

[INTRO]

[00:00:19] AVH: Hey people, welcome back to The Paleo Magazine Radio Podcast. It's your girl, Ashleigh VanHouten. Still here, still kicking it. Having a great sunny March day. The end is in sight. Almost spring, guys. That means a lot to me, as I'm sure you know from my weekly complaints about the weather this winter. But we're getting there. I hope you guys are having a great week so far, and I'm excited to introduce you to the guest today who has actually been helping. If you are a fan of Paleo Magazine, has been helping us out for a very long time with the magazine and it's about time that I got her on the podcast to chat a little bit more about what she does.

Her name is Erin Skinner. She is a dietician and an author. She has her own podcast called Empowered Nutrition, and she writes the Research Roundups for Paleo Magazine. So every issue, we have a couple of pages called the Research Roundup where we showcase recent or significant or interesting research in health and nutrition and wellness and all of these things, and Erin essentially lays it out for us, talks to us about the significance or a lack thereof and the issues with the study or what it could be telling us. She basically translates it for us, which I think is a really, really valuable helpful thing for those of us who are really always trying to learn and sort of be on the cutting edge of what is useful and healthy out there, but maybe we want to be led a little bit, because sometimes reading research studies is very difficult and intense and there are people who are actually dedicate their entire lives to doing that just to translating and understanding what the research studies are telling us. It's very easy, I think, in some cases for people to cherry pick and take out bits and pieces of information that works in their favor and leave out the stuff that doesn't. That's the thing that's happening today more and more, and we want to be able to see past that, see through it and we want to be able to take information and look at it objectively.

That's what's she's going to help us to today. Actually, there's a recent issue. Actually, it's the current one, the February-March issue of Paleo Magazine, which is the women's health issue, and that's something that I think we're going to petition to have at least once a year, because I'm pretty sure that the majority, maybe not by a ton, but the majority of listeners and the majority of the magazine buyers and readers are women and we know that we have a slightly

more complicated physiology, lots going on hormonally, and we need to pay extra attention to what's going on throughout the various stages of our lives.

So I'm very happy that there's a women's health issue. It's done really, really well, and there was sort of an expanded research roundup section in this issue and it goes into things about pregnancy and physical activity, health outcomes on young women, toxicity levels in terms of things that we're putting in and on our bodies. So we get into that.

But, basically, in this episode I talk to Erin. She helps us sort of decipher and interpret data and studies and research. We talk about these specific studies. She kind of walks us through them, but she also talks to us about how to understand and interpret data. So we talk about things like limitations. We talk about what statistically significant means. We go through some other terms. Then we do, like I said, talk about the specific studies, so talking about health and pregnancy, talking about creating low-toxin environments for yourself and a ton more.

Erin is fantastic. She has tons and tons of valuable information that she can pass along to us, and I want to get her back on on a regular basis, like I'm thinking maybe every issue, she'll come on and kind of talk to us about the research that she discussed in the magazine. I think that will be a really cool thing. That's it.

Without further ado, I hope you enjoy my interview with Erin Skinner.

[INTERVIEW]

[00:04:08] AVH: All right, Erin. Welcome to the podcast. Thanks for coming on.

[00:04:11] ES: Thanks for having me. Yeah, I'm glad to be here.

[00:04:13] AVH: I feel like this is actually quite long overdue since you and I have both been faithful members of the Paleo Magazine team for many years and have not managed to do this yet. I'm really glad that we're getting the chance now and hopefully we'll make this more of a regular thing.

[00:04:28] ES: Yeah, I'm excited about it.

[00:04:29] AVH: Yeah. Before we kind of dive in to the topics that I want to cover today, I'd love if you could just kind of introduce yourself to the listeners and tell us about who you are.

[00:04:37] ES: Sure. Yeah. I'm a second-career registered dietician. I was in the military for around 11 years as a human performance expert and had a pretty life-changing experience with the paleo job. Part of my job before was to teach people about nutrition and I taught to teach like fighter pilots and Navy SEALs. I would teach them like my plate, which is the newest version of the food pyramid and everything. I thought I knew nutrition and I was teaching all these war fighters with eating and then had some health challenges and tried the paleo diet. It was just – I felt like a different person almost immediately and that just like shocked the heck out of me.

I thought there's a lot [inaudible 00:05:19] nutrition and I'd like to go deeper. So I got out of the military, became a dietician. Then from the beginning, I've been focused on what's called integrative and functional nutrition. You basically just try to dig deeper into the root causes of people's health problems instead of just putting a Band-aid type of solution on it and then individualized plans of care. Instead of everybody with diabetes getting the same plan, three people with diabetes would all get different plans depending on their genetics, their lifestyle, their preferences, their advanced lab testing, things like that. So I focused on that. Then with obviously an ancestral focus, and what's actually kind of interesting right now is I – So for a long time, we've had a private practice doing that. Then recently I started working for a company called Adventist Health, which is a hospital system here on the West Coast and they wanted to create an insurance paid functional medicine clinic, which is exciting to functional medicine people, because it's normally very – I don't know if you know a lot about functional medicine, but it's normally like a private pay thing that's very expensive.

I'm like, "Yeah, I actually don't love charging people a lot like thousands of dollars just to get started with feeling better." I'm excited about that vision of being able to create not just one clinic that does it, but this is kind of like a pilot. If we can do it at the corporate headquarters for the company, then could we convince the company to then put one in each of their 20 hospitals and to grow it out?

I'm working full-time here doing this also, which is interesting, because people don't really know much about functional medicine or ancestral diets. That's been kind of a change for me. I was attracting people that are already pretty wise to it. Yeah, there's a lot of –

[00:07:03] AVH: Interesting.

[00:07:04] ES: Yeah, because there's a lot of vegetarians and like vegans that work here. That's been interesting change of pace. Yeah.

[00:07:11] AVH: Yeah. Okay. We could talk about a lot of things here based on your background, because I have a lot of questions now.

[00:07:17] ES: Sure. Okay.

