



## Transcript of “Evolutionary Psychiatry with Emily Deans”

Bulletproof Radio podcast #4



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Dave: Today's cool fact is that vegetarians can get almost 20% of their calories from fats that get produced by the bacteria that ferment all the fiber that's in their gut so much for being a low fat vegan, it's simply not possible. You are listening to episode four of Upgrade Yourself Radio, this is Dave from the Bulletproof Executive. We are here talking about how you can upgrade your mind, body and life to levels you never thought possible. Today we have a great interview with Dr. Emily Deans. Emily is a board certified psychiatrist and she uses evolutionary clues to solve modern psychological problems. We talk about the causes of ADHD, the role of ketogenic diets and mental disease and how you can change your diet and lifestyle to avoid mental illness and keep your mind bulletproof into old age.

We have a lot going on in the blog, we released part one of the series on grass fed meat yesterday and we'll continue to publish articles on that topic for a few weeks. We are going to show you why it's better, how to buy it, where to look for it and a few secrets that most people just don't know about. This is really important even if you are not say a paleo dieter or you just want to eat for your personal performance. We are going to explain exactly why you'll do better at work and you'll do better at home when you eat grass fed meat. If you'd like to learn more about us, you can find this on Twitter. You can get in touch with us on Facebook or you can sign up for our email newsletter which you'll find on [www.bulletproofexec.com](http://www.bulletproofexec.com).

Speaker 2: Now we are going to move on to our exclusive interview with Dr. Emily Deans from [evolutionarypsychology.com](http://evolutionarypsychology.com). Emily is a board certified psychiatrist and she's going to be talking to us today about the relationship between nutrition, health and mental disorders. Emily thank you so much for being on.

Emily: Hi thanks for inviting me I'm really glad to be here.

Speaker 2: Cool. Dave you want to start hacking away these questions with Emily?

Dave: Absolutely Emily thanks a lot for joining us this morning. The first question that we wanted to ask you was, how does evolution shape our mental development?

Emily: Well evolution is a funny thing it's the bath water that we all lived in for generation after generation after generation. Evolution is a pretty random thing it's not necessarily directive, we don't necessarily evolve to a higher state but we often evolve to a state of better adaptation to a particular environment. For a long, long time we have evolved in a hunter gatherer paradigm for many thousands of generations. It's really only been the last 10,000 years that we've been more agricultural really only the last 50 to 100 years that we've been industrial and only the last few generations that we've been digital humans.

There are a lot of different things about our lifestyles in many, many respects. I focus mostly on the food. There is also a lot about sleep, about electric lights and sleeping differently and TV and exercise and all of these things are important to our mental health and our physical health. Again I primarily focus on nutrition.

Dave: Do you speak specifically about epigenetics or is that part of what you are looking at that's a big part of a book that I'm publishing later this year for pregnant women. Looking at the effects of evolution and what not on how your children come out even how your children, children's come out, is that part of the picture for you?

Emily: I mean epigenetics is a big part of what's going on because that's how we adapt in real-time. It's an actual physical mechanism where we change the expression of our DNA to do the different interactions with our environment. There was just a study out a paper earlier this week from brain behavior and immunity talking about theoretical implications of the plastic BPA on our epigenetics. How it might change it's really actually quite interesting our DNA which eventually it expressed into proteins which codes who we are. What is working and not working and doing and not doing in our bodies, DNA is bound up sometimes in little things called histones. The epigenes which are these balls that hold the DNA together and keep it from being transcribed.

Epigenetics is basically how these histones come on and off the DNA so that's how this exact mechanism how in real time you can be changing your genes even though we are all stuck with the set of chromosomes that our parents gave us when we were conceived.

Dave: Then how does what we eat affect our mental performance?

Emily: Well our brains are very powerful or it's quite small it's only 2 to 5% of our total body weight but it uses about 20% of our body's total energy. It's very hungry it also requires a little bit different fatty acid profiles and a lot of the rest for our body. It requires a lot of long chain, omega-3 fatty acids to work properly. It requires a lot all these energetic reactions require a lot of mitochondria and clean up and things need to be working as efficiently as they can be. If you are missing nutrients, if you are not getting enough magnesium if you are not getting enough zinc, if you are not getting enough of your B vitamins. You end up having an inefficient processing of energy in your brain. This can lead to builds up of toxic byproducts and all sorts of stuff that makes your brain not work as well.

This is pretty well understood I don't think too many people have put it all together but it's pretty well understood and there are some interesting evidence. For example that older people with dementia who have more B vitamins have less brain shrinkage than older people with dementia who have fewer B vitamins in their diet. There are lots of different little strands of evidence like that that tell us that nutrition is very important to how our brain works. It plays a role in probably all of the different types of major mental illness and neurologic disease also.

Dave: It's such a breath of fresh air to talk with you about this because one of the main points of the bulletproof diet is to reduce the number of toxins in your body and to increase mitochondrial functions. Specifically for mental performance which is something that I've been doing for years myself, including overcoming some brain stuff that I diagnosed with FMRI scans.

Emily: Wow.



- Dave: I love hearing this become more into the public's fear of knowledge because it's so effective it just making you feel better and perform better.
- Emily: What I really like about it is that I eat an evolutionary style diet and I found and it's very good for performance and physical health and it's also good for mental health. I really like doing something that's very healthy but that can help in pretty much all directions at once.
- Dave: I have definitely seen the same effect but with the people who have tried this stuff on the blog as well as with about a dozen or so years of doing it myself. What about people though who are taking stands, how do those affect our brains versus say the evolutionary diet that you and I would both be fans of?
- Emily: Well I worry about that and mostly because I think that the brain really needs cholesterol, the brain has about I think 20 to 25% of our body's free floating cholesterol. You need fresh cholesterol all the time in your brain especially for rapid turnover and the synapse. Statins some of them do cross the blood brain barrier since the statin is the one that does. There are some evidence that it can cause sleep problems, aggression, anxiety, depression. I've had a few case studies of my own patients who when they were put on statins one of them became quite suicidal depressed. Another one nothing was really working and we took her off statin and she got a lot better.

