

Paleo Solution 315

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Robb Wolf: Hey folks, Robb Wolf here, another edition of the Paleo Solution Podcast. I'm very excited for today's guest. Jesse Lawler is the founder of the incredibly popular website smartdrugsmarts.com. He is an expert in the area of nootropics which this is a space that I have deep interests and appreciation for but my expertise is about an inch deep on it. So I'm really excited to talk to you today. Jesse, how were you doing?

Jessie Lawler: I'm doing great. Thanks for having me.

Robb Wolf: Awesome, well I'm super stoked that that Squatchy put this together. I'm sure that we'll be able to cover a lot of ground but give folks some of your background if they're not familiar with you, your website and what you've been up to.

Jessie Lawler: Yeah, well I started my podcast about three years ago and it was sort of a hobby that I would do now and again at first it which was kind of just like an elaborate excuse for me to get some scientists on the phone. I figured if I just call them up and started peppering them with questions. They'd hang up on me if they even answered but with a little bit of a veneer of credibility of having a podcast, I was able to have some conversations with some really smart and interesting people. That dovetailed and probably from at the past year we've actually been publishing weekly and taking the thing more seriously. Yeah it's at this point like an overgrown hobby for me which has been just a ton of fun.

Robb Wolf: Awesome, that's a ton of fun. So you have a pretty varied nutritional background too like you've played with a lot of different things, so tell us a little bit about that, yeah.

Jessie Lawler: Yes I am. So I'm like a second generation health nut. My dad I think was kind of wanted the original like healthy dude granola sort of guys from Southern California. I was raised in Oregon and I'm an Oregonian so I grew up with at least half of my parents very interested in healthy eating and so that I guess kind of rubbed off. I guess I always interested in tweaking with that.

After university I got more and more interested in vegetarianism because like I don't know whether this had anything to do with it or not but I still had like a little bit of acne even when I felt like I was at the age where I really shouldn't be having acne anymore. Yeah I found that when I

changed my diet towards something more a vegetarian and eventually vegan. That cleared up.

I think it was actually, probably the milk that I was reacting to in a retrospect but I didn't know that at that time and so often happens when something seems to work you'll just run full speed in that direction. I wasn't necessarily being terribly scientific about my fiddlings around with my diet but yeah I've done sort of run the meal vegetarianism. I've done a full-board veganism for I think about six going on seven years when I finally stopped that and for one of those years I was actually a raw vegan which is kind of the full lunatic fringe.

Robb Wolf: The internet may melt down, me talking to a raw -- former raw vegan. Oh my god.

Jessie Lawler: For I got over a year, I kind of set myself a dare to see if I could keep it up for 12 months and I did and made it until the Valentine's day of the following year when my girlfriend at that time convinced me to eat a Burrito. Yeah once that first Burrito crossed my lips so I was like, okay forget this.

It was a gentle slope back from there but I'm sure you're probably talked about this book maybe at some point in the past on your show. But there is a book called, "Catching Fire: How Cooking Made Us Human" by the evolutionary biologist Richard Wrangham.

Robb Wolf: I love the book, yeah.

Jessie Lawler: Amazing book and I read that for the first time, kind of probably halfway into my being a vegan and I was really persuaded by the evolutionary arguments that he made but at the meantime he didn't -- it was a completely at odds with the diet that I was eating as a vegan. Because it says we've been pretty demonstrably eating a decent amount of cooked animal products for the last 1.9 million years. That didn't square with veganism worked really well.

The book was so interesting though that I was kind of like one of these things, it was like a little splinter in my mind that I knew I was going to have to come back and reread that later. I wasn't quite ready for the message at the beginning. But then I guess it would have been 2011, I ran into a couple of people at a conference that I went to who were really in an amazing shape and they were in not quite ketogenic but like a very fat-friendly sort of diet and I was just like, "Wow, they're doing

something right,” because I mean these guys are looking more athletic than I was at that time.

So I got to talk with them about the diet that they were on. It made me think, I’m going to go back and reread that book and I think having sort of been mentally primed by having met some people that were doing really well on a high-fat diet physically, I reread the book because I was never vegan for like any sort of ethical reason. Like fluffy little bunnies weren’t that high in my priority list. It was just sort of a matter what was going to be that’s for my own physiology whether I switch back to eating meat or not.

So I figured, I’m going to just kind of give this to Pepsi Challenge. I’ll try eating the diet that I thought made most sense in light of the evolutionary arguments laid out by Richard Wrangham in that book and that seemed like something pretty much exactly what you espoused in your podcast. It seemed like the best fit board I was like okay I’m going to do this for 90 days to see how I feel and then make an educated decision. Because at that point I knew what my body felt like as a vegan which was quite honestly was pretty good. But I made the switch. I was pretty constipated for about the first five to six weeks of that as I...

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Robb Wolf:

Oh really interesting.

