Sound Financial Bites 088-Dr. John-Medina

Episode Transcription

Dr. John Medina: Of all the things I describe in the book, one recurrent theme that goes over and over again is that the more you get into other people's lives, and try to understand those lives, and have empathy for those lives, and have an ability to follow and track those lives over time, the more selfless you get, the less self-centered you become, the more powerful your brain becomes.

Welcome to Sound Financial Bites, where we help you with bite-sized pieces of financial and life knowledge to help you design and build a good life. The knowledge that has been shared from stages at conferences, pages of national business magazines, and clients living across America, our host, Paul Adams, now brings directly to you.

Paul Adams: Welcome to Sound Financial Bites. I'm Paul Adams. It's so good to have you with us today. We know you're out running, you're doing dishes, you're working on your car, or you're out for a walk, or driving to the office this morning. No matter what you're doing, we're thankful to have you with us today, especially because of our guests today.

"How long you can live is directly associated with your genetics."

That's right, I said guests plural, because we not only have the President of Sound Financial Group, Cory Shepherd, with us, but we also have a guest that I'm going to let him introduce, but first, let me just share with you the topic of what we're covering today to really get you in the right mindset, if you will, for what we're going to talk about. We always promise that what we're going to help you do with these podcasts is help you design and build a good life, and designing and building a good life, oftentimes, requires that we take care of certain financial concerns.

But then, there's a lot of areas of life, a lot of conditions of life we have to care for outside of our finances. Because, if all we have is wealth and we haven't taken care of anything else, the wealth won't matter much to us. So, today we're talking about aging with the brain in mind, and we're going to talk a little bit about what it takes for you, as you age, to make sure you don't die after your brain does. We want to make sure it lasts as long as you do.

Let me introduce Cory, who's then going to introduce our very special guest today. Cory Shepherd, author of Cape Not Required, President of our firm, Sound Financial Group, he's the one that makes sure that, like a guided missile, I'm pointing it in the right direction every single day. We're so thankful for Cory as an organization, and anybody who knows him or gets to know him says the exact same thing. Cory, so glad you could be here.

Cory Shepherd: Thank you, Paul. Me as well. I'm glad to be able to jump on some more of these podcasts. It's my honor to introduce Dr. John Medina, a developmental molecular biologist.

Paul: I can't believe he got that out.

Cory: It means exactly the opposite thing that you would think it would mean as far as if you would be entertained by listening to him talk. He's very engaging. I've had the opportunity to hear him speak, and I'll call a little fanboy moment on myself. Dr. Medina is an affiliate professor of bioengineering at the University of Washington School of Medicine, which is important for me for a couple reasons: one, my wife is now studying there. Two, in 2008, at Seattle Pacific

University, it was the first time I got to see him speak, and I was digging through some of my notes and realized his first book, Brain Rules, was one of the first books I bought as an early adopter on the first generation Kindle. So, I've known about Dr. Medina for a long time, and excited to have someone local to Seattle here with us. So, John, welcome to Sound Financial Bites.

John: Thank you for inviting me.

Cory: Our pleasure.

Paul: I think one thing everybody's going to notice is you get a chance to listen to John. He is not only entertaining and engaging, but when you get around to looking up his book, you are going to notice he is just as entertaining when he reads the book.

But, Dr. Medina, here's the first thing that showed up for us. We talk about this idea with our clients that what they need to do is focus not just on their money, but that they need to focus on how healthy they are because they need to care about their functional longevity. We say it doesn't matter how long you live. It's really going to matter if they like living that long.

"If you want to age beautifully…you need to have lots of friends."

You talk a little bit about the difference between longevity, and lifespan, life expectancy, and that surprised me because I'd never heard the distinction between those. Can we start with you talking, first, broadly, about your books and talking about how the brain works well, and then dovetailing into longevity, life expectancy, and what that means to us and what we can do with it?

John: Sure, you bet. The reason I wrote the book, Brain Rules for Aging Well, was because of two numbers, Paul. The first number was I'm 61 years old, so I have watched, as everybody does, you begin to see certain cognitive components begin to decline or change with age, and so on, and I've been writing about aging for a long time. I've wrote one of my first books for Cambridge University Press. It was called the Clock of Ages, where we're talking about how the body ages. This time, I wanted to focus in on the brain.

But, the second number was this, and I say this in the book, anywhere between 25% and 33% of the variance in life expectancy can be explained by how well you chose your parents. Now, what that means is how long you can live is directly associated with your genetics, but only 33% of those numbers take that into account. So, that much is up to your helix, that much is up to your DNA. The rest of it, the majority of it, 75% of it, up to, has to concern your lifestyle.