Somebody else actually two other people got quite paranoid and went to the point of hearing voices and went away when we took the statins away. Those are just anecdotes that they certainly made got my attention of course. I really looked into more of a literature about statins. The scary thing is even though they are recommended for the general public for prevention as we all know, most of the studies were actually never done in people who struggle with mental illness. That's according to the National Institute of Health it's about 28% of people in the US every year struggle with some sort of access one mental disorders. Which include anxiety and depression and bipolar disorder and ADHD and schizophrenia and those sorts of things.

The fact that there are recommended for all consumption yeah hadn't really been studied in this huge sub population, bothers me and especially as it's very clear that the brain needs cholesterol. That statins actually it's been shown in some studies interfere directly with certain types of protein binding and a serotonin receptor. Also do decrease in cholesterol may have other un-toured effects so I worry about statins there is not a smoking gun if you really look at the literature very fairly. Some of the studies that have been done directly they are small, did show that the statins that don't cross the blood brain barrier Pravastatin is one that does not. Have less of this mental health side effects but this was one pretty small study.

As far as I know it's the only one that really looked at it very carefully. The interesting thing though about statins is that before we had statins we had older classes of cholesterol lowering drugs like [inaudible 00:10:59] and those kind of things. They actually when you look back at the literature definitely there was an increase in depression and suicide when you look back at kind of the epidemiologic studies. There are some large statin trials that also show an increase but it wasn't statistically significant because suicide is pretty rare. You have to have a pretty large group of people if you are going to pick that up. It's hard to do a group on a huge study on say 20,000 people for five years that's extraordinarily expensive. We really have to rely on retrospective epidemiologic studies which don't give us exactly ...

It can't tell us causality it can just give us a clue as to what's going on. Getting back to my point those old fashioned drugs were probably worse for your brain than the statins and it's not really clear why. Because the statins actually lower cholesterol more. Statins also perhaps the way that they help people when they do, it's through an anti-inflammatory mechanism not to lowering cholesterol. That lowering cholesterol is a secondary sort of an accidental side effect of the statins as it were. It could be that anti-inflammatory mechanism keeps statins from being as detrimental to the mental health as the old fashioned cholesterol drugs were. I hope that just makes some sense?

- Dave: It makes great sense. I love hearing the idea that that cholesterol is good for the brain on the Bulletproof Executive Diet. I recommend several raw eggs particularly raw egg yolks a day in order to help with mental performance. Are you familiar though with the research about statins being anti-fungals actually as well and how that may be part of the mechanism of action?
- Emily: Just really touched on that I haven't looked at it in any depth but yeah it's certainly possible.
- Dave: Okay. What about the very old statin drugs like Cholestyramine or even say activated charcoal which lowers LDL about 15%. These are basically bile sequestrant agents that work to help detoxify they increase in bile turnover. I found that they help a lot with mental performance in very short time frames. Especially in people like me who had problems with toxins or with fungus infections. Is that something you've come across in your practice?
- Emily: Well the long term effects of the Cholestyramine is one of those drugs that was definitely associated with an increased in the risk of depression and violent death and suicide. There is old studies looking back so short term usage I don't really know about so much though I know it can be used for detox and fungal infections and that sort of thing. It's not something that it needs part of conventional medicine surely I don't think. The long term effects of Cholestyramine I would be concerned about.
- Dave: On a regular basis yeah I mean I wouldn't want artificially low cholesterol unless there was a problem going on.
- Emily: Right.
- Dave: [Inaudible 00:14:10] what are some of the foods that maybe would cause the biggest problems in mental development or mental function for our readers or for our listeners?
- Emily: I think probably the biggest problem and when we've seen the biggest escalation in some of these mental illness categories is over the past 50



years. It's not just because even though we do recognize it more and it's certainly more in our radar that people have depression and anxiety. These are illnesses that we need to treat, it's also definitely true besides just our increased awareness that the incidences of these illnesses have been increasing quite a bit over the last 50 to 100 years. That really points to the time when we started to have a lot of industrial processed food and a lot of fake fats. What I think is the most disastrous combination would be some sort of fried very nutrient poor but fairly caloric dense processed food like a chip.

There is a lot of evidence to show that this omega-6 is displaced the omega-3 is and we really need to be getting enough omega-3s and that omega-6 can probably be disastrous for the brain if there is too much of it.

Dave: Hearing that stuff I could just give you a hug. This is exactly the information that we've been promoting and also just that I've seen such an improvement in so many people in the anti-aging nonprofit I work with. When they stop their omega-6 consumption you see people of all ages even sometimes people in their 80s who just have profound improvements across a broad range of health parameters. It's really incredible.

Emily: Yeah omega-6 was sort of touted because they lower cholesterol and all these things they were touted as this health food of the polyunsaturated fatty acids. They are cheap and they are plentiful and boy our country sure does grow a lot of them. We never ate these kinds of things before and our bodies and brains just aren't designed to have as Stephan [Geene 00:16:28] said in her recent blog post, it's basically an unregulated experiment. Jerking up our percentages of omega-6 from vegetable oils to 10 or 12% of our calories. It's not anything that human beings had ever experienced in the entire history of our evolution. No there are certain omega-6 in poultry and then animal fats but it's in fairly small amounts and we need some of them.

I personally don't like using my brain so far outside sort of the evolutionary design spec that has been there. I want my brain to be working with the minerals and the vitamins and the fats that it was designed for so to speak.