Jessie Lawler:

Yeah, I probably could have switched over in a more -- I probably should have like had a bunch of acidophilus yoghurt or something, right at the get go to get kind of get the bacteria back in my gut that were used to digesting meat. Because all the bacteria that relied on meat, they’d starve to death long ago. So yeah,, it was sort of a bumpy transition and I did feel fairly bloated for a couple of weeks. But on the other hand, the thing that I really noticed was that doing the exact same amount of exercise as I’ve been doing previously as a vegan, suddenly, I started putting on a lot of muscle mass especially in my upper body compared to what I was used to. That certainly helped with my giving it some emotional buy-in.

Robb Wolf:

That’s awesome.

Jessie Lawler:

The thing that I still struggle with and I haven’t -- I feel like this is like at some point I need to make like a six-month commitment to just researching the hell out of this. But there’s still some interesting evidence for a vegan diet doing really well for cognitive performance for people very late in life 80s, 90s, 100s stuff like that.

I think that unfortunately because in the good old days of the ancestral living, back where they're living in caves and hunters and gatherers, probably very, very few people live to those ages and there wasn't a lot of evolutionary pressure for the diet that might have made us most healthy and athletic and robust during our young breeding years for having necessarily prepared us well for being cognitively active as a 90 or 100 year old. So it might be that there really is no perfect human diet in that sense where we do have a little bit of a seesaw between what's good for us as a 20 year old or a 40 year old versus what might be best versus 100 year old.

I don't know. I probably don't think anybody really knows quite yet but for the last three years-ish I've been on a pretty strict Paleo diet with allowing myself the occasional exception of our chocolate.

Robb Wolf:

Nice, nice and I think that's a fantastic insight and often overlooked discussion point within kind of the Paleo Ancestral Health scene that almost anything that we do, you can make an argument that there is some sort of trade off. In most of biology we see a tradeoff between kind of health and longevity and what we would call fitness and fitness generally being like kind of reproductive status like really high androgens, high energy flux tends to be a little bit antithetical to enhance longevity.

There is this interesting topic. The grandmother hypothesis which was -- there was a selection pressure for significantly enhanced longevity in humans relative to most other animals because we have such a deep cultural base that having repositories of knowledge even in, let's say like a post reproductive period could be incredibly helpful both for like childrearing itself and then also education and cultural transmission and all that stuff.

So I mean there is some argument for the same things that they were convergent influences both for general fitness and reproductive status but also in enhanced longevity in humans. We kind of see this in some of the more advanced animals like elephants that have a pretty advanced culture and apes and chimpanzees and stuff like that but it's super interesting and it's definitely something that I don't think people noodle on enough, although we're also just trying to get them to most people to stop eating like big gulps and Snackwells and stuff like that.

Jessie Lawler:

Yeah Fritos for breakfast.

Robb Wolf: So talking about the genetic pleiotropy and the reaction norms of various epigenetic inputs are probably a little bit long in the tooth for most people so...

Jessie Lawler: I think they're such interesting things to think about though because we do have like a lot of cultural technologies for lack of a better term that seemed to be kind of cooked into our DNA to some extent. Like the human, the universal human interests in story. I think -- in addition to having long lived grandmothers having stories kind of the ideas so these memes that people inherently find interesting because they can attach to them emotionally. A story can outlive many, many generations if it's compelling enough and presumably pass along some worthwhile information that further generations might benefit from by virtue of what a compelling story it is. I think that you can certainly make the argument. I don't know if it's been proven yet but that cooked into our DNA somewhere is an appreciation for story structure among other place.

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Robb Wolf: Absolutely. Yup, yup I completely agreed. Shifting gears just a bit just because I am super excited to get into this topic of nootropics. Just very observationally, I have noticed my own evolution in this story and I've kind of followed some other people out of physical culture like Frank Zane, Arnold Schwarzenegger looking into eastern medical traditions. It seems like -- and once youth were very interested in aesthetics and performance, muscle mass, leanness, flexibility whatever the case maybe. But interestingly as time goes on and people kind of progress through the life cycle, it seems like two things take really prominent importance for folks and one is digestion and the other is cognition. I think we're sitting now and looking at like the glymphatic system and the gut-brain access and what not and the incredible influence that diet has on cognition.

We're kind of understanding how important it is, but I think it's kind of fascinating that most people if they have a health orientation, the specific kind of physical performance focus seems to give way to a real attention to detail on the cognitive attention. Because you start realizing that if you lose your marbles, it doesn't really matter what your physique looks like. You're super screwed in that case. What do you think about that or am I out in the weeds or but what are your thoughts around that?

Jessie Lawler: No, no I think you're right on. I mean I think most of us in our youth to the extent that we want to maximize anything about ourselves is the ability to make the opposite sex want to mate with us and so things like being stronger, being faster, being a better looking whether that smooth skin or flowing hair whatever it is, that kind of stuff is first and foremost. Also when we're young our brains have quite a bit of let's say extra

capacities like you can go out boozing every week or even every week in some people's case and still kind of bounce back from that because we do have kind of big redundant system upstairs in our brain that we can do quite a bit of damage to before it really starts taking a toll.

But, yeah, later in life where the best 30s, 40s whatever it is and most people have if they're going to have kids they've had kids by that age. We do start thinking more about okay, what's going to keep my brain functioning the way I want it. So start thinking about thinking about myself, my cognition, what I have left and the kind of things that define my identity rather than can I get this girl to mate with me.

