

The Every-Other-Day Diet:

A Special