

Paleo Solution - 314

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Robb Wolf: Hey folks, Robb Wolf here, another edition of the Paleo Solution podcast. Super excited for today's guest. She is the New York Times Bestselling author of the Paleo Approach, the founder of the wildly over the top successful, the Paleo mom website, Sarah Balantyne. Dr. Sarah Balantyne, how are you doing?

Sarah Balantyne: I am fabulous. Thank you so much for having me on the show.

Robb Wolf: Oh, huge honor to have you here. We get to hang out a little bit in most of the Paleo nerd fest events.

Sarah Balantyne: It's my favorite.

Robb Wolf: Yeah, yeah, yeah. So what's new and exciting? What's happening?

Sarah Balantyne: A lot of writing going on in the Balantyne household right now, all mostly by me a little bit, but my 9-year-old who has decided to write some tween fiction series with a very complex dystopic feature plot. I like to focus more on the non-fiction side of things. So yeah, I'm trying to figure out that wonderful balance of being glued to my computer screen and still taking good care of my body and getting my outside time and my nature time and my activity time and my sleep time and trying to walk that line, which I think is one of the big challenges of being a leader in this movement for all of us I think, is how to do it all, right?

Robb Wolf: Oh yeah. I mean I thought that the worst thing that I ever did for my health was open a gym and that opinion only changed when I realized that writing a book about health was even worse than opening a gym for my health.

Sarah Balantyne: Isn't it amazing how writing a health book completely destroys your health?

Robb Wolf: I don't know if this is -- it's kind of like the sacrificial lamb or something like one must be sacrificed to save the many, but...

Sarah Balantyne: I'm working on number 4 right now and I guess I'm just a glutton for punishment.

Robb Wolf: Yeah, I'm venturing into number 2 and it's I'm probably about halfway done and my body is not happy with that process, but what's a girl to do.

Sarah Balantyne: And then you only know, it only gets worse.

Robb Wolf: Right, right, right. So Sarah, tell folks about your background. You have a really fascinating background. You're one of the top of the food chain folks both on communicating these ancestral health topics, but also having a fit squarely place in the academic research thing, so tell folks about how you wandered into all this process?

Sarah Balantyne: I have a PhD in Medical Biophysics and I was a medical researcher and at the same time, was very sick. I was morbidly obese. I was close to 300 pounds. I was pre-diabetic. I had high blood pressure. I had pretty much the majority of the skin conditions that are available to have.

I had chronic joint pain, chronic fatigue, fibromyalgia, hypothyroidism which later turned out to be Hashimotos thyroiditis, psoriasis, a skin condition called Lichen planus. Basically, the wheels are falling off the cart.

I ended up when my first daughter was born, I was most of the way through my second postdoctoral research fellowship and I just went, okay, hands up, I give up. I can't do all of this anymore and it was just too much for me to have a colicky baby who never slept and try to establish a research lab, like I was right on that cusp between moving from postdoctoral research fellowship to tenure track faculty and I went, oh, guess what, these two things are not compatible in my current health environment.

So I decided to take advantage of a program that the National Institute of Health runs for women. I had to take time off of their academic careers for whatever reasons and there are multiple reasons right that women might need to take time off. So it could be parenthood, but it could be taking care of an elderly parent or whatever it is, and this program allows you to take up to 8 years off and then they fund your re-entry into the academics sphere. So I was like this is an amazing thing. I'm going to do this. I'm going to quit my post doc. I'm just going to focus on my incredibly difficult baby and what that did was it gave me the space to start figuring out my own life and really start looking at my health as something that needed to come together if I wanted to be a good parent.

So I started by losing 100 pounds with a low-carbohydrate diet and getting less and less healthy with every pound I lost. So my blood

pressure normalized and my diabetes went away, but my skin got worst. My irritable bowel syndrome got worst. My migraines got worst. My depression and anxiety got worst and it just kind of felt like I had always thought -- I grew up as the -- I was the fat kid. I was obese by the time I was in my mid-teens. I always thought being overweight was my problem, right, and then if I could just lose the weight, everything would be there would be rainbows and unicorns and flowers singing everywhere I went.

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So as I lost weight, I went like god dang it, that's not right and it forced me to start looking at the word thin and the word healthy as meaning two different things, which I think a lot of us equate them even though... I start to think now of getting healthy to get thin instead of getting thin to get healthy. For me, that's what I had to do, but it was not frustration that got me digging deeper and starting looking at a diet in terms of nutrition rather than in terms of calories and carbohydrates, which was my surely myopic and over simplified view at the time.

It was an article on Loren Cordain's website about Lichen planus which was one of my skin conditions that was flaring at that time and the Paleo diet that piqued my interest. And then there was this great book that had just been printed called, The Paleo Solution.

Robb Wolf: That guy's a smock though.

Sarah Balantyne: Right, totally. But I was really -- I had I think what was the quintessential reaction to Paleo diet. It was like, what, I have to give up all that stuff. That sounds really hard.

Robb Wolf: Right.

Sarah Balantyne: I don't want to do that. So I ended up channeling my inner geek and reading everything I could get my hands on, which included the Paleo diet and The Paleo Solution, but also delving into some of the scientific papers behind the Paleo diet and behind a lot of the links between food and inflammation and food and gut health. I basically absorbed all the information I could for about 3 months before I decided this was something that I needed to try and there was this other, this guy, who had this great catch line for 30 days and what's the worst that can happen, right. Like see how you look and perform and the worst, you've given up your favorite foods for 30 days and I totally decided I would up your 30 days. I would raise you to 3 months.