Robb Wolf: Right, right. So explain to folks what you're I'm thinking like 50 different things here. I'm trying to figure out which direction I want to go first. So let's make an argument that cognition and brain function is really, really important like for a ton of different reasons clearly avoiding pathology like Parkinson's, Alzheimer's, dementia is a biggie. I just think staying at the top of one's game whatever that game maybe, cognitive function is a huge deal. So there's been an interest for a long time and pharmaceutical or nutraceutical agents and also nutritional interventions that can enhance cognition and there's lots of different areas there. There are certain cognitive elements of physical movement that certain substances and practices can help or it's like a math or language retention and aptitude are very different in how they oftentimes are tackled. What exactly is nootropics and where did this idea come from?

Jessie Lawler: Wow that's about 17 questions so I'll try to disassemble that bit.

Robb Wolf: I know, I know.

Jessie Lawler: First of all, yeah, it is great that you asked about the term nootropic because this is one that people are going to see. If you Google the term nootropic, you're going to find a lot of talk about of things that technically don't meet the definition of nootropic and it's probably if you Google healthy food, you'll see a lot of things advertised that neither you and or I would think are healthy.

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Robb Wolf: Right.

Jessie Lawler: The official definition of nootropic it was a term that was coined in the 1960s by the inventor of a compound called piracetam and piracetam is something that both was and is used for treating things like early onset Alzheimer's and senile dementia and things like that. It's also been shown to be useful or forum for younger people as well even if people don't

necessarily have any cognitive impairments yet. But the guy who invented, he was Eastern European scientist and he sort of said, hey this should be like maybe the cornerstone of new set of compounds that would have a variety of properties and that we could call them collectively nootropics.

The word come -- I forget what tropic means but noos, N-O-O-S is the Greek word for mind and it means something like mind-promoting our mind-enhancing or something like that. But his conditions for what would qualify a given compound as a nootropic -- I'm not sure if I remember all of these but there were five of them and it was something like it needs to basically not be addictive. It needs to not be something you can build up a tolerance to. It needs to promote cognition which is this fairly broad but basically make you think better. It needs to be neuroprotective and that it makes your brain cells able to bounce back better in the case of some insult whether that's whacking your head with a hammer or a chemical insult or whatever it is and there were some other equally important and awesome sounding prerequisite for being considered a nootropic. Honestly any compound that could check all five of those boxes would be by definition almost a miracle drug. There would be no reason not to have as much of it as you want as often as you want.

Nowadays, when people talk about nootropics, I mean you'll oftentimes see people, oh like methylphenidate, Ritalin, that's a nootropic, right? It's like, no, not really, I mean that it's addictive. It's say a compound that has the an amphetamine base. But normally when people see the term nootropics, they're going to -- what people really should be saying is either cognitive enhancer or what I prefer is sort of the more general term, smart drug.

Cognitive enhancers like, caffeine is a great example of a cognitive enhancer that everybody is familiar with. Nicotine is another one. These are things that do have definite benefits to some are effective on the way we think whether that's better memory or better ability to focus or more alertness and attention but they can also have some downsides to it. As we know caffeine can make you kind of jittery and anxious and depending on whether you have a tolerance to it and it'll make your heart race if it's not something you're used to. So a caffeine would very much qualify as a cognitive enhancer. It wouldn't technically qualify as a nootropic. So that was one of the questions. What were the other questions?

Robb Wolf: No, I think you end up hitting the 90% of my questions and I ended up leaving so many questions into the run-on sentence that I'm not even technically sure well with all...

Jessie Lawler: No worries, no worries.

Robb Wolf: It's interesting. I've played with a lot of these different substances piracetam Vinpocetin, DMAE Dimethylaminoethanol bititrates. That's more in the nutraceutical side of things. I've played around with deprenyl on the more pharmaceutical side. I'm chewing some nicotine gum currently which I've found to be just an incredibly huge boon for my focus and cognition. Actually that got on my radar doing some research for the military doing some public speaking for a naval special warfare and I started digging around looking at the nicotine and I was like if this stuff wasn't reasonably addictive and so long as you get it out of something besides tobacco, this thing is practically a vitamin.

Out of these different substances either nutraceutical or pharmaceutical, it seems like we're tweaking a couple of different pathways in the brain either dopamine acetylcholine. What's going on with those different pathways and how were those altering say like one element of cognition? I've really noticed that I do -- I get a very favorable response from things that seemed to tweak that kind of dopaminergic side of things. The acetylcholine side of things like the piracetam for example, Gotu Kola doesn't really work so well for me like what are the differences there and how these things are tweaked in the different, I guess neurotransmitter pathways.

Jessie Lawler: Yes, I mean it gets really complex. As we all know, I mean it's like the brain or the body is complicated and the brain is like the most complicated thing that we got within the body. I think it's kind of an idea that a lot of people would be familiar with is -- we know that alcohol makes you drunk but getting drunk on beer and getting drunk on vodka and getting drunk like the tequila, each have very different perceptual effects. There are a lot of drugs that will cause the release of additional dopamine or maybe take dopamine take more time before its reuptake by the cells that released it but each of those are going to --it'll be affecting pathways in a slightly different way. Just because something is a dopaminergic drug, it doesn't necessarily mean it's going to have the same perceptual effects for a given person who takes it.