[00:07:18] AVH: I almost don't even know where to start, but I mean we were talking offline that you and I have already sort of some similarities. We're both military families. I'm curious, when you were a human performance expert in the military, which is a really badass-sounding title, and working within – You were saying, you're sort of working within the sort of standard guidelines, which we now understand for most people to not really be ideal, but that's what sort of you had at the time. Were you offering different plans to different military members or operators depending on like what type of work they were doing or was it sort of like here's a baseline healthy approach across the board based on this governmental information we've been given? How did you kind of approach the work when you're in the military?

[00:08:02] ES: Yeah. The job is called air and aerospace physiologist. Our primary roles were to run things like a centrifuge or you teach them how to handle G-forces or these altitude chambers where you make them hypoxic, right? Taking the oxygen out of the chamber and they put their mask on. But before they go through that training, they get a whole day where they get from me, they would get teaching about like sleep hygiene and fatigue management, mental things, like situational awareness, things about stress management and then things about exercise and things about diet. This is all in one day, right? It's really half a day in some cases.

The nutrition piece unfortunately was not a huge piece of that pie, and I feel like – I wish I could just kind of go back and be that person again knowing what I know now. Of course, I would do it completely differently. But no, to answer your question, it was just a basic, the tragic things we know that are said, like make half your grains whole, and make sure to have your [inaudible 00:09:05] with every meal. It was not individualized. It was just the government guidelines.

[00:09:13] AVH: Yeah. Got it. Okay. How does one find you now if someone wants to work with you on their nutrition? How do people usually find you? How do they come to you? How does that sort of relationship start? Because I know a lot of registered nutritionist may work alongside a functional medicine practitioner. You may be somebody that they sort of either work hand-in-hand with or send people to or recommend the people speak to. How does that work on your end?

[00:09:41] ES: Yeah. At this clinic where I'm a fulltime, it's just serving this one – This really one big building with a couple thousand people in it, and that's their patients. Aside from that kind of newer thing I'm doing in my private practice, as a dietician, we have a healthcare license and as long as we stay in our scope, we don't have to work with a doctor additionally. They'll find me and I order specialty labs with them and give them dietary supplements. You can do quite a bit without having to give anybody a prescription medication, and then I'll just coordinate care with their profile as needed. But they'll generally find me either through my podcast or through my website, blogs I've written, social media posts, things like that.

[00:10:24] AVH: Tell me a little bit about how it's going working in a place where a lot of – I may or may not be using air quotes here, health people, to subscribe to like a vegan diet, for example. How do you navigate that?

[00:10:38] ES: Yeah. It's been so interesting, because honestly, in my own practice, I will sometimes get people who like maybe just didn't read my about page and they want to work me who are vegan or a vegetarian, and in the past I've said no. I wouldn't work with them. But now it's every day. I just had a raw vegan in my office about 15 minutes ago. It's been really actually interesting, because I run these full nutrient panels on people. They've read so many books. They've watched so many videos. They're in a community of people that are also doing this and

they are convinced that they're doing the right thing for their health. They're watching the forks over their knives and believing every word and they're in it. They believe it.

For some of them, there's a spiritual component. They're not all 7th Day Adventist here, and 7th Day Adventists are not vegans, but a lot of the people here are 7th Day Adventist. Because they have kind of a history of being – Technically, they can't have pork or shellfish, but a lot of them will go further and be a vegetarian, and now it's just kind of kept going, and now a lot of them are going towards veganism. For them, it even feels like there's a spiritual component to this. The last thing you want to do, because like in your heart of hearts, you want to help them, right? The last thing you want to do is say, "You're wrong. The way you're eating is not compatible with your physiology," and you'll just make them mad and alienate them. If they never come back, you haven't helped them, right?

You kind of have to play a game. What I'll do is I'll say, "Hey, there are some things in your diet that look like I'm not seeing a lot sources in them," I'll say some version of this. "Would you be willing to let me run a full nutrient panel on you?" Usually because they're so into nutrition, they're excited. They have no idea about what's really going down. I'm like, "Do you want to do it?"

[00:12:25] AVH: What the recommendation is going to be.

[00:12:26] ES: Yeah. I'm like, "Great! [inaudible 00:12:27] nutrient status? Great." They're excited and I'm excited. We're excited for different reasons. That goes back and they generally have lots of nutrient deficiencies. Then we can have, I think, what's a more productive conversation instead of a philosophical argument around like with the vegan cardiologist that you follow. Is he right or wrong in the science? It's no longer that discussion and it's now a discussion of like here's your labs, you're low on all these nutrients, and you're here because you're having these health problems and I can explain to you the link between being deficient in these nutrients and having the health problems that you have.

You can usually kind of ease them into really gently – You got to be so gentle to not offend and alienate them. But a lot of times they'll be willing to start with a supplement. It's like, "Okay, we're not going to change your supplement," but then here's what they'll do, is they'll go away

from that. They won't say much usually at first, and they'll go away from it, and I'll drop some little hints, like, "Yeah, here's a list of some foods that have zinc or that have B12 or omega3 fats," and then they'll kind of go away and they'll kind of cook on it and then they'll come back at the next appointment and they'll say, "Hey, I decided to start eating some eggs or something like that." It's kind of like you got to really [inaudible 00:13:43].

[00:13:44] AVH: Baby steps. Yeah.

[00:13:45] ES: Yeah.

[00:13:46] AVH: Something I've been noticing being very entrenched in this world and all the people who are sort of sharing and disseminating their information via social media, which seems to be one of the more prevalent places that people do that these days, and I am starting to see this trend. I get it. No one's perfect and none of us – I think most of the people out there on any side of this health and fitness and nutrition coin aren't trying to be malicious and they're not trying to hurt people, but there tends to be this movement towards like making the people on the other side either feel stupid on one side or maybe unethical on the other depending on which side of this coin you're looking at. I really feel like it's the first time that we're really attaching like a lot of either morality or intelligence to the way we eat. Ultimately, we have the ability to make the choices that we want to make, and I think that trying to convince people by making them feel bad is a really stupid way forward. I get it. Because sometimes like you're even kind of – Like maybe you're joking or maybe you get frustrated or maybe you're tired of seeing misinformation out there and that's sort of how people react.