The first number is that I'm 61. The second number is, "Well, what about the variance in lifestyle?" To understand, actually, that number formally from a general scientific perspective, you're right that we should start with the definition. So, let's talk about longevity, and lifespan, and aging. The longevity is the number of years that you could spend on the planet if the conditions for your survival were perfect. It varies from creature to creature. There are bacteria that can live for 400,000 years. In fact, there are some bacteria that probably live infinite if the conditions are correct. You've got bowhead whales that will only live for 200 years. You've got mayflies that will only live for 24 hours. Longevity is determined by our genetics. So, that's a genetic component.

When you talk about life expectancy, or sometimes people will use the word lifespan - we use them interchangeably - this is the amount of time you can spend on the planet, given that conditions are not optimal. So, there's a strong environmental component to that fixed number. For example, it wasn't until about the 17th century that we could live, on average, our lifespan was longer than 35 years. For the vast majority of our time on the planet, we mostly died in our 30s. By the time of the turn of the last century, 19th to the 20th, in the United States, we were now living to 49, and now you can live nearly to 80 years of age if you do things right. So, that's lifespan. It's like an accordion. You can move it up and down depending upon environment.

The third characteristic is something we call aging, but that actually also has a formal definition. That is the random process of eroding would probably be the best way to say it. It's not genetic at all. It's just subject to repair systems that begin breaking down after a while.

Longevity is the amount of time, genetically, you can live on the planet if things were perfect. Life expectancy is the amount of time you will live on the planet, given that things are not always perfect. And aging is the process that kills you. On that nice depressing note, I'll take your next question.

"Touch is an extraordinarily important component of mental health, particularly with depression and anxiety disorders."

Cory: I would love your help here because I read your book with lots of things that we could do to improve and know that lifestyle is part of it, genetics is part of it. But then, I see George Burns, for the older generation, smoking cigars every day into his 90s or over 100.

Paul: Drinking beefeater, don't forget that.

Cory: Hugh Hefner living, potentially, one of the most irresponsible lifestyles a man has ever lived.

Paul: Wildly irresponsible.

Cory: And I think, obviously, they lived to those ages despite doing those things, probably not because they did those things, so genetics probably had something to do with it. So, where do we fall between what do I actually do when -- what I'm getting you to do is try to tell me that I can smoke, and drink, and eat bad every day and it will still probably work out.

John: Well, thank goodness the statistics don't apply to individuals, because the vast majority of the time, those things actually hurt you. Smoking really does hurt people. But, I can talk in general terms, the biological mechanisms of aging, and get at, Cory, perhaps, a tangent to your question. We know that aging -- between my undergraduate and graduate years, I worked at Darigold for about a year where I was the microbiologist. I would do butter cream contents and I would look for microbes and all kinds of stuff you do in the laboratory. I watched - it was over at Issauquah where the plant was - those machines break down on a regular basis. They broke down all the time. So much so as if they actually employed about a dozen engineers - they were the engineering group - that did nothing but make sure those machines worked all the time because that dairy was in operation 24 hours a day.

I thought to myself, "If those engineers ever got sick or they, all of a sudden, just quit, this dairy processing plant would fall to its knees because it's in constant need of repair." Believe it or not,

that's a perfect metaphor for how we age and why we might be able to explain George Burns, and Hugh Hefner, and I would also argue people like Mike Wallace, who also smoked for a great deal of his life and lived until the age of 93. Here it is.

Your body is metabolically active 24 hours a day, seven days a week just like the plant is, and just like the plant, it sometimes breaks down. That's a normal process of living on the planet, it's a complex machine that breaks down all the time. You have repair mechanisms in your body that are built to do nothing but, 24 hours a day, seven days a week, constantly repair those systems. Now, as you get older, the damage occurs not just to your body, but also to the repair systems. As long as the repair systems work well, you will live a nice life on this planet. But, after about age 30, that's the zero point, where the amount of damage that you get and the ability to repair it is about equal, after age 30, you begin to repair the damage less well, and the amount of damage begins to increase, and your ability to repair that damage decreases. Does that make sense?

Cory: Absolutely.

"We know that mindful seniors have way fewer infectious diseases."