- Dave: That makes so much sense, do you have an opinion on Brian Peskin's work with [inaudible 00:17:24] essential oils and the recommendation for some omega-6s, is that part of what you think about?
- Emily: I think there is so much complexity with regards to all these interacting pathways and what goes on. I tend to do a fall back of a very natural approach. I'm a fan of supplementing basic stuff like minerals for example but and last year pretty desperate, I don't like the idea too much of supplementing all sorts of different essential oils. I prefer to eat real food and to eat real food is the ... eat real food that ate real food. To eat grass fed beef and for example eggs have plenty of omega-6 in them but they also have plenty of other good stuff. They'll give you all the omega-6 that you need and I eat pastured eggs from chickens that have been around eating grass and walking around in the yard like they are supposed to. It gives you a better fat profile and more nutrition more micro nutrition, more vitamins and minerals.
- Dave: It's really funny one of the top stakes sort of the self upgrades we talk about on the site is eat happy things that ate healthy things essentially what you just said there. Eat animals that were well fed. I think you had some questions around ADHD and you wanted to ask as well.
- Speaker 2: I did. I was wondering how ADHD really it's a diet and how people could possibly reduce or treat ADHD by making dietary changes?
- Emily: Well I think the most interesting work in ADHD and diet have been in Britain, they did some tests there are interesting studies that basically showed that if you took ... these were normal, these were kids that are in any kind of diagnosis of anything that I'm aware of just kids in the community. You gave them food additives like yellow number five and red number two and sodium benzoate in a combination. That some of these kids had significantly more hyperactive behavior. Some kids were fine they could drink all the yellow number five, they wanted their behavior was just fine but some kids seemed to be clearly vulnerable.
- These same researchers went back and checked out the genetics of these kids and they found that the kids who were more likely to react to the fake

industrial food diets were ... they had differences in their immune system in how they metabolized histamine. In some respect what they basically found was that these kids were having an unmatched allergic reaction to sort of put it generally. They were having a type of allergic reaction to these food diets and that was manifesting as hyperactive and bad behavior. Which is very interesting it was an amazing piece of work and so continuing on that these researchers in Belgium published a paper earlier this year where they took 100 kids who were diagnosed with ADHD. They put them on anti-inflammatory diet meant to really decrease any exposure to food allergens.

Any kind of fake foods or any industrial diets or anything like that. In the study for the most part the kids ate rice, white rice which is obviously not an evolutionary food but it's thought to be pretty nontoxic. They eat pear they eat meat they vegetables and they water. No dairy, no some of them were allowed a little bit of wheat but not very much, there are a few exceptions. These kids on this special anti-inflammatory diet actually 60% of them had significant improvement in their ADHD symptoms. They continued on this diet for nine weeks and then they crossed over their arms so they had 50 kids on a standard diet and then 50 kids on this anti-inflammatory diet.

They switched arms and the kids who switched over to the standard diet which was basically what the government will consider a healthy diet because it was the control. These kids their symptoms got worse again and the kids who had been on a controlled diet and then were switched over to the anti-inflammatory diet, their symptoms got much better. It was a well designed study it was pretty vague for its kind because it was 18 weeks and actually there was another arm, where they were adding back in foods that they thought the kids might be allergic to. That actually had no difference adding back the foods that they thought that the kids might be allergic to didn't necessarily cause a resumption of symptoms.

There seemed to be the whole diet change was the important thing not any specific food for a lot of these kids. Which was interesting and it goes to show us that that type of diet without very much wheat, without dairy,

without these modern processed foods is probably very anti-inflammatory. These kids weren't having a so called allergic reaction to it and their behavior was better. It showed a very clear interaction between diet and ADHD symptoms.

Speaker 2: Do you think a lot of psychiatric disorders and bad behavior might be caused by poor nutrition and especially I've heard that gluten is particularly problematic and casein is also problematic in some individuals?

Emily: Yeah well I think there is evidence especially in some very susceptible individuals that they could be huge problems and there are certainly lots of anecdotes of people doing a lot better. Once they've taken these things out of their diets but it can be very tricky because just a gluten free, casein free diet might have lots of other fake inflammatory stuff in it. The study that you are asking about or how to prove this let's put everybody stand in paleo style anti-inflammatory diet. It's really hasn't been done so we can only speculate but it does seem to make sense that with all of these disorders increasing over the last 50 years along with their consumption of these omega-6 vegetable oils.

Of these nutrient poor fried food and getting away from animal fats and meal food and local food that's grown [inaudible 00:24:13] so that hopefully that they are pretty fresh to their vitamins and minerals are pretty fresh. I guess minerals that doesn't matter that much but with vitamins I think it's better to eat them pretty fresh. It depends on the vitamin when you look at that but it does seem that we need to address the entire picture rather than some of the specifics. Unfortunately that's a heck lot harder to study and if you just look at specifics often you come up with no difference or no change. Especially in the more serious conditions, for example omega-3 is in that expense of [inaudible 00:24:50] for depression anxiety and dementia.

Severe depression and with anxiety and in severe dementia adding omega-3 supplementation alone didn't make much of a difference. Not that surprised by that I mean there is already been a lot of damage and a lot is going on and omega-3 isn't going to be probably enough on its own to really turn those things around. However when you look at people with

mild cognitive impairment and people with and some studies people with depression without complicating anxiety, they responded quite favorably to the omega-3s. It shows you that a little bit of intervention can be perhaps preventative and help with the milder cases. We have some more work to do and we are looking at more serious cases where there has already been a lot of damage done. Some of the stuff we aren't going to be able to undo.

Speaker 2: Right so basically what might happen is let's say you do fix some of this omega-6 to omega-3 ratio but then there are still in gluten or something else and it overrides the positive effects. Dave had some cool questions about inflammation how it influences the brain do you want to hack at those Dave?

Dave: Absolutely the overriding question is how does inflammation affect our minds and the reason I'm asking it is that I've been able to through, self experimenting and what not understand that I definitely have brain inflammation when I eat the wrong foods. To the point that sometimes you can even measure it in the changes in the size of my head. For instance gluten and casein and MSG all cause inflammation in the head sometimes. It's blood flow caused sometimes it's actually something else which is I think core inflammation. Any thoughts on how big of an impact inflammation has on our minds?