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That seems to be kind of true across the board. But yeah, most of these are like -- I guess dopamine is the first one to talk about when you're talkinn about cognitive enhancing compounds because it tends to be --

when people sort of come to this realm, they've heard of smart drugs like, "Hey, this is a thing," and they start looking into it. Most people are looking first for something to increase their focus.

Why that is versus something that would increase their mood or increase their creativity? I mean that sort of anyone's guess but I think increased focus is kind of what makes most people look under this rock to begin with. Dopamine does seem to be sort of the place to go. If you had to pick one neurotransmitter that you want to modulate upwards, dopamine would be the one for increasing those feelings of focus. Dopamine kind of colloquially for a long time was talked about this like the reward neurotransmitter kind of a biochemical path on the head if we're doing something right but that is no longer really the accepted view in a conventional wisdom over the past, 15 or 20 years of research. I think this is starting to kind of leak out in the general culture is that dopamine what it does is it kind of motivates you to be willing to expend effort to pursue things that you like.

I like the girl in the bikini over there but if I am low in dopamine, I might not actually be willing to get up and walk across the room and introduce myself. If I've got a lot of dopamine then I'm going to -- I don't like to say these 10 clever opening lines, I'm going to go over there and I put on my best smile and actually try to do something about the fact that I like the girl to begin with. So anyway that sort of dopamine in a nutshell.

When I've got a day that I know that I want to do something maybe cognitively tough and then I might not be able to sustain my focus on a long period of time but I know that what's needs to be done like I guess my way of -- what I do in the real world a lot of the time, I'm actually computer programmer by training. That's what I've been doing, ever since university writing software and so having those long periods of deep focus has been really, really useful for me.

So the thing that kind of brought me into the realm of smart drugs even being aware that this is a thing was hearing about a compound called modafinil which is actually anti-narcoleptic drug. That's technically what is prescribed for to keep people from following a sleep midsentence. But it can also be used not just to keep you up but it does tend to uptake the amount of circulating dopamine in the brain. I found it to be pretty effective when I want to kind of put on the chemical blinders and stare a computer code and keep my fingers on the keyboard for 9 to 10 hours of the time. Not that that's good for any other part of my body like I have to get up and go to the bathroom but for banging out some code it can be helpful.

Robb Wolf: I've -- the Provigil modafinil, I find that if I've got one day, maybe one day every 15 or 20 days where I'm like, oh I've got a really sweet block of time. I had a good night of sleep actually the night before so I'm feeling pretty good. I'll do actually a pretty small dose of the modafinil like even like 50 milligrams and I am on for that period. But what I've found is that I actually get -- if I try to do that a second or a third day, I get virtually no effect out of it. Like I accommodate incredibly quickly to it and the magic -- what's the movie where they take the pill, limitless or whatever?

Jessie Lawler: Yeah Limitless and then the official movie of the nootropics scene.

Robb Wolf: Right, I get basically one day out of like 20 that I can pull that off so I have to really meter that one out. Have you noticed any similar effects or you're able to get some mileage out of that more frequently?

Jessie Lawler: I'm able to get mileage out of Modafinil. The problem with it is that it almost -- even if you intended not to it will always winds up still in some of your sleep. You're not quite as tired at the end of the day. That's what it does. It makes sleep kind of an optional thing. You can sleep on it like if I go to sleep with modafinil in my system at a significant amount, I can fall asleep but instead of sleeping through the night, I'll wake up after a couple of sleep cycles and be like well I might as well just be up again. You do that a day or two in a row and then you've always got sort of the crash day or you're just not fully awake. I don't think it's necessary a come down off the drugs so much as you've been borrowing ahead from your sleep rhythms.

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Robb Wolf: Right, I've definitely noticed that and that maybe even be where I've noticed that a smaller dose and I'd literally need to take it about six in the morning like if I start pushing it towards like 10 a.m. or something like that like I'm not going to sleep well that night because it's really part of the effects is basically blunting the sleep pressure that occurs which makes sense with the reason why it would it be effective against narcolepsy which interestingly is an auto-immune condition which we've had a lot of success around that with kind of Autoimmune Paleo and whatnot. But what about any other either pharmaceutical or nutraceutical or other agents that you've had some good success with?

Jessie Lawler: I've really been a fan of something called sulbutiamine which is a synthetic compound of Vitamin B1. It's like B1 bonded into itself so instead of being hydrophilic it becomes a lipophilic molecule that crosses the blood-brain barrier more easily. It has both some benefits for physical energy and I believe it's a mitochondrial ATP precursor as well as being

beneficial for cognition and helping with things like memory. That's something which I take on pretty much a daily basis. It's got an interesting history. It was like invented by the Japanese during World War II for people who are like at sea for a long time and didn't have access to foods they would normally be getting B1 in but that's been one that I've been a fan of.

