are feeling the way they feel, sometimes it comes back to chronic infection, viral infections, like you said, bacterial infections.

[3:44] The more research we do on this topic, the more we know that there is a connection to these kinds of infections, and a lot of symptoms that we experience: autoimmune conditions. There's more research on MS, and Parkinson's, and even Alzheimer's. There is a lot of interesting research coming out, and that sparked my interest in this topic. Just trying to get to the root – as a naturopath, you know we try to look for the root cause of patients' symptoms, and a lot of times, it can come back to these infections.

[4:18] **Dr. Paul Hrkal:** Yeah. Infections are something that are now being appreciated as one of the key underlying triggers for chronic diseases. Before we get into that because I find that really fascinating, I want to pick your brain on that. Give me an overview. Let's just chat for especially the benefit of our listeners. What are viruses, and what makes them unique in terms of hijacking our body's own cells to work against it?

[4:44] **Dr. Courtney Ranieri:** Viruses are really, really interesting because they actually use your own body, your own cell's machinery to help them replicate, so they use your, like I said, your machinery to help them replicate. The viruses attach onto cells. They insert their DNA, and then they use your cell's machinery to replicate and make more of themselves, which then go on to infect other cells. That's how you can see that it can very easily multiply in the body. Viruses are sometimes hard to slow down because of this quick replication they have and the efficiency of doing so, as well.

[5:26] **Dr. Paul Hrkal:** Yeah. They use various receptors to bind onto in our cells. Then they incorporate their own DNA into each one of our cells that they infect. Then they use the cellular machinery to actually replicate themselves. So, as you said, it's a sneaky way of basically creating an infection in a host, and ultimately, it's tougher for the immune system to sometimes see these viruses because they are inside of our cells.

[5:59] That's always been a challenge with any of these more intracellular or inside of our cell organisms. There is a difference between acute infections, things like influenza. Obviously, everyone is dealing with the current situation. But you have had a special interest in dealing with more chronic infections.

[6:23] You mentioned a couple of diseases that a lot of people have never associated with viral infections. Can we speak to just viral infections and their prevalence in not just, "I'm sick with a viral infection," But also as the initiating factors in a lot of the conditions that people would never associate with a viral condition?

[6:45] **Dr. Courtney Ranieri:** Like I said, a lot of good research is coming out on this topic now. What we know is that people actually have been infected with a lot more viruses than we have ever known. For example, Epstein-Barr virus, also known as mono. We associate that with the kissing disease, people who are teens and in their 20s get it. But what we now know is if you look at all of the adult population, about 80% of people have antibodies to this Epstein-Barr virus, meaning that they have been infected in the past with it.

[7:19] That specific virus, we are now finding out, can it lay latent in the body? That term just means that the virus is sleeping; it's not really active at that time. What can happen or what we think can happen is it can become reactivated as well later down the road.

[7:41] **Dr. Paul Hrkal:** What are some of the things that reactivate it because if you say most of us have these viruses, and I've seen the research too, so we're all walking around with Epstein-Barr. Why do we not all have mono, where some people have a very strong infection, and then they're out of it for a couple of months?

[8:01] **Dr. Courtney Ranieri:** Totally. That comes back down to the immune system. Some people's immune systems do a really good job at keeping it latent, sleeping. It stays dormant forever – for their whole lifetime. For other people, there may be some things that happen during their lifetime that can trigger the reactivation, things like another infection. With Lyme, we see a lot of co-infections with it. Even the Herpes virus can reactivate EBV.

[8:31] Also, chronic stress. We know that stress dampens the immune response. It decreases our ability to get rid of infections. That can cause a reactivation of anything else that can suppress the immune system: poor nutrition, lack of sleep. A lot of patients who experience this have told me, "I had a really stressful year. I wasn't sleeping. I wasn't eating very well." Then, they started feeling the after-effects of the reactivation. Basically, anything that can decrease the immune system in some people may trigger this reactivation response.

[9:08] **Dr. Paul Hrkal:** It's so fascinating. I guess from what you're saying is that viruses are inside of our bodies all the time. Anybody that has heard of Herpes virus – so it's hanging out in one of the facial nerves, and when you get stressed, you get an outbreak.

[9:26] It's almost like the immune system, and this is an important takeaway point that the immune system is constantly keeping these viruses in check. Then when a stressor like a breakup, a move, or it could be anything. It can be something as simple as another infection. Whether it's psychological, physical, mental, emotional, and that brings out this infection.

