So, your brain is the most metabolically active organ in your body. It is two percent of your weight, but even at rest, when you're not doing anything that is lots of intellectual activity, it is absorbing at least 20% of the oxygen and the minerals and vitamins that are coursing through your bloodstream.

If you are very active, that could be 50%. This is basic physiological knowledge. Welcome to the Nutri-Talk podcast hosted by Hardy Nutritionals. What if mental wellness starts with nutrition?

Join us for insightful conversations with researchers and clinicians exploring the science of nutritional psychiatry and broadspectrum micronutrient therapy.

Let's learn together. Welcome to the Nutri-Talk podcast powered by Hardy Nutritionals, home to most researched broad-spectrum micronutrient formula in the world.

I'm the executive producer, Dr. Z, here with our host, Loan Hardy, the managing director of Hardy nutritionals and Dr Kaplan. Today, we're diving deep into real science and real stories that are transforming thousands of lives through the power of micronutsrients.

Let's get started. Thank you, Lowen. Thank you so much, Dr. Z and Bonnie. It's really great to have you on here. So we're going to start. Bonnie Kaplan is a professor emeritus in the Cummings School of Medicine at the University of Calgary.

She has published widely on the biological basis of developmental disorders and mental health, particularly the contribution of nutrition to mental help.

Her efforts to educate about the role of nutrition and brain health resulted in her selection in 2017 as one of 150 Canadian Difference Makers in Mental Health in honor of Canada's 150th birthday.

In 2019, she was honored with the Dr. Rogers Prize for Excellence in Integrative Complementary Medicine. In 2021, she was chosen as one of the top seven over 70 in Calgary, Alberta, partly for her book, The Better Brain, written with Professor Julia Rutledge and published by Harper Collins, as well as her two charitable funds supporting research by junior colleagues who study nutrition and mental health.

Her primary goal is to bring nutrition, education, and treatment to the forefront of mental health care. So Bonnie, how did the University of Calgary do at capturing you?

Oh, of course, that's not me as a person. But, you know, the emphasis is on degrees and awards and so forth. You did fine, Lowen. That's fine. And I can update you just in a sentence about the fundraising.

One of the things I did when I was retiring, which was almost 10 years ago from academia, was I decided I would try to raise money for my junior colleagues.

who've always had difficulty getting grants to study a broad spectrum of micronutrients. Even the granting agencies just don't want to support that. And when I put out the word to lots of people and started mentioning it, money started dropping out of the sky.

So I had established two charitable funds so that people could get charitable tax receipts, one in the US and one Canada. And in fact, they were very successful and I raised, as you said, over a million dollars and distributed every penny of it.

None of what was for me because I was retired. But now I am in the midst of doing additional fundraising, especially because of the lack of, what? Right.

unsettled situation in the U. S. with respect to scientific research, there are some wonderful young scientists like postdocs who need additional money.

So people should feel free to contact me. Will you put my email address at the end of this or I'll just mention it briefly? Absolutely. It's kaplan, K-A-P-L-I-N, at ucalgary.ca.

I'm happy to hear from donors. Yeah, that's great, Bonnie, and we'll definitely share that address around. And I just want to thank you for taking the initiative to start those funds and collect the money.

We've talked to researchers from all over the world, a lot of them referencing you as their inspiration, getting into this. And funding always comes up.

It's always part of the picture. They have to get over the funding hurdle. they might be really excited about researching what we have or something else.

And they have have the finding, otherwise their ideas aren't going to come into fruition. So I just feel like your foresight here is really valuable. Sorry, I didn't mean to interrupt you there.

You always have to get used to the little time delay when you're online. So the otherwise really is, otherwise they change their careers. That's the really sad thing that triggered my interest in raising money is that young scientists were interested in studying nutrition in relationship to mental health, but without funding, they had to look at another topic area.

Yeah. Exactly. So Bonnie, I want to rewind quite a few years and just have you reflect on what you were up to in your career before broad spectrum micronutrients came onto your radar.

What were you up too? Well, I've always been interested in the biological basis of human behavior, and I trained in experimental psychology. I'd never been a clinical psychologist, but in behavior and mental health I knew a bit about that.

And then I did postdoctoral training in neuroscience. Although we didn't even have that word then, that shows you how long ago it was. So I was interested in understanding what was causing the problems that we were seeing in children, especially when I hired here in Calgary at Alberta Children's Hospital.