Then another one, you said piracetam that you weren't much to respond to that. I wasn't so much about the respond to piracetam either but a chemical sibling called aniracetam, there's about 15 or 20 things with the suffix racet but of those aniracetam that has been the one that I've had the best results with. It tends to -- for me it's like really a creativity booster which one of the things that's been shown in trials with big numbers of people to do is that it boosts your working memory and my -- what I believe is going on there is that by having the ability to hold more concepts in my head and my working memory at one time, I can kind of juxtapose these ideas up against one another and lo and behold every now and then you'll see the interesting intersection of ideas and that does the creativity feeling that I get from it.

Robb Wolf: Oh interesting. I would say that as I've climbed in age that's one of the most frustrating elements that I've had. Like the working memory, the ability to have 15 or 20 different studies and kind of the flow of those studies and what the significance is that has whittled down over time. So it's like, okay, I can keep two studies in my head now. So the ability to...

Jessie Lawler: It doesn't help that they keep making more studies all the time?

Robb Wolf: There's a shit load more studies, yeah and you just have access to so much stuff but the aniracetam sounds really interesting. What type of dosage is typically played around with that?

Jessie Lawler: People take between, I mean, I'm going to say like 500 to 1500 milligrams in a day. It would be probably par for the course. Yeah, it's one of these things. Most of the aniracetams are really well tolerated. Although I should say not all aniracetams are taken in that sort of amount like piracetam is something that you almost take like this horse pills like when people are first in the loading phase on piracetam. They'll take something like 2.4 grams, not milligrams grams a day but they've got other things. They'd also have that racetam suffix that are like 100 and I think they're in 500 in one case times more potency. You're taking just these little micro, micro doses to get a pretty strong effect. So it's important to kind of try to find out the correct dosing for these things and tread carefully. Of course you'll always be looking for the minimum effective dose kind of

work your way up slowly, find out where your threshold is because they're considered, especially, for anything that's going to be stimulatory whether it's glutamatergic or cholinergic or whatever there can be too much of a good thing.

Robb Wolf:

Absolutely, and I learned that lesson painfully out of my youth so it's minimum effective dose is super important concept to take home. So this is -- I'm curious because sleep is so incredibly restorative and important for cognition for all of our metabolic processes for healing. Is there much research in sleep augmentation? So a lot of the nootropics tend to kind of look at, "Okay I'm going to take," you say like that and aniracetam to improve working memory and creativity and whatnot. What about looking at sleep augmentation to try to get more mileage out of sleep and recovery so we're not looking to specifically dose for the moment but more in preparation for things down the road and specifically trying to enhance sleep quality, anything going on in that arena?

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Jessie Lawler:

Yeah, I mean I think a lot of people, myself included look for anything that might be GABA promoting. There's a neurotransmitter called G-A-B-A. It's all in caps. I don't know why and probably stands for something but you'd just always hear it is GABA but that tends to be sort of a relaxing neurotransmitter to have release it. It's actually the component in green tea L-Theanine, they kind of mix green tea different than most other caffeine-containing beverages, is a natural way to promote the release of GABA. That's one of the reasons that you can drink several cups of green tea and get some of the mental perkiness that you expect from caffeine but not necessarily have the anxiety effects that come from maybe Venti of Starbucks or something like that.

So yeah, back to at your question on sleep in general, there are certainly our compounds that make one more likely to go to sleep. There's something called the GHB, gamma-hydroxybutyrates which it's got a of lot sort of bad press around that because it can be used to -- I think the second thing after Rohypnol stopped being available as a date-rape drug. If you were still a date rapist and wanted to be date raping or whatever I guess GHB is what they went to next and so there are -- needless to say a lot of bad pressure on that. But it's also supposed to be a very effective sleep-promoting agent although it's difficult to get one's hand on something that you need the doctor's prescription for in the US and I think there's only one lab that's actually allowed by the FDA to make it now.

But one of the very first interviews that I did actually was mentioned GHB in particular that of all the different sleep promoting compounds out

there, that's the only one that promotes all stages of natural sleep. There's a lot of compounds that will essentially knock you out that will make you cease to be conscious but that's not quite the same thing as getting those normal cycles of restorative sleep. Yeah, it's a tough nut to crack.

Robb Wolf: Oh it is and I remember using GHB in my power-lifting days and I would do a morning training session, have lunch and this was early in college so I had a little bit of latitude in my schedule and then I would do a dose of the GHB and sleep for somewhere between one and three hours but it was like I had slept a whole 8-hour shift during that time and then I get up and do another training session and it was just incredible and I seriously could throttle all of the people who ruined that for us with the nefarious usage, because it was just incredible. Yeah, I've never been able to track down a doc who's willing to write a prescription for that one since it's so...

Jessie Lawler: Yeah, I mean so this week I'm not sure when you'll be publishing this episode but Nancy Reagan just died and I guess unfortunately her legacy is sort of the "Just Say No" idea. Unfortunately we still have this really screwy policy or group of policies sort of all across all of America where the potential to misuse something just means throwing out a ton of babies with a little bit of bathwater and I think to society's detriment as a whole.