Paul: Absolutely, and I think that if you look at that plant and the breakdowns, there's also certain other things we're doing that intentionally causes the breakdowns, like we're intentionally breaking our body each time we go work out at the gym trying to get that repair and build that resilience. Does doing that help our body, then, in later times? Like, even if, let's say, weight is not an issue. You're just one of those people that doesn't gain weight, do we find that the activity of working out and exercising those systems that repair the breakdowns actually extend into an older age?

John: Well, now you're asking the correct questions about how it is that you can ameliorate the natural deterioration, because the question is not about how do you age well. The question is how to keep the repair systems up and running as much as you can. Just a quick parenthetic on Hugh Hefner to close this out, or Mike Wallace, or George Burns, their repair systems are probably excellent, and that's genetic. They probably are resistant to damage, and because they're resistant to damage, we actually have a name for this, you guys. We call people who have this "welderlies". That's literally their name, and they're being actively studied because we're asking questions about what are the genetic repair systems that they keep around and is there a way to potentiate that? Well, we do know that there are ways to potentiate, or at least to slow down the aging process. Some of them are really unexpected. Do you mind if I give you one?

Cory: We'd love it.

Paul: It'd be great.

John: In fact, I can give you a whole book because that's kind of what it's all about. I'll be brief. I know we only got what? 15, 20 minutes left. One of the most unexpected is if you want to age beautifully, and that's the way I'm going to say this, you need to have lots of friends. You need to have what's called an active socially integrative network. That means you have to be visiting your family all the time, and that means you have to be interacting with your friends all the time.

1,000, or in fact, I think it was about 1,100 seniors were measured over about a 12-year period, and they found that the highest socializing group had a rate of cognitive decline, in their elder

years, that was 70% less than people that didn't have any friends or chose not to interact with their friends. They also found that those guys, those men and women that were socializing the most, that were highly integrated had a memory decline that was half that of the non-socializer.

One of the most important things you can say to a group of people that want to arrest that eroding repair system damage that's occurring is to have lots of friends, and if you don't know how to do that, go out and find some books that will allow you to become socially competent. It is quite clear in the literature that if aging really begins at age 30, and you're at your peak, and begin to decline after age 30, you should start making friends and learning how to keep them, and repairing things with your family if your family relationships are broken at around age 30 and then you sustain them all your life if you really want to capture that 70% loss of cognitive decline. So, that's one easy thing to do. Here's another one.

Cory: John, can I jump in on something that you just reminded me from your book that I just absolutely loved, which is talking about how social interaction and even physical touch helps the brain in the elderly? It just hit me like a ton of bricks because I realized I could go visit my grandma more at the retirement home. As a culture, we tend to push our elderly at the edge into isolation, which is exactly the opposite thing that is beneficial for us to age well. So, those of us who are younger and still maybe pushing some of those buttons, probably, it's in our own self-interest to start treating that elder generation well, because the one behind us is going to learn how to treat us when we get there.

"You should put in your mouth everybody in southern Greece puts in their mouth because that stuff is gonna change your brain."

Paul: And watching it with my own father at 88 years old, you outlive all of your network. So, if you're not adept at rebuilding network, he has outlived -- my dad is one of the friendliest people you'll ever meet, one of the most well-connected in every city we've ever lived in, never met a stranger, and it doesn't matter now because all of them have died before him. Now, he has got me and my core family, and his wife, my mom. That's it because he doesn't have the capacity to build the network that died off as he continued to live.

John: It's extraordinary how when I was writing this book and doing some of the research, just a little fieldwork by going and visiting nursing homes and the like, it's extraordinary how invisibly we treat elderly people. They become invisible. You go to a nursing home, they may not smell right, you may think they're fragile, maybe they're in a wheelchair. So, you're right, Cory. We stop touching them, and as a result of that, because they don't have -- and touch is an extraordinarily important component of mental health, particularly with depression and anxiety disorders, something we call affective disorders. But, if you can touch a senior and have regular non-exploitative touching, so there's lots of hugs, and lots of affirmations and atta-boys and whatnot, you actually can improve their mental health.

Paul: Wow, and just a moment here, I want to ask you two really important points, but I'm going to have to take a quick break to hear from Cory at Sound Financial Group. So, as soon as we get back from that, I want to make sure that we ask you about how we're the only species capable of living past its prime, and mindfulness, and what that does for us in attentional switching.

But, before we go to break, let me remind everybody that John's organization has prepared a really special surprise for all of you, and what you can do if you want to get ahold of that is go to aging.sfgwa.com. It's going to be in the show notes. You can find it if you go to our website for

the episode, or pull it up in the description here on your iPhone, or if you're listening to us on Switcher. Once again, aging.sfgwa.com. We're going to be right back.