So I went into this dedicated -- I started August 31, 2011 and I went in dedicated to 3 months of Paleo. So within 2 weeks, I went off all 6 prescription medications that I was on at that time. I lost 20 pounds in 2 months that I had figured was just the weight that was never going to come off again. My skin started to improve and I became a complete convert. I was so enthusiastic about this amazing solution and really recognizing for myself. I had struggled with my health at that point for a couple of decades or maybe 3 decades and I went like, who does such a simple solution. For me, it was the gateway into what became -- I needed them. I needed a megaphone, right, and I needed a megaphone that was not me telling the hairdresser that the bagel she was eating was going to kill her.

Robb Wolf:

Right.

Sarah Balantyne:

That was not an appropriate way to share the information that I was learning and so I decided to start a blog funny enough about 2 weeks after going on a very, very long rant about how blogs are dumb. I was like, oh, maybe they're not that done. Maybe I should start one and my husband was so excited to have me have a venue for sharing that information that was not him, that he was incredibly supportive and it really took off because for me, I mean, a Science nerd by training, but I'm also Science nerd just by nature and it gave me a place to nerd out and tackle one of my other passions which is scientific literacy and really bring my background which is in inflammation and organ system health, critical care medicine, gene therapy, epithelial cell biology, cancer biology. And bring that background to the contemporary science that supports this way of eating and living and sort of provide those explanations for the Paleo Diet that aren't centered in evolutionary biology, but instead in a more detailed physiology, biochemistry, biology of how compounds in foods interact with the human body.

Why things like stress management and activity and sleep are important and kind of put together -- I feel like it's the same picture, but at the other side of the coin, putting together this sort of contemporary science rationale for the exact same things that we come up with when we take an evolutionary biology perspective. It resonated with people. I found an audience really, really quickly just because I think in general, people aren't given enough credit for their ability to understand Science and I think that often, even Science writers oversimplify the use of lego and dump truck analogies all the time. They're trying to engage when what's more engaging is actually accurate information where you take a little bit more time to explain it rather than we're going to simplify it as to a 30-

second byte and we're going to tell you that cholesterol is like dump tracks.

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Robb Wolf:

Right.

Sarah Balantyne:

I think that what I've been able to do is tackle what I think of as really important educational basis for changing public health and take that from a scientific literacy perspective. So I get to improve public scientific literacy around health topics which I feel is necessary for many people to be motivated to make the better choice.

It's like here's what the better choice is, but here's why, and once you understand why, it makes it easier to especially when that choice is a harder choice, right. If you really understand why and not just whether or not you should or you shouldn't right, but what happens if you chose A versus B? It makes it easier to make the better choice more often if you have that background knowledge from which to draw on in your decision making process.

So that's been my voice in this community is one of complete geekdom and nerdiness and Science with also... You know, I really think that the other side of what helps people make the better choice most of the time is practical resources to actually making that better choice easier which is why there are recipes on my website and various lifestyle guides as well.

Robb Wolf:

No, I love it, and you've done just an amazing job of marrying both that the really fundamental mechanistic whys behind this process with the practical application and those really bookends to the process in a lot of ways. Clearly, there is a fair amount of swamp in between there and we do the best to move as many people through the swamp as we can, but I mean, that's kind of been my approach.

It's interesting because I've been really passionate about the sustainability topic and how that dovetails into this. So in discussing things like decentralization and economics and how that place into sustainable versus non-sustainable food systems, it's kind of an onerous process.

People sometimes aren't super fired-up about it in the beginning, but I've been really beating that drum for about 3 or 4 years and we're starting to see some momentum in that direction. So it definitely pays off over time.

But it's funny because there's a lot of good podcast like the Tim Ferris podcast and what not that are really fantastic, but you see some of these

folks get nervous when somebody is really going down the rabbit hole of technical talk. Like they're afraid that they're going to lose the audience and I've been kind of like you know, if you get 10% of those folks, that 10% really gets it and then that 10% does their own blogging and Facebooking and everything else about this topic, then you're going to win that fight eventually. But to your point, if it's constantly dumbed down to a level where people really don't understand mechanistically what the heck is going on.

I'm totally getting off in the weeds here, but like people will talk about subsidizing converting corn into ethanol for like an alternative fuel source. It's like well, do the folks who make that actually run their tractors on the ethanol. Well, no, and why not, because it actually takes more energy in than what you get out. So it's a dead-end process and if you don't educate people about the mechanisms, then it can be a lot of smoking mirrors and a lot of confusions so that front work can be really beneficial in the long run.

Sarah Balantyne:

I think that the diet industry as a whole has had this history of trying to get people rules to follow. It was one of the things that was very different about the Paleo diet. When it hit the scene was that it was always a template. It has become more so over the years as we started to recognize just the high degree of individual variations in terms of what people tolerate versus what people need, right

For me, I'm always talking about experimenting as an individual within this framework and finding that line between what your body needs to thrive versus what your body tolerates and finding some kind of balance living in between those two lines.

So I'm often sort of approaching this as a template, but then of course, now you're getting away from this firm set of rules, which means you need to have a more detailed conversation, but how do you experiment, how do you reintroduced theory, what happens, what are you going to look for?