Robb Wolf: Right, I completely agree and yeah, we could probably do with side -- sideline on a drug lords and all kind of stuff like that but we'll save that for the controversial truth. My somewhat in hibernation political podcast but maybe that race is a little bit of a question I didn't notice reading through your blog that you had addressed some of the -- I guess ethical concerns around people using cognitive enhancing agents and whatnot. I am pretty free-market libertarian in that regard and I can't think of something that could be more easily democratized than if we had agents that were safe and health promoting. It's like GHB or like L-Theanine or aniracetam or something. Like that like they're comparatively inexpensive, safe maybe have some anti-aging effects to them. We can't yet alter our genetics. CRISPR isn't at a level where we can get in and tweak our genetics so that we get some sort of superman profile in that regard. But it seems like regardless of what you're born with, if there are substances that are inexpensive and comparatively safe that could enhance what you've got, that seems like a win. I mean what are your thoughts on that?

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Jessie Lawler:

I mean, I'm certainly with you on that. I think that there is -- there definitely is a weird feeling that somehow taking something to make yourself -- I am using the term smarter in air quotes because even defining what smarter means can be a kettle of fish. But that's cheating somehow that Like, oh well if a student took some compound and was able to do better on their test then that's unfair to the other students to which I kind of think well if the student is going to be using that same compound when you know it's the workplace then it's representative of the work that he's doing and yada yada yada.

There are so many technologies that basically every technology that has ever been available to people that had some sort of beneficial effect. People have made use of ethics be damned as soon as it was readily available. I mean I think about something like eyeglasses. You've had spectacles or monocles or whatever for 400 years now ever since they were able to kind of make glass with any degree of accuracy to make it work for people that have slightly malformed eyes. I could easily see the same arguments are now sometimes used about against cognitive enhancer drugs being used by somebody in the 1600s saying well, it's unfair. God intended your eyes to be blurry and why should you be able to read books clearly when you god and the angels said otherwise.

I don't think those with -- this sound silly to us as arguments now because we've all grown up thinking, well, glasses have been around forever, right? Well, no, they haven't been around for everyday that at one point they were new. At one point they were very likely controversial and I think that there's always just sort of growing pains as new things are introduced to society and there's kind of that curve of adoption, the early adopters, the early majority and so on and so forth and then eventually the people like my mom who waited until the late 1990s to buy the first microwave.

Robb Wolf:

Nice, well she was smart and that by then it was like probably cheaper to buy the microwave than the food that was going in the first meals. Yeah. Where you out with them, circling back to kind of nutrition since we started off there, where are you on the kind of cognitive performance enhancing opportunities that just basic nutrition holds. It's like a lot of people find that they do well with the ketogenic diet. I would definitely stick myself in that camp if I don't suffer blood sugar swings, my cognition is great. I don't get the hungry peaks and troughs in energy. I don't know if...

Jessie Lawler:

That's a great wording.

Robb Wolf: Yeah I've heard that before.

Jessie Lawler: I know exactly what you mean but I haven't heard it.

Robb Wolf: I maybe -- I possibly I invented it. I don't know somebody did.

Jessie Lawler: You got to patent that word if it's available.

Robb Wolf: Right, what are your thoughts on that and how have you plugged that in? also I guess maybe one thing is whether the different reasonable cognitive enhancing approaches and then where might -- let's say that there are some people that who just legitimately do better on a moderate to higher carb intake? Are there supplements that are going to kind of supplements or pharmaceuticals that are going to help that and then on the lower carb side of things just kind of the same question.

Jessie Lawler: Yeah, so we'll see. I guess first and foremost even though like my show has drug in the title and we're talking a lot about some of these newfangled things that have been synthesized in labs, I always try to hammer the point that the foundational pieces of cognition or the things that people could have done forever, the exercise, proper sleep, good nutrition and even figuring out how to do those three things is still a subject of great debate. I mean the question of what is proper human nutrition here we are in 2016 and it still hasn't been...

Robb Wolf: Right

Jessie Lawler: Inadequately answered yet. You get 10 nutritionists in a room and asked them, hey what should I eat? I mean you can get a barb roll out of that. But yeah there are huge benefits. I think most people -- let's put it this way. Your average American, your average person and western diet is operating below their cognitive baseline of where they should be to a very significant degree. The amount of benefits that they're going to get from fixing up their diet and their general sort of physiological lifestyle choices is probably going to exceed anything that they could get by taking the new super capsule that has been invented in a Chinese lab in the last 10 years. With that being said, the new super capsule that's been invented in the Chinese lab in the last 10 years might be a really good sort of accelerator for some type of consciousness or sort of icing on the cognitive cake but the most important parts are obviously the things that we could have been doing forever, the diet lifestyle, exercise choices.

[0:40:42]

I tried -- well I didn't try, I succeed it. I was in ketosis for probably about three or four months about a year ago to kind of see how that went. I did

like the sort of smoothness of my cognition and I'm not really feeling like I was any less able to focus late in the day than I have been when I've first woke up. There is just a very -- a nice cognitive consistency that came with that.