[9:55] One of the things that you mentioned, the Epstein-Barr virus and mono. Just since we're on the topic, what would be the thing that a person that contracts Epstein-Barr virus and mono, what are the first things they should be thinking about in terms of getting themselves on the road to recovery?

[10:15] **Dr. Courtney Ranieri:** Yeah. Again, like you said, it comes down to the immune system here. With Epstein-Barr virus, with mono, it affects T cells, so we need to make sure that we're giving the immune system what it needs to help to pull out all these immune cells and all of these immune proteins to help kill off this virus or keep it at a level that's not causing an infection anymore.

[10:39] Lots of great antiviral herbs and some nutrients that are important. My favourite one, and the one that people know the most, I would say actually two: vitamin C and zinc. Those are really important nutrients for the immune system. We know that zinc, for example, helps to reduce the incidence of cold and flu symptoms, and it can help with incidences and how often people are getting it. The zinc, in particular, helps the immune system differentiate its cells and produce more cells, which is really, really important during that acute immune response.

[11:28] **Dr. Paul Hrkal:** Yeah, for sure. I always tell my patients that when you're sick with any infection, your demand and need for vitamin C goes up exponentially. That is one key factor that has been overlooked by both the research world as well as people recommending vitamin C because the body has a much higher need, So, the need to take much higher amounts, and they can handle much higher amounts.

[11:55] You can go to bowel tolerance, and that bowel tolerance actually changes because your body can absorb a lot more of it. I've heard of zinc being one of the most important factors, not just for healing of tissues and differentiation, but also in terms of actually the virus getting into our cells, and then infecting them, and then replicating.

[12:15] So, adequate zinc levels are really important. One of the most common questions that people ask me as patients is, "Oh, yeah. You know what? I eat a lot of vitamin C-rich foods." Can you get enough of both vitamin C and zinc through your diet, or do you need a supplement?

[12:33] **Dr. Courtney Ranieri:** I think it really depends, but I prefer to supplement with it, so I know exactly how much patients are getting. It's very hard to determine how much vitamin C or zinc you're getting from foods. Obviously, we want to promote foods that are high in those two nutrients, but at the same time, I think there is a need for supplementation.

[12:54] Everybody is different, of course, but I think it's really important to supplement with those two because it is difficult to get enough, and like you were saying, at the levels we would want to see it at through food and nutrition. Definitely, it helps to include those foods, but sometimes we need a little extra outside help.

[13:13] **Dr. Paul Hrkal:** Yeah. I would even take it one step further. There aren't great sources of zinc in our diet. I always see in the textbooks, the one that comes to mind is oysters – people are eating oysters and shellfish as a good source of zinc. You do get trace amounts in animal products.

[13:37] Definitely, if you are eating a poor diet, you are at an increased risk for both deficiency and vitamin C, which is found in your colourful fruits and vegetables. For example, one of my favourites is red pepper and other sweet peppers that are quite high in vitamin C. There are a number of fruits, oranges, being one of them – not the highest, but one of them.

[13:58] That's something that needs to be consistent all the time. When you're stressed, when you're sick, you're not eating as many of those healthy foods and those high-vitamin C-rich foods. I do want to make a point of over the years there appears a time where you don't eat as much, especially zinc, and your body levels generally start going down, and the amounts that are in our foods are not as high as we think that they are.

[14:22] So, there a definite need for what I consider orthomolecular dosing or super physiological dosing. What are some of the dosing strategies? I mean, not specifically, but in general, what kind of doses are you looking at when it comes to vitamin C or zinc in your research?

[14:41] **Dr. Courtney Ranieri:** Yeah, vitamin C and zinc, like you said, when you are feeling sick, or you have an infection, your need does go up. Some of the research on vitamin C and zinc has looked at vitamin C in particular, oral doses anywhere between 1,000 to 2,000, and we can go quite a bit higher than that.

[15:01] And you know, as well, that lots of naturopathic doctors and other doctors are doing also vitamin C intravenously at much higher doses than this. You touched on a point there where what's the difference? Why can we go so high in an intravenous dose versus an oral dose, and that comes down to bowel tolerance.