Emily: Well if we are talking about inflammation inside the brain, it's very clear that inflammation is a big part of pretty much all our mental illnesses. You can look at levels of interleukins which are chemicals that are made by the body in a response, an inflammatory response. There is interleukin six and interleukin two and TNF alpha and all sorts of interestingly named chemicals. You can find them right at the warzone in the brain where all these different mental illnesses take place. For example in depression [inaudible 00:27:27] that one of the main places where there is a problem in depression is in an area of the brain called as the hippocampus. People with depression have increased levels of TNF alpha and IL2 and [inaudible 00:27:40] and different chemicals that are associated with inflammation in the hippocampus.

It's right there it's definitely a part of what's going on and dementia also you will see ... you can see the inflammation it is also true of autism.

Inflammation is part of the pathologic piece of what's going on in the brain to cause the symptoms.

Dave: It's really cool to hear you mention autism there in the Better Baby books. One of our goals in creating a nutrition plan for pregnancy was to reduce the incidents of autism. My wife is a physician and she and I used a program like what we are talking about here with appropriate fatty acids and with very low amounts of inflammatory chemicals. To do everything we could to reduce the likelihood that we would have autistic children our self. Given that I had all the symptoms of Asperger's till I was 25 when I radically rewired my brain and changed my nutrition and things like that. The core idea that brain inflammation is involved was one of our core ideas.

Where we then said what are all the things that we know can affect it and let's move those in the right direction and hopefully have a positive effect on outcomes.

Emily: I mean that's inflammation is definitely a part of autism with that seen in autopsy studies directly. Using you see the activation of the immune systems in the brain in certain areas that are very adversely affected in autism. It's not controversial, it's not really a question at all it's known.

Dave: It's really great to hear you talking about that even though with the Bulletproof Executive our typical audience isn't someone with autism. A very significant number of business people even business leaders are dealing with ADHD and ADD type of things going in their brains. It's been my personal experience and my experience working with other people in a business context that when they start getting their nutrition under control they get their inflammation under control. Quality of life goes up but quality of decision making and basically their ability to perform in an entrepreneurial setting improves as well. Even if they didn't recognize that they had inflammatory problems going on. Does your experience reflect that same sort of pattern that maybe some people have this going on and don't recognize it?

Emily: Yeah I think a lot of times I'll see adults who've had kind of their ADHD their whole life wasn't bad enough that it caught anybody's attention so much

when they were younger. There weren't the kid who was in the back of the room jumping around on top of the desks and driving everybody crazy. They might have been daydreaming and not doing very well not living up to their potential. That is a lot less obvious and jumping around the desks so they were never really diagnosed but it causes just the low level of the ADHD symptoms can cause so much stress in your life. Because again you know you are smart, you know you can put these things together when you are emotionally driven you can really produce outstanding work.

Because if you do have ADHD you actually have the ability to hyper-focus on things that are emotionally interesting to you. It's very common to see very successful people with ADHD because they've been able to ride on that hyper-focus and during some times. Then have some disastrous times but have been able to overcome that or get some help with or cover it somehow. Then over time it just becomes so stressful over the years to do that. I'll see many adults who come in with anxiety and depression but it's basically secondary to all of the stress that has been caused by living with low grade ADD their whole lives. It's very common as you said in executives it's common in surgeons.

ADD is one of those disorders that takes away but it also gives to with a hyper-focus ability.

Dave: What about physical activity and Alberta is saying that I spent a lot of time exercising I used to weigh 300 pounds I weigh 200 pounds now and I have for more than 10 years. For the last two years kind of new experiment and also because I've been writing a book working full time as an executive and just had two kids, I've actually not exercised. I've had improvement in muscle mass, I have a six pack and I'm ready to exercise so I have to for mental performance. It looks like on a really low inflammation carefully designed, high fat, paleo friendly kind of diet. Exercise may not be as important for mental performance is that true and what should people be thinking about when it comes to mental ability and physical activity together?

Emily: That's a hard question to answer because the studies haven't been done in the paleo anti-inflammatory crowd. The studies have been done in people a

standard crowd. Some of the studies definitely show that physical activity is a great anti-depressant, some of the studies haven't been clear. Excuse me and I think a recent Kaufmann review showed that it was pretty much awash. However I've been talking to some people and I know I think of my own case, if I do some regular exercise not marathon running but let's say run a 5K a couple of times a week. Or do CrossFit which is what I do now, in general I feel better and have more energy but nothing terribly excessive.

Certainly there are studies in mice that massive amounts of physical activity causes anxiety and inflammation, I don't know if ...

Dave: Hallelujah yes.

Emily: I don't know if the studies have been done in marathon runners I haven't looked at that literature specifically. I would suspect that there is a lot of distress and anxiety in general if you are just putting your body do that day after day after day mile after mile after mile.

Dave: In fact just an anecdotal thing, have you seen any long term triathlete or marathon male over 30 who's not completely bald? I think it has to ...

Emily: That's interesting. I think I have seen a few but a lot of them are losing their hair that's very interesting. My husband used to marathon and he's lost a lot of his hair so.

Dave: There we have it. Unfortunately I still have mine but I gave up the extreme endurance things before I was 20 and I'm almost 40. I think by the way CrossFit style the high intensity short duration exercise seems to be exactly the most effective in the smallest amount of time. Which is what I will be doing as soon as I break my exercise fast so to speak.

Emily: In my life I also have two young children and I'm a physician and things are pretty busy. I have to get up at 5:30 in the morning because that's my only time to go exercise. I can only do that a few days a week because if my husband happens to be working that day I can't do it. If I only have a couple of hours a week I'm going to be doing CrossFit or something similar to that. Rather than I'm not going to be going to run 10 miles because I don't think



that would do me nearly as much good as lifting heavy things for 30 minutes.