I think that there is this short-attention span created by decades of diet books that are eat this on day 1, eat this on day 2, eat this on day 3 and repeat. When we start talking about this lifestyle, this is how we're going to -- this is a framework from which to choose foods to support health for the rest of our lives rather than these dogmatic principles and firm rules, then it requires us broader conversation. It requires us broader education behind why and it also allows for when you have this bigger conversation, it allows for change.

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One of the things we've seen in the Paleo community is consensus on certain foods being Paleo or not Paleo evolve over time. I think that's one of the huge strengths about Paleo diet is that we're looking to the Science and we're looking to like well, what is the case against white potatoes and let's have it more details conversation about that and let's decide whether or not white potatoes are going to be part of the Paleo template if they're going to be re-introduction later, like how are we going to approach this food. If we stick to a firm set of rules, then everytime we re-evaluate something, it's just going to lead to confusion. Well, I thought that was against the rules or I thought, right.

I think that when we have this broader education, we can say this is an approach to diet and lifestyle that's rooted in Science and we don't know everything. More Science is being done all the time and that gives us this open to be able to incorporate new and exciting information into this template in a way that hopefully minimizes confusion. I realize there is still this whole like wait a minute, what's that new thing now.

Robb Wolf: Right.

Sarah Balantyne: But it gives us the ability to be flexible is not quite the right word. It gives us the ability to continue to evolve, which I think is fundamental to honing in on what an optimal human diet is and really turning the tide of public health.

Robb Wolf: I could not agree more. It's tough because I've seen success like there's are some folks out there that have some very regimented black and white templates and lots of people get tons of benefit from it. I would say that it creates a decent amount of headache for me because people will say, Robb, this jerky has 2 grams of sugar in it, and I'm like, yes, so does your broccoli and so it's trying to ferret out every bit of sugar in a food item really the place that you go. But at the same time when people are coming from big gulps and snack wells and just really horrific eating patterns, then there is reasonably probably some sort of an on-ramp process where we create some really tight guidelines in the beginning. I guess it's almost like raising kids, like the way I look at it, like I really have this picture in my head that I've got to tell my kids, hey, here are these lane lines you need to stay within so that you're not a little animal and you just react to impulsivity all the time, but then at some point, you're kind of like, okay, those lane lines are there for everybody else and they don't actually apply to you.

Here's how you work the system, but it's a process and I don't know what the right answer is other than I guess it's good that there are many voices out there and there is the ability for people to tinker and experiment. That's really I guess where I find the most excitement as just getting people in a clinical setting whether it's a n=1 at home doing this working with a health coach or an actual health care provider. We have all these templates. We have all these -- is it low carb or high carb. Well, let's try both and then let's see a spectrum in between and see how you look feel and perform and we can play with that and so it diffuses a lot, hopefully some of the macronutrient wars and are peas Paleo or not and that stuff. But it's a fascinating challenge. It's frustrating some days and then other days I'd look at it and I'm like, oh it's job security, like these problems overcome your ways.

Sarah Balantyne: I do think that there is this balance between providing an easy set of guidelines so people can on-ramp right away versus also then allowing some time for the broader education so people can then start to tinker. I think that there is -- whether it's a treating sort of a basic standard Paleo template as almost like an elimination diet and then after 30 days, here's where you get to play with. I think there's a lot of ways that we can approach it, but I think we're as a community hitting a point where some kind of consensus in the approach is going to be required in order to minimize confusion for new people coming in to the community.

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Robb Wolf: Right, right. Well, good luck in us getting much of that...

Sarah Balantyne: I mean, one of the strengths and weaknesses of being a community in which there is no central management, right. There is no one person dictating what Paleo is from on high. It's a community discussion and I think that that's something that's unique about Paleo and it allows for a lot of amazing things to happen because it has so many different voices in this community. I think that overall strengthens the community, but every once in a while there's a little like, oh, this would be so much easier if there was this one person telling us what to do.

Robb Wolf: You know pretty early in the development of the ancestral health society, I actually made a case and we did some work towards delineating like 20 or 30 position statements on saturated fat and on this and on that. I ended up abandoning that process because there was so much nuance and individual variation within this stuff that I felt like it really got out in the weeds rather.

Sarah Balantyne: How can you make a generalized statement about saturated fat when you've got APOE4 carriers that respond completely different to saturated fat than everybody else?

Robb Wolf: Exactly, yeah, yeah. So that may come about at some point, but I'm wondering if 5 years from now, some gut biome testing plus some genetic testing like there was that paper that came out in Cell back in November the personalized glycemic response from the folks in Israel. What was fascinating about the paper and if folks didn't follow it, they took 800 people, inserted a subcutaneous blood glucose monitor that measure blood glucose levels every 5 seconds. They fed these folks a battery of meals. Before that, they just --

Sarah Balantyne: Slash additional foods like cream.

Robb Wolf: Yeah, yeah. So they had some test meals and then they were free living meals which they documented with kind of a cool smart phone app and everything, but they did their gut biome testing. They did some genetic testing, basic Anthropometry and like lipidology testing and then they started feeding them meals and seen what the response was. It was all over the map. Like there were foods that some people -- like one person ate 50 grams of carbohydrate from a cookie and they had a beautiful blood glucose response to that and they had 50 grams of carbohydrate from a banana and they had like a....

Sarah Balantyne: And they had this crazy hyperglycemic response.

