



Transcript – July Q&A: Aging, Gut Health, Red Meat Substitutes & More! - #331



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Dave: You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day is that the Yoruba, an African ethnic group, have an oddly high birthrate of twins which make them the prime study group for research in the field of heritability. Any time someone tells you something is or isn't possible, genetically or biologically, all you have to do is say, "What about the Yoruba?" Until we can explain exactly why they have an unusual high birthrate of twins it's safe to say there's a lot we still don't know about the inner workings of our own biology.

We're learning how to hack it on a daily basis but there are lots of things that were once considered impossible that are absolutely routine and normal, including things like neuroplasticity. Never fall prey to the idea that something can or can't work because the assumptions you're making are assuming that everything that we think we know is accurate and that we know everything. Those are both false assumptions. They're provably false. We don't know everything. In fact, I don't think we'll ever know everything but we'll always know more and that's why this is so much fun.

If you're a regular listener of Bulletproof Radio you've already heard the list of the top ten Bulletproof Biohacks. Let's talk about number 9, fun hacks for the Bulletproof mind. Hanging upside down, also known as inversion therapy, is a simple, natural way to enhance performance plus the inverted stretch, which is called decompression, is a really good way to keep your back in good shape. You can use an inversion table or you can use gravity boots but the only inversion equipment I recommend is from Teeter.

With my Teeter inversion table I can easily and securely invert for just a few minutes a day getting that vital oxygen to my brain which is so essential for optimum focus, concentration, mental energy. That's not the only benefit. It makes my back feel great too. The Teeter gives a full-body stretch using gravity and my own body weight to elongate my spine and to take the pressure off the discs so they can plump back up. Less pressure means less pain. If you have back pain, even if you've been lucky enough to avoid it so far you really need a Teeter to invert everyday to keep your back in great shape and moving at your best.

For over 35 years, Teeter has set the standard for quality inversion equipment. Designed with innovative features that let you get the most benefit's for your time. They're giving an amazing offer just for Bulletproof listeners. For a limited time you can get the Teeter inversion table with bonus accessories and a free pair of gravity boots so you can invert at home or take the boots with you to the gym. To get this deal, which is a savings of over \$138 bucks, you have to go to Getteeter.com/Bulletproof. You also get free shipping and a 60 day money back guarantee and free returns so there's absolutely no risk at all to try it out. Remember, you can only get the Teeter with bonus accessories and a free pair of gravity boots by going to Getteeter.com/Bulletproof. That's Getteeter.com/Bulletproof. Check it out.

Today is one of those podcasts where we get to learn more because it's an opportunity for Dr. Mark Atkinson, the leader of Bulletproof coaching training, and me to answer questions from you. Over the past few months the Bulletproof team has been collecting questions sent in via the blog, social media, and even a few of them recorded live at the last Bulletproof Bio Hacking conference. We are going to answer those questions for you today. Speaking of the Bulletproof Biohacking conference, if you haven't seen the website for Bulletproofconference.com or you



haven't thought about it from September 23rd through 25th of this year we're expecting several thousand people in Pasadena, California at the Bulletproof conference.

This is our fourth annual conference. The first conference was in San Francisco. It was only 100 people. That was three and a half short years ago. Now we're looking at several thousand people because bio hacking has taken off. If you're interested in seeing and feeling and experiencing and touching and playing with the things that give you control of your own biology this is the place for you. World class speakers, an amazing group of people where you can become friends with luminaries in the field and just other people who care about their own biology, their own performance, as much as you do.

This is the place to go. There is basically an adult playground there with all of the toys. You ever want to try neurofeedback? Did you want to try hyperbaric oxygen? Did you want to see those two giant new Bulletproof products that we have to bring there in trucks? That change the way your mitochondria function? Hmm. You should come to the Bulletproof conference.

Go to Bulletproofconference.com and check it out. You can still get early bird pricing and this is one of my favorite things to do every single year. I get to spend several days with a few thousand people who care about all this stuff as much as I do. It's just fantastic amounts of fun and we get to play. See you there.

All right, Mark. You're going to be there because we're doing Bulletproof coach training right before the conference so people who come in for the training get to also go to the conference right.

Mark: Yeah they do and you know I went for the first time last year and it was incredible you know when people are so passionate about improving themselves, discovering more and more things about themselves and to be surrounded by hundreds and thousands of other people doing exactly the same thing you find something that some people struggle to find which is community, sometimes the whole biohacking movement can feel like people around you just just think you're crazy, they don't understand it, but get together with other bio-hackers and it's like game on, it just brings out the best in you.

Dave: That's actually why I stayed the first conference in San Francisco, I lost money on it, it still isn't a money making think for Bulletproof this is like I'm hoping we break even because we throw an epic conference and we bring everything, we bring so many Bulletproof employees, but it's there actually I want to hang out with cool people.

Mark: You know it's just fun and the standard of the presentations and the teaching is incredible so I'm just looking forward to that as well.

Dave: Now we just plugged the living crap out of the Bulletproof conference, did you guys catch that? Were we sneaky on you? Seriously it's that good so I'm willing to share the stuff that I care about and let me tell you the amount of my personal effort as well as the entire Bulletproof team for this conference is the single biggest event like this in the entire year and it's kind of all hands on deck so it's a big production but it's done out of love. All right lets answer some



questions for people because that's why they're here.

Mark: Let's do its. First question is from Sharon age 56. So, I loved the Biohacking conference last year, however, I came away feeling like I'm going to be the last person with any signs of aging, what do you think of all the interventions younger women seem to be doing these days including, Retin-A, Botox, skin whitening formulas, etc. Anything to prevent signs of aging from showing?

Dave: That's a very interesting question. I'm of two minds about that and one of them is absolutely amazing you should do this. However, a lot of the stuff especially the preparations have toxins and things that cause harm to the body. To the extent that you're doing anti-aging treatments that actually support your biology you're crazy not to do that, you'll live longer if you do those things. Like you'll look better it's good. If you're doing things that take away from your biology to make you look better you're not going to do it, so I don't think you can say that they're good or bad.

I can tell you Botox probably not great for you but probably not that harmful. There's evidence that it accumulates somewhere in a basal ganglia, but in the overall scheme of things it does have a pretty large impact if you don't do too much of it, if you do too much of you going to look like sort of a robot face. It's probably not that harmful but you might be able to do better and I'm not really planning to do it. Skin whitening formulas, depends on what's in them right. Then what else, we have a Retin-A is probably not a bad thing, do you have any evidence about Retin-A?