Dave: I love that quote I think we might have to excerpt that in the short notes but yeah. Lifting heavy things just gets you more in the small amount of time and let's face it it's a waste of time to go out and run long distances. Unless you are doing it just because you love it and you really want to. If you are doing because you are trying to lose weight, wow it's not the fast path to losing weight we'll put it that way.

Emily: It's interesting because I do have a lot of experience with trying different diets in the past along with different sorts of exercise and personal training. I have to say that a combination of the sort of paleos style diet with the CrossFit has really ... I've had the best results as far as body composition and how I'm feeling and those kinds of things as far as physical health. Just in my own personal experience.

Speaker 2: Cool so Emily I'd like to ask the question that is getting a lot of interest nowadays on ketogenic diets. I know those have been touted as an experimental treatment for autism and numerous other disorders I believe Parkinson's and as we talked about Asperger's. What are your experiences with ketogenic diets and improved mental performance and are there any major studies that you are aware of that really show a good connection?

Emily: I would say there are no major studies, the only studies there are a couple of pilot studies in autism. There is one pilot study in autism there is only 23 people I think. There is one pilot study in Alzheimer's, dementia, again a similar number of folks I think it's really only 11 or 12 who are on the diet. Then maybe another 11 or 12 who were controls. Those shows some positive results and we certainly need more research I worry about the research ketogenic diets because they are not generally coconut oil. They are generally these horrible soy bean oils things that they would use in kids with epilepsy. I would be certainly more interested in a ketogenic diet based on whole foods, coconut oil perhaps adding some MCT oil.

Theoretically they work on improving the energetics of the brain and can bypass a major complex in the mitochondria so that you can have again

increased energy efficiency. If your brain is shorting out and not doing so well for example if you have autism or if you have seizures or if you have dementia, then increasing energy efficiency can really do a lot to help your symptoms. Because people with Alzheimer's dementia have a horrible time metabolizing glucose. If you switch over to a ketogenic diet where your brain is only burning the minimal amount of glucose than it has to and then the rest of the brain is burning ketone, you are going to theoretically do a lot of good.

It also its interesting bipolar disorder the study has not been done though I'm aware of some case studies people have emailed me who have had symptoms very consistent with bipolar disorder and went on zero carb ketogenic diets. They had vast improvement in their symptoms. There are two case studies in the literature and there are no randomized control trials at all for bipolar disorder. Since a lot of the medications for bipolar disorder also are medications for seizures and there is definitely a lot of evidence that the ketogenic diets are very effective for seizures. It makes sense that they would also be effective for bipolar disorder.

As I said there are two case studies in literature and both of them were failures for trying to treat bipolar disorder with a ketogenic diet. Then there are no randomized control trials but very, very interesting theoretically and again the case studies that I know about out there, not published but just anecdotes. People have positive results so it's not something that an MD I had to go with evidence based sentences. If someone comes up to me and says, hey with all the symptoms of bipolar disorder, I can't first off say oh go on this ketogenic diet because we just don't have the evidence. If someone had wanted to work with me with respect to a ketogenic diet and figure out how to do that and if they some of the other options that we already have more evidence for.

Though they have drawbacks too certainly medication of course has a lot of drawbacks but for example they didn't want to do that. Then I would certainly would be glad to work with someone with that but it would have to be kind of a special case.

Speaker 2: Let's say somebody was trying a ketogenic diet that did not have autism or Asperger's or Alzheimer's or some disease. They just wanted to experience better mental performance maybe they are getting ready for a big test or they just like being a little bit smarter. Do you know of any possible mechanisms by which a ketogenic diet may improve mental performance in healthy individuals. Could adding things like MCT oil or coconut oil or these other things that improve ketone production, possibly improve their mental performance as well?

Emily: That's been highly variable when you hear ... I don't think again it's not been systematically studied and we are really more talking about what you see and hear on the internet which you got to take. That was a grain of salt but people have a variable reaction to a ketogenic diet. Almost everybody is going to be a little bit groggy or not feel as good at the beginning, it's called the low carb flu. Something that I've actually experienced when I've been fasting or anything like that. A lot of people say they have it maybe an issue with omega-3s and maybe an issue with serotonin who knows. If you get past that then some people report wow they are thinking more clearly, they have lost their cravings, they are not destructible and they are doing really well.

Other people feel really sluggish and horrible for quite a long time so I really think it depends on the person as to whether they are going to respond. In a fasting situation which will definitely get you into ketosis though not probably in deep ketosis as several weeks of a ketogenic diet. That there is an increase in norepinephrine which can indirectly increase dopamine about let's say 16 hours into it. Probably 16 to 24 hours into it and so you can definitely have an increase in mental acuity in a buzz from fasting for about 16 to 24 hours into it. I'm not entirely sure how good that is for you but it's not good anyway.

Dave: I've noticed that with the people who go on the Bulletproof Diet which is essentially is ketogenic, but it's low toxin and it doesn't have omega-6 oils in it. That they say yes I have this burst of energy but also I need less sleep. Usually people need one to two hours less sleep just because they have more energy. It seems to be consistent for longer periods of time. Have you

noticed any effect on sleep quality or sleep duration from your patients or from your research around MCT oil or just around ketogenic diets in general?

Emily: Again I'm going to have to go to my own personal experience because I'm not aware of any specific research addressing that I haven't seen it or looked for it. I know in my own personal experience I do sleep less if I'm eating very little carb. Sometimes there are times that I felt like I didn't quite need as much sleep but that's the only experience that I have. I still needed sleep definitely I wasn't manic or anything but it seemed that I could go on six hours instead of eight for example.