Cory: At Sound Financial Group, we are committed to continuing to bring you Sound Financial Bites. Hello, my name is Cory Shepherd, President of Sound Financial Group. If you are finding value in these weekly podcasts, and they are making a difference in the way you think about money, then think about what kind of a difference could be made if you engaged one of our advisors to help you look at your personal finances.

So, what would the next step be? Send an email to info@sfgwa.com with "philosophy" in the subject line, and we will coordinate with you to have a conversation with Paul, myself, or one of our other advisors to share with you our philosophy of money. No one is going to close you on that call. No one is going to make you an offer to become a client. The only thing we allow our advisors to do in that call is teach, and the only thing we allow you to do is ask for an application.

While we don't accept everyone who applies to work with us, we are committed that any Sound Financial Bites listener who wants to go deeper has the chance to expand their thinking and walk away with new education and resources around money. So, even if we find out we aren't right to work together, our team will absolutely take care of you in that call and make sure that you have access to resources that might be of help to you.

Paul: Alright, welcome back, John. I think I may have cut you off there slightly mid-thought, and I don't want to do that, but we'll ask you some of these other topics. As we come up, I'm going to let you roll with your knowledge on where you left this off.

John: Okay, well we just finished talking about the power of touch, but I think what is most interesting is that -- and this has actually been measured. People ask the question, as we'll see, also, physical exercise also improves the brain. It improves something we call executive function, and you need to get out there when you're exercising in a very particular way with the social interaction, was there a human activity that combined touch, social interaction, and physical exercise all in one? Because, if you can do all in one activity and hit all three buttons, you might actually see changes in cognition and maybe even in motor skill. There is one, you guys. It's dancing. Now, this can't be just the dance where you just sit there and wiggle in front of each other, okay? This is going to be dancing.

Cory: Like square dancing like I did in middle school in gym class and the boys didn't want to touch the girls.

John: What they called ballroom dancing, is that what that's called?

Paul: Yes.

John: If you do that kind of stuff where you are -- what dancing is, particularly in elderly populations, first of all, you touch each other, even if it's just a ritualized touch, it's still a touch. Second, you're exercising. So, you're actually moving around the ballroom, you're cutting around, whatever you're doing, and the third thing is that you have a social interaction because dancing is social. So, the question that's asked was if you got a bunch of sedentary seniors to start dancing,

could you change their brains, could you change their minds, could you change their bodies?

First up, our bodies. The first thing that happens if you get somebody regularly dancing, and it only takes about a month to do this, you can get posture and balance scores to improve by 25%. You reduce the number of falls, which is catastrophic in the elderly populations, by 37%, if they're dancing, and the effect sizes, which are measures of correlation, were almost 7 times greater for positive cognitive function in what we call executive function with exercisers than with couch potatoes.

Now, executive function is an important concept here, so you won't mind if I just define it very quickly. It has two components. One of them is cognitive control. If you've got strong executive function, you have the ability to take a multiple series of variables and quickly make it into a heuristic, like a hierarchical heuristic. So, people that have good executive function are often really good at math, because that's what math does.

The second part of executive function is impulse control. If somebody yells at you and you want to punch them in the nose, but you've decided that it's not a good idea to punch them in the nose, the reason why you have edited that impulse is because you have impulse control. So, exercise has the ability to control two very powerful behaviors in anybody's brain, including the senior's brain.

One of the recommendations I have in the book, you guys, sounds really weird, but it's absolutely the case. Teach them to dance. Even if they can barely stand for three songs, that's necessary and sufficient. Get them up and running and you can get all three at once, and that was where I was going with that thought.

Paul: If you would, I had a unique experience, which is what I thought of when going through your book, and that was I was at Yellowstone, and they have an exhibit at the west entrance of Yellowstone where you can see grizzly bears because they're pretty hard to see in the wild, and they eat you. So, it's much better to take your small children to an exhibit to watch them than it is to try to find these grizzly bears in the wild.

John: Teach litigation to a minimum, you know?

Paul: Yes, absolutely, and what we found was they had a wolf exhibit also, and we asked, "How long do these wolves tend to live?" and they said, "They can live a really long time," and I don't remember exactly, but it's like 18 to 22 years that they'll live, and I was like, "Really? That is amazing." They said, "Yeah, in the wild, they'll make it like three to five years, max," and I remember thinking of that, when you mention in the book that we're the only species that, in our environment, live way past our prime, and that's where a lot of our aging issues come from is that we are living past the point by which nature would care about us because we're beyond the general age of maximum procreation.