Mark: I don't know that much and the way I feel about the whole anti aging movement is that it's so important to feel good about yourself and we all have a fundamental right to feel good about our self. That means a whole bunch of things. If it's just cosmetic without changing the inner biology then that's an issue because when you take control of your biology you naturally will become much more youthful.

Also you just have to check with the intentionality behind it, is it coming from some obsession, or from self rejection or self-criticism? What is the driver? Before we engage in anti-aging approach what's the intention behind it. Is this coming from a place of self acceptance and lets never lose sight of the thing that really creates the most beauty, is my personal perspective is someone who is happy and joyous and living a fulfilling and engaging life because that just radiates through.

Dave: I thought you were to say a heart shaped butt, I mean geez Mark.

Mark: I was building up to that.

Dave: What he said. Lets talk about this, I'm going to show off my abs, are you guys ready. Check this out, I'm not really going to show off my abs but you should watch this on YouTube video. You see all these bandages right here, that's because I just had a relatively deep laser treatment because I have massive stretch marks. You probably can't see them on camera but over here it looks like I have surgical scars right. That sucks and that's because I was covered in stretch marks, still am covered in stretch marks but I was obese. I just had this laser thing done because



stretch marks suck and I have like hundreds of them so I'm not going to get rid of all of them because I would have to replace half of my skin.

I'm writing a book about stretch marks because all of these were preventable and prevention is much better than reversing. I'm going through the work of reversing these but we have you know 80 pages of research about how and why they form so that if I could go back in time and tell myself when I started getting these when I was 16, here is why it's happening, here's what to do about it, I would have two stretch marks instead of 200. Now I'm going to go through and reversing on this side it doesn't hurt at all but it's annoying to cover them in Vaseline for 5 days and keep them in bandages which is what I'm doing.

I'll talk about this at the conference as well but that's a cosmetic treatment, I will not die, I already have kids, I'm already married like I don't need to have no stretch marks, but hey, I like to control my own biology it's my hobby so I did that. This is an example of a cosmetic thing.

Mark:
It is and that stuff does matter, you know I work with patients who have scars that people can see and there's always a part of them that's aware of that and it does just undermine ever so slight sometimes the self esteem and that's just good self care, is like you want to feel good about yourself but just make sure the foundations are in place. Make sure you're nailing your nutrition, your lifestyle, your sleep, you're on the right supplements. You're living an engaging fulfilling life, you're tending to your relationships, that's the foundation and then consciously choose what you want to build into that in terms of the cosmetics.

Just watch the obsessive side of it because I see a lot of that as well, which is that people start tweaking with the way they appear, then it's not quite enough, then they go down that kind of slippery slope. If you see that in yourself and your are listening to this and thinking yeah that is me than you may want to share that with someone find you a therapist to talk about that because that can be soul destroying when you start to obsess about your appearance.

Dave:
You also end up with a frozen face, giant lips and you'll look kind of like Michael Jackson did towards the end of his life. It doesn't lead to a good place. You can have control of your biology and that's the art and science biohacking of there and what you do with it is up to you. I fully expect in 100 years there will people like biohacking you know I decided I wanted to grow an extra whatever somewhere. We will have pretty radical control of our bodies because we will understand cell differentiation and dedifferentiation so I'm all over you having the freedom to do whatever you want with your body.

But if what you decide to do is actually lowering your performance and it's done out of a sense of fear and loss, we have problems. That said, I'll be really blunt, whether you're a man or woman if you look healthy you get paid more and people treat you differently so there is a financial incentive especially if you work in Los Angeles or you work in entertainment.

There are major A list celebrities who use Bulletproof techniques to look good from the inside out, I'm pretty sure that most of them are also doing Retin-A and Botox, hydro facials and all that kind of stuff. It actually takes a lot of money and time to do those things, I also at the Bulletproof conference I have three experts on stem cells this year because I'm a bio-hacker and



because I like to get started early. I had stem cells injected all over my face, I also injected them intravenously and in every injury site. I went in for injuries but I said hey if I'm going to have stem cells and they are going to be nailing things into my bone marrow, I'll be damned if I'm not getting those on my face. I'll have to say I'm looking pretty youthful am I not?

Mark: Lets go with that. Okay so next question from Marcus age 28. I've been suffering irritable bowel syndrome for more than ten years and I am fed up with it. I've tried probiotics, exclusion diets but nothing seems to help, would appreciate any suggestions that you might have. I have a lot to say on this.

Dave: Why don't you start and I'll follow up with some interesting ideas.

Mark: Okay first up just really share from personal experience I had IBS for about 20 years of my life and I know that misery that comes with when you are suddenly struck with abdominal pains.

Dave: In fact I still have it. I don't still have but it's uncomfortable I've had it.

Mark: It can be really bad and really undermine your confidence and deplete your energy. There are just a couple of things I want to share. One is that there is always a cause for the IBS. IBS is not a helpful term at all we should just scrap the term IBS because really what we want to do is we want to assume the role of detective and the role of the detective is to systematically go through the possible causes and contributors and if you don't possess that knowledge you find somebody who does. This is really where a Function Medicine practitioner would be really great.

There's some basic things you want to start with. First of all really make sure you exclude celiac disease that's one not to miss. Celiac disease it's an auto immune disease triggered by gluten, affects the small intestine, affects absorption of nutrients and that can cause bowel disturbance. You can do a home test for that pretty straight up. Just make sure that's not there. Then the next big thing of course is food sensitivities and then you have your top food sensitivities of dairy so I always was intolerant to dairy. You've got wheat, eggs, soy, it could be pretty much anything. You have to systematically go through those. How do you do that? Well you have a couple of options, you can do your IgG, food intolerance testing. Some controversy around that but in clinical reality it's actually really helpful to do that.

Dave: It's only controversy for people who don't have food sensitivities.

Mark: They've never done it themselves and never experienced the benefit of doing it.

Dave: It works.

Mark: It really works, you can do the elimination diet but unless you're ... my experience is unless you're really good at being organized and planning and on the controlling side of things that's pretty tricky to do.

Dave: It took me almost two years to do the elimination diet when I first started this in the late 90s. I mean it is the classical stuff is really hard to do. That's one of the reasons on the Bulletproof diet



I'm like just exclude all of these things and if you have IBS take out eggs as well which are in the Bulletproof foods because they are so good for you but they tend to be an immune trigger for a lot of people. If you only eat green zone for a week or two, there's a two-week plan in the book, what happens after that? I imagine your symptoms might be different and if they're not that's also a really good data point but that's kind of like a whole two years of Elimination Diet all in one. Just pull out all the stuff that's bad and what's left is just a few things.