Robb Wolf: Hyper, hypo and what they found was that the gut biome profile seemed to be potentially the biggest driver and really at the end of the day, what was the big deciding factor in all this was that if they could just modulate the glycemic load such that blood sugars were kept within a pretty tight parameter that it appeared to shift the gut to a healthy profile and it also seemed to repair the metabolism. And that sounds pretty easy, but the different meal offerings that represented success versus failure for folks were really kind of jaw dropping. It's kind of crazy, but I'm hopeful that maybe 5 years from now, for a couple of 100 bucks, you can submit your gut microbiome, get a genetic test, input your daily activity levels and your sleep which we'll get into sleep here in just a little bit.

I know that you're hot and bothered on that topic, but then you know, we'll get something spat out that tells us, well, maybe you should have an average meal carbohydrate level of 30 to 40 grams of carbs and this much protein and that much fat. There might be some immunogenic problems with dairy and wheat for you and so we'll be able to customize

that in. I'm pretty optimistic that we'll get something like that in probably like 5 to 10 years.

Sarah Balantyne:

I love that you mentioned sort of inputting things like sleep because one of the things that I talk a lot about within the autoimmune community is how our tolerance to suboptimal foods is impacted by lifestyle factors. So if you're really stressed out, if you're not getting enough sleep, if you are sedentary or if you're over training, those are all things that prime the immune system so that if you're going to eat a food that's a little bit immunogenic, right, it's going to cause a little bit of inflammation. If your lifestyle factors are not dialed in, you're going to have a much bigger reaction to that food compared to if you're putting your focus in the lifestyle factors.

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I think the classic example of this is people who go on a vacation and they're like I ate begets in France on the French Riviera during my vacation and I was fine. I came home and decided I was going to have some bread and it wrecked me. Is the difference in the European wheat? I mean, that might be a factor, but I think that much more likely influence is the fact that when you're on vacation, you're sleeping in. You're getting lots of sunshine. Your stress level is way lower and all of those inputs into how are body responds to a food are dialed in and it makes us far more tolerant to something especially on occasional something that otherwise our bodies are going to say, no thank you. That was not cool.

Robb Wolf:

Right, right. Peter Attia had a pretty interesting analogy with that like most of the cars that we drive around, none of the tires are at spec, air pressure. The oil hasn't been changed. It's 500, 600 miles over change the oil and there's all these different things that are out of spec. But it really doesn't matter because our day to day driving isn't pushing that car to its outer limits. But if you have a sports car, like you're paying \$10,000 an hour to go drive a sports car down at some race track, the tire pressure is precisely measured to the temperature of the track and the air fuel makes sure and you all the stuff is spot on because that car very quickly is going to be pushed to the absolute mechanical working limits.

If you have someone who is pushing their body to the mechanical working limits, you can't get away with any variance in that. If you are on vacation and you're sleeping better, and like you said, you're getting... your photo period is more amenable. Your vitamin D levels are up and your immune system is being favorably modulated from endogenous vitamin D production and everything. You've got way more latitude to get away with other things like maybe a little booze or maybe some wheat or some dairy or something that when you're back home and your sleep is

suboptimal and you're under all kinds of stress, you don't have that buffer.

Sarah Balantyne: Put on your deadlines.

Robb Wolf: Yeah, yeah.

Sarah Balantyne: I think what it sort of when you look at that way, you realize just how much most of us, our daily lives are set up to be that suboptimal situation where there isn't any wigglegram, which is kind of sad.

Robb Wolf: It is and one of the greatest low hanging fruits that got on my radar back in 2001 when I read the book, Lights Out: Sleep, Sugar, and Survival, it was just a massive eye opener for me. I was on the road for 3 or 4 years, 30 weeks a year doing these Paleo Solution seminar talks and probably 40% to 50% of the talk ended up dealing with sleep and HPTA axis, like adrenocortical hormones and stress response and everything and how that dovetailed back in on things. Before we press play on the recording, you and I were chatting and you made the point that although sleep is generally viewed as an important topic in Paleo land, it's really not newly as front and center as protein, carbs, fat.

Sarah Balantyne: And activity.

Robb Wolf: Inactivity, yeah. So what was kind of the process for you recognizing sleep as just as powerfully important? In my opinion, it's probably the most feature. Like I have the sneaky suspicion that if the electricity went out and we weren't screwing around late at night in iPhones and tablets and we went to bed when the sun went down, got up when the sun came up, we would be much more robust on our dietary finagling, but how did sleep become an important factor for you?

Sarah Balantyne: So I recognized pretty early on in my life, like I was refused to go on sleepovers by the time I was 11 years old because everytime I came back from a sleepover, I got a Strep throat, not just a little bit sick, but it was like antibiotics, missed a week of school sick . I was very able to tie my health to how much sleep I was getting and even through sort of university and grad school, I sort of found this like 7 hours per night cut off. So my body really wants 9 and a half, but I can push it and as long as I don't hit under 7 hours, I'm going to be a train wreck.

So I was writing the Paleo Approach, I started diving more into more details into the link between sleep and the immune system and I was really surprised at just how fundamental sleep was for health and at that

point, that book is very, very focused on immune function and is not -- looks at some hormone systems and looks at some neurologic functioning, but still always trying to look at how those things feedback into the immune system. But that started me on the PubMed rabbit hole where you read the paper and then you read the paper that cited that paper and then the suggested paper and then you just keep going like holy smokes.

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So it's been something that has spiked my interest and it's just been like I'm just really geeked out over the Science and over the last two or so years, I've had this Word document just on my desktop and on the side where when I hit some interesting sleep research, I go in and I throw in a little paragraph and I a little citation like, oh, this was an interesting thing. It became more urgent for me to start pulling that together into some form of product for the public when I went on book tour and what happens for me because -- the 3 book there are out all based on the autoimmune protocols.