I didn't like what I was eating as much, I mean I really missed fruit. It's somebody who as I mentioned early I was a raw vegan for a full year and when you're a raw vegan you're basically a fruitarian because you got to eat fruit in order to get enough calories to survive and do any sort of exercises. Like you're not getting those calories from eating a lettuce.

So I've always been a big fan of fruit and yeah, I just -- I really missed it, popping out of ketosis so easily even just like a couple extra bloopers or whatever when I was doing the ketogenic diet but I felt like I kind of have to give it a day at court because here I am doing all these research into cognition and that seemed to be something that people were talking about and a lot of people getting significant benefits from. I'm thinking that going forward. I may try to drop into a ketogenic diet for a few months out of the year like probably during the winter months but then as sort of things come back seasonally like be eating my local fruits and vegetables and all that.

Dietarily for cognition, again just leaving all the supplements out of it, I find that probably my single biggest win is to do intermittent fasting so I don't start eating until late of the day. So like it's 145 right now as we're talking. I will not eat until sometime after 4 p.m. Typically, I'll start eating between four and five and have it like about six to seven hour eating window. I just find that I generally -- and this is whether I'm eating carbs which I am right now or even eating ketogenic. I just found that I do better with I feel more clear headed and more peppy, alert, motivated with no food in my belly. Why that is as anyone's guess? I think as an animal I kind of -- it does make a bit of sense that if you're a little bit hungry it's important for you to find some food rather than go to sleep. It might be as simple as that just the sort of epigenetic triggers of, "Hey, go do something," and in my case instead of going out and hunting a buffalo, I'm pecking at my computer.

Robb Wolf:

Right. So I've been working on my second book and we have two kids and we're getting ready to do a house remodel and I just have all lots of different things pulling on me. So trying to be as efficient as I can and what I've found is that if I can get out of the house as early as possible like get to my office by 6 or 6:30 a.m. and this is after like full night sleep, luckily the girls go to bed very early and so we go to bed early. I get up to a little bit of a coffee. I do my brain wave app the Binaural Beats plus. A

little bit of nicotine gum and I'll work from 6 or 6:30 until 10 or 11 and that's when I have my first meal.

I am insanely productive then. Like I'll get 2000 occasionally 2500 words written in that period and then we'll bring it home and Nicky and my wife will edit it and she's like to this is actually pretty good. Like it's not requiring a massive amount of intervention and polish and the flow is good and all that type of stuff. So I've definitely noticed that my most productive creative time is early in the day and if I can bracket that with an intermittent fasting period and just a scoche of appropriate stimulation.

This is again something I've had to learn where a little bit of caffeine and I'm talking probably like 25 to 50 milligrams like a quarter of a cup of normal coffee and just a little bit of nicotine gum and then my Binaural Beats thing. I'm incredibly focused. I have good -- I guess creativity. I haven't really thought about it that way but I'm connecting the dots on a lot of disparate of topics and that works great. And then the bulk of my writing like kind of cognitive work is done and I have some food and then I start doing more like running the kids around, doing laundry, cleaning the house, maybe go workout. I tried to do jiu-jitsu around 1 or 2 p.m. and that's been working really well. I would say that that little intermittent fasting piece and if I'm really then I go ahead and eat. I don't push that stress window particularly far but I'm usually like a 15 to 17-hour window of fasting. We finished in around like 5 or 5:30 and then we got to bed pretty early so that's been working really well for me.

[0:45:34]

Jessie Lawler:

Yeah, that's sounds like a great schedule. I mean I'm sort of doing the same thing except my -- I just push my window later in the day so I can still sneak in a dessert which tends to probably be -- my deserts are more fruit heavy than yours are for keeping on below carb into things.

Robb Wolf:

I'm like 150 grams of carbs between 100 and 150, on non-training days maybe 100, on hard training days maybe 200 so, I mean, there's a decent amount in there.

Jessie Lawler:

I think the other thing that you kind of mentioned in there that's really valuable is we are all creatures of habit. If you are able to build a set of mental relationships like, for me I've got like productivity playlist so I guess it's not even Binaural Beats. It's just I really like the song and the song gets me jacked up. Like I do something that I deemed to be productive or effective listening to that song enough times and all of sudden it starts becoming some of that pushes me the other way. I put the song on. I'm expecting some hard work out of myself.

One of my favorite like metaphors I guess from pop culture even though I don't think they actually the movie Dumbo anymore but for people that are old enough to remember, Dumbo is this elephant with giant flapping ears and he could fly. But at first he didn't believe he could fly and he has this little mouse friend and the mouse gave him his feather which is just some random feather you picked out of a crow's ass and said, "Hey, this is a magic feather and if you hold the magic feather in your trunk, you're going to be able to flap your ears and fly." Dumbo didn't have self-worth or use or whatever at the beginning of the movie and...

Robb Wolf: This is like 1940s one, right?

Jessie Lawler: This is yeah the 1940s.

Robb Wolf: My daughters loved that. They loved it.