But as we know in the weight loss industry and the diet industry and any related industry is that shaming people or making people feel bad for what they believe or what they're doing literally doesn't work. Maybe if it worked, we would condone being kind of nasty if it actually worked. But it doesn't. We just have to figure out more ways to just put clear information out there or maybe even taking a step further back and trying to just encourage open-mindedness in any way so that people are more open to even hearing things that are maybe contrary to what they're already believing.

Because I got to say, anybody who knows me knows like I'm paleo through and through. I love

it. I'm very meat-based paleo. I really, really advocate strongly for healthy, high-quality animal protein, but if I found like irrefutable evidence that came out tomorrow somehow that shows that all plant or all animal protein or all animal sources are terrible for you and we should all be eating raw vegetables, like I'd look at it. I would consider it. I would try it. I would experiment with things if the evidence and the real science-based sort of facts are out there. That leads me, I suppose, I'll get off my soapbox here.

[00:16:16] ES: Yeah, it's good.

[00:16:17] AVH: Thank you. Kind of lead into a little bit the work that you do with the magazine, because you have a column in every single issue that is basically a research roundup and you kind of talk about maybe some like recent research that you found or that has come out that is relevant to health and wellness or nutrition in some way and you kind of lay it out and then synthesize it for people. Can you kind of talk a little bit about how that came to be and the work that you're doing there for the magazine?

[00:16:44] ES: Yeah, I can. I think because I have the same soapbox as you and I think we do need to – I think, ultimately, the reason why you and I both are interested in this work is that we, of course, have our own journey, but we want to help others on their journey. I've seen the same thing as you, is like the way you're going to convince people to think about a different approach is by sharing a positive message and, like my opinion, sharing the science. Because if it's just one person sharing their story on Instagram after the other and the story is conflict, you have no way to separate the wheat from the chaff there. It's one person's word versus another. So, I'm excited.

The Research Roundup already excited before I started writing it, but I'm always was excited about it because I like the Paleo Magazine. It's getting down to the science and sharing that, because that's something that takes it out of just like my experience versus your experience. It's what the science is. But science is not something that everybody can just – Is born being able to interpret well. It takes a lot of experience and training to know how to read and interpret a scientific study. The devils in the details, man. I'm sure you've seen it a lot of times where people will misinterpret science or try to use it to say something that it doesn't say.

It's my just one little way that I'm contributing to and my hope to contribute at least to the ability of people who are advocates of an ancestral diet to have some leverage that's accurate and science-based that they can use for their own good or share in conversations with other people.

[00:18:23] AVH: Yeah. All right. Well, before I guess I kind of dive deeper on maybe some specific questions, can we talk about – Right now, the issue that's out is the February-March issue, which is a women's health issue, which by the way I love. I love that this is something that more recently Paleo Magazine has been doing, which is having themed issue, first of all, which is cool, because then people who are sort of really into one specific topic can dive deep on it. But having this women's health issue I think is especially important because we know that I'm confident based on latest metrics that there are definitely more women listening to this podcast than men. I think just probably more women buying the magazine than men, and a lot of them are moms and people who have families, people who are always kind of trying to take care of other people and I like that this one is dedicated to helping us understand our physiology, because as much as we like to joke about it, it is more complicated than men's for the most part. There's a lot more going on hormonally. There's a lot more going on in terms of just our lifecycle, like different things happening at different stages of our lives and it's complicated. There's a lot going on.

We also know that we, women, very disproportionately suffer from autoimmune conditions. There's a lot. There's a lot there, and I really appreciate that they've recognized that and done this women's issue. I think that's another thing that will be great if they did it like maybe more than once, right?

[00:19:43] ES: Yeah, the annual women's edition. Let's push for the annual women's edition.

[00:19:47] AVH: Yes. [inaudible 00:19:48].

[00:19:50] ES: Yes.

[00:19:52] AVH: [inaudible 00:19:52] let's do this. Yeah, I think that'll be great. Anyway, if we could kind of actually drill down on two – There's two – And there's usually two, right? There are two studies that you cover per issue.

[00:20:04] ES: Yeah.

[00:20:05] AVH: Yeah. Let's talk about it. Do you have the magazine in front of you or do you want me to bring it up and then you can –

[00:20:10] ES: I have my summaries in front of me, and this one [inaudible 00:20:12] four. There's like two pages with two on each page.

[00:20:17] AVH: Yeah, look at that. I'm looking at it right now. Okay. Great. Yeah. All right. Well, let's do this. Let's start at the top. We're talking nutritional lifestyle intervention obese pregnant women. Talk to me.

[00:20:26] ES: Okay. Let's do it. Okay. I'm going to pull it up because I got all four of them here. This was a paper that lives a perspective randomized control trial. What that means is they took [inaudible 00:20:36] of women. By the way, just to your point on what you're just sharing, that's another thing about women, is that most science has been done on men. The vast majority of studies use men as subjects, because then they don't have the confounding variable of cycling hormones. So another reason to be excited about a women's edition, because you can only extrapolate so much to women if this study has been done from that side.

They had 639 women. They were from Europe and they all recruited prior 20 weeks of gestation from 9 European countries. Before they got pregnant, they were all overweight. Their main BMI was 34. They're actually technically obese. Then all over age of 18, average age 32. Two-thirds of them already had kids. Then to be included, they could not have established of diagnosis diabetes or a metabolic condition and they have to be able to walk 100 meters. Here's what they did, is they took the groups and one group got motivational interviewing and counseling across five sessions. Then they got pedometers and some bands and a printed handout. Excuse me. All groups got that, but then one group got healthy eating messages and another group got messages to increase their physical activity. There's just another group that got both.

Basically, there're four groups. One group is the control. They weren't told anything. One group is getting the messaging to eat healthier. Another group is getting the message to have more

physical activity, and then the fourth group is getting both. For what they measured, they looked at their fasting oral glucose tolerance, their lipid, the ketone and then neonatal c-peptide, which is an inflammation marker. Baseline before 20 weeks between 24 and 28 weeks. That's the second trimester. Then between 35 and 37 weeks.