I never believed that it was nature or nurture, but it's a combination of both of them. And you can't always do something about a complex family, that if we understood better what is causing emotional problems in young children from a biological basis, then maybe we could prevent some suffering.

So that's what I was studying. So my father, David Hardy, connected with you, I believe, in the late 1990s. I remember meeting you. It was in our childhood home you came to visit.

You just came by to say hi or something. And I remembered you really made an impression on us as kids. We felt like it was a big deal to meet someone from the university coming into our home.

But before that meeting, what I understand, and again, you're going to have to help me, Bonnie, because You'll know more than I do on this story. So I believe that my father was working with Anthony Steffen as they were starting to track some of the people that they we're trying to help with the micronutrient treatment.

And they were starting to collect data. They took some of this data to Dr. Brian Kolb at the University of Lethbridge, which is just a stone's throw away from where both these men were living.

And I believe that Brian gave them some time. which is very good of him to do, and then he kind of referred them on to you. But can you help me out? I think I might be missing some details.

Help me with that story. You're missing the funniest details! Good! Sure, go there. Okay, so first of all, I met your

father in September of 1996. And the reason I meet with him and Tony and Autumn in 1996 was because they had approached Brian Cole.

I always say that the only reason I got involved in this work is that Brian cole was a better human being than I was, because when he first told me what they were doing, I said I have met with every flake in Alberta.

better you than me they've got to be I mean why did I think they were flaky because even though I was studying and interested in the biological basis and of human behavior and I had published in 1972 when I still a student an article on malnutrition and mental deficiency I was taught that nutrition had nothing to do with treating mental disorders and I believed it.

I had no reason not to believe it because I didn't look into it At any rate, when Brian Cold contacted me and said there are these two guys down here in southern Alberta who think that they're helping people with vitamins and minerals, that's when I said, don't send them to me, okay?

And I say, but, you know, Brian was a basic neuroscientist, so he mainly did studies in rats, in live rats. lab animals. And so I said, if you want to help them track some behaviors in some children, I can send you down a simple questionnaire.

We were faxing a lot in those days. I sent him the faxes of a questionnaire that he could use. So Tony and David took that questionnaire and they went out and collected data on a small group of people.

And the next thing I knew, and this was in August of 1996, I got a fax from Brian. And on the x-axis at the bottom, it said vitamins, hyperactive kids, or something like that.

It showed the children on and off. Now, it wasn't just vitamins. It was vitamins and minerals. Very important. Your father taught me that. And anyway, then I picked up the phone and I said, what are they doing?

I mean, I did an analysis of the data that was on that page and it was very impressive. And it's called an analysis of variance and I said, this is statistically significant.

What are they doing? Brian said I'm telling you, you should talk to them. So that's why they showed up right here in the room I am sitting in, our living room, because it was after hours, I'd come home from work.

And this was where we sat and talked. So that was in 1996, that first meeting where you met them in Calgary. Okay. That's right. Yeah. And I wonder just for our listeners, if you could just, cause you mentioned that Brian Cole was a better human than you.

I don't know if I'd leave that, but I've met Brian as well. For anybody, any Canadian researcher, they probably heard of his name, right? I'm wondering if he could help our listener understand who Brian was and why it might've been unusual for him to give them any time at all.

Well, I don't think it was unusual because he really was a very, or is, a really kind person. He's retired, but he listens to people. I mean, he's just, He is a kind of person, But he is in fact, well he retired.

So I'll use the past tense. Sure. he was one of the leading neuroscientists in all of Canada and he deserved that reputation. And he did some very very fine work and was quite well known for it.

So that's how they ended up on his doorstep. And then Brian knew that I had an interest in nutrition. In fact, I'm still, the only research psychologist in all of Canada doing any work on nutrition, people are not catching on yet here.

Yeah, so I think it was Dr. Kolb and maybe Brian, not Brian Wishaw, trying to remember. Ian Wischaw. That's right. They were the ones that founded the Canadian Center for Behavioral Neuroscience.

Some of the leading researchers that kind of started that. So that's very impressive. Yeah. And what I meant by,

you know, maybe it being unusual that Brian would meet with them just like on paper, if you have someone with these types of credentials, meeting with a couple of laymen, literally lay men who didn't have any academic training, really, I think that's kind of unusual that Brian would give them some time.