So the people who buy those books and enjoy those books are generally people who are suffering from chronic illness and it became sort of this very common theme to have somebody want to share their story with me and they've been following the autoimmune protocol for x number of months and they're not seeing themselves that they want.

It became my first question. How's your sleep and the answer was invariably tears, and it was whatever -- I can't sleep because of this or this and it became this really obvious missing link for people. And then, I started seeing -- the rest I started talking more about sleep and people where especially the autoimmune community were focusing more on it, that that was really changing the results of people were seeing from their diet modifications.

So I started to feel like this was something that needed to be discussed more and it's one of those things that every time I talked about it, I get this little bit of backlash. What people want is not to be told how much sleep they need or that they need more sleep or that they have to figure out how to restructure their lives so they're sleeping in sync with the sun. They want a solution for how to continue to not sleep and not have an impact to their health. It's really obvious, right, like I can't sleep because of this. We've all got some kind of excuse. I've got a deadline. I've got Walking Dead to watch, but whatever it is, I have this and this. I've got babies. Whatever it is, I have this barrier to sleep and there is no -- I can't think outside of that barrier. I can't take a step back and figure out what else I can change in my life to create more time for sleep.

So I said, well, this is the response and this is an even more important conversation to have because when you look at the impact of that sleep has on the central nervous system, on the immune system, on our hormones, on our metabolism, it's so fundamental and if you think of anyone of those systems being out of whack, you're not going to be healthy.

Well, sleep is critical for all four of the systems to function and so when you take away this really important input to our health, you are putting all this effort into the food we're eating. We're doing the Crossfit open and we're right like, you've got all of these things that we will put ahead of sleep that are focused on health. We're missing this linchpin that is holding everything together, which by the way, when you get enough sleep, your hunger is regulated. You don't have cravings. You naturally want to eat more fruits and vegetables and you naturally feel more motivated to move. Like if you can put sleep in there, all of these other things that can feel like really hard work especially if people just coming into the community starts to fall into place, and as I delved into the Science in more detail, I was like, well, look at that.

Here's one of my favorite statistics. Sleeping less than 6 hours per night which about 35% of Americans do increases risks of all cost mortality by 12%. So that's a really general measure that looks at both health and longevity when you look at all cost mortality. Being morbidly obese increases risks of all cost mortality by 18%. For every hour of sedentary time that you're placed with physical activity, you reduce all cost mortality by 16% and for every serving, daily serving of vegetables up to 5 servings, reduce risks of all cost mortality by 5%, which means we're talking about sleep being in the same ballpark in terms of health risks as being obese, being inactive and not eating vegetables, and yet, those are all things that we're going to talk about in the Paleo community, right.

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We're going to talk about weight normalization. We're going to talk about activity and movement throughout the day and our treadmill desk and all of these cool bio hacks. We're going to talk about the importance of a plate that has lots of servings of vegetables on it and sleep is the first thing that people are willing to give up for everything else in their life. We put work and play before sleep.

On average, we are sleeping an hour and a half to 2 hours less per night than we were 50 years ago and when you have -- this is fundamental, but how much time that is total per year. It's a month of continues sleep per year that we need and we're not getting. It's been this societal shift not

just in our commitments because part of this is that we're also working more than we ever have, but part of it and part of it is the internet. I mean, it's late night TV and all of these things that were not a thing 50 years ago.

The part of this is just the attitude towards sleep, right. I will sleep when I'm dead. Sleep is for the weak and we're starting to view it as a society as the sleep is a waste of time, which is moronic because we need sleep in order to be healthy. I just feel like it's something that it needs to be -- I mean, I just feel like there's a large group of people that need A slap up side the head. Sleep is important and we can't expect to be healthy if we're constantly putting these other things above sleep.

Like the conventional medicine, right, the thing that we're always trying to one up within the Paleo community. The American Academy of Sleep Medicine and the Sleep Research Society, their consensus statement on sleep states that adults should sleep more than 7 hours per night on a regular basis to promote optimal health and when you look at that 7-hour minimum, 65% of Americans aren't...

Robb Wolf: Aren't even getting that.

Sarah Balantyne: Aren't even getting that and it's such a problem and within the Paleo community, I feel like we're so health focused and to have this. Like we're going to eat liver and we're going to have all these great bio hacks and sleep doesn't end up on the radar and I think that's a really major omission that needs to be tackled.

Robb Wolf: Sarah, come on now. If you do some bullet proof coffee and eat 400 mg of Provigil, you're good to go.

Sarah Balantyne: I think that's one of the problems right. So if you think about a sort of an analogous lifestyle factor of just spending time outside, right. So we spend time outside. We get sunlight on our skins. We're making vitamin D and we also got the blue light into the photoreceptors in our eyes to help in our circadian rhythms and these are two really important aspects of being outside in addition to the stress management aspect of being in nature, right. So these are the benefits of being outside and you can replicate this indoors by taking a vitamin D3 supplement and using a light therapy box for your blue light and maybe playing some nature sounds and having a couple of indoor plants. So you can kind of bio hack your way out of outside time.

There is no equivalent for sleep. There is no supplement that replaces for us what sleep does for our body. We can caffeinate ourselves up. We can use energy drinks. We can take whatever energy inducing, right, adaptogen-type supplements to get our energy up and all of things do is give us the illusion of energy while eroding the next night sleep and feeding a vicious cycle.