Dave: Okay so that's pretty typical with the people who are commenting on my blog and certainly my experience where I talk about sleep packing and ways to intentionally sleep less. Still maintain mental performance and physical health and not put your health at risk. Just in other words get more efficient sleep and eating this way for me has been pretty profound in that that it's unlocked a couple of extra hours a day. You've noticed something similar but you haven't seen studies and you are going on personal experience not medical research, which is appropriate when there is no medical research, I haven't seen any anyway.

Emily: Right I have a learn out for a pub mag it's for ketogenic diets and so every week or couple of weeks I'll get emailed every study about ketogenic diets. I've been doing this for probably about a year and I haven't seen anything of that nature. Most of the stuff is in rats and things like that anyway but I haven't seen anything like that in humans.

Dave: I was really impressed when you mentioned that a lot of the research was done with omega-6 oils and horrible things like that around ketosis. I've been recommending MCT oil for quite a while because of its effect on ketosis even in the presence of carbohydrates. Because of the studies that show niacinamide and MCT oil have such a profound effect on the brains of people with Alzheimer's. Do you have any other thoughts on MCT oil and why it might be so effective or kind of what it does?

Emily: Well actually there is a good blog called Primal Med Ed. I don't know if you've seen it it's done by an Australian medical student she's a fourth year medical student named Anastasia. I believe she's at primalmeded.com she just did a post on MCT oils I believe.

Dave: Of course.

Emily: Either that or it was my friend Jamie I hope I don't get them mixed up. My friend Jamie is that paleo guy and basically shows the MCT oils because they are shorter than our long chain fatty acids like palmitic acid in the mono and saturated fatty acids that we eat. MCT oil is going to be a little bit shorter so it bypasses some of the digestion. It kind of basically gets shunted right into your bloodstream as instance ketone energy. In order to make ketone in a standard ketogenic diet you basically need very little carb and very little protein. That forces your body to take whatever fats you have and make it in protein and make it into ketones.

With the MCT oil it bypasses all that and becomes ketones directly and so that's how you can actually eat a higher carb and a higher protein diet and supplementing with MCT oil. You can get more ketones in your circulation.

Dave: Now I'm going to go out on a limb here and expose myself to public ridicule. I've been promoting something called Bulletproof coffee it's a recipe that I've just high traded for myself over quite a while. A lot of readers on the blog are just raving about it and I just had it for breakfast this morning. What it is, is that it's a cup of coffee with unsalted grass fed Kerrygold butter about 70g maybe. Mixed with 30 or so grams of MCT oil you basically blend it until you get a nice head of foam and it tastes like a creamier latte. I drink that and I feel really good for six or eight hours, stable blood sugar and no energy dip. Then I go and have a normal paleo friendly but with lower toxin Bulletproof kind of lunch.

In your understanding of how this stuff works, what do you think about that idea that okay you're going ketosis in the morning using MCT oil, or using some butter and having no carbs and no glucose not even dextrose. Why is that so mentally effective or should it be and any comments on that?

Emily: I think I probably cut again to the effective you sort of super supplementing your fast your overnight fast so you are already probably in ketoses because you are probably eating a healthy diet. You are probably already pretty and you've lost that extra 100 pounds, so you've probably pretty metabolically flexible so almost anybody in good metabolic health is going to be in ketosis when they wake up in the morning. Whether you eat a high carb or low carb diet. You add ketones to that and you are doing a super duper fast but obviously it's not been studied. It's also not something that we did an evolutionary history reading the Kerrygold butter with MCT oil and coffee.

I can't speak to how that will work in the long term or what the possible consequences might be. It's definitely interesting biochemical thing and I can see how it would help for specific situations to test those kinds of things. Note interestingly enough there are also studies that are showing glucose as you mentioned or dextrose or they cross between studies of sugar and a cross between studies of starch or glucose. That you have increased mental acuity for about half an hour to two hours after ... or almost immediately sorry immediately to about two hours after consuming it after which you have a big slump. As we are all aware I'm sure because we've all done that to ourselves eating a high sugary breakfast with skimmed milk or something.

Then two hours maybe we'll really, really did great on our first morning test but then two hours into it you are just I need an apple or something like that. It seems to me that using the ketones instead of the glucose you end up with a longer period. Again it's not something that's been studied in humans so much so we are sort of self experimenting.

Dave: That's definitely one of the theories of the blog where if I think something is unlikely to cause significant and permanent harm and I think it may have really good effects I'm willing to experiment and gather as much data as I can and then publish the data. Along those lines I've also tried putting say three teaspoons of glucose in the coffee enough to not throw myself out of ketosis. I seem to get that two hour kick from the higher glucose levels and no dip afterwards. I can still go six to eight hours and one of the people I

coached specifically approached me about what can I do while I'm preparing for the LSAT tests. How can I get my brain where I want it to be while I'm studying and what should I eat the morning of.

We settled on that glucose plus MCT and butter coffee thing and he had just fantastic results. Obviously it's a one case thing there isn't a clear pattern and certainly no study there. From my understanding of biochemistry and all, it seems like a really interesting effect to knock it that slump. Because God knows when I was in college that slump killed me every time.

Emily: Well it is interesting again we are going back to my own personal experience because we are really out of the range of the medical readers you obviously you are. When I switched to this paleo higher fat diet, myself I used to really struggle a lot with hyperglycemia symptoms and I would always have to have food with me wherever I went. It is a pain always having what are my six meals today I'm packing it and you are running off to the hospital where you might be awake for the next 32 hours. You are going to the hospital and stealing gram crackers from the nutrition section. Because you have to be up and you are having your sugar crash and it's just not fun at all.

In switching to paleo diet I've noticed that I can get away with maybe in the morning I'm feeling a little hungry. I don't quit want to fast but I really don't I'm running out of the door I've got the two kids. I really don't have time to eat a real meal but I might grab a banana and just this banana three years ago I would have had a crash a couple of hours later. Now I certainly I have no problem eating a banana in the morning and feeling fine until noon. Which is a very different experience for me because I've struggled with that kind of hyperglycemic symptoms since I was in my mid teens so.