But because of the type of person that he was, he gave them time, which is, we can all be grateful for that because At Hardy Nutritionals, the work that we're involved in here, we are just continuing to kind of ride on the coattails of what David Hardy, those initial meetings that he had with Brian and yourself.

What were your initial impressions of David Hardee and of Tony Stefan as well? What did you think of these men? Well, the adjective that always comes to mind when I think of your father is earnest.

Your father was determined and earnest and sincere, and it's just an adjective we don't use very often. But it's just like his determination overrode everything.

I mean, he proved to be very, very smart, Very intelligent, and very knowledgeable about nutrition, as you know. And so I learned a lot from him over the years.

One of the things I've learned is possibly the minerals are a little more important even than the vitamins when it comes to mood dysregulation. We've got to get some research on that particular question.

But it's best that people take them all together, which is what your formula does. Yeah, we'll cover this in another podcast episode. I remember as a child, our garage was often full of these feed supplement bags, not for humans, but for pigs and cattle.

Mostly mineral supplements that he had formulated with his business partners and states. providing cattle and pigs with the proper nutrition that they need to be healthier and for the ranchers to make more money actually have better yields, that kind of thing.

So I remember we used to climb on these feed supplement bags and some of them were leaking all over the place and there was mice getting into them, probably really healthy mice or whatever.

Anyway, I just remember that. The mineral emphasis is really, it really comes from his background in animal nutrition. That really informed his insights.

largely, I think, and his training in biology. He did have a bachelor's degree in Biology. So he knew some things, but he just had the academic training that, you know, a master's or a PhD program would give him, right?

So coming from the field. Right. Yeah, coming from the boots on the ground perspective. Anything else you'd like to share with the audience about your impressions of David and Tony, that first meeting, your meeting with them?

Anything you would like share? Well, I think what I would share is, mean I could talk about Tony and how what a different personality he had, but I'd rather mention something about Autumn who, as you know, just recently passed away.

But she had a huge impact on me that day because she described what her illness, her mental illness had been like, postpartum psychosis. She described her symptoms.

you know her reaction when her father said um i want you to take some vitamins and minerals yeah and then as she recovered you and i had met a lot of people with psychosis when i was in training i did some practicum work etc i have never heard anybody talk about recovery like that and you couldn't listen to her and not believe her.

I mean, you knew she was authentic, that what she is describing was very, very real, and that somebody needed to study it. Yeah. So Autumn came with David and Tony to that initial meeting.

They happen to be driving up from where you guys lived and down around Raven and all. And Autumn needed to

driven up north to Edmonton. Right. so they stopped in to see me.

they didn't bring her to me, they just happened to have her with them. and I was so glad because it really taught me a great deal. Yeah, it sounds fortuitous knowing them.

I think they probably secretly hope that something like that could be written. That's right. Yeah. But I really think it's appropriate that you bring up Autumn.

Um, I have always had a lot of respect for her. And so Tony's initial experience with his own children, Joseph and Autumn, That really was kind of the catalyst that kicked this whole thing off, right?

It's the thing that put this on my dad's radar. The autumn was just such a special, such as special advocate for, you know, health, freedom and access to nutrition across Canada.

I just really admire her for the work that she did. So I'm really glad you brought that up. Perhaps for your audience, we should mention that she passed away recently, but it was not related to her mental disorder.

She had another health problem of great significance. Yeah, thanks for mentioning that. I was thinking of the same thing. That's a good point. So how would you describe your professional relationship with my father David and the role it played in helping to shape the nutrition research that's been conducted to date on broad-spectrum micronutrients?

Well, of course, I'm laughing because as you asked the question, what immediately comes to my mind is my failure. I mean, they just wanted me to study 14, and I am not exaggerating, 14 different disorders, do 14 placebo-controlled randomized trials and just get it done.

You know, it's just there, Bonnie. You know, make it happen. I'll never forget the day that they came to my office with this list and I'd already been trying to do some research and we'd had some problems.

That's when, you know that led to them deciding to make their own formula actually. And I had these problems and they just, your father was very impatient and it was like, just get her done.

And of course then I was shut down by health care and I get nothing done for a number of years. Yeah. I just want to make a point here because I think it's important for our audience to know that throughout this entire professional relationship that you had with my father, so he's coming to your office in Calgary and meeting with you and encouraging you to do this research, but at no point are we talking about like You know, paying you to do the research, it's just encouraging you like, hey, you're an independent researcher.