Then here's what they found. Between 24 and 28 weeks, their [inaudible 00:22:39] was lower weight gain and the healthy eating intervention group and they found like more free fatty acid mobilization. Basically, that is like [inaudible 00:22:48] around like insulin resistance among that group. Then the group that had combined, the healthy eating and the physical activity had the most significant weight reduction of the two. There's basically like a synergy that they found between the group that got the healthy eating message and the physical activity message.

Then later, so 35 to 37 weeks pregnancy, there was, again, the best outcomes for the groups that had both the physical activity and the diet intervention. So when they actually looked at like the kids, there was not a difference in like the birth outcomes of the babies. So they didn't find that that was an impact. Basically, what they found is that like for these women who are increased risk of insulin resistance and like poor birth outcomes, when they did change their diet and their exercise during pregnancy, they did say like their markers improved especially when they got the combination of the two versus adjust the diet piece and adjust the exercise piece.

[00:23:47] AVH: This was more relevant to the mother's health and the baby's health is what you're saying.

[00:23:51] ES: Yeah. It wasn't really enough. I feel like what they really could have probably done in like a next study was start earlier, because they're not starting until midway through the pregnancy. So you only have 20 weeks, really, or less than 20 weeks. So they cut it off at 37. It probably just wasn't really enough time for them to see like the changes in like the fetal outcomes. Other studies really have shown that diet and exercise can significantly improve fetal outcomes and like [inaudible 00:24:19] risk factors with gestational diabetes is large for just gestational age. They have like a large baby and then the birth outcomes that come with that can be like a C-section or the baby is insulin resistant, increased risk for that. Child later developed type 2 diabetes. [inaudible 00:24:33] right direction but probably just like a little bit too little too late to like show actual change of birth outcomes.

[00:24:41] AVH: One thing that I want to mention here too because you're the person who can intelligently sort of synthesize and understand this information for the rest of us, which is why you're doing these research roundups. But for somebody who – I'm following what you're saying. I'm understanding, I read these, I get it, and I think people who maybe read this particular study might think like, "Oh! The people who exercised more and ate better ended up healthier. Why did we need a study for that?"

But the reason we need a study for that is exactly the conversation we were having previous to this, which is that people kind of now feel like they can say anything and anything they can find some research out there or "research" to backup whatever claim they want to say, and we are living in a world where people can debate one side or the other and literally use the same research in some cases to prove both of their points. Like we're in this place where research, even like cold hard facts are sometimes hard to understand properly, right? I think that more than ever, we do need clear research-backed information that shows that things like, like I feel like I shouldn't have to tell somebody that eating less processed food is better than eating more processed food, right? But we're in a day and age where we literally don't know what's good or bad or right or wrong anymore, because there's so much out there. There's so much information. I'm sure, there are people in the internet that – There's the whole like if it's fits your macros crowd, right? Which are like [inaudible 00:26:16] the same as a steak as long as you're [inaudible 00:26:20] calories. Yeah.

I'm sure there are people out there who think that like science and technology in creating Frankenfoods like twinkies and soylent is better for us than eating salads. There are probably people out there who think that, right?

[00:26:35] ES: Right.

[00:26:36] AVH: In this world, we do need research that shows what we in our deepest sort of hearts and brains probably already know, but we need that these days. I think that stuff like this is still important. I think another thing that's important as I was listening to you explain this one is also knowing what the flaws are or what the issues are in a study. You can look at something and say, "This provided some pretty significant information that would lead to XYZ outcome,"

but it's worth noting that maybe in another study it would be better if this happened or we did it this way or this was changed.

The fact that you touched on like they only really started sort of paying attention like halfway through the pregnancy, that's significant, right? I think it's important to be able to parse through that stuff too and see like what was done well and what wasn't done so well in any particular study.

[00:27:30] ES: Exactly. Yeah, you got to look at the limitations, for sure.

[00:27:34] AVH: Yeah.

[00:27:34] ES: Yeah.

[00:27:35] AVH: Okay. Do you want to go on to the next one? This one looks like it starting to get like pretty – You're going to have to really dumb this one down for me, the association of maternal iodine status with child IQ.

[00:27:46] ES: Okay. Yeah. This is such a good one. Yeah, I can totally summarize this one for you. It basically – It was a meta-analysis. What that means is they looked at, in this case, three different studies and they're using statistics to combine the three studies into one big answer that's theoretically then a better answer, because the more subjects that you include in this study, the more accurate the result is. They ended up with 6180 mother-child pairs in this case, and basically what they're looking at is when mom has low iodine status, is there an impact on the child's IQ later in life, basically.

They did find, just to really, really summarize this, they did find a significant association, which what's really important to know is that other cohorts, 61.4% of women were iodine deficient. It's not like, "Oh, yeah. Iodine deficiency matters for that fluke woman that's iodine deficient and out in the middle of some island in the middle of nowhere." It's like, "No, this is 61% of these women were iodine deficient."

Then what they basically did is they like correlated with levels within the children's IQ later from the range between 1-1/2 and 8 years of age and they measured both verbal and nonverbal IQ. What they basically found was there was no association. Another important thing on this is like iodine is really critical for thyroid health. So they also wanted to look at thyroid function to see like, "Okay, if iodine is low, then could it just be like thyroid problems that could drive any change in the IQ?" They actually found that that was not the case. There was no association between like thyroid status and the changes in IQ. It is iodine specifically that's having some kind of action on the IQ.

Basically, between the two types, verbal and nonverbal, and the nonverbal IQ, there was a positive association between the maternal iodine status and the nonverbal IQ that was not statistically significant. What that means is that, yeah, when the mom had better iodine status, the kids tended to have higher nonverbal IQ, but it didn't meet the criteria statistically to say that there's a 95% chance that that's actually true and not just noise among the data. It's correlation, but it's not statistically significant.