Robb Wolf:

You know what, my work with the police military and fire was just such a profound eye opener in this area because you saw folks particularly like in the special operations community. These folks are selected for their relative and I can't emphasize that enough, relative resilience with regards to sleep deprivation, but eventually, these folks break. It was fascinating to me because these people who would historically never had any like joint inflammation, GI problems or whatever, they would do a 6-month deployment where they're doing night ops and they're up all night. They're looking at green night vision goggles throughout the totality of the night time period then when they would get ready to go "to sleep", they would take a bunch of Ambien which really doesn't induce sleep. It induces unconsciousness and they would rinse, lather, repeat on this.

They come back with their vitamin D levels barely above Rickets, super low testosterone levels and just generally feeling like 90-year-old people. We can do a lot of stuff by improving diet and getting their vitamin D levels up, but we just had to get in and prioritize sleep as best we could when and where we could, but the shift worker, police military, fire, medical personnel and a new parent, they've got a hell of a challenge with that. Like some folks, they don't optionally have that ability to -- you try to prioritize this as best as you can, dark rooms, cold environment. Doc Parsley and I put together this sleep cocktail formulation which helps get a little bit better...

[0:40:40]

Sarah Balantyne:

Melatonin production.

Robb Wolf:

Melatonin production and the GABA to induce sleep and then maintain sleep, but it's a stopped gap measure and it's a rough goal for folks that are in that scene. But let's just carve that chunk of people out, like there is a chunk of people that their path is long and hard and we'll do the best we can to help them, but let's talk about everybody else like how should folks who are not police, military, fire, or new parents tackle this thing and then maybe, we'll get back to those folks a little bit...

Sarah Balantyne:

Yeah. I think that's a great idea.

Robb Wolf: Yeah.

Sarah Balantyne: So most of the scientist of sleep is actually looking at metabolic syndromes. They're looking at diabetes, cardiovascular disease risk factor and obesity or one piece of that pie, but within those studies, there is some really interesting insights. So for example, it looks like it's really important for our sleep time to be synced with the sun.

So if you look at hunter gatherers, the sun goes down and they kind of have their quiet more intimate time. They tend to fall asleep about 2 hours after the sun goes down. They tend to wake up around sunrise or an hour before sunrise depending on the time of year. So they're actually spending typically about 9 hours in bed, a little bit longer in the winter, and then when you subtract off sleep latency time, that's adding up to about 7 hours of sleep.

So one of the things that happens is when we get told we need 7 hours of sleep minimum, that's actually total sleep time and so...

Robb Wolf: Not just time in bed.

Sarah Balantyne: It's not just time in bed and so if you want to track and make sure you're getting 7 hours sleep, wearing something like a Fit Bit that's tracking your movement at night, that's how a lot of these studies in hunter gatherers sleep patterns are done is with something called wrist actigraphy which is basically the same thing as a fit bed. It will tell you, it will subtract off the time you keep to fall asleep and will take off your like perfectly normal night arousals and then it will give you like a total sleep time.

So you turn out the light at 10. You're alarm went off at 6, but you really only slept 6 and a half hours in that period of time and that's really important I think for most of us to understand that we tend to statistically speaking, we over estimate how much we sleep by about 48 minutes. But the less that you sleep, the more you overestimate how much you're sleeping. So if you're sleeping 5 hours a night, you tend to overestimate by an hour and 20 minutes whereas if you sleep 7 hours a night, you're only on average overestimating your sleep by 20 minutes. So that's like the first thing to keep in mind here is that we're talking about adults having a bed time, which I realize this is supposed to be one of the rites of passage of becoming adults that we no longer have to go to bed at a certain time.

Robb Wolf: You have the right to completely metabolically derange yourself.

Sarah Balantyne: You have the right to eat an entire box of coco puffs as well. So keep that in mind that there are certain things that we grow up with like having a healthy breakfast that are pretty good patterns to maintain through adulthood and having a bed time is one of them.

So what we know is that having a very regular sleep patterns so one of the things that increases risks of obesity is variability in terms of what time we go to bed, what time we wake up and how long we sleep. So if you have that very typical pattern of I go to bed a little bit earlier because I have to wake up early on weeknights and then on the weekend, I'm going to stay up late, but I'm going to sleep in, that can increase risks of obesity by as much as 14%. But if your variability and how long you sleep varies by more than about an hour standard deviation, so I go to bed at 10 on weeknights, but I stay up till 1 on Saturday night, that increases risks of obesity by 63%.

So having a really consistent bed time ideally, the time shouldn't vary by more than about 30 minutes and a really consistent wake time and we should never need to sleep to catch for our sleep. We should never have a sleep debt. We know from studies looking at sleep in the immune system that inadequate sleep, so getting short sleep, not necessarily is inflammatory and it stimulates all components of the immune system that are up to shenanigans in autoimmune disease and when you go to recovery from sleep, you go to sleep in over the weekend, that's not sufficient time to fully regulate the immune system. So there are aspects of the immune system like TH17 cells that remain over stimulated even after 2 days of getting enough sleep and paying down that sleep debt.

[0:45:33]

So we know that we need consistency in bed time. We know that we want total sleep to equal that 7 hours, but for most people is 8 and a half to 9 hours in bed and so I was recommending, what time do you have to get up in the morning and we have responsibilities. We have jobs. Most of us have things that get us up in the morning if it's not young kids or both the kids and the job. So what time do you have to get up in the morning? So my alarm personally set for 6:30 in the morning. So if I calculate back 9 hours, that means that I have to turn out my light at 9:30 and I think that this is really the number 1 barrier that most people face to getting enough sleep is taking their bodies, putting them into their beds early enough that they actually have enough time to get enough sleep, turning out the light, turning off the TV and closing their eyes.