[15:19] When we say that, we mean sometimes very high doses of vitamin C orally can cause looser stools or some kind of discomfort there. Orally, a lot of the research is on 1,000, 2,000, 3,000, 4,000 milligrams of that vitamin C, and zinc is usually around 30.

[15:38] **Dr. Paul Hrkal:** 30 milligrams. Yeah. In terms of some practical things, zinc sometimes can make people a little bit nauseous. Right?

[15:46] **Dr. Courtney Ranieri:** Yes.

[15:46] **Dr. Paul Hrkal:** Can you speak to some of the applications of zinc complementally?

[15:51] **Dr. Courtney Ranieri:** Yeah. Usually, with those kinds of supplements, I tell patients to take it with meals just to help with that nauseous side effect. Some people don't experience it at all. They can take it on an empty stomach. Some people are more sensitive to it. So, just to be on the safe side, I always say take that with meals.

[16:11] **Dr. Paul Hrkal:** Yeah, for sure. Those, to me, are two of the foundational things when it comes to any viral infection. We were talking a little bit about Epstein-Barr virus. What are some

other conditions other than mono, which a lot of people just have to go through the process? For some people, they bounce back within a month. There's definitely enlargement of certain organs: spleen. Obviously, that's why they avoid all contact sports, so you have to listen to your doctor's advice on that because that is definitely legitimate.

[16:42] In my experience, applying some of the things you just talked about, it can be quite helpful, and even using those intravenous doses, you really get high levels to support the body's ability to handle an increase viral load, as the body is dealing with more exaggerated Epstein-Barr infection. What are some other conditions that Epstein-Barr is involved with, because it seems like this is the usual suspect on a number of cases, and I've seen this in a lot of different research now?

[17:15] **Dr. Courtney Ranieri:** Yeah. The biggest thing that we have associated Epstein-Barr virus with chronically is thyroid conditions, specifically, autoimmune thyroid conditions. That's your Hashimoto's and your Graves. That's how I got really interested in this is, I see a lot of women in my practice, and a lot of times, they are presenting that fatigue and the difficulty losing weight, and dry skin, loss of hair that we can sometimes pinpoint to the thyroid condition.

[17:45] We want to treat that, but we want to also get to the root cause, and that's where looking deeper and finding out if there is a viral infection associated with it comes into play. What's interesting is why we think that EBV affects the thyroid is something called molecular mimicry. Basically, what that means is the virus actually mimics the body's own proteins, which triggers an immune response that causes an autoimmune attack on those tissues.

[18:14] For example, the EBV, we think, may be mimicking thyroid tissues, and that can trigger that autoimmune response that we associate with Hashimoto's and Graves disease, hypo and hyperthyroid conditions.

[18:29] **Dr. Paul Hrkal:** That's so fascinating because this is definitely not something that's talked about from a mainstream endocrinology perspective. As you mentioned, autoimmunity is a huge reason why people suffer from any sort of thyroid condition. Often in my experience, the autoimmune markers are, first of all, missed because they're not being tested.

[18:53] Then, secondly, if they are being identified, definitely the potential of a viral trigger or cause is not being considered. So, what you just said is really mind-blowing. If a person has a thyroid issue, how should they go about checking if this is an actual problem for them?

[19:16] **Dr. Courtney Ranieri:** Like you said, doing all the testing, checking the antibody levels. The goal of any autoimmune condition is to bring down those antibody levels to a point where the body is no longer attacking the thyroid because, with all those autoimmune conditions, the reason why we are not having optimal levels of thyroid hormone being produced is because of an attack on the tissues.

[19:42] So, checking those autoimmune levels, we can actually know – do an EBV panel where we can check for a chronic infection. We can check to see if it has been reactivated. We can check to see that it is positive right now, so there's a lot of interesting testing we can do to take a look at that.

[19:59] I'm a big fan of testing in my practice, as I know you are as well. They use the term "Test, don't guess." I truly believe in that because when we know exactly what's going on, we can put together a bit more specific treatment for patients that will ideally help them better.

[20:16] **Dr. Paul Hrkal:** Of course, and especially in this case because this is a potential cause that, first of all, a lot of listeners right now are probably having their mind blown that there could be a virus that could have caused their thyroid issue. I think to summarize what you're saying is that, first of all, if there is a thyroid issue that should be identified and properly tested with a full thyroid panel, TSH, Free T3, Free T4.