We would really love it if you could like research this so that people can know more about it, right? So maybe you can just comment on that, just the independent nature of that relationship.

Yeah, well this is where my age I think contributed something. I was already old enough that I had lived through a revolutionary change in mental health research.

i remembered a time when, I'll use the word physicians because it was mostly physicians, would not consider taking any money from any company. And that gradually shifted to them only doing research funded by pharmaceutical companies.

And I saw the corruption that resulted from it. If you went to an American Psychiatric Association meeting the disgusting display of pharmaceutical money, it was just so gross.

but you know they had just sold their souls for money in my opinion and so a lot of academic sciences not just psychiatry really got into a place where they were beholden to the funding companies and when I saw in some anecdotal examples the kind of magnitude of improvement that we could get with the broad spectrum formulas, I just didn't want anyone saying, oh, they're just doing that for the companies.

I mean, it would just be so tainted. So I told them that I would find students and so forth. We would do some research, but I wouldn't not want any affiliation with them.

And if I saw them in a meeting, kept up with it and the other researchers coming after me have pretty much kept the same rule. And yet, nobody believes it.

Yeah, I'm really glad you went there, Bonnie. I've been at conferences with other researchers that you've helped to kind of mentor. And yeah, they won't let me buy them lunch, not even a little something.

No, i'll pay for my own lunch. So I know that, you encouraged my dad to take this approach, but I think that he had a good way of looking forward and seeing how You know, the work that was being done was kind of a foundational work and it was laying the groundwork for something that Was really important long-term like well beyond his life even that it would outlive him and so he really You, know I remember him talking about how critical it, was To maintain the integrity of the, work so the independent nature of that you know the company has a product that's great but the research on the company's product needs to be done in an independent way so that it doesn't taint the credibility of the researcher and it does not implicate the researchers.

So I just think that was a really important step, a very important decision in setting this broad-spectrum micronutrient research Off on the right foot and I can say that to this date we've continued to.

Decide that that's how we're going to approach it. It's not easy to do that, but we continue to that and it's really just based on what you encourage my dad to, do and what he decided.

Yep. This is how are going approach this research song. You talked about, you know, getting this fax from Brian Cold. So in that first faxe that you got, what kinds of results were you seeing?

And then after that faxis, like what kind of result were people reporting in the data that collected? Well, the facts with some children I never met and I didn't know the validity of it.

So why don't we move to some of the cases I became aware of. And because I'm not a clinician, I wasn't treating anybody myself. But I remember a woman who your father and Tony Stefan helped, who had spent a number of years just in bed because of her psychosis, living in a rural area.

Her husband was a farmer and he took care of her and they put her on a broad early version of the broad spectrum formula and she became well enough to function.

And then these data are plotted out. I used them in a grant application but they've never been published. And then the husband and wife, she was well enough, they went to travel into BC to see some family who hadn't seen her in years and years, and they ran out of formula and she regressed.

Now, in science, we call that an ABA design. And when you can show on-off control of symptoms, serious psychosis kinds of With the availability of the bra spectrum formula that's very very convincing and then they brought her back to alberta they got her bag on the formula and she was much better so it's a bb but now there is a sad end to that story but an educational one.

That particular woman, she was deemed well enough that she could undergo some abdominal surgery that they've been putting off because she just wasn't well-enough to cope with it.

And she went for it and had complications and ended up passing away. So it was very tragic from her point of view. But listen to what happened in the academic side.

When they brought her back from BC, I found a psychiatrist, very junior, newly minted, because they I thought would have a more open mind, who agreed to see this woman.

and evaluate her and then see her again when she, you know, on off control kind of thing. And the psychiatrist said

to me, she was completely convinced.

So I said, well, let's write it up and let us do some research. It is just humiliating to her, not me. what she said. She said, Bonnie, I'm a new academic psychiatrist.

I can't have my name affiliated with something like this. Of course. But I am not going to write it up, but I will not publish it, and I won't study it.

No backbone. Yeah. And that's probably the only person that ever said that to you. There were no others after that, right? Uh, right. Yeah. No, I, there were lots.

I was just going to say that the saying that I got more recently is it's not in the clinical practice guidelines yet. Not going touch it. People who just have no courage, no thought, know intellectual curiosity is very disturbing.

Anyway, go ahead. I knew you were being sarcastic. No, that's good. But I do think someone in your shoes, and especially these new people coming up, I think for a lot of them, it does take a lots of guts, to consider putting their reputation on the line to go off into a territory that might be viewed as fringe.