Mark: That's generally how we start with patients, you just pull out the kind of classic irritants. Lactose mal-absorption is really important so lactose is the sugar inside milk and dairy products, as people age particularly if they are of African and Hispanic, Asian origin or Mediterranean, the amounts of lactose the enzyme in small intestine that breaks down that sugar diminishes so what happens is you eat dairy and then about a half an hour and hour later you bloating, you get gas reduction.

Fructose malabsorption as well that's rally big. If you have lactose malabsorption you have a higher chance of having fructose malabsorption. We have specialist transporters in the small intestine that take the fructose from normally kind of fruit and they transport it across the south wall of the small intestine into the body. If that's not working properly, we don't have enough of them all of that fructose moves on down to the large intestine and gets fermented and creates a lot of gas.

Now if you have things like, apples, pears, peaches, mangoes, watermelon and after about a half an hour you start to get a lot of gas, a lot of bloating, then that could be a contributing factor to it. Wrapped up in that is what we call FODMAPS. FODMAPS is this really cool acronym, fermentable, oligosaccharides, disaccharides, monosaccharides and polyols. Basically these are short chained fermentable carbohydrates that if you eat can create a lot of gas. These are things like dairy products, chickpeas, lentils, beans the fruit I just mentioned before. High fructose corn syrup.

Dave: Importantly Xylitol and Erythritol are also on those and Sorbitol. I like zitol and Erythritol for most people they are actually amazing sweeteners because they taste like sugar and they actually have health benefits, but if you have IBS, you might need to be off of all fermentable things at least for a while.

Mark: Just do that as a two-week trial and you can go on the internet and just Google low FODMAP diet and there is lots of stuff out there. The big thing not to miss is small intestinal bacteria everywhere. The research shows maybe 50% of people with IBS actually have small intestinal bacterial overgrowth.

Dave: I used to have that for sure.

Mark: I was diagnosed with it about six months ago as well. Yeah I was and you know what it's amazing to me, I've known about it for a while but sometimes self diagnosis is a tricky thing.

Dave: Wait a minute, did you always have this? Because here's what I think is going on and this is really cool biohacking stuff. We know that if you live in a house with toxic mold or you're just

exposed to it in the environment around you, that it can cause the formation of bio-films especially inside the sinuses. The bio-films are when bacteria stack themselves up they form little circulatory systems and they protect themselves from toxins in the environment around them.

This is why surgical implants and hospital infections are so bad, bio-films are very destructive industrially too, they are like these slimy layers that form on things. Sibo is essentially a biofilm in the gut. I believe that when we are exposed to environmental, not necessarily nutritional mycotoxins or motoxins I did a whole documentary about this, moldymovie.com, it's one of the biggest sources of Kryptonite in the modern environment affecting hundreds of millions of people's mental health and well being on a regular basis like that's why there's a documentary.

I think that's what's going on here is that people tend to get Sibo when they live in moldy environments because then mold sends a signal to the bacteria to form a biofilm. I'm wondering if you always had Sibo or if your Sibo changed in relation to your exposure to the environment around you.

Mark: My take on that is that when I was exposed to mold a couple of things happened. One is my digestive symptoms got worse and I had a whole bunch of allergies and hay fever just kicked it off. The amount of stress that was downloaded to my biology triggered and exasperated all of this and so with Sibo what you get is this kind of bacteria overgrowth in the small intestine and what that means is that when you consume carbohydrates they ferment and they create a lot of gas and a lot of abdominal discomfort. You can actually test for this. You can get what's called a lactose breath test, basically you take lactose and you measure the amount of hydrogen and methane in your breath over a period of a couple of hours.

I did the test and what it showed was this early spike of hydrogen which is coming from the bacteria in the small intestine. Now the good news is it can be treated, you treat it with this anthropological replexican and then that followed by berberine and oregano and garlic and I was on a low carb diet anyway but that's an essential part of it. But hey it's like once you stop treating that your energy levels shoot up, you become more alive, but here's the key if the initial trigger for it is the mold, that's what you have to deal with.

Dave: You've got to reverse the environmental inputs that caused the system to fail.

Mark: Yeah it's like sometimes we think too narrowly, so I've got a gut problem so all my figures are good. No as a general rule of thumb look around your environment first, what in my environment is compromising my energy, my vitality and my performance. You've got to think, does my allergies is it environmental allergens, is it mold? It's just a systematic approach then okay what about the food that I'm ingesting and you realize like when I have apples I get kind of like this bloating or if I have Xylitol or whatever it may be. You start adopting the position of a detective.

When I took this and treated it it's like wow my energy goes up it went back to normal again. Basically I share this because those are the kind of things that you want to consider. Just for somebody that is listening to this and you don't know much about irritable bowel syndrome I

just want to explain a little bit about the symptoms are just so you can recognize it yourself.

There is an organisation called the Rome Foundation, not for profit who brought together the world's leading experts and they have created some diagnostic criteria. If you're listening to this and you get recurrent abdominal pain, just listen into this, this may be helpful to you. Basically if you get recurring abdominal pain occurring a minimum of once a week, you've had it for three months at least and that's associated with pain that is relieved by going to the toilet, defecation and or with constipation or diarrhea and it's been going on for a total of six months, that is the diagnostic criteria for irritable bowel syndrome.

However, if you are listening to this and this pain starts after the age of 50, you have a fever, the pain keeps you awake at night time, you get night sweats, unintentional weight loss, those are what in medicine we call red flags signs. If you have any of those red flags signs, you have to go and see your doctor and have more serious things eradicated.

Dave: Like cancer or things like that.

Mark: Inflammatory bowel disease.

Dave: Okay got it. It's interesting because when you look at say a study of how often you should fart, yes I said fart, I love it medical terms. They are based on people eating whole grain bizarre diets that probably aren't that natural. Here's what I learned having been obese and having room clearing gas as a regular part of my life for a large portion of my life. When you eat what you're supposed to eat including a plate full of vegetables at most meals with a moderate amount of high quality protein and masses of fat, you actually don't have lots of gas and if you do it doesn't really smell bad and it's not that you think that it doesn't smell bad it's that the people around you don't think it smells bad.

I've seen huge changes there from adopting the Bulletproof Diet to the point that it was actually kind of liberating to just have that effect. The same thing goes for well we will just get kind of gross here, like stools, even if you don't have IBS you are just sitting here like okay if you have extremely foul-smelling stools there is something not happy going on in there if it happens all the time.