[20:45] Then, the autoimmune markers you're talking about are the anti-TPO and anti-thyroglobulin antibodies. That's usually the most specific and sensitive one. There's also anti-TG, which is an anti-thyroglobulin. The anti-TPO is one that I usually start with. If those are positive, now there's an autoimmune process going on.

[21:05] As you said, that's where you can now look at some of the potential viral tests that are available. Is this the standard test that a person can just go to their lab with their family doctor, or are you talking about something more advanced?

[21:23] **Dr. Courtney Ranieri:** For acute cases of mono, a lot of the time, they do something called the Monospot test. It's not that. That's a public health test. This is looking at the immune response to that EBV. It's an EBV panel. It's not the Monospot testing.

[21:42] **Dr. Paul Hrkal:** Yeah, so this is over and above what public health, but it gives you a lot more information about and actually more accuracy if this is something that's affecting you. Right?

[21:54] **Dr. Courtney Ranieri:** Yeah, and it gives us a clear idea. It tells us IgG and IgM levels where IgG means chronic or past infection, where IgM means active. It could be active new or active-reactive. That's how we get more information from this. It's like peeling back the layers. This is like the next layer of the testing.

[22:16] **Dr. Paul Hrkal:** Okay. Perfect segue. Say a person finally gets to the point that they have positive TPO or positive thyroid antibodies. They have the diagnosis of Graves or Hashimoto's, which are autoimmune conditions. Can something be done about it? What are the options because, at this point, a lot of times, people are like, "Well, you know what? From a conventional perspective, it is, we can't do much for you." What do you think?

[22:42] **Dr. Courtney Ranieri:** Yeah, and I think there is a step-wise process to this. I take a five-step approach to treating these kinds of conditions. The first one being, figure out what's going on. Like you said, that's the testing. That's the first thing we do.

[22:57] Then, we try to help with the infection. Like we talked about, doing some things to help the patient get through the symptomology of it. The next couple of things we do is optimize the gut health. The gut, we know, is so important for our immune response. Seventy percent of our immune cells are actually around our gut. So, we work on gut health. We work on nutrition.

[23:20] Actually, the last step I do usually is, modulate the immune system. That's the last step, and I think that's really important in this process to go through these steps sequentially to make sure that we are helping the patient heal and not trying to jump to the next step too quickly.

[23:37] **Dr. Paul Hrkal:** Yeah. Just for the sake of our listeners, what does modulate mean for those listening.

[23:42] **Dr. Courtney Ranieri:** Modulate means essentially modify the immune response. So, for example, with the immune response, we don't always want it so ramped up because that is the issue with autoimmune conditions. It's too ramped up against certain tissues. On the same side, we do want it working against viruses and bacteria. So, modulating means ramping it up where it needs to be, but keeping it under control where it needs to be, as well. That's why I like the word modulate more than ramp up –

[24:13] **Dr. Paul Hrkal:** Boost.

[24:13] **Dr. Courtney Ranieri:** – or increase or boost, exactly.

[24:16] **Dr. Paul Hrkal:** That's such a great point, Courtney, because we think of micro, we need to kill it. In the case of viruses, there really is no such thing as killing a virus. The body has to live with it. I've been talking in recent days about immune resistance, and immune tolerance, and this teeter-totter between the two.

[24:35] Autoimmunity, especially now that you just pointed out, quite incredibly, that there could be a viral infection that could be triggering this, you want to fight the viral infection and allow the immune system to control it. But, at the same time, you don't want an overresponse of your own immune system against cell tissue, which is what the definition of autoimmunity is.

[24:57] So, there's this balance between resistance and tolerance. I think that's what you're referring to when it comes to modulation is that you're not trying to be overstimulating, but, at the same time, you want to stimulate enough to create a response against the virus and in a proper way.

[25:17] **Dr. Courtney Ranieri:** Exactly, and it's like getting the body back to doing what it naturally should be doing. So, getting it to work really hard to kill off these viruses, but not kill off

its own tissues or start affecting its own tissues. So, just getting your body back to where it should be.

[25:34] **Dr. Paul Hrkal:** Yeah, for sure. I think we did a really good job of outlining what's happening on the autoimmune, viral connection. For anybody that's listening, I think anytime there is an autoimmune process you should be looking at, with your naturopathic doctor or your functional medicine practitioner, your medical doctor, about an underlying infection of some sort.