Jessie Lawler: Cool, so yeah, he doesn't believe that just flapping his ears is what's doing the trick. He thinks he has his magic feather and that makes it work for him and eventually like late in the movie he realized, oh the feather was magic after all. That was just basically placebo effect that was what was allowing him to do it but by that point he's flying already. I feel like any of these things that we can use to give ourselves a little bit of feeling of extra oomph whether it's the cup of coffee or the writer's hat that you put on before you sit down to write or the music that you have playing or whatever it is. It's like the stack is many of those different advantages as you possibly can and start to form those habits around productivity cycle. It becomes really self-perpetuating thing.

Robb Wolf: Nice, nice Jessie so my work ends up being pretty reasonably cognitively demanding particularly when I'm in a writing mode but my other -- I have two other real passions. One of them is longbow or recurve archery so there's no sites on it. It's completely instinctual thing, highly perishable skill set. You've got to put a lot of arrows down range to keep the skill set good and then also I mock around with the old guy Brazilian jiu-jitsu, are there any specific substances or strategies that help the acquisition of physical kind of intelligence or aptitude?

We've talked a ton about just general thinking and creativity but all the movement related mastery is also clearly a central nervous system brain related issue. Is there anything that can help us on the acquisition of movement-based activities more effectively?

Jessie Lawler: Yeah, that's a really interesting question and I don't know if there's been any studies specifically looking at that but muscle memory, "muscle memories" of course actually, the part of the brain that controls muscular movements or the cortex. So I think anything that would be a memory booster wouldn't probably be helping with those acquisition of physical skills as well. Probably, also anything that's going to help with sleep since sleep is where we can consolidate long-term memory and sort of move things into from short-term storage and so yeah, I would say generally memory promoting and or sleep promoting compounds are going to help with that physical skill acquisition.

Robb Wolf: So I need to put together a lab here at the Lazy Lobo Ranch and start synthesizing GHB so I can get better sleep it that's what you're saying?.

Jessie Lawler: If you do it count me your first under the table buyer.

Robb Wolf: Oh men the DEA is going to be out of our place here and like three days after this thing airs.

Jessie Lawler: This is a prank call, right?

Robb Wolf: You did completely prank call just purely theoretical. The funny and not funny, the GHB is up there like if you get caught without its cocaine, heroin type of deal like you're going to the big house.

Jessie Lawler: The drug scheduling is just. I mean, again, we don't need to go down this road. But it's ridiculous. It's like a heroin is less highly scheduled than something like GHB or marijuana because the opioids have legitimate medical uses for pain reduction. Apparently sleep promotion in GHB or the many sorts of pain reduction that we actually know, the cannabinoids, and marijuana can do for whatever reason that didn't pass the threshold that day at the DEA when they were scheduling these things.

Robb Wolf: Oh yeah. I have to get you on the political podcast sometime.

Jessie Lawler: Can I give you one more just...

Robb Wolf: Please, please.

Jessie Lawler: So I interviewed a guy in the UK. His name is Dr. David Not, a really, really interesting guy and gotten a lot of trouble with their UKs version of the DEA for some of the things he said. He was kind of like the UK's version of

the drugs are and then started to be in some things that were rationally true but we're not politically -- what the powers that be wanted to hear.

But anyway he made a really interesting point that during -- I think it was the late 1990s, early 2000s there was a major push in Britain against the use of MDMA against ecstasy. There are billboards on the streets and stuff like that and you'd kind of think that that would have been something that was largely funded by tax dollars, the campaign against the use of these recreational drugs but it was actually funded in a large part by the alcohol industry.

The alcohol industry has in the UK, as in the US, a legal monopoly on intoxication and they were willing to spend a lot of money to work to protect that legal monopoly on intoxication that they have. I just think it's fascinating looking at how the money changes hands on these things and how would it affect public policy.

Robb Wolf: Oh that's fascinating, yeah, we definitely to get you on the political podcast. Most of folks on this one we keep it protein, carbs, fat. There are a few people that will go down the libertarian market based rabbit hole with me and not raise this thing but other folks get super bent so I tried to keep the different population separated. We don't...

Jessie Lawler: Don't cross the streams

Robb Wolf: Yeah, don't cross the streams. It's just bad. Jessie where can folks track you down on the interwebs to learn more about what you're doing and follow your work?

Jessie Lawler: Yeah, I'm relatively findable. I've got a podcast called smartdrugsmarts and the website not surprisingly is smartdrugsmarts.com. We come out every Friday. It's a generally me interviewing some sort of neuroscientist or a medical doctor talking specifically about stuff that either helps you preserve your brain or enhance your brain and sort of the meta-theme is anything I find interesting so we got some odd ball of topics in there every now and then but it's generally brain based.

Robb Wolf: Awesome, Jessie it has been a ton of fun having you on the show. Let's circle maybe four to six months and get you back on and maybe what we can do when we bring you back on, we can open this up to social media and ask folks if they have specific questions for you and then we can get some of their specific needs once and desires addressed.

Jessie Lawler: That sounds fantastic. I would love that.

Robb Wolf: Awesome man. Well, have a great day and I'll talk to you soon.

Jessie Lawler: Cool, man thank you. Bye-bye.

Robb Wolf: Bye Jessie.

[0:53:40] End of Audio