John: Yeah, our five to six years of the wolf is age 30 for us. After age 30, it's genetic freefall and we should be dead. It's long enough to have kids and then long enough to have our kids have kids, and then there's no selective pressure on us. The repair systems begin to go offline, and off you go. But, we have a very interesting way to solve that in that we had a prefrontal cortex and

an ability to do symbolic reasoning, and a whole bunch of other things, including cooperation.

In fact, if you think about it for a second, we are the only species that can really do this - we, in spades - we can extend the length of our arm not by pulling on our arm and extending its length, but by throwing a rock, yeah? The ability to take our physical environment and then utilize our brain to add and augment that environment. We can even double our biomass, Paul, not by doubling our biomass, waiting for millions of years for evolution to do it. We learned to do it by just waiting a few hundred thousand years and changing a few neurons in our brain to create the concept of "ally", social interaction where, if we could coordinate our activity with our buddy, we would actually double our biomass without doubling our biomass.

The effect on the planet would be exactly the same, and that's the solution that we tried. So, when we get past age 30, and we should be dead at that time, because we can now extend the length of our arm, and create the concept of ally, and do experiments, and become scientists, we can have all kinds of things that we can do, which extends our lifespan in such fashion that it might actually equal our longevity. Does that make sense?

Cory: Yes.

Paul: Yes.

John: Because, remember, the longevity is the amount of time you could spend on the planet, if the conditions were correct, and lifespan is the amount of time you do spend on the planet because conditions aren't correct. But, if you could change that last cause and make the conditions correct artificially, you can make it up to 122.

Paul: Before I hand it back to Cory, going back to something I mentioned earlier about the idea of what I was saying was functional lifespan, that I'm using the wrong term. It needs to be functional -- what is the right term?

John: Well, you could say -- probably, the best one would be functional survival. Lifespan is a number of years. So, you're asking for the number of years that are wonderful, you could say it that way. Longevity is also a number. It's also a number of years. A variable that toggles them is whether or not you have the optimal environment. Does that make sense?

Paul: Yes, lifespan is the way that holds it properly. Longevity was the way I was holding it before. So, that is great, that is great.

John: You get an A, congratulations.

Cory: John, mindfulness is having its moment in pop culture right now. It's all over, and I've been listening to some of those podcasts, and reading research, and I've started a meditation practice trying to be mindful, living in the moment, and then you give us a quote in your book from Norman Lear, famous TV producer saying the secret to his -- I think he was into his 90s, stretching, doing yoga on Dr. Oz.

John: He's still alive.

Cory: Oh, he is still alive, great.

John: Yeah, he's still alive. You bet he is.

Cory: And I love what you said about the secret being the two words "over" and "next", and the hammock between the two is living in the moment. It was just so beautiful, and the idea came to me that could you talk a little bit about our brain? The way I thought about it is it's like a computer or a VCR that playing it a certain way actually makes it work better longer. That's such an amazing phenomenon. Can you tell us how that contributes to aging well?

John: You bet. What I think Norman is really getting at is something that is deeply empirical in the literature. We have to be careful with this, though, because, as you said, Cory, mindfulness has gotten out into pop psychology land, and I don't fault Dr. Phil, or Dr. Oz, or any of the other folks that are doing this stuff. But, they're not necessarily research scientists, and so I would argue that you should go to Jon Kabat-Zinn and people like David Creswell, who are actually doing a lot of great neurological work.

There's even a -- not to disparage things, but I've actually seen a book called "Mindfulness for Dogs". I'm thinking, "What are you guys smoking?" because mindfulness, if you do it correctly, if you do the Jon Kabat-Zinn eight-week protocol, that's an actual research instrument you can buy on Amazon, you see unbelievable changes in the brain because of the ability to do what Norman Lear is doing, and that is focus on the present.

We know that mindful seniors have way fewer infectious diseases, and they also have better cardiovascular health. In fact, I think it's an 86% increase in improvement from markers of cardiovascular health. It's ridiculous how healthy they become. They show a 30% improvement in attentional states all because they practice the Jon Kabat-Zinn protocols of mindfulness. Now, mindfulness has two gadgets associated with it. The first one is that it actually asks you if you do the eight-week protocol, and Cory, it sounds like you do. Is that correct?

Cory: I haven't done Jon-Kabat Zinn, but I'm about to because I'm already meditating anyway, so I might as well follow the research.

Paul: And I think I'm about to, given you just said it.