[26:00] There is a lot of research showing that in autoimmune conditions, one of the triggers is some sort of latent or chronic infection. So, for us, Dr. Courtney, let's switch to some of the favourite things that you like to do to, as you said, modulate the immune system. What are some of the things that you find are go-to's in your practice, especially when you're dealing with both acute and chronic viral infections?

[26:30] **Dr. Courtney Ranieri:** We want to approach this at a lot of different angles. We want to help the gut; we want to help the immune system; we want to help the stress response. So, I personally like to use a couple of different things. It's not just one kind of thing that I use with everybody. Again, as all naturopaths, we individualize our treatments, everybody is treated differently depending on what's going on.

[26:55] One product that I really like because I think it hits it from a lot of different angles is the AOR Ortho Adapt. That one specifically because there are a couple of things in it that I like. There is the vitamin C, which we just talked about the importance of that in any kind of viral response with boosting/modulating the immune system.

[27:18] There's also licorice and ginseng, which we know are great antiviral agents. There is very good research on that. The last two things in it are two adaptogens. If you're not sure what the term adaptogens means, it's a favourite of naturopaths. It's an herb or a product that helps to modulate or the body adapt to the stress response.

[27:45] When we are stressed, we release a lot of stress hormones. What do those stress hormones do – cortisol and those types of things? They actually shut down a lot of the immune response. So, if we can fight this from a lot of different angles, we can stop the body from shutting down its own immune response by including some of these adaptogens.

[28:05] I really like that idea. I think it's so synergistic and so important to work with it. We kind of touched on it at the beginning of this podcast, what are some of the reasons that people may not be recovering as well? Part of that is the stress response.

[28:20] **Dr. Paul Hrkal:** Yeah, huge.

[28:21] **Dr. Courtney Ranieri:** It's not just giving people antiviral agents and immune-modulating agents. It's working on all aspects of health. I think that's really big, and sometimes, we overlook that as well.

[28:32] **Dr. Paul Hrkal:** I really love that you led with that as one of your favourites because, you're right, it's only addressing what's actually happening at the cellular level. You mentioned a number of those herbs help support immune function, specifically, licorice, and the active component is called glycerin, which helps reduce the ability for viruses to hijack the cells. It can be very, very helpful.

[28:59] In this particular product, there are very high doses of licorice. So, that also has the ability to help the function of cortisol, extend its functions to people that are very fatigued, very tired. It definitely is one that comes to the top of the list when it comes to conditions, especially viral conditions that have fatigue as a big issue, which Epstein-Barr is known for very classically.

[29:23] You mentioned, stress is massive as one of the underlying issues, so why not give an intervention that also helps a person adapt and deal with that stress as opposed to the typical antivirals, which are called virostatics, these acyclovir, valacyclovir. This class of medications basically stop the replication of viruses, but they don't help the body's resistance. That really is truly immune resilience, what you're talking about. Right?

[29:56] **Dr. Courtney Ranieri:** Yeah, absolutely.

[29:58] **Dr. Paul Hrkal:** So, let's talk about a couple of other things that I know that you use in your practice, and I know a lot of other people have heard about it. When it comes to antivirals, what about Echinacea. Echinacea gets, sometimes, all the spotlight because it's the most popular, well-known immune-supportive herb. It sometimes gets the most negative press because there are some researchers finding that it's not helpful. What's your take on Echinacea?

[30:31] **Dr. Courtney Ranieri:** What's interesting about Echinacea is, it's probably one of the most well-researched herbs that we have out there. There's a lot of interesting research on it and a lot of research on acute infections, so things like colds and flus. What we have found through this research is it does decrease the amount of time, usually with these colds and flus. That's one of the benefits of it, and it can reduce the number of total incidences that we see as well, specifically, with colds, flu, upper respiratory tract infections. One of the reasons why I like it, in particular, is, it's very safe, actually, for use.

[31:07] **Dr. Paul Hrkal:** So, you're saying that there is good research supporting its benefits, and the negative press is sometimes is not warranted?

[31:33] **Dr. Courtney Ranieri:** I like it because I think it's a safe herb. I've found it to be effective in my patients. We know that it does have an effect on the immune system. It does stimulate T cells and things like that, so I think that it can be very helpful.