Dave: That's a shared experience as well where after fixing health and fixing diet you can do things that would have been almost disabling before from a hyperglycemic perspective. I went five years with no fruit because whenever I ate I felt so bad I couldn't perform at work and now yeah I can eat fruit I just don't think it's a great idea to do it very often but when I do I feel okay. Let's see one other question and this is going a little beyond the

metabolic stuff we've talked about so far but it's a question that comes up quite often on the blog. Something that I researched for my own book. What about electromagnetic fields and brain cancer or mental performance, where are you on what you've seen from research in your own experience as a practicing physician. Do you have a thought there?

Emily:

You probably have more of an idea of that than I do because it's not something that I've researched too much specifically. When I have looked at it I've seen both sides because they are actually interesting study in a mouse model of Alzheimer's where they were exposed to the equivalent of cell phone radiation. Talking on the phone for two hours a day which is a lot of cell phone usage I would think for any mouse. It actually prevented them developing Alzheimer's flax so that was a positive. I've also seen other studies where the talking on the phone disrupted some of the magnets in the energetics certain areas into the brain. That's pretty disturbing not something we never did before. However sticking a magnet on your head is one of the newer treatments of resistant depression with a transcranial magnetic stimulation.

It's an FDA approved treatment now for resistant depression where you go everyday for I think three to six weeks. Basically put a very powerful magnet on one side of your head and it helps. Again we don't know much about the long term side effects of that and that's something that you wouldn't do unless you have a very severe resistant depression. I have a mixed opinion it's obviously again not anything that we were exposed to quite a lot. On the other side of that people are worried oh it's a microwave oven is it getting to me. A lot of these waves decay sort of exponentially.

If I'm standing up right next to the microwave like a little kid watching popcorn pop like you might have when you were young, probably not a great idea. If you are three feet away from the microwave the waves are exponentially less powerful so I try not to worry too much about that because I really like my Wi-Fi. I like having a cell phone, well what do you think about that?

Dave:

I saw some pretty scary stuff. A friend and a physician a pretty well known in the autism community name Dietrich [Quinhart 00:55:59] showed flat



out he said I can predict the likelihood of autism based on EMF levels in the bedroom where a mother slept while she was pregnant. Which is a pretty big claim but it's one that I believe and he's got the data for it. Obviously you can say there is a selection bias or something else but I've also looked at the work of Robert Becker in Electromagnetism and Life. He spent his whole career looking at cell regeneration and how a cell differentiates. There is certainly a very small EMF that affect which direction the cell goes.

Like you said Wi-Fi and cell phones are part of life so what we did ourselves is we said okay where can we reduce these things and potentially block them without likely causing any damage and so blocking that it's not going to hurt us. We put electrical filters in the house to give us a more ...

Emily: It's like [inaudible 00:56:57] in your bedroom.

Dave: Not quite that bad we thought about it I did build an office once where there was a [inaudible 00:57:04] cage just because it was cool when I was building the office I didn't know just any effects from it. We have the electrical filters so that we have less chaotic electrical stuff. We sleep electrically grounded which basically means the EMF waves don't penetrate as far and we turn off our Wi-Fi when we are asleep and we don't carry cell phones right next to pregnant tummies or gonads. Other than that you've got to live right?

Emily: Yeah well we certainly are in the Wi-Fi world nowadays.

Dave: Great I appreciate your thoughts on that and I know that it's always ... this is one of the things where I don't think there is enough evidence yet but I'm concerned but I'm not willing to go live in a cave somewhere. Because I don't think that that concern is necessarily warranted and it's not practical. It looks like we are coming up on the end of the hour of the interview I think we had another one or two questions?

Speaker 2: Yeah one I'd like to ask is for the people who can take away something from this interview Emily, is what are some of your general recommendations for people who want to protect their mental, or keep their mental performance high on a daily basis. As well as decrease their

chances of developing debilitating brain disorders later on in life. Just what are some of the basic things that most people can do?

Emily: I would say probably the most important thing from a population standpoint is really decrease that processed food and eat more whole real food. I think that will pretty much work for mental health and general health. If there are more specific problems sometimes we need to do obviously a lot more tweaking. I prefer myself a gluten free and I also eat a casein free diet for the most part Paleolithic style evolutionary medicine diet. I really vary whether it's high carb or low carb because I can't be bothered with counting grams and that kind of [inaudible 00:59:06] and that kind of thing.

Personally it doesn't seem to matter that much to me whether I'm having of a high carb day or a low carb day. I always say doing that and really trying to maximize your whole real food so you get plenty of vitamins and minerals and calamine and saturated fat. All these things that are good for us and the omega-3s and throwing in some fish every now and again. Preferably wild cod from clean waters and in general trying to do that trying to have good sleep hygiene's. You get really good deep restorative sleep. Trying to be closer to the ideal weight to prevent things like sleep apnea, inflammatory [extent 00:59:55], lack of metabolic flexibility so that your brain is in better shape.

On top of that a bit of exercise so that we can live and lift and be happy in the world and do what we need to do and feel good and not be hurt by just trying to move our office around or something like that. Then getting plenty of play time and trying to live low stress if you can and living more that evolutionary paradigm to some extent. Lots of play, lots of time with your family, not working yourself to death all the time. It's a pretty general recommendation and again not ever ... that paradigm has never wholly impacted so we got to take that into consideration. It seems to be common ... makes common sense to me and I think that's where we have to start.

Speaker 2: I get pretty good advice and for pretty much anyone do eat good food, move more and take a chill pill so yes.

Emily: Yeah.

Speaker 2: Cool so Dave do you want to wrap things with Emily and everything?

Dave: Sure Emily thank you so much for sharing your knowledge with people who are listening to our podcast today. Can you tell them where they can find more information about you, maybe schedule an appointment or read the things that you write?