And at the time that you are doing it, It was probably more so than that. I want to chime in. Your story is reminding me of a time I was in a medical conference and there was a researcher on stage who just gave a profound presentation on how there were a group of disabled people that showed lower butyrate bacteria in their gut.

And then I was so excited to share how the Daily Essential Nutrients product had shown an increase in beta-rate producing bacteria. And I thought that she would be highly interested in this and maybe want to research it.

So I went up with this assumption that there would that intellectual curiosity. This is my first experience as well doing this, going up to researcher asking, and her response to me was, That will be $50,000. I was like, oh, wait, what?

She's like my starting price is $50000. Oh, no, this company doesn't pay for research. It's independent research only. And she's, like yeah, I'm not going to look at it.

So I learned through that experience. I didn't even know that that was a thing, but I learnt through it. Yeah, so I just wanted to share and acknowledge how different you are from even my own experience in that regard.

So thank you. Thanks for sharing that, Dr. Z. I wonder if we can have you talk, Bonnie, about some of the barriers. We don't need to dwell on this, but I think that it's important for the audience to hear from your perspective because you've been around the block for quite a while in this micronutrient research space.

What are some barriers that you faced as a researcher trying to validate this? Trying to, you know, bring it to light, share it, publish on it. Well, a big one was the media.

The media just kept dragging us through, you know, ridiculous articles belittling our work, belittle your work your company's work. And so that made it very hard to convince my professional colleagues that I was trying to do legitimate research.

So that was a big one. Funding certainly was an issue. A bigger one was Health Canada. I mean, the Canadian people think that HealthCanada is there to protect their health, and that is not the case.

The majority, more than half of Health Cananda money, I'm pretty sure, comes from pharmaceutical companies and agribusiness. And they are no longer Mostly a taxpayer funded agency and they blocked our research and shut us down for over four years and forced me to take out of a trial that we were and send them back to their psychiatrist and medication.

I was told to do that. That's a letter that I've lost for some reason. So they were a big obstacle. And, you know,

when the media and Health Canada are not on your side, and when you finally get something funded and moving forward, then the clinical settings will not refer their patients.

That's what happened to me. After HealthCanada let us proceed, most of the money was gone for various reasons. Anyway, we couldn't get referrals. Yeah.

Is that enough of a list? That's quite a bit. I think you did a good job of summarizing that. And I sometimes think Health Canada and the media kind of teamed up and it felt like kind a full-court press against the research effort.

A media piece, I remember it was on TV, on the nightly news, just raising concerns that this might not be safe, that these micronutrients might be dangerous, like phalidomide or something like this.

you know, talking with my father about how ludicrous that was that they would even consider going there. I wonder if you could just for our audience, maybe just give some context to the, the maybe relative safety concerns that sometimes the media overstates.

Like even today, like in different jurisdictions recently, you now they're overstating somebody. Well, that might be dangerous. It might, You know. Maybe just put that in context for us from your perspective.

That was a really big deal. There was Health Canada warning against taking this multi-nutrient formula. And if you didn't read the warning, that would sound scary, right?

But what the morning was, was that some people who took this formula didn' t take their psychiatric medication. Well, they didn t need it anymore, you know?

That's why! So it made them feel crummy. So if I were to take some of these antidepressants or something, I don't suffer from depression, and I would feel terrible.

So that's the kind of thing that was going on. I think I've lost my train of thought a bit. You were focused more on… No, that wasn't really… That was good.

Really appreciate mentioning that. And I was just asking about relative safety compared to maybe… Safety. What else they could be taking, right? Like what are the alternatives, So that was relevant, but I also do want to say that all the people who've been studying the various multi-nutrient formulas are meticulous at keeping track of adverse events, health, heart rate, blood pressure, you name it, and there has never yet been a serious adverse event in response to a multi nutrient formula.

And whenever I tell people this, I'd also like to point out, look, if we had terrible adverse reactions to vitamins and minerals, our species would have died out.

We have adapted to need them. So why are you surprised that vitamins in minerals are not causing adverse events? Yeah. No, that's really good. I think that's good.

We've covered some safety concerns and some of the barriers that you faced. I want to maybe shift to a more positive. So, I've got a copy of your book here.