[31:50] **Dr. Paul Hrkal:** Great. That's good to hear because I know a lot of people go to that. I've used it in my practice as well. Practically, I probably lean more toward a tincture, which is an

extract of an herb that is in liquid, so in an alcohol base. When you taste a really good-quality Echinacea extract, it's like your tongue tingles. Those are the alkaloids, which is one of the medicinal classes of compounds that Echinacea contains. You can really tell if you have a good-quality herb with that tingling in your mouth. I'm sure you've experienced that before.

[32:28] **Dr. Courtney Ranieri:** Yeah. I actually think it tastes not that bad. I like it.

[32:33] **Dr. Paul Hrkal:** Yeah. I think I'm biased hearing it from naturopathic doctors because my kids will take anything. I was just telling my wife yesterday, "I'm so impressed that my kids are like whatever I give them, they're good." I think I've trained them that way.

[32:49] But I know a lot of people out there are like, "I don't want to take something," or "My kid won't take it because it doesn't taste great." And there are ways of making things taste better. For example, you can mix in a little bit of Elderberry syrup, which has some of its own antiviral properties, and Elderberry syrup tastes very pleasant and very sweet. You can mix a little bit of Echinacea in that. There are a lot of combination products that might combine the two. So, don't give up just because you don't feel like taking it because it's not the most tasty thing. Echinacea is not bad.

[33:23] **Dr. Courtney Ranieri:** And you can get it in capsulated forms, as well. There are some brands that are very good quality and high enough dosing in capsules or tablets. That is a possibility, too, if somebody does not want to do it in a liquid.

[33:40] **Dr. Paul Hrkal:** For sure. Any other things that you think about with your patients when it comes to your antiviral approach? We covered a lot of different core things like vitamin C, zinc, which I think both of us agree that are foundational – a good adaptogenic formulation, especially one that has licorice in it, I think is a great place to start.

[34:09] If a person really is under the weather and sick, then using intravenous therapy of getting vitamin C and zinc, you can't do every herb, but you can safely do vitamin C and zinc. Anything else that you think our listeners should know in terms of having in their antiviral repertoire and medicine cabinet?

[34:29] **Dr. Courtney Ranieri:** One thing you may not think of as an antiviral or a cold and flu kind of supplement is actually probiotics. That's a really interesting one. Most people have heard of probiotics. What probiotics essentially are is capsulated bacteria that we can ingest and hope to flourish and live in our gut microbiome.

[34:56] I just did a presentation on this recently, so I have all these stats on the microbiome. What we believe is that there are three or four pounds of bacteria in the gut alone.

[35:05] **Dr. Paul Hrkal:** Wow!

[35:06] **Dr. Courtney Ranieri:** It's really important that we make sure that we have the right kind of types of bacteria in there. There are very good bacteria in our gut that help us to activate enzymes and hormones, as well. And there's other bacteria that is pathogenic. So, probiotics help to increase the amount of that good bacteria that we want in that gut.

[35:31] Some research in 2015 reviews showed us that probiotics were better than a placebo for decreasing episodes of upper-respiratory-tract infection and decreased the time that people had these upper-respiratory-tract infections as well, which is interesting and something we don't think about as an antiviral.

[35:52] Even segue that over a little bit back to EBV. There have been some considerations and studies into looking at the effect that the gut has on thyroid conditions and mono, and in particular, one pathogenic bacteria, blastocystis. There is a connection between that EBV and thyroid. Again, it comes down to making sure the gut has good bacteria in it; we're modulating it and trying to decrease the amount of the bad bacteria in there.

[36:26] **Dr. Paul Hrkal:** I'm really glad you brought that out. Thank you. That's such a powerful point that especially as a takeaway point of understanding that your gut – and as you mentioned, 70-80% of our immune system is in and around our digestive tract. That's just the immune tissue, like your lymph tissue where your immune cells mature.

[36:51] This is definitely something that we could do a whole episode on and dive into how the immune system is exposed to all the different foods and proteins and chemicals that you ingest. That's how they learn what is normal, what is self, our own tissue, and what is actually a bacteria or pathogen.

[37:14] That's the first place you usually get exposed is in your gut. That's why there is so much immune tissue around there. If you are eating foods that are high in sugar and refined chemicals and fats and pro-inflammatory molecules, you're basically priming your immune cells to have a poor response. That includes to fight off viral infections and probiotics, as you mentioned, help support the body's own bacteria, which are key in regulating that maturation process of our immune cells.