But then on the verbal IQ side, they actually did find a statistically significant difference, where if the mom had health iodine status up through 14 weeks of gestation of her pregnancy, so basically like the first trimester, then the child's main verbal IQ was 5 points higher and then it was 3 points higher during the week of 12 to 14 weeks of pregnancy. That first 12 weeks is the most important, and then weeks 12 through 14 is also important. Then after the 14 weeks of pregnancy, they no longer found that significant association. Iodine matters and it matters like the first trimester, basically.

[00:30:49] AVH: Okay. Could we just have a moment for how frustrating it is that so many of the health and lifestyle factors of a pregnant woman it matters the most in the first trimester when like people don't even know what the hell is going on? They don't even know they're pregnant halfway through? Do you know what I mean? I've always thought about – I've been scared about it, because I'm like it's not like I lived such an unhealthy life, but I barely even drank, but I have like nightmares around like finding out I'm 10 weeks pregnant and I'm just like I was just like partying in Costa Rica for two weeks. What? You don't know. I guess, if you're paying attention to your body, you probably usually can get some signs that things are different and something is happening, but it's scary. How important that first trimester is, right?

[00:31:29] ES: Right. It totally is. My frustration is that I will see women who have gone, for example, they'll go into their primary care provider to get taken off of their birth control because they want to get pregnant. Then later they get pregnant. By the time you go in for your first appointment and you're getting prescribed at prenatal, you could be 7, 8, 9 weeks pregnant. At that point, they're 5 months behind because I really have women start three months out when they conceive with their prenatal nutrition. Now they're already almost two months pregnant. It's a missed opportunity. I wish when they would go into that appointment to get taken off of hormonal birth control, I wish they would be given a good quality prenatal and more all the way at that point, but that never happens. They'll come in and see me already pregnant and they haven't been started on anything. So, it frustrates me.

[00:32:21] AVH: Yeah. What are some ways that we, all of us listening, can start getting more iodine in our diet, because that's probably another one? We're all still worried about do we have enough fat or do we have enough carbs or do we have enough vitamin D? We're probably not thinking about iodine most of the time.

[00:32:34] ES: Right. Who things about it? Actually, iodine deficiency is on the rise because people are pushed to like sea salt, natural salt, which is great. Yeah, there are some minerals in sea salt and people don't like the idea of things being added to their foods in a way that if you get a conventional salt as iodine added, that's in a way a processed food, right? Because they've added the iodine to the salt and so people shy away from that and so it will generally get a more of like – We think of the more like well-educated, like higher income woman who's kind of thinking that way with sea salt and trying to avoid like, "Oh, I don't want to get just the iodized processed salt." That actually is probably what is believed to be one of the main reasons of iodine deficiency is on the rise.

I do have people mix their salts. Then I also have people – There's a lot of iodine in sea vegetables. If anything, I just try to have people go get eat sea vegetables. You can get nori seaweeds, seaweeds, any of that on a regular basis, that really in my opinion the best way to go.

[00:33:37] AVH: Okay, cool. Is there a way – Now I'm freaking out because I only use sea salt, but I do like –

[00:33:42] ES: Ah, girl!

[00:33:43] AVH: I do like my seaweed though, I do like my sea vegetables. There's hope for me there.

[00:33:49] ES: Yeah.

[00:33:49] AVH: But how do people know, and maybe there isn't answer to this, because one of the things that makes a lot of these vitamin or mineral deficiency is so tricky is that you don't necessarily – You can't really tell, right? Is there a way for someone to tell or are there any symptoms that you can pay attention to that would maybe indicate that you're iodine deficient?

[00:34:11] ES: Sure. Yeah. The top things I'll think of is anything that would indicate to me as sluggish thyroid because of that really tight – Iodine is really critical for healthy thyroid function. It could – I am sure like people think of the obvious things, like unexpected and unexplained weight gains, fatigue. It can be also things like dry skin, low libido. It can be thinning of the hair, things like that.

[00:34:38] AVH: Interesting. All right. That's very, very interesting. All right, let's move on to the next one. We've got the effect of physical activity on a reproductive health outcome. This one is similar to the first one, but different and that we're talking about women's ability to get pregnant, right?

[00:34:53] ES: Yes. Yes, exactly. Yeah. This is looking more fertility nutrition. This is a systematic review and meta-analysis. So just like the last one, they're taking multiple studies and combining it into one better answer that's one meta-analysis will stand stronger than one individual study on its own in a sense that it's a combined answer for multiple studies. It's like multiple people agree on something. You're going to believe it more than just one random person saying that basically is the idea.

They combined 18 studies in this paper and then these are women who had PCOS, polycystic ovarian syndrome. A lot of these women struggle with their fertility. It's common for them to have challenges with being able to become pregnant and carry a pregnancy to term. What they measured was pregnancy in live births. Pregnancy with fertility treatments, improved menstrual regularity, conception rates and PCOS symptoms. Then across the review, obviously there is like slightly different methodologies and like things that were done in the different trials, but there were some big takeaways that they were able to find in it, and one was that basically when they improved physical activity in these women with PCOS, then 52% of those women were able to become pregnant as compared to only 23% women who didn't improve their physical activity.

Women with PCOS, 23% can get pregnant. But then if you get them to exercise more, significantly more than 52% can then get pregnant. Then another big takeaway they found was that if they did weekly sessions with a kinesiologist and a dietician against standard fertility treatment, then the spontaneous pregnancy rate was a lot higher in the diet and exercise group. In the diet and exercise group, there was a 50% rate of spontaneous pregnancy, whereas in the group that was getting fertility treatment without the diet and exercise intervention, there was only a 12.9% rate of spontaneous pregnancy. That's a huge difference. It took 12% to 50% just with diet and exercise.

[00:37:03] AVH: That could be a positive or a negative thing depending on whether you want to spontaneously become pregnant, but that's an interesting idea though. I mean, again, when you think about it, like this makes sense. If you are a healthy, well-functioning human who are much more likely to be fertile and for this stuff to happen, right? If you have more stress or more kind of issues that your body is having to deal with on a daily, monthly, yearly basis, if your body is going to be less primed to be like, "Yeah, sure. Let's get pregnant." We've got all these other things we're worried about, but let's add that to it. Whereas if you're pretty sorted out, it seems like in you're a much better situation.