Okay. Ha-ha. … I was in London, England a few months ago with Julia and she gave out some copies of book to some the health professionals there. They did a little drawing and I thinks six or seven people want a copies the book.

Anyways, the people were lining up to get a picture and it was just really fun to stand there with them and to see Julia interacting with him. But, you know, Julia has been a very prolific researcher and she is one of your former students.

So maybe, maybe just because she's out there, and TEDx talk and. She's very well published. Maybe just talk

about your relationship with Julia and how she has kind of taken this micronutrient research to a new level.

I would be delighted to because she's a really bright light. So Julia was one of the best, maybe the desk graduate student that I ever had the pleasure of supervising.

She was born in Ontario, went to McGill University, came out to University of Calgary to do her master's and PhD. But I wasn't studying nutrition yet.

We were just trying to get started. So she was studying ADHD and developmental behavioral problems and so forth. and then she went back and did another postdoc, no, a post-doc at the Hospital for Sick Children in Toronto.

And then, she saw this ad for a job opening at The University of Canterbury in Christchurch, New Zealand. When she was in Alberta, She had married her husband, Will Harvey, who's from Alberta.

The two of them thought, well, that would be a lark. Let's go see what it's like to live in New Zeeland. And now, what, 25 years later, I think they're still there and their two sons were born there, and so forth.

But her only mistake was she sponsored me for a visiting fellowship to come out to University of Canterbury in 2003. And then I was getting really excited about doing research on broad-spectrum micronutrients.

So I showing all of our pilot data and talking up a storm and saying, Julia, you've got to study this. It's more important than anything you have been doing.

And of course, she had a full plate. She was a new young academic, She had lots of studies on the go, lots students, and so it took her a few years. Her first publication was six years later, 2009. But then, you know, seeing is believing, scientists, physicians, all of us are also human beings.

And when you see a life transformed, I don't know how you walk away from it. That young psychiatrist who I told you about, she walked away form it, but not many people with a conscience anyway can walk from away it and so Julia has been, as she runs a factory there turning out clinical trials.

on the broad spectrum micronutrients. So it's been a pleasure to see who grow that way. And she trained Jenny Johnstone, who now is on faculty of Oregon Health and Science University in Portland, Oregon.

Yeah. Yeah, the researcher maybe taking a life of its own. But I think that we should acknowledge here for our audience that Bonnie, you were really the leading pioneer behind the effort.

Like you're kind of the one that, Brian kind got you interested a little bit, but then you are the ones that really took it on as a researcher and then inspired these younger researchers to take it and I've been really humbled to meet some of these younger researchers and to see how excited they are about following in your footsteps.

And they're just inspired by the way you've approached the research. They're inspired, by, the ways you overcome the obstacles that you faced as well.

So it's just really cool to this next generation of researchers come up and hopefully, together they can break this thing open a little bit more and help, in the world of academia anyways, help it to be more acceptable as an option for people.

Well, they have done that, but we're worried about the next generation. Yeah. The ones who are not getting funding in the oil and fundraising. Exactly.

No, exactly. Yep. I have a few sticky notes in book here, The Better Brain. Just for the audience, this is one of my favorite parts of the book, the cauliflower head.

Isn't that a great brain? The better brain. If you want your brain to look like that. Anyways, I just have to mention

this. So there's a bunch of recipes in here.

We're going to have you go into more of the other content in there, but I'm assuming this is your Bonnie's classic granola. It's probably your recipe, right?

I think we originally got it from a cookbook 50 years ago. Yeah. My husband makes it now. Cool. I'm going to try it. And then the part that made me really smile, so we were talking about Julia.

So underneath Bonnie's classic granola, this is on page 202, got Julia's suggestions for additional sweetness. Well, she had two young boys. So we've got two line items on this one.

So Bonnie's got the rolled oats and the pumpkin seeds and sunflower seeds, and chopped almonds, the coconut flakes and ground cinnamon and avocado or canola oil and honey.

And then Julia has got suggestions for additional sweetness. Half a cup of dried fruit and a quarter cup dark chocolate chips. That sounds great. Sounds really good.

I just had to point that out. Got to kick out of that. Okay. So Bonnie, Bonnie in chapter five of your book that you co-authored with Julia Rutledge, you talk about the chapter title is treating psychiatric disorders with supplements.

Can you just give our audience, what's the take home message of that particular chapter? Well, the take-home message is that there is no magic ingredient and nobody should be taking a single nutrient.