[37:54] I'm really glad you brought that up because I can't emphasize that fact as much. It's so great to see that there's research being done on this, and mechanistically it makes a lot of sense. Definitely, naturopathically, traditionally, we've known that this is one of the key things to chronic infections.

[38:14] Definitely, as you mentioned, with autoimmune conditions, you've heard it probably listening to ours and other podcasts and reading blogs online or maybe even from your naturopathic doctor: if you have an autoimmune condition, you have to treat the gut. This is why you have to have to do that. So, do you have a particular strain of probiotics or anything that you recommend, Dr. Courtney?

[38:37] **Dr. Courtney Ranieri:** I like to keep up my probiotics in the sense that I usually change it up, depending on the patient. As you know, there are specific strains that have been studied to help with specific things. If the patient is experiencing, for example, traveler's diarrhea, you want to prevent that. There are specific strains we want to be taking for that, or autoimmune conditions – specific strains we want to use for that.

[39:02] With any probiotic, you want to make sure that the amount of bacteria inside each capsule is good, and that's usually shown in the label as a CFU, which means colony-forming unit. That's how we tell how much bacteria is in the capsules. You want to make sure there's nothing in there.

[39:18] I'm also particular about the way that it is encapsulated because what we want to do is make sure that bacteria is actually getting to where it should, which is in large intestine mainly. There shouldn't be that much bacteria in the small intestine, or else that leads to a whole other issue, SIBO, or in the stomach as well. So, we want to make sure that bacteria is actually going to resist that stomach acid and resist all those digestive enzymes and can make it to the large part of the intestine and the colon.

[39:48] **Dr. Paul Hrkal:** And there are hundreds of different strains. I think that's a hard question to answer, like, what strain would you use? There are Lactobacillus and Bifidobacterium, and then there are other ones from the clostridium family that do other things. I think we'll save that for a whole other show because to do justice to the question, you have to break down all the different strains.

[40:15] As you mentioned, those are some good points – looking for a good amount of good probiotics, like 20 billion is a benchmark that I use as a total dose. Then, definitely, the quality matters, in my opinion. Usually, you definitely get what you pay for when it comes to probiotics.

[40:34] Keeping them in the fridge and if it's an added bonus, some strains – like there's a Bifidobacterium BB536, I'm thinking of specifically that has research in influenza, and it is shelf-stable. That is an added benefit where you are going to get it into the gut and past the stomach acid, past the small intestine, where it can actually inactivate the probiotic and kill it. There definitely are some specifics, and I would say talking to your naturopathic doctor could help you identify those specific strains.

[41:11] **Dr. Courtney Ranieri:** I agree with you there. The one supplement I don't think you should cheap out on is a good probiotic. You want to make sure you're getting some good stuff out of it, and to do so, I think you need to spend a little bit of money on a good quality product there.

[41:27] **Dr. Paul Hrkal:** For sure. Dr. Courtney, thank you so much for joining us. This was intriguing. I'm really glad you shed some light on this connection between viral infections and autoimmunity. This is something that we haven't talked about yet on the show, but we'll have to explore it even more.

[41:43] A lot of people are suffering from, not just viral infections, but a lot more even from autoimmunity and thyroid issues. This is a message that everyone needs to hear. If people want to get to know you better and reach out to you and connect with you, what's the best way to do that?

[41:59] **Dr. Courtney Ranieri:** Like you said, I'm a naturopathic doctor in the GTA area with practices in Toronto, Mississauga, and in Woodbridge, as well. My website is drcourtneyranierind.com/. I'm also at Instagram @drcourtneyranierind and feel free to reach out or say hi any of those ways.

[42:20] **Dr. Paul Hrkal:** Awesome. Thank you so much for sharing your insight. It was an absolute pleasure to have you on, and I'm sure we'll have to have you back on a future show to discuss some of the other things that you're seeing in your patients.

[42:32] **Dr. Courtney Ranieri:** Awesome. Thanks for having me, Paul.

[42:34] **Dr. Paul Hrkal:** You're very welcome. Thanks to everybody for listening to this episode of Supplementing Health. Be sure to tune in next week as we chat with another expert about all the things that you need to know about getting the most out of your supplements and natural health. Till then, see ya.

** * * Outro Music * * **

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[End of episode 43:35]