[00:37:42] ES: Yeah.

[00:37:41] AVH: One of the things I wanted to ask you about with this study when we think about it, because there's some – What I would consider I think significant findings in this study, but what exactly – Like when you hear the term like statistically significant, right? What does

that mean? Because a lot of times when we're looking at research, we're not looking at like there's a 90% increase in something, something from the study. We're often talking about degrees or just a couple kind of percentage points or like little tweaks here and there and we're really kind of drilling down. Sometimes it's definitely more than that, but what constitutes something being statistically significant versus like there's not enough of a change or an improvement here for it to really matter.

[00:38:23] ES: Sure. Yeah. [inaudible 00:38:24] hopefully my grad school statistics instructor isn't listening. I'm sure that I could have explained it better back then. Basically, what they're looking at is, okay, when you have an average, then you've got a bell curve around that average. Like in this example, they're saying, "Okay, we have this group that did get diet and exercise and 50% of those women were able to get spontaneously pregnant that were previously having infertility treatments." Really, that's an average, and like among that group, you're going to have a bell curve. You're going to have people who are like a standard deviations above or below. As you get to the tail end of that bell curve, you're going to have smaller and smaller numbers would fall into that finding, right?

Then they have a second statistic where that's like the change, right? The other statistic and next example is 12.9% and there's going to be a bell curve around that 12.9%. Well, they use these mathematical equations to figure out, "Okay, based on how high and how wide that bell curve is, what is –" It's called a P-value, is what is the chance that with all the noise and that static in this data that actually our average is not actually different between these two groups. Okay, what is the change is just a fluke? You'd go outside ten days and it happens to be raining two days. You wouldn't say that like on any given set of 10 days, there'd be two days of rain. It could have just been a fluke that there is two, and if it's the middle of summer, you just have like a fluke two days of rain. It doesn't mean it actually rains two days out of the summer. They used math to basically figure out what are the odds that that was a true different between those average and those bell curves versus not. Then the P-value is something that like the scientist and the statistician set, and it's usually less than .05, which is 5%. What they're saying is like if we find with our mathematical equations that we're 95% certain that these averages really are different and it's not just a random fluke difference. We had some random days of rain, then we're going to say that's statistically significant.

We believe in our change versus if the P-value is not less than 5%, if it's like more than a 5% chance that the averages were just a fluke difference, then they'll say that's not statistically significant. In this example, maybe it just so happened that it just was like random luck that more of these women happened to get pregnant that were dieting and exercising, but it wasn't actually because of the diet and exercise. Then they it's statistically significant, they're saying that according to the math, there's a 95% chance that it's not random luck. It's actually because of the diet and exercise. Does that make sense?

[00:41:23] AVH: That makes sense. That is very helpful. I think that's something that's just another part of the sort of understanding research that normal people like me never actually have explained to them. It's very, very difficult.

[00:41:33] ES: Yeah, like what does that mean? Yeah.

[00:41:36] AVH: Yeah. Cool! All right. Let's get into this last one, which I'm actually very interested in even as a non-pregnant woman.

[00:41:43] ES: Yeah, me too. Yes.

[00:41:45] AVH: Yeah. This is a big one. This is a whole conversation, like a road we could go down talking about parabens and sort of toxic lifestyle factors and skincare and everything that's in our house trying to kill us. Let's dive into this one.

[00:41:59] ES: Yes. Let's get some terrifying science going here.

[00:42:01] AVH: Yeah.

[00:42:03] ES: This is a perspective cohort study. That means they take a group of women and they follow them overtime and see what happens to them and then they see how those things happen to them what they're associated with. In this example, they had 420 women that were getting IVFs. They're having infertility treatment, in vitro fertilization cycles and their average age is 35 with the BMI of 23. That's a health weight. Speaking of like limitations though, is 83% Caucasian and then 17% black, Asian or others. Predominantly Caucasian subjects. 27% never

smoked. 63% of them had a graduate degree. 30% a college graduate. That's like 93% of them got a college degree or beyond. That's another kind of thing to keep in mind with this.

Basically, they looked at their urinary concentrations of these environmental chemicals, so BPA, parabens and phthalates and then they looked at their outcomes, so their IVF treatment. They looked at the total eggs that were yielded, their endometria wall thickness, their fertilization rate, the probability that like the embryo would implant, their actual rate of pregnancy, and then their live birth rate. Then they looked at at the baseline and then the clinical endpoints of the IVF treatments.

Then what they found was so interesting, because they detected toxins in 86% of women for BPA and 100% for MECP, which is like another one of the toxins is like basically that comes from [inaudible 00:43:40] and things like that. These toxins are in like 86% to 100% of these women basically. Then they found like way lower levels of them and the range – They kind of split the time up. They had the range of like 2013 to 2017 and the toxins were like way lower in that range than during the time between 2006 and 2012. Then they found actual different outcomes.

In that more recent time from 2013 to 17, they didn't find really much association between like the toxin levels and the success of the IVF treatment. But then during those earlier years where the toxins were higher, they did find an impact of the toxins on a success rate of the IVF, is that makes sense.

I'm going to read to you like the actual numbers here. During that higher period, there's significant decreases in implantation, clinical pregnancy and live birth especially in the highest quartile, so the highest 25% of subjects, and that most toxic quartile had a 22% lower probability of implantation, 24% lower chance of pregnancy and a 38% lower chance of live birth compared to women in the lowest quartile. Pretty big, especially considering, one, like how much people have to pay to get IVF, and these are big numbers. But just also, okay, if this has that significant impact on their fertility and their success with caring a pregnancy to term, there's obviously going to be, like you said, other physiological effects that are not pregnancy and birth related for other people. I mean, that almost goes without saying, but you'd have to kind of assume that I think.