You should get all of them together. And by them, I'm really talking about minerals and vitamins because there are so many other nutrients that We know, we don't know enough about, like the phytonutrients.

There are over a thousand of them. They don, most of the don have names. We don know what they do in the brain, et cetera. So, but of though, the really critical minerals and vitamins that we know about.

You should be looking for a broad spectrum formula. That to me is, is really the major message that's novel. People need to learn. Yeah. Yeah, that's really good.

And then the subsequent chapters, you talk about some of the other areas that have been researched to some degree, even trauma and stress, resilience, like kind of thing.

So I'd highly recommend to our viewers, if you haven't gotten a copy of Julia and Bonnie's book and read it, You should read, it's a great read. You'll be better off for it.

It's great thing to share. Go ahead and get a coffee of that, If you're able. So, Bonnie, I listened to an interview with you quite a few years ago. You were talking about what's in our brain's bathwater.

I just found it really intriguing. And I wonder if you can just summarize that concept for the audience. Sure. So a lot of people don't think about their different body parts, as I've discovered.

But you've got to think of your brain. When your brain is at complete rest, and anybody listening to this right now, hopefully their brain it's very active and they're thinking and thinking critically.

But when you're just zoned out, maybe you are watching TV or knitting or whatever, your brains is punching way above its weight in terms of its metabolic activity.

It is only about 2% of your body weight, like a human brain you can hold just in your hands. So 2%, but even at rest, it is taking up 20% of the nutrients and oxygen and everything that are hopefully going through your bloodstream.

So you have to be very careful to feed your brain. And then if you're very actively listening, probably your brains is

accounting for 50% percent of your metabolic activity.

This is from basic textbooks of biochemistry will tell you this. Your brain is the most metabolically active organ in your body. It is 2% of your weight, but even at rest, when you're not doing anything that is lots of intellectual activity, it is absorbing at least 20% percent of the oxygen and the minerals and vitamins that are coursing through your bloodstream.

If you are very active, that could be 50%. This is basic physiological knowledge. What are you doing to feed your brain? So I sometimes think of it as the bath water.

I know it's not a very perfect analogy because a lot of people think about is the CSF fluid, but it is not. The point I'm trying to make is that we can influence the nutrient environment of our brains.

Yeah, that's really good. I love that analogy. So just before we wrap up, Bonnie, I just want to flash up another publication that you're involved in putting together.

This was Dr. Julie Rutledge and Dr Charles Popper from Harvard. There's a chapter, chapter six in this APA textbook. It was published in 2017. What was the main takeaway that would give our audience about?

If they haven't read that, what would you summarize that for people? I think you should read the title to our audience because I don't think it says it all.

Okay, that's great. The title of our chapter, not the book. Okay, here we go. The title, hey, Single and Broad-Spectrum Micronutrient Treatments in Psychiatric Practice.

That's a good title. Very good. There is a literature going back to the 1920s, which my colleagues and I reviewed and published an article on, showing that single nutrients can sometimes have an effect, some benefit.

But as soon as you switch to multi-nutrients research that really began around the year 2000, then you start having really big effects. Yeah. That was a really good publication.

It summarized a lot of what you already knew, what your colleagues already know, but a of your peers out there in the field didn't know that, and they still don't that.

So they should give it a read, right? Yes. All right. So how does it feel, Bonnie, to you're kind of getting into this retirement phase? You're phasing out of being an active researcher.

How does that feel to see the work that you helped to pioneer continue to grow, kind take on a life of its own? Oh, it's wonderful. It's very gratifying.

I haven't done much active research since I stepped back from the university because University gives a structure and a lot of supporting things that enable you to do research.

So it's almost 10 years since I was really a principal investigator of research, but it is great to see what Julia and her team have done. It is also great see some of the good European research that has come out, especially from the UK.

Yeah, I watch it all. Yeah, there's some great stuff out there. Bonnie, I just want to thank you from the team at Hardy Nutritionals for all of your work in this field over the years and for being willing to come on this podcast, even though you're into those retirement years, just really appreciate you sharing your insights, your memories of David Hardy and the things that you've learned.

And over years it's been really great. So thank so much for coming on. Good from my end too, Loan. You know, really interesting. Thanks. Yeah. I really enjoyed it.

Thank you. It was amazing to be able to meet you live, Dr. Kaplan. Absolutely. And for your work and hearing this background is such a gift to us all, actually.

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