John: Well, I tell you what. I know that this is supposed to be hock in my book, but I've got a better one for this one, and it's done by Teasdale, T-E-A-S-D-A-L-E, and it's called "The Mindful Way", and it actually describes the eight-week research instrument, and it's a workbook. You can actually go through it. I recommend you get that and follow it. What happens is that you do strange things like, for some reason, they focus on raisins. So, they want you to focus on a raisin.

What's interesting about mindfulness is that it's actually a very aggressive form of meditation. It's not asking you to clear your mind at all, not at all. It's actually asking you to focus your mind on a very specific thing. So, you're going to look at that raisin for a little while, and you stare at it, and you get bored with it, and then your mind wanders, and then you come back.

What's really fun about mindfulness is that it will you, "Focus on the raisin," but you know what? Mindfulness also says, "If you stray away from the raisin, that's okay. You're a busy guy. You just come on back to that raisin as soon as you can." It is such a gentle way of calling you to quit thinking about the stuff that bugs you, and we actually think that's the secret sauce, because it's asking you to focus on a raisin, and it's having you do deep-breathing exercises while you're focusing on the raisin, which is why it can feel like meditation, though it is not meditation.

It will also ask you to do something called the body scan. So, for 15, 20 seconds, you're going to focus on your forehead. Then, when that's done, you're going to focus on your earlobe, all the while, you're breathing, and mindfulness will say to you, gently, "If you stop focusing on your earlobe for a second, that's okay. Come on back and focus on that earlobe as soon as you're ready and we'll continue." The present, the present, the present. So powerful it is, I do it in my own life.

I remember this actually happened, it was hysterical. If there's anything that really pisses me off, it's going to be if I'm driving and somebody cuts me off, particularly nowadays with Seattle being so crowded as it is on the freeways. This actually happened. So, somebody cut me off and I was about ready to get really angry, you guys, and then all of a sudden, a raisin appeared in my mind. I'm not kidding, and my breath started to calm down, and I started to just focus on my earlobe, and I thought to myself, "Oh man, this really works," because what it did is it calmed me right down, and I could forgive the guy who was in front of me, and I relaxed way back, and I could feel those markers of cardiovascular health getting their 86% boost.

I think, most importantly, is that, even in senior populations, it can give you a change in your ability to attend to stimuli, because you're learning to focus on one thing rather than being fragmented in your distraction. I actually think that's the secret sauce, but to tell you this works. This is done in the peer review, it's been done with randomized blinded trials. Jon is terrific at what he's done. Creswell is terrific. He's done the neuroscience. He's at University of Pittsburgh to show this mindfulness. We're now in real science. We're no longer in what I'll just call La-La Land for meditation.

Paul: We will add that to the show notes so that people could go and link to follow to that along with your book. If can step away for a moment from what people hold in their mind and shift to what people put in their mouth is one of the last two questions I have for you today. If you look at, right now, the, I would say, in vogue, and certainly it's been a part of my life, and at least, now it could be placebo -- a lot of people don't know this. Placebo is Latin for "it works anyway", so I understand that this could be placebo.

John: And it frustrates the heck out of us who are trying to do experiments beyond it.

Paul: I'm sure. For me, what I noticed was following some of the protocols that some of the biohackers that are out there talk about things like Dave Asprey, Tim Ferriss, the idea of a relatively unprocessed diet with a ton of fat coming into the body, and the ability to take out things like gluten, like some of the things that, otherwise, wheat, certain types of grains that really affect people poorly, have them in brain fog. What are your thoughts, generally, about that high fat, the carbs to take in, making sure they're natural carbs, and what that does for or against the brain?

John: Well, I do have to tell you, you're going to run right into my skeptical grump factor.

Paul: Fair enough. Just so it doesn't mess up my placebo factor.

John: Well, if it works for you. You know, raisins, I hear, are really good for you. The reason why -- this is the first time I've written -- I think this is book number 12, and I've been publishing and been a researcher in the active field since 1988.

Paul: You're getting the hang of it.

John: This is the first time in my professional life I ever put in a book a nutrition data point, and the reason why is that I have been highly skeptical - talk about mythologies would occur - about applying anything in the nutrition sciences to the world of the cognitive neurosciences, and the reason why is that it is woefully underfunded. I believe deeply that nutrition research can be extraordinarily valuable, but if you just look at the chemicals in, say, a glass of wine, there's probably 120, 130 different chemicals in there. We don't know what a lot of them are, actually, so when you're drinking or eating complex almost anything, you are eating something that has uncontrolled variables.