Emily: Well my blog is at [evolutionarypsychiatry.blogspot.com](http://evolutionarypsychiatry.blogspot.com) and I also have I'm also a blogger on Psychology Today. Which is if you go to the main Psychology Today website and you search for evolutionary psychiatry you'll find my blog. Those are the more updated blog complete prettier versions of my articles I would say. I have I don't know maybe 240 articles on my blog spot blog. There is a lot of information now at this point to go through if you are interested in this kind of stuff. I have a map page on my blog spot blog that references things by nutrient or anti-nutrient or condition. It's not perfect and it's not 100% up to date at this point but it's a good starting point.

If you are interested in dementia or you are interested in depression I have lists of the articles that pertain to that. Everything links to everything else so I have a lot of backs to some of my articles and some of them are important to understand. Understanding about ketosis understanding about brain energetics and I quite think I'm on the right track because I keep finding ... looking at all different entirely different things I'm looking up about mitochondria. I'm looking up about longevity research I'm looking up about ADD, I'm looking up about autism. I'll find the same things over and over with respect to not having micronutrient deficiencies and having good brain energetics.

These seem to me the most important things to keep us healthy and not what I'd like to see a lot more research done so we could really have sophisticated answers to these questions.

Dave: I think that we both share that same goal and I really I'm a fan of the way you are approaching the problems, the way you are using common sense

and you are backing it up with the data. We will make sure to include links to all of your various sources of information the ones you just listed and the show notes that accompany the blog. We will also have a transcript of this on the website so people can search it and learn about all the things we talked about today. Thanks again Emily.

Emily: Thank you. Bye.

Dave: Appreciate it bye.

Speaker 2: If you want to learn more about biohacking you can follow us on Twitter with @bulletproofexec or check the blog. If you enjoy this podcast you can help us just by leaving a positive ranking on iTunes so more people can find this.

## What We Cover

1. How ADHD is related to diet.
2. How your diet affects your mental performance.
3. How inflammation affects our minds.
4. How evolution shapes our mental development.
5. What statins do to your brain.
6. The foods that cause the biggest problems for mental development and brain function.
7. The relationship between Alzheimer's disease and what you eat.
8. The importance of the omega-3/6 ratio for brain development.
9. How psychiatric disorders and bad behavior are caused by poor nutrition.
10. The shortcomings of the current medical system for treating psychological disorders.
11. How supporting the immune system supports the brain.
12. How specific nutrient deficiencies can cause certain mental problems.
13. The role of physical activity in preserving mental ability.
14. How new stimuli and surroundings improve brain function.
15. The connections between Electromagnetic Fields and cancer.
16. The effects of ketogenic diets on mental disorders.
17. The best ways to prevent mental degeneration.

## Links From The Show

[Evolutionary Psychiatry](#)

[Emily's Blog on Psychology Today](#)

## Supplements & Food

[Magnesium Citrate \(Natural Calm\)](#)

[Hydrolyzed Collagen Protein](#)

[Vitamin D3](#)

[Vitamin K2+Vitamin D3](#)

[Vitamin C](#)

[Silicon](#) (Found in "[Bone Restore](#)")

[Boron](#)

[VRP Strontium](#)

[Krill Oil](#)

[Kerrygold Grass-Fed Butter](#)

Lindt 90% Dark Chocolate (It's Bulletproof)

## Listener Q & A

1. Is cayenne pepper Bulletproof?
2. Are peanuts bad for you?
3. Do you have any tips for using the Central Governor Model in life and training?
4. What kinds of chocolate are allowed on the Bulletproof Diet?
5. Do you have any tips to heal a femur fracture?

## Biohacker Report (latest studies & research)

["In more socially engaging environment, white fat turns to brown, mouse study suggests"](#)

["Research offers means to detoxify mycotoxin contaminated grains intended for ethanol, animal feed"](#)

## Updates

### [Coaching](#)

We are now offering personalized [Bulletproof Coaching](#) for fat loss, muscle gain, performance, health, and mental ability. Contact us for more info.

### Blog Articles

We released the first part of a long series on the benefits of grass-fed meat. If you want the whole series delivered to your inbox, subscribe by email in the upper right hand corner of this page.

### Bonuses

By tweeting a link to this podcast episode and CC'ing @bulletproofexec, you can win free 1 on 1 advice with Dave.

## Questions for the podcast?

**Leave your questions and responses in comments section below.**

You can also ask your questions via...

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## Listener Questions



## **Sherri**

I find it odd that Cayenne doesn't hold a place in your spices recommendation as it is very effective at removing toxins from the body.

## **Herb Kim**

Peanuts are bad? Say it isn't so!

## **Charles**

Interesting stuff about the Central Governor Model. Are there any actionable techniques Dr. Noakes believes help improve the way you mentally approach certain things? Whether it be in training or every day life.

## **Evan**

You list Chocolate as something that we can eat. I found where you said that you like Lindt 90% cocoa bars. Should the quantity of chocolate consumption be kept to a minimum, or is there a recommended limit since 10% of the bar is other ingredients? Also, are bars with less than 90% cocoa OK to eat such as Lindt 75% or 60%? Is there a limit suggested for these?

## **Guest**

My dad recently broke his femur in a bike race. He cracked his greater trochanter on his left side. He doesn't eat paleo, but I think I can convince him to change his diet a little while he's recovering.

Here are my thoughts:

Reduce carbohydrate intake.

Increase fat intake.

Eat as close to a Bulletproof Diet as possible.

Supplement with the following:

Vitamin D

Vitamin K2

Vitamin C

Hydrolyzed Collagen Protein



## Magnesium Citrate

Also, the doctors are worried the blood supply to the injured area may be compromised. Are there any techniques he can use to increase blood flow and vascularization to the wound site?

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Some background research for this post may have been conducted by Bulletproof staff researchers.