If it happens every now and then what did you eat, you did something to cause that right? That kind of knowledge where it like oh wow I actually I don't know how to put it you know but like, I'm not one of those people that goes around saying my shit doesn't stink. Here's the deal, it does but not nearly as much as it used to it so this is a sign, an early sign that if things aren't coming out the way they should, your performance will be hindered on that day, literally that day.

Mark: You'll get brain fog and you just won't be able to think. Basically do not ignore it if you have farts that stink or stools that stink that is not normal, that is not healthy and if that's consistent than that normally shows that the symbiosis got far imbalanced it could be small intestine bacterial growth. Here are a couple of things most people don't know, if you have small intestinal bacterial overgrowth it will often get worse if you add fiber and probiotic.

Dave: Absolutely you'll feel like crap.

Mark: You're thinking well okay I know probiotics are good for me so I'm taking the probiotics and yet your are going to feel terrible and that's because the small intestinal bacterial overgrowth.

Dave: There something called LPS, lypl polysaccharides these are toxins made by bacteria in your gut and on those days when you have foul smelling stools your production of lipid polysaccharides will be higher. These things cross the gut barrier to some degree or another depending on how healthy your gut barrier is but when you have lots of them they can cross it they impact liver function and they cross the blood-brain barrier and they give you brain fog.

There's a direct correlation between having foul-smelling stools and having slightly less cognitive performance. That's just how it is, we understand the pathways at least some of the pathways for this. Acknowledge that and that's one of the things that you should be tracking and hacking. You don't have to journal how you smell but just take note of it, it's not a pretty conversation here but this actually matters.

Mark: It's really important and effects a lot of people. Also this would be a good time to talk about the five R's just very briefly. In Functional Medicine we talk about the five R's of gut health and this is just a simple systematic way to approach any gut health related kind of issue. The first R is for remove and remove is basically removing what we call Kryptonite so foods and anything that undermines your performance and your energy and your function.

Dave: Like your mother-in-law.

Mark: Mother-in-law top of the list, followed by foods and so that would be the glut and the dairy and whatever else it may be. Then you have to also remove pathogenic organisms as well so you can do the breath test but if you work with a Functional Medicine practitioner, they will probably do a stool analysis so they look for bacteria, they can look for parasites, that kind of thing.

You want to remove the bad stuff then you want to replace so a significant number of people don't produce enough stomach acid or they don't have enough pancreatic enzymes, it's huge it really is. I'm conventionally medically trained and of course we were hardwired to think well people produce too much stomach acid and actually very early on when doctors start learning about function medicine and about real people and how to help them you realize wow that's topsy turvy, it's a wrong way around. Actually a lot of people need extra betaine hydrochloride which you can get as a supplement.

Dave: I did for almost almost 10 years so I was taking 6 grams which each meal which is 6 big capsules to get enough stomach acid to digest my food and when I did that I was like I wow I feel better, my digestion is better I didn't need it anymore I restored my natural production I digest everything just fine now which is cool.

Mark: If you eat a meal and you feel heavy afterwards then that may indicate as long as you haven't got gastritis or ulcer then you would benefit from a trial of betaine hydrochloride and you just

gradually increase the dose and yet that kind of stuff is online and you can read about it.

We've got remove, we've got replace then we've got reinoculate and that's putting in the good bacteria the probiotics, the prebiotics. Then we've got repair, really important. You've removed the bad stuff, you put in the probiotics then you want to take things like L-glutamine, Zinc, vitamin D, vitamin A all those kinds of things to help the gut repair. Then you want to re-balance and re-balance is just about just living a healthy lifestyle. Those are the five R's, look them up online and it's just a really kind of really simple framework for dealing with gut health. If you do all of that and it doesn't help or you're getting overwhelmed, seek the help of a Functional Medicine practitioner.

Dave: Functional medicine rocks. Now L-glutamine is a very interesting amino acid which is worth talking about. L-glutamine is something I used to rely on when I was going to Wharton I was getting my MBA, I was working at a start up full time and my brain was failing, I was just about failing out of classes, I just couldn't pay attention. I had stress I had all kinds of bad stuff going on. In fact this is when I discovered Modafinil, the smart drug, I was like wow this really helped me.

One thing I noticed and I had already known for several years was that L-glutamine would totally fix my performance some of the time so I would take about 10 grams which is a big scoop of this kind of neutral tasting powder and I was giving it to my classmates, the ones that were like I'm tired and you give them the L-glutamine and they are like woo hoo I feel great.

This is a neat hack but there's a downside to glutamine that isn't well-known. Glutamine will almost instantly take you out of ketosis. Ketosis provides additional mitochondrial energy like burning fat instead of burning sugar and it's anti-inflammatory and it's anti oxidant, literally it's like the superpower that's why I put brain octane in every meal every day cause brain octane is a source of exogenous ketones, it actually converts to ketones.

It's the number one source of external driven ketones that anyone can get today, it's the most common one out there. It's different than MCT oil which doesn't raise ketones the same amount and profoundly different than coconut oil which doesn't raise ketones more than just fasting for instance. Coconut oil just isn't a good source of MCT if you're looking at ketone production. This isn't well-known but we've got the science.

When I look at that I'm like okay I'm burying octane, I have ketosis and I take glutamine it pulls me out of that so there is still going to be some ketones present but you're not going to get exactly the same thing that you would get from nutritional ketosis. I'm happy to do Brain Octane plus glutamine but if you're going to do carb restriction and glutamine it will not work so if you're on the Bulletproof diet and you're on a day where you want to be in nutritional ketosis, don't take glutamine that day or say you know what I have gut issues, glutamine in high doses can heal my gut, screw ketosis for today. I'm going to get exogenous ketones a little bit from Brain Octane and I just don't need to be on carb restricted I need my gut to work today.

Mark: One final thing about L-glutamine, I work with a lot of people with cancer and L-glutamine is also a source of fuel for cancer cells, so if we don't need to be doing that if you have cancer. If you're



going through radiotherapy that actually is actually a really good thing to have because it actually protects the health of your gut mucous, so it's really important.

Dave: Lets go with Michelle.

Mark: Okay, Michelle, age 43. Hi Dave I'm in love with my morning cup of Bulletproof Coffee? It is so yummy and creamy.

Dave: Thank you Michelle.

Mark: I started following that diet recently and couldn't believe how quickly I was losing weight and it didn't even seem like I was trying. One question though I'm not a big fan of red meat is there a substitution that I can have instead and still get the same results from? Thank you and please hurry and bring your shops to the San Francisco Bay Area.