More importantly, your metabolic profile is going to be different than mine. Everybody's going to squeeze out different amounts of energies from their carbohydrates, some people are going to have allergies, as you suggest from the gluten, other people are not going to have those allergies, which is going to be energy-defeating. There's so many variables in one person that if you had that one person eat a complex piece of food, you have so many things you're not controlling anymore that it's no longer science.

It wasn't until about, I don't know, maybe five years ago, that I had to have that come to a screeching halt, because I read, in the New England Journal of Medicine, a paper that changed my mind. In it, they described an experiment was done primarily -- it was done a little bit in the United States, but mostly, it was done in Spain and places in Italy where people were looking at Greek, Italian, and Spanish cuisines and found a diet that actually changed people's brains when they ate that diet. It's called the "Predimed Diet", and you would know it better as, in its more famous term, the "Mediterranean Diet". The Mediterranean Diet has got science underneath it.

In it, you're eating a lot of fruits and vegetables, that's for sure. If you're going to have some protein, it's going to need to be white meat, primarily white fish or white meat chicken, you're going to have nuts, and if you're going to have oil, and you can have oil, and you can have a lot of oil, make sure that it is olive oil. When you do that, you see benefits that almost defy description in such fashion that other people have done variations on it and have begun to move it down. Martha Clare Morris created something called the "MIND Diet", which is including berries in there as well as whole grains dramatically lowers the risk of developing Alzheimer's Disease. A Mediterranean Diet will actually change your short-term memory.

For me to say that sentence, it's funny even hearing myself say it, Cory and Paul, because it is now real science. So, for the first time, and I include that in the book and put that there, to answer your question, "What should you put in your mouth?" You should put in your mouth what

everybody in Southern Greece puts in their mouth, because that stuff is going to change your brain.

Paul: Got it. Okay, that's great.

John: And nothing else that we know of does.

Paul: Got it, got it. Now, if I may, which I got to tell you, The Brain Rules for Aging Well, your most recent book, is, as people are listening here and they may go, "Oh, there's a couple interesting tidbits," I think what people could do is tilt towards, "I don't need to read this because I'm only 40 or I'm only 35," and I just want to tell everybody in our audience, "Get this book and read it." This book is -- here's the thing. There's nobody listening, I don't think, who's like, "My real intention is I'm going to die by 57. I'm out." They're just not going to do that.

In fact, we don't have a single client we've talked to that wants to even arrive at age 65 unhealthy, and we constantly remind people, and if you're new to our podcast, let me repeat it again, if you and your spouse are both healthy at age 65, the biggest problem you're going to have is that mortality tables tell us this: you are not going to pass -- the second of you will not pass until age 93, as a 50% mortality, which means half, that's not an endpoint that's midway, half will live longer. So, this idea of caring for your brain needs to start back when you're 35, 40, 45, 50. Wherever you are on the timeline right now, this is a book to pick up and a book to read.

But, if I can, as a final thought from you, Dr. Medina, can you tell us what is it, that from your perspective, somebody picks up the book, they're going to read it. One, is there a chapter you'd have them open to first or do you think read it from the beginning? And what I would also say is is there one or two things that people should leave the podcast today saying, "I can do something with this today to help me design and build a good life"?

John: Sure. Well, one area we didn't touch on -- there are two answers to that question, and one we haven't touched on, so let me get to it quickly, and that is you're going to need to keep your brain active. If you live to 65 and you're a female, you can expect to live another 24 years, did you know that? You have to get to 65 to get it, but you'll live to almost age 90. So, what are you going to do at 90? You can keep your brain active and healthy if you're constantly engaged in it. So, you need to learn a foreign language, you need to learn how to play a new musical instrument. There's even data that suggests you need to regularly get in arguments with people you don't agree with.

Paul: Done, check.

John: It's called productive engagement. You can increase what's called episodic memory almost 600%. I just said 600%, you guys.

Paul: By the way, that's why, as a generally conservative person and politically as well, I'm one of the people smaller government, all that, generally speaking, that's why I live in Seattle. It's going to help me live longer and help my episodic memory.

Cory: Paul, you'll have no problem being a healthy, elderly woman is what I'm hearing.