There are lots of things that we can do to support sleep quality from there like managing stress and then transient circadian rhythms and being in a dark environment in the evenings and being outside in bright

light during the day, not eating sugar in the evenings, right. There are lots of things that we can do to support sleep quality, but the number one thing that we are just not doing is putting sleep high up enough up on the to-do list that we are actually getting it.

Robb Wolf: Got yeah, got yeah. Just a little bit on the -- you mentioned sugar in the evening. It seems like I've seen is much material on evening carbohydrates either improving or making sleep worse. What are your thoughts on that, like since now, it's just like, oh you just have to play with and see, like what do you think is going on there?

Sarah Balantyne: There's a very big difference in terms of the hormonal response to sugar versus starchy carbs, right, and so what we seen in studies that actually differentiate between those is that having a good serving of a starchy vegetables at dinner and the optimal time frame is 4 to 5 hours before bed dramatically improves sleep quality. So there is this 2-hour window before bed where eating anything whether it's carbohydrates, whether it's protein, eating anything within 2 hours before bed basically gets your metabolism roughed up, gets your growth hormone spiking and those are things that are going to erode sleep quality.

So there is this optimal window of eating about 4 to 5 hours before bed depending on schedule. I mean, sciences are so cut and drive that there is a reason why pushing it to 2 hours before bed if that fits with people's schedules would be inappropriate, but then there is this whole separate side of things looking at added sugars. They're looking at high fructose corn syrup and sugary drinks and this very, very different quality of carbohydrate and showing that consuming sugars, any simple sugars, things like sucrose and glucose and fructose from mid afternoon on basically starts you on that wonderful insulin roller coaster that will erode sleep quality.

So my general recommendation is to include a serving of starchy carbs to blood sugar regulation levels. So for each of us, it's a little bit different, right. Some people can do -- typically people could do 30 to 45 grams of carbohydrates with dinner and be okay, that sort of like the American Diabetes Association guidelines for maximum carbohydrates within a meal for regulating blood sugars even in diabetics. Some people can handle more. So starchy carbs to blood sugar regulation with dinner and then don't eat. I think a lot of us eat to stay awake at night. It's one of my like worst food habits is 7 to 8 o'clock rolls around and I'm like what can I snack on.

Robb Wolf: Right.

Sarah Balantyne: Really, I should just go to bed. It's such a common thing that we mistaken fatigue for hunger and then we end up again, right, so then we end up eating which erodes sleep quality and it becomes another crap. So some people reach for caffeine and some people reach for sugar, and I mean, I reach for both. I'm going to put myself in that category. I like my caffeine in the morning and my sugar in the evening.

Robb Wolf: Right.

Sarah Balantyne: My say, but that's such a common thing that we sort of self medicate in order to not feel tired and when we do that, we actually erode our sleep quality, which then sets us up for just a snowball of bad.

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Robb Wolf: So do a little experimentation with that, but evening, some protein clearly as many low-glycemic load veggies is possible and then rounding that out with some 20 to 40 grams of starchy carbs like beats or potatoes or sweet potatoes or something like that?

Sarah Balantyne: There was a study that was just published in January that was a fascinating study. They took people and they put them in a hospital environment. They're controlling 100% of their food, but they were providing the food and then letting people free eat for a few days and then they had nutritionist put together meals for a few days and they looked at free eating versus these very carefully concocted meals and looked at -- they did polysomnography on these people. So they were not just looking at where they're moving around, but they were looking at what time do they fall asleep, how quickly do they fall asleep, how many arousals that they had, how much time do they spend in slow wave, deep sleep, how much time do they spend in REM sleep.

And what they came out with was that the diet factors that have the biggest impact on sleep quality and minimizing that time to fall asleep was one with adequate protein intake and especially protein serving at dinner. So if you have a protein serving at dinner, you're going to fall asleep faster. Fiber intake was one of their predictors of sleep quality, so 25 to 30 grams of fiber a day, which for most of us takes some awareness, right?

Robb Wolf: Right.

Sarah Balantyne: Like it's pretty easy to not hit that especially for not eating legumes which are high fiber source. You should be doing that between non-starch and starchy vegetables. It takes some dedication to hit 25 to 30 grams of

fibers. It's not that hard, but it takes some awareness and then what they found was basically moderate fat intake supported the best quality of sleep. So somewhere in that 30% to 40% of calories from fat was the best range for sleep quality and when your fat content got too high, it eroded sleep quality and when fat was too low, it eroded sleep quality and you can kind of mechanistically -- the study didn't go into mechanisms, but if you kind of rewind and look at what we know about how those dietary factors impact some important hormones like insulin, like cortisol, like leptin, like ghrelin, like thyroid hormones, like estrogen, progesterone and testosterone.

When you look at this complex interplay between hunger hormones and thyroid function and sex hormone regulation and adrenal function, you look at all that and you kind of go look, okay, actually this does make sense that these food choices that would sort of naturally result in a very good nutritional profile, a very balanced nutritional profile, but also in middle ground in terms of regulation for all of these hormones. You can kind of go like, oh now, okay. Knowing how these things signal to the brain and feed into the dopamine and serotonin systems, yeah, okay, I can see why this would actually be the case, but it was a landmark study nobody had ever actually done that, where you actually directly look at macronutrients and fiber in food and look at how that impact sleep quality.