Dave: I'm working on it for you in the San Francisco Bay area definitely looking for the right partners to make that happen so just get that one out of the way yeah I mean I love the Bay Area, I have tons of friends there and I lived there for quite a while, the Silicon Valleys is there so you can count on it, I know there is big demand.

If you don't like red meat what do you do? I would say look at the Bulletproof Diet Road Map, if you listen to this and you don't have it printed out on your fridge it's free go to the Bulletproof website and search for "Roadmap" and it's a one page infograph that tells you what to eat. You'll find wild caught fish is high on the list. You can do this mostly with wild caught fish, the thing is though even if a couple times a week you can do some grass fed meat even if it's not your favorite, that's going to make a difference and the reason is that there are some things like CLA that you can get in that meat and some other fat soluble vitamins that just aren't available in fish.

I recommend everyone eat fish you want to get DHA and the EPA from fish and fish is a good source but it's generally not fatty enough and just once a week have a little bit of red meat and you'll like how you feel even if it's not your favorite meal, would be my recommendation.

Mark: That's what I was going to say.

Dave: There is something about arachidonic acid too which is a little bit controversial. We talk about eating omega-6 oils, the relatively damaged ones like corn oil and soybean oil and things like that. One of the reasons that we don't eat a lot of those is because they raise arachidonic acid too much. If you're getting lightly cooked grass-fed meat, you're getting some undamaged straight-up arachidonic acid verses precursors.

Mark: Which you do need.

Dave: There you go, need it for your brain and you need it for your cell membranes and this is one of the things if you go Bulletproof it takes about two years, about 700 days to replace half the fat in your cell membranes. If you're getting these egg yolks which is another good source of

arachidonic acid and grass-fed beef or lamb that isn't burned to a crisp it's important you don't damage all the fat. You're actually going to get better cell membranes over the course of years and that's kind of a neat hack there just eating fish all the time can actually ... it can actually harm your cell membranes. You can get too much DHA and too much EPA in the cell membrane and when that happens you get excess fluidity and it's not normal and it contributes to bio-toxin illness. Who would have thought and over dose of fish oil can do that but it can.

Mark: That is a concern with fish, it is heart breaking at one level that so many fish have such high levels of toxins and of course most people listening to this will know about tuna and mercury and that's so unfortunate. Our seas are contaminated and that's effecting the fish and so really that's why grass fed meat is rally ideally an important staple. I understand it can be expensive but it's about quality and really when you often find as well that when people eat a lot of meat most people eat meat unconsciously and they are just so used to eating it in vast quantities without ever really tasting it.

The great thing with kind of grass fed meat is you slow right down and you really enjoy it and then you delight in your body's response to it. Most people well find this wave of well being, it's just like oh my gosh this is amazing. Just putting it out there just remind you how important is is to slow down and really pay attention to quality and then you can eat smaller portion sizes you don't need much.

Dave: That's the trick and people say it's really expensive, it's expensive if you eat a one pound steak but the whole point is a moderate amount of high quality protein. A high protein diet is bad for you it gives you cancer over time, it's causes inflammation, it gives you ammonia. Using protein as fuel is really a bad idea. It's probably better than using sugar for fuel but it's not a good way to live. Using vegetables as masks and using fat as fuel and protein as building blocks is what you want to do to live a long time, in fact that's the Bulletproof diet.

If the meat is twice as expensive and you eat half as much you're actually doing the same thing and all you have to do is get a freezer. Costco well sell you a freezer for about a \$150, a little miniature chest freezer and then you go online and I have several blog posts with my favorite grass-fed sources and you buy 40 or 50 pounds of grass-fed hamburger, it will cost you around \$5 a pound.

It's not expensive, it's expensive if you go to the grass-fed gourmet restaurant and order the \$40 grass-fed steak, that's cheap by the way. You don't have to do that, that's a mental model that's broken literally a pound of meat for \$5 or \$6, throw it in a pan with some butter and some salt, there you go, oregano if you want to be fancy. You don't need a pound of that so you are talking \$2.50, that's a happy meal.

Mark: Also a lot of people use meat to fill themselves up, use green vegetables to give yourself the volume.

Dave: Those are expensive.

Mark: Yeah that's where the expense is. The Bulletproof Diet is actually high in vegetables and you



want to make sure the vegetable that they give the bulk and that's complimented with the meat.

Dave: Good question.

Mark: Next question is from Jim age 26 he is at medical school, pretty stressed out with all the work I have to do, that's bringing back memories. Plus my diet is not great of course. Any tips for helping me manage the stress and kick ass at the exams?

Dave: Well I can think of two things right off the top of my head. Number one heart rate variability training, if you're not doing your 10 minutes a day with a heart rate monitor you are going to have lots of stress before the exam, I would recommend doing it before you go in to take the exam. You'll take yourself out of the fight or flight mode which there is always fear of failure and you know I want to pass the exam and you get all the stress. You can just turn off all those voices in your head and you do it by changing the space in between the heart beats, There is plenty written on the Bulletproof blog about heart rate variability training. That's one side of things.

The other thing I'm just going to throw it out there, how did I get through Wharton, I actually from some of the first exams and like I'm sort of cheating here. I took smart drugs, flat out pharmaceutical smart drugs and natural supplements. Now there's so many more things you get glutathione, you get Unfair Advantage. You can get the Upgraded Aging Formula we make, those are all cognitive boosting formulas and coline force is another one but if you want to get Modafinil, if I was in med school I would absolutely be taking Modafinil if it worked for me it works for most people.

I would probably steer clear of Adderall and things like that. If you're not taking Aniracetam one of my very favorite quasi legal smart drugs. That stuff increases memory I/O, the ability to get stuff in and out of your memory. If you want to lower your stress be able to pull things out of you're memory more easily on a test you will be less stressed.

I even lined up my smart drugs on the desk in front of me when I was getting my ivy league MBA and I'm like hey guys I'm doping but it's not illegal, I'm not breaking the rules but I'm disclosing because I don't want the appearance of impropriety. By the way if anyone wants some of my non prescription smart drugs I'll share them because I think this is part of being human.

Mark: This is really important and obviously I've been through medical school myself I remember it well. If you're drinking loads of alcohol stop. I have to say that because medical students.

Dave: You have to be insane to be in a high-stress and drinking all the time.

Mark: It is incompatible with good memory and high-performance if you drink liters of alcohol and you've got to be paying attention to your sleep and even just kind of swapping away from your high carb, processed breakfast and moving on to the Bulletproof Coffee have that to start your day.



Dave: Brain Octane before the exam the number of medical students who have reached out and said thanks for that.