[00:45:23] AVH: Okay. Yeah. This one is sort of a big one, and I like that you kind of mentioned specifically other limitations being stuff like who you're studying obviously. We know, you and I know very well that most studies are all men and have nothing to do with us and it's super frustrating. But to dig down even deeper in terms of like socioeconomic status and race and age and all kinds of things like that that we need to pay attention to. I think with this one specifically, like talking about not even necessarily for reproductive women, but just the topic of non-toxic household items and materials and cosmetics and stuff like that. It's one of those things where there's so much about like the education component, like people – I'm sure there are a lot of people out there, most people probably know whether they're conscious of it or not, that like, for example, eating McDonalds isn't quite as health promoting as eating like a homemade salad. Most people, whether they feel like they can afford better quality food or not, like know on some level what's generally healthy and what isn't.

But I know that there's a very large portion of people who – And this was myself, not for a large part of my life, that never considered the ingredients going into your makeup, for example. That never considered that the stuff we used to clean our house is toxic. We don't know this stuff because we're not really being taught. Then when we are, it's like talking about it like it's this expensive stuff that normal people can't afford, which isn't necessarily true because there are so many companies coming out and promoting nontoxic products and there are things that you can make for yourself at home. There's all these stuff, but there's so much of an education component around stuff like this that, again, I guess it just goes back to what we've been talking about this whole conversation where instead of maybe like trying to prove people right or wrong or trying to convince people of anything. It's just putting out more information like this that people can even think like, "Oh, I never even thought that storing my stuff in plastic Tupperware wouldn't be great." Do you know what I mean? I would never have even thought about that.

[00:47:24] ES: Yeah.

[00:47:25] AVH: I think stuff like this is just super, super important for that –

[00:47:29] ES: Totally.

[00:47:30] AVH: Yeah.

[00:47:31] ES: Yeah. I think about too, I mean, we know that the toxic load is even higher for people who are less privileged. If these women who are highly educated, Caucasian women who can afford IFV, if they're this toxic to be having significant impact on their fertility – I mean, I think about people who even struggle more with their toxic burden. Like you said, the awareness piece is not where it needs to be. I think people just kind of assume the government has their back. If a company is allowed to make a product, that's got to be safe. We need to get the word out that that's not the case. Then like you said, people – Hopefully, how people understand ways to do it in a more affordable way. You can, like you said, use simple things that you can even make from home instead of buying things that are full of these toxins.

[00:48:22] AVH: Yeah. This is kind of aside, but just because we're on this topic, and I'm just going to selfishly ask you because you see so much of this work or these studies. Is there any definitive research out there that shows in terms of like detoxifying some of these lifestyle factors? Obviously, there are steps you could take every day in terms of, like I said, get rid of like the plastic in your home and try to buy like nontoxic cosmetics and skincare all of these things. If you're walking around with a certain toxic load, as I'm sure we are all, and I have read from various different places that most of those toxins are being stored in our fat. That's sort of like, I guess, yet another incentive to maybe not carry around excess fat.

[00:49:04] ES: Yeah.

[00:49:04] AVH: But is there any research about like sauna use or even exercise or any kind of active or passive sweating in terms of releasing toxin? Because there's so much talk about sitting in a sauna will help you detox and it will help you sweat out toxins. I feel like there's got to be some research somewhere that's pretty compelling in that area or also it wouldn't such a pervasive conversation that people are having. But do you know of anything about that in terms of just simply sweating out some of these garbage that we're taking in?

[00:49:33] ES: Yeah, that is a thing. I think where I've struggle to find as much as science is like if you already sweat via exercise, I have not been able to find a lot of added or a lot of science to say that there's added benefit to then also you need sauna on top of that. I'm not sure that

there is an appreciable difference between like sweating from exercise versus sweating in a sauna. But there is absolutely evidence that we detoxify environmental chemicals, heavy metals, micro-toxins to some degree through our sweat.

However, in my opinion, that's not hugely enough for someone who is highly toxic. We'll also do things around diet and supplements and all these reducing exposure as a part of like a full plan. But generally, I'll be more heavy on like the sauna recommendation for someone who's like so unwell that I'll get these people where they're so toxic and so unwell that they just can't exercise to the point [inaudible 00:50:35] sweating. That's the person where it's like, "Yes, we've got to find a way to help you sweat." But I think for people who are exercising, I don't generally push it too much.

[00:50:45] AVH: Got it. Okay. Where do you find or how do you find the studies that you talk about in the magazine?

[00:50:54] ES: That's a good question. My top go-to is a website called Pub Med. I also have alert set up in like Google research for certain keywords and things like that [inaudible 00:51:07] I think called Research Gate where you can also do topical searches. But those are my top things. Any published peer-reviewed paper goes into Pub Med. That's where it's important to be getting your science from peer-reviewed literature, although there are flaws and problems with research at its core and how it works. If it's not a peer review journal, it's just people publishing their opinions without any peer reviews. The peer review is like the critical thing of people [inaudible 00:51:38] have no invested interest. They haven't done the research. They're not getting paid. They have actually an interest in the quality of the publication to ensure that if they're the peer reviewer for the publication, they want the publication to be esteemed and to have good science in it. Their bias is actually not [inaudible 00:51:56] unless you can show that you've done good science.

That's why I used peer-reviewed papers and generally will look at Pub Med for keywords. Then Cain, actually, the editor of Paleo Magazine, he really – I don't know. I'm not sure what he does, but he'll send me articles.

[00:52:14] AVH: [inaudible 00:52:14]

[00:52:16] ES: I think he does. Yeah. He sends me papers sometimes, “Erin, can we put this in the Research Roundup?” Sometimes I’ll look at it and say, “Yes,” and sometimes I’ll look at it and say, “I’m not sure if it would be the best one.” Yeah, sometimes he likes to pick, but then basically I’ll go in and I’ll look for maybe, like you said, a little bit selfishly, I’ll often look in the topics. I’ll for ancestral diet papers, paleo diet topic and then things that I’m interested. Like if on a kick of being interested in intermittent fasting or ketogenic diets or whatever, maybe I’ll look for papers on that and then see if it’s a good candidate to be summarized.