Robb Wolf:

Got yeah, got yeah, fantastic. Sarah, we could definitely burn some electrons talking about all this stuff, but I want to be respectful of your time. Do you want to give folks just a quick recap on some of the key parameters with getting better sleep and then let them know where to track you down on the interwebs and anything new, that you have cooking. I believe that you have a 14-day sleep challenge so definitely mentioned that to folks.

Sarah Balantyne:

As my top tips for getting enough sleep. I mean, the number 1 is just making it a priority, so figuring out your routines that you have some quiet time before you go to bed and that you're in bed for long enough that you give your body the opportunity to get enough sleep. Sleep hygiene, so sleeping in a cool dark quiet room, phenomenally important. Circadian rhythm entrainment, so your brain needs to know when it's day time and when it's night time. Otherwise, it's not going to prepare your body for sleep, so bright light during the day, dim red wavelength of lights in the evening and then hormone regulation.

So a nutrient dense Paleo diet with lots of fiber, carbohydrate serving at dinner and not eating right before bed. I mean, those are sort of the low-

hanging fruit of what is going to make for the best sleep environment and of course, sleep pathologist are a thing in which in case you want to find a qualified health care provider to be able to walk you through the best options for that. But I've written an epic nearly 300 pages E-book with like 350 or 400 scientific citations right now that's called Go To Bed, a little bit tongue-in-cheek, the number one recommendation that I had for people to get enough sleep.

[0:55:16]

Robb Wolf:

Right.

Sarah Balantyne:

And it includes really detailed Science behind the role that sleep has on health and it kind of like a review of the entire body of scientific literature right now on sleep and health and then every scientifically validated strategy improves like all the bio hacks. So every little thing that you can do that a quality scientific study says it's going to improve your sleep quality, so things like wearing blue blocking amber tinted glasses last 2 hours of the day. There is a number of scientific studies showing that that dramatically improves sleep quality. So all of those types of little tips and then there is a 14-day challenge that is designed to be an iterative implementation of the things that you can do during the day that will make the biggest difference for sleep. So it's step by step.

So each day of the challenge, you add one more thing rather than saying, here I'm going to rebuffer the band-aid and do all of these things all at once, especially with sleeper bodies tend to respond better when we take it in these little iterative steps. All of that, you can get more information on it and you can purchase that program on my website at thepaleomom.com/gotobed.

Robb Wolf:

Awesome, awesome. Sarah, super excited for all the projects that you have going on. I know you have another project that we talked about briefly. When that one percolates to the surface, we'll get you back on the show.

Sarah Balantyne:

Oh, that would be fun.

Robb Wolf:

Yeah and then I will see you at Paleo Effects in May.

Sarah Balantyne:

Paleo Effects, we're going to hang.

Robb Wolf:

Awesome. We'll eat some barbecue.

Sarah Balantyne:

Yes.

Robb Wolf: Cool.

Sarah Balantyne: I went in Austin.

Robb Wolf: Absolutely. I'm definitely looking forward to that one. You're going to be there on that...

Sarah Balantyne: The entrepreneurs event as well.

Robb Wolf: Additional entrepreneur's event too, yeah, I'll be there.

Sarah Balantyne: Yes. So I will see you there as well.

Robb Wolf: I have no idea why they let me into that. They probably needed a janitor or something so I will be picking up paper cups and plastic forks at that event.

Sarah Balantyne: You can have something at least recyclable to drink out of, you think.

Robb Wolf: Hopefully, hopefully. I mean hopefully they've got together their game on that. But Sarah, it's great having you on the show, just so impressed with all the fantastic work that you've done. One of the best, brightest voices in the ancestral health scene, so always an honor to chat with you.

Sarah Balantyne: Oh, it's always fun geeking out with your Robb. I like that we can use the work endogenous together and nobody says, wait a minute, what did you just say.

Robb Wolf: We'll have another conversation around that like my nearly 4-year-old -- it's really fortunate that she's going to end up being a gorgeous kid because she's going to be an absolute geek and kind of a spaz.

Sarah Balantyne: Yeah that's my 9-year-old, yup.

Robb Wolf: Oh men, yup.

Sarah Balantyne: I think raising geeks, especially girl geeks is like the best thing in the world.

Robb Wolf: Absolutely, yes. It's totally amazing.

Sarah Balantyne: It removes the necessity to move to the city with no boys when they're teenagers.

Robb Wolf: Right.

Sarah Balantyne: We're also trying to work on braces, cooked bottle glasses and maybe only dirty clothes as well. I think that's my other back plan.

Robb Wolf: That's a good plan. Somehow, Nikki and I had no idea how this happened, but Zoey actually has an amazing eye for fashion sense because Nikki and I dress like slobs, I mean, absolute slobs. We'll go to some nicer store you know we'll cruise through a Macys or something and Zoey is like, dada, those shoes would look really nice with that handbag and I looked and I'm like, yeah, actually they would and I have no freaking idea how you know that, but well, we'll see. We'll see how it goes. So I think my ability to dress her terribly is going to be limited as she is already on to the fashion track.

Sarah Balantyne: You may have another year.

Robb Wolf: Yeah, yeah. Awesome Sarah. I really look forward to seeing you and I will talk to you soon.

Sarah Balantyne: Thanks Robb.

Robb Wolf: Okay, take care. Bye-bye.

[0:59:18] End of Audio