Mark: Because people get hypoglycemic because of the stress the stress compounds the high car diet so they go high hypoglycemic so they're all over the place in a state of adrenaline, they can't actually access their memory around it and they're just freaking out. You have to have a core stress reduction practice, heart rate variability, meditation, yoga whatever works, you have to have that as your foundation, neutropics, good diet, alcohol out.

Also here's a hack for getting through exams. I didn't attend a lot of my lectures and for a very good reason. There was a girl who sat in the front row who was amazing at taking notes. I did a deal with her I said at the end of the year I will purchase those notes and I will reward you financially for it. What I was really good it was actually because her notes were just brilliant, just organizing those notes highlighting it and putting into a formula that I could remember and that's how I did it.

Come up with a system that works for you and also find ways of getting really excited about what you're learning. People who get excited about what they're learning and they say if you think it's just biochemistry it's going to be really hard for you to remember that. You've got to relate to this is really important biochemistry that gives me information that helped myself to help my future patients. You reframe it you get really engaged with it and it just ups your ability to actually store information.

Dave: The thing about understanding your cognitive style is really important. I told you how smart drugs got me through business school the other thing is I didn't quite realize this at the time but I am not a great auditory learner I like to talk about stuff, I'm a good auditory sharer but I absorb information visually. What that means is that sitting in a lecture is not very productive use of time for me either.

Mark: Under artificial lights.

Dave: Yeah it would give me a whole brain in fact 48% of people are made weak by that according to Helen Irlen, that was an issue. What I did is I had my secret Ryan powers my buddy Ryan who may or may not be listening to this who is now a successful CFO type in Silicon Valley. He was the best note taker I've ever seen he was top of his class at Berkeley before he came to Wharton and he was kind enough to share his notes with me. I can absorb the this is like straight-up uploading like in The Matrix. I know karate kind of thing. For me that was far more valuable than a lecture and it doesn't mean that I'm a bad person or whatever else it just means that's how I learn.

If that's your deal you should do it and here's another hack I've never talked about. This is from earlier in my academic career. I once decided I was going to take a double course load in one semester so two semesters in one I just wanted to graduate. I got the highest GPA of my academic career during that time because I did this 80/20 rule, in that class I think I'll just maybe fail it or maybe get a C and I got an A anyway. That was the first semester I had a laptop and I was the only one in class who had it and I used to play this game called Free Cell just kind of a

mindless game.

What I found was if I played that game it would engage my brain and I would listen and I would just alt-tab switch over take notes. At the end of the class I had beautiful notes and the entire time everyone thought I was playing video games. It pissed them all off and I was kind of a jerk because I would be like here's the deal, looking at my screen while I'm taking notes as very rude so I'm offended that you were looking at my computer. Then we were at a standoff and I'm like by the way I'm top of the class so if you have a problem with me playing video games I don't care.

It's changed now and people are distracted and doing social media and all sorts of bad stuff that probably takes you out of it. If you need a hack like that I probably had undiagnosed ADD at the time and I was still drinking diet sodas this is going way back. I found a way to keep my brain engaged because if something works for you I don't care what it is do it and for me I literally was coming up with new economic theories and ways of doing math differently in economics which isn't even my subject because my brain was never allowed to stop because I was looking for where the ace could stack up, the brains are awesome.

Mark: Whatever it takes for you just find your way think out-of-the-box be open to anything really and just find your way and you think with revising for medical school, just keep it linked into the fact that this exam serves my ability to eventually become a medical doctor to help others. Keep that logic context there it kind of really helps.

Dave: Doing it for a reason not just to have a career I'm going to do this for money if you're going to school for money you should quit right now. If you're going to school because you think it's going to help you do something amazing.

Joseph age 52, I've been into personal development for over 30 years and I've developed a lot of self-awareness and I'm now living close to my ideal life. I have a great relationship with my wife, wonderful children and I enjoy the work I do. Can you share a bit about your own personal development journey and what you learned about yourself and about life?

I think we could both talk about that. You are very experienced personal development guy and I think that certainly Joseph is asking me that as well. Walk through your stuff because a big part of the Bulletproof coach training program, people don't know this, you're a doctor but it's personal development because I teach people how to control their biology but once you get your mitochondria firing so that you actually have enough energy in the body once you get your hormones systems online once you're able to make BDF brain derived neurotrophic factor so you actually grow new neurons. What are you going to do with all that? That's when the personal development work can happen.

If you feel like you did when you had Sibo or you have mold in your house or you're just fat and your energy regulation systems are off, it's too much work to do personal development. You will go to the meditation retreat and you will fall asleep and you will come back and just think you're a bad person. I think hitting the biology first and then hitting the brain chemistry and then hitting the personal development program is important but that's where our coaching program

is a physician with personal development experience. You've got to have basis of biology and then do personal development. Joseph I don't know how much biology you're doing in your personal development it's possible to meditate on a vegan diet you just meditate better when you are achieving your vegan diets it's just how it is.

Mark: It is a revelation when you come to understand that the number and priorities is taking care of your biology. Because it is so easy to get distracted we can read a whole bunch of self-help books that you never do anything with, at the time you kind of feel disinterested. There are a couple of things that you need to do personal development. You need energy, you need to be able to focus and you need to be able to really get really clear about what matters most. If your biology is scrambled you can't do that.

That is that for me the essential foundation that once you've done that then you've got to learn basics core essential skills. Working with emotions, so emotional intelligence. You have to learn social intelligence how to relate to others how to really listen and hear what another person is saying. As opposed to being up in my head just waiting for an opportunity to share with this other person what I think and not really engaging with them.

Then if you're into spiritual development it's like what is that in service of and it's about developing a personal relationship with some source of in-site or wisdom that sustains you and helps you become a better person. We all find a way through this but what I see a lot of is self-help addiction as a bypass to life because I don't know how you feel about this but 90% of who I've become and what I've learned that's come about through life experience not from reading countless self-help books. I always recall a time when I'm sitting next to my wife reading a book about relationships how to be emotionally intimate. My wife was there wanting to be emotionally intimate but I wasn't because I was reading my book.

In that moment I had this light bulb that goes like wow how many times have I been by-passing the very thing that I want by turning to a book and looking for the answers there. I think our relationships to the present moment and to life is crucial to this and it's the willingness to face everything and avoid nothing and to do that you have to be able to do learn how to tolerate discomfort. When you do that you start to clean up every area of your life, your relationships, your personal health, your work life, your finances and face everything do nothing pay attention to the present moment, managing energy, managing perception.