John: It's absolutely the case though. If you are your standard left of center Seattlite, you need to listen to Rush Limbaugh, you totally do, and if you're a small government, tax cuts for everybody conservative, you need to regularly listen to Rachel Maddow. The productive engagement where you disagree with them and you have to get your reasons why you disagree with them is secret sauce for the brain. That, we didn't cover. The other ones, we did, but it's the first of the two recommendations I would make. Number one, keep your --

Paul: That is gold. No question, John, not only gold, I got to say, for the sake of cognition, and a tool anybody could use because anybody could subscribe to an opposing thoughts podcast, so that is gold. But, the second piece is, and I don't ever get into this really societal cultural, but how much that would do for the polarization that just generally exists if people realized that not just hanging out with people of their own way of thinking, but actively engaging in discourse with other people they disagree with would actually extend their life, and they could spend a longer time disagreeing with those people, and voting against their agenda.

John: And changing their ability to remember the engagement especially as they get older. What a great way to break out of your siloes, isn't it? If you wanted to really get at political polarization here, you would follow the great flag of brain science behind it. That's not an opinion, Paul, that you should do this.

Paul: Yes, that's so good.

Cory: We cut you off -- you were going somewhere. Disagreement was only part 1, I think.

Paul: Go into part 2.

John: Sure, you bet. If part 1 is keeping your mind active, which we didn't talk a lot about, part 2 is this: keep your heart active. Of all the things I describe in the book, one recurrent theme that goes over and over again is that the more you get into other people's lives, and try to understand those lives, and have empathy for those lives, and have an ability to follow and track those lives over time, the more selfless you get, the less self-centered you become, the more powerful your brain becomes. No kidding.

The ability for you to get outside of your own experience means you're no longer focusing on your own aches and pains. You're not longer sitting there at night ruminating on all the people that did you wrong in your long life. You're no longer focusing on the kinds of things that can slip you into a depression and an anxiety because you're too busy being concerned about other people.

You'll see this in this book over and over again. It's in socialization. It's also when we're talking about physical exercise, even when we're talking about improving your mind and cognitions for mean reaction times. The less self-centered you become, the more willing you are to get outside of your own experience and get into somebody else's life. Here's an important point: be kind with what you see, the better your brain will transit through those 24 years you females have who live past age 65.

Paul: Something for me as not being of those advanced years yet, the thing that I hear in that is I've had a chance to do SealFit 20X down in Southern California where a bunch of Navy SEALS beat you into the ground for 12 hours, and one of the things they talked about is that if you feel like you can't go anymore, if you feel like you're totally destroyed, like your body is going to break down, like you are going to collapse, what to do is look to somebody to your right or left and encourage them or figure out how you can help them, and I felt that.

There was a point where we were moving these sandbags. They told us we had to go get them in the water and put them in a backpack, and I was carrying like three of these sandbags already, which are wet. They told you to buy a really great rucksack, which I did, but they didn't let you use those. They made you use these rucksacks that were broken down that I swear they used piano wire for the straps digging into my shoulders, and I felt like I couldn't go up this hill anymore, looked at the guy next to me --

John: You did this voluntarily.

Paul: I did it voluntarily, and paid for it, and looked at the guy next to me and I said, "Let me take your bag. I can help you," and I felt a difference in the way I was able to engage in the moment because I got out of my suffering and took care of somebody else, and they talked about that in the Special Operations Forces all the time. That is wonderful. John, thank you so much for being here today. I must say that if somebody is walking through a bookstore -- does anybody do that now? I think there's still bookstores.

John: Or going across the browser when their router works.

Paul: Yeah, that's right. If you, at all, doubt the value of this book, you know what I would have you do? Start the book, read the last chapter. The claims are outrageous, and you really review a lot of the claims at the end, and I guarantee anybody listening right now, if they go back and read the last chapter, you will be compelled to go back and read the rest of the book so that you actually understand what Dr. Medina is teaching us and the difference it can make in your life, and probably the difference you could make in the lives of the people that you care about, young and old, by simply sharing with them some of what you learned. So, Dr. Medina, this book has been a gift to Cory and I.

Cory: Very much so.

Paul: For a decade, Cory's been following you, so it's just super-exciting.

John: Oh, you have, Cory.

Paul: Not in too weird of a way.

Cory: Not continuously. More like periodically.

John: I like a good deep-dish pizza, okay?

Paul: Well, it's a treat to have you. I would encourage everybody, if you want to get the surprise

that his team has put together for us, you can go to aging.sfgwa.com. He's super-generous for -- you know, Dr. Medina's team just put that together, gave it to all of you, and we just hope that the time we've spent together today has been a contribution to you being able to design and build a good life.

John: That's a wonderful way to end an interview. I appreciate your kind words.

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