[00:52:54] AVH: I’m glad that our editor is a nerd and just constantly reading [inaudible 00:52:59]. That’s like the best thing we can hope for.

[00:53:01] ES: It totally is.

[00:53:03] AVH: Anybody can access Pub Med, right? I can go on to Pub Med and like look at stuff.

[00:53:07] ES: You totally can. It will share the abstracts. Then with some, you can download the full text, and with some you cannot download the full text, but you can at least get the abstract.

[00:53:18] AVH: Okay, got it. Sort of as we’re kind of wrapping things up here, I’m just kind of asking you some like rapid fire questions about your work and how this works. But how did you learn to read this kind of research and like turn it into a summary that average people can understand? Is this just something that comes from being in this world and obviously you’re educated in your profession? But like was there anything in particular that you did to sort of learn how to understand this stuff or is it just from like sort of hours put in doing it?

[00:53:53] ES: I’m really fortunate in the sense that I kind of – This is just complete accident, but I went to do a master’s of science with a thesis after my undergraduate degree in integrated physiology. That’s kind of on the path of – That’s the way you’d go if you’re going to go your PhD, you’re going to be a scientist and you’re going to teach science.

During that time, I really have like a steep learning curve with learning graduate level statistics and scientific writing. When you write a thesis, you were like writing a scientific paper basically, and reading papers all the time. I was able to do that. But then I switched and became a clinician.

I mean, to become a clinician, I think that's the other critical component of the recipe, is you need to be working with every day people and understanding where their heads are at and how much they know and what things they're interested in and what level they can understand things at so that you can have on the one side be able to read the paper, but then on the other side, be able to turn it into something that makes sense to just the everyday person.

What my work with people all the time in my practice, that kind of gives me that second part of the recipe to be able to understand how to – That's what you do in clinic, right? You explain the science to people in a way that they can understand.

[00:55:11] AVH: Yeah. That is really important. I'm very glad that you have access to sort of both of those sides. It's really on a similar level the same with the same podcast where like I seek out guests and topics that I'm interested in, because I'm selfish, but also because I'm constantly asking listeners. I'm constantly reading the magazine and looking on social media and seeing what's trending and seeing what's going on and asking people, "What's interesting to you?" That's why I did probably 20 keto interviews last year and I was like, "Did I talk about keto again?" But people were interested in it, right? You try to approach it on different angles and ask different questions and talk to people with different experiences. Yeah, I think it's equally important to find out what people are struggling with, what they're interested in, what questions they have. Then that can go and form the work you're doing in this area. That's very cool.

I'm so glad we got a chance to talk and go through some of these stuff, because I've read your work for so long in the magazine and I think it was – Yeah, I mean, it's just so overdue to actually sit you down and kind of talk about what you're doing, and I really appreciate the hard work that you're putting in to the magazine, because I think it's really important.

[00:56:19] ES: Oh, thanks, Ashleigh. Same to you. I mean, I'm a total fan girl. I've been loving listening to your podcast forever. It's like a celebrity sighting. Thanks so much for –

[00:56:28] AVH: I love it. Are you going to be listen to this episode when it comes out though? Because –

[00:56:32] ES: Oh, I don't know. I don't like to listen to myself.

[00:56:35] AVH: I hear you. Listen, I barely listen to these podcasts. I'm like, "I was here the first time." I do not need to listen back to it.

[00:56:42] ES: I don't listen to my own. It's hard enough just to edit my own.

[00:56:46] AVH: Yeah, I hear you. Where can folks – Can people, if they want to talk to you or connect with you or become a client, is it not possible? If you're not doing online one on ones anymore, do people have to come in physically into the clinic?

[00:56:59] ES: I'm actually licensed still in United Kingdom also. I take virtual clients from the UK and from the United States. It goes on and off whether or not I have a waitlist, because I have limited availability. But right now I'm not waitlisted and, yeah, they just find me and we do virtual consults, unless they're – Hey, if they're near Sacramento, then we meet in person. That's a treat.

[00:57:18] AVH: Awesome. Very cool. Where else can people go online to connect with you either on social media or your website? Where can people find you?

[00:57:26] ES: Sure. My website is Real Nutrition RX. Then my website is just erinskinner_rd. Then the podcast, you can find it on the website. So just Real Nutrition RX/empowered nutrition is the name of it.

[00:57:45] AVH: Awesome. Very cool. All right, Erin. Thank you so much for your time. So you're going to come back. We're going to try to do this with every issue. So you're going to

come back hopefully if you're willing, regularly, so we could talk about the research you're doing and nerd out.

[00:57:56] ES: Heck, yeah. I love it.

[00:57:58] AVH: Awesome. Thanks, Erin.

[00:57:59] ES: Thank you.

[END OF INTERVIEW]

[00:58:03] AVH: That's a wrap for today, folks. I hope you enjoy it. I hope you got a lot out of it. I appreciate you listening, as always, and I would love it if you could share this episode or this podcast with someone who may be hasn't listened yet. Maybe thinks it's not for them because they're not paleo, whatever that might mean to them.

If you could share this someone who would benefit from it, that's the whole point of this podcast. It would mean a lot to me if you could do that. I would love it if you could leave a review for me. If you go to paleomagazine.com/podcast and you go into any of the show notes with any of these episodes, first of all, you could see all the discounts and special offers we're giving you. Also, there's a form you can fill out where if you leave a review and click a box, you can get enters to win a free cookbook.

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That's that. I hope you join me next week. I actually have a very, very OG paleo person coming on the podcast. I'm going to tell you who it is. I'm super excited. It's another one of those like how have you not have this person on the podcast yet kind of situations. But she is amazing

and I'm super, super pumped to talk to her. She's like a pretty big deal in this world. Kind of fan girling a little bit.

Anyway, join me next week for that. Make sure you subscribe. Share if you can and have a great week everybody.

[OUTRO]

[00:59:39] AVH: The intro music for Pentium radio is a song called *Stronger*, performed by AlterEgo, and I hope you love it.

[END]