It's like so many people project all of their personal stuff on to the people around them and they start blaming other people where it's actually all about them. You have to have a basic understanding of how perception shows up and impacts your relationships. This is everything we teach in the Bulletproof Coach Training program. Why do we do this because when someone shows up as a Bulletproof Coach and then client engages, I want them to know that this Bulletproof Coach has done the inner work to measure themselves they are living in their integrity. They are passionate about it because they've experienced the benefit's themselves and so not only are they able to facilitate deep insight and change and realize for the client but you can also impart all this amazing wisdom and insight about how to improve their biology and their energy. You don't normally get that with a coach, that's why it's unique.

Dave: It's usually one of the other and the Bulletproof coach program is not a nutrition coaching program. I send people to Cynthia Pasquella's course, Institute for Transformational Nutrition is one where they go really deep on food. We go deep enough to say these are the Kryptonite foods, these are the high energy foods this is the Bulletproof Roadmap, that provides the fuel to do what's really in coaching. This addiction to personal development training is kind of a funny concept. I see the same thing in entrepreneurs and I mentor some entrepreneurs and I'm an advisor to startups and have been for many years.

There is a type of thing that's actually becoming an epidemic right now I call them wantrepreneurs. You read a book that tells you you can go live on an island and make enough money to surf all day everyday or something. That's cool if that's what you want to do, but there is a lot of people who spend more money and time on courses to learn how to hack their tools or something then to just go out and start a company. I actually think starting a company is harder it's actually an act of creation, it's a lot of work.

It requires a certain level of personal development to do that successfully. Otherwise you may end up making really bad decisions. There is a parallel on personal development to being an entrepreneur and I think that there's a I want to be an enlightened verses I want to do some work I have no idea if I'll do it but I'm going to actually start meditating instead of reading books about meditation.

The same thing goes for starting companies. I'm going to start a company or I'm going to read books and take online courses. There's just a very different mindset and it actually is all the same thing that always comes from procrastination. It's fear.

Mark: It's fear-based and Bulletproof Coaching we have a whole section on success. First of all how to really drill down to what success is and it all comes back down to it requires a whole bunch of things. You need energy, you need focus, you need clarity, you need passion, you need perseverance, you need humility, you need resilience and you need grit. Above all else given all those you need to take action and the amount of times I come across people who talk a good game and just say spend all the time reading the books doing the courses and they just need to take action. The greatest learning comes from just showing up in life engaging with what's in front of you and doing it to the best of your ability. Wherever possible being surrounded by mentors and people who can support you and encourage you.

Dave: I love that perspective and Joseph you're asking share some of my own personal development journey and what I learned about myself and about life. I didn't believe too much in personal development I kind of did subscribe to the computer science Asperger syndrome model of reality which is we are kind of meat robots. I did this until my first marriage completely failed. You generally, to go on a path of personal development most people unless they are unusual have to have some source of misery in my case like I'm fat, my biologists work, I have brain fog all the time I have emotional disregulation I have bad smelling farts as we disclosed earlier. Generally my life it wasn't good on some levels but economically successful, I have already had this career that is industry changing, disrupting giant things, the first-ever e-commerce product sold was a t-shirt out of my dorm room.

I'm kicking ass from one perspective and I'm completely failing on another. I was just like wow I have to face failure. I got to the point where I'm working at this start up, I'm just finishing up my MBA in business school and I remember I sat down with my boss at the time and I'm like I need to take off 10 days, it's a family thing. No warning, "What's going on?" I'm like dude I'm getting divorced. He just sat down and he's like are you kidding me and I had no idea you never said anything.

None of my friends had any idea that I was going through any of that stuff because I'm like I'll just push through. For me it was like to realize I failed but the one thing that if you're a rational person or at least you believe you're a rational person all right you do a root cause analysis. It also helps ... I actually used to design software that did root cause analysis of complex systems . I'm pretty well-equipped for event correlation and root cause analysis.

A friend of mine said do this personal development course and I'm like I'm really skeptical of this stuff and she said well I'm not going to tell you what it is but just trust me you'll get something out of it. Not knowing what else to do, I went off and spent 10 days on a transpersonal psychology workshop called the Star Foundation. I did the whole atrophic breathing and birth regression and it kind of came out of there going holy crap I had no idea that there's all these weird emotions that are residing in the body and that I'm actually afraid almost all the time because I was born with the cord wrapped around my neck. I came into the world biologically programmed believing that the world was a frightening and scary place where things trying to choke you to death.

I didn't believe those things rationally I didn't even know that those things were running in my biology. Those were the background rules that are written in our bodies. It's that programming that's invisible to us that is the cause of most suffering and most procrastination and most of the really bad decisions that you've made. If you read the Bulletproof Diet Book and by the way if you're listening to this and you haven't read the Bulletproof Diet Book it's not about the diet it's actually about having more willpower, just food is one of the big inputs for willpower.

I talk about the Labrador brain in there and that is the best simplification I can get of all these things but we are programmed to live as meat operating systems. It's those programs that betray us and make us do bad things and most personal development is really all about becoming aware of the programs you have learning how to foresee them and then how to reset them, how to reprogram them.

What I do now with CEO coaching clients and I do very little CEO coaching I still occasionally do it if it's someone I really, really want to make time to spend with. Right now I like family time and my Bulletproof is growing and I'm creating masses of content and things like that. I still occasionally coach people. I always do something that I've spent 10 weeks of my life doing and that's something called 40 Years of Zen. 40 Years of Zen is a neurofeedback training program, one that I've really invested even more in lately where we've added a whole bunch of new technology that wasn't available in earlier generations of this.

This is in fact I haven't really disclosed this, I'm doing neurofeedback training I have a neuroscientist dedicated to Bulletproof staff right now because it's so important that we get

these nasty dysfunctional rules out of our nervous systems to be good human beings but it also lets us do more good work at work and at home. You'll be a parent, a better son, a better daughter, a better spouse, a better partner when you disrupt this programming.

What I did was for 10 weeks of my life, glue electrodes to your head and run what is essentially a lie detector against yourself. You say something that looks like this. I forgive so and so for whatever because pretty much every program you have running in your body is your body being pissed off about something that happened even if it happened when you were two years old. I didn't get the cookie I wanted so I felt like no one loved me.

If you have a program like that you might be eating cookies all day long because cookies equal love to you. That doesn't mean you're a bad person, it doesn't mean you know what's happening, it's invisible. When you have a lie detector hooked up to your head it's not invisible anymore. Every time you say I don't have an issue with cookies you essentially get a signal that you don't hear the sounds like your brain shuts down. My powers of self-deception are incredibly powerful and so are yours. You've done 40 Years of Zen and you've brought other people in through the program as well you know exactly what I'm talking about here.

A shortcut this personal development Journey it's called 40 Years of Zen because it's designed to put you in the same mathematically depicted brain state as someone who's spent 40 years doing daily Zen practice and a Zen master. I'm not a Zen master I haven't done all the Zen training, I've been to Tibet, I've trained with Zen masters, I've been to Mount Kailash and I've done all sorts of breathing exercises, personal growth I can put my ankles behind my head like yoga stuff like that. Nothing compares to having a real-time signal that says you think you're done with that, you're not done with that. You have to go deep and go deep.

I've never been through the training when I do it to myself without crying or throwing up at least once in a week's worth of training. It's a five-day course now. I have never had a client go through without crying or throwing up or having really intense emotional experiences. This is the scary stuff and it's scary because your nervous system is designed to keep your meat alive and if you are in control of your nervous system your nervous system thinks you might do something stupid. It tries to keep you from running your own biology. That's unacceptable at least for me, and my body in the world that I live in. I will give my body maximum power, maximum energy, my brain maximum energy and I will use the energy to gain control of my nervous system. That is why I am a bio-hacker, that's the essence of personal development right there as well.

Why would you go on in your case Joseph a 30 year struggle? You do it because you can see that there's value in it but why would you spend 30 years without sign posts, without in my case I have rubber bumpers and buzzers when I do it wrong. That lets me get a lot more progress. I would not be running Bulletproof I would not be sitting here right now communicating the way I am right now without stress, without having done this extensive neurological hacking and none of that stuff works without enough mitochondrial function. Number one biology, number two address the software, that's the essence of it.

Mark: Just feedback accelerates personal development because we are creatures of profound self-

deception. The more we start to see it it's astonishing how profound it is and that feedback process just gives you really helpful information because unfinished emotional business is a major impediment to personal development. I've done the same training.

Dave: That's why we can work together on the Coaching Program the way we do because we can talk in the same language. It also means that you can hold your ground, just call it energetic I don't know how to describe it but we do have a magnetic field around ourselves and you can sense that stuff when you're trained. When there is someone who would be pushing your buttons but you've actually taken the labels off of your buttons and you cut the wires behind the buttons, you push the button and there's nothing there.

Mark: Just present.

Dave: Someone can completely unload their baggage on you and you don't lose sleep over it you don't play it over in your head the voice in your head doesn't say anything about it. That's when you know you've got it and I turned off the voice in my head. There isn't some mean nasty person in there second-guessing me and making me socially anxious the way it used to. They think I'm fat or they don't like me or I bet I sound stupid or I bet they think they are better than me or they have more money than me or they have bigger equipment than me, that one is just not possible.

All those dumb things that run in our heads it's all complete programming just baggage and it's all hackable. That's my path and it's not a normal personal development path.

Mark: People need to realize that a hydra forming people such as you describe there that are the way they are because of the work they've done. Very rarely do you get born in this kind of healthy relaxed kind of spacious state of high performance. You go to work at it and it's patience and it's perseverance and it's learning from others and it's a willingness and it requires a lot of courage. It requires a lot of courage to face yourself.

Dave: It's one of the most terrifying things you'll do in fact I guarantee you anyone who's doing real personal development work will hit the point where you feel like generally or genuinely you are going to die. That is your body going, no seriously I'm not kidding. One time I was in the 40 Years of Zen electrodes on, there was something that wasn't working for me and I couldn't figure out what it was. Which is really frustrating when you're trying to reprogram a rule and the rule keeps moving around. You're like what the hell.

I'm sitting in there and I started just visualizing trying to figure out where I was and pretty soon my stupid nervous system is sending me images of myself pouring gas on myself and lighting myself on fire. I'm not going to light myself on fire that was literally my nervous system going, no seriously dude do not look there don't look there think about the most horrible painful burning death possible, think about that instead of looking here. As soon as that happened I was like oh cool I found it. It takes courage.

Mark: The ego is constantly trying to distract you from the very thing that will make the most significant difference to you. The more it hurts and the more it sucks, the better it is for personal



development.

Dave: That's where the gold is. That's why it takes courage and perseverance and frankly having an accountability partner, having a good relationship. When you feel like wussing out, your partner or your friend or your coach, one of the reasons we have a coaching program is there and say you better get back in there and do your work, you're not allowed to wuss out now.

Mark: The results are kinder, healthier human beings who are bringing their gifts and themselves in the service of the greater good and just enriching the world, enriching life. That's such a blessing, you're not just doing it for yourself, just so many benefits. It's amazing really great to read that you've done so much work and that you felt that you were living a close and ideal life because and if you're a father or a mother what you bring to your kids as a role model and the energy you bring the family has such a profound impact. We have such influence over our children by the way we are. There are so many gifts to be doing this it's not just about ourselves it's about others. Such a great question and great to be able to share about our experience.

Dave: Kind of a long answer there but. That was an awesome last question Joseph thanks for asking that and giving us both the opportunity to sort of go off on personal development tangents and talk about some of this. I hope when you're listening to this that this is valuable for you. You don't have to attach electrodes to your head or even to your ear to do heart rate variability training. You can start meditating, you can start doing breathing exercises you can take up yoga, I did Art of Living for a long time with a bunch of entrepreneurs, this is a sort of breathing exercises that came out of Indiana. I actually met one of the Nobel laureates one of the guys behind the black-scholes option pricing model at one of these things. It's kind of funny there was some very powerful people that have a daily breathing practice.

Do something whatever it is there are lots of free things you can do. I write about different breathing exercises on the Bulletproof blog and things like that. Do you something and if you want to go big well we just talked about how to do that. The rest of these questions here you learned something about gastrointestinal health and what it does to cause brain fog even if you don't have IBS or irritable bowel or ulcer colitis or celiac any of those other diseases. Properly functioning gut means you have more energy.

We didn't talk about this but your IQ can vary very substantially on a daily basis based on the amount of energy you have and the amount of toxins circulating in your blood. Based on how much sleep you got, based on how stressed you are. This is one of the variables for being a high-performance person is being a high-performance digestion machine.

We talked about some ways to hack school specifically med schools I hope this was all helpful for you. I'm grateful that you take time to send in questions, if you ... you can send voice mails to us through speed pipe, there's links on the blog for that, you can ask questions on Facebook. You can do it in comments on the blog. We do our best to collect all of that stuff and at the bottom of the screen here if you're watching on YouTube we will actually put a link where you can go to ask questions for the show. Have an awesome day. Mark I'll see you on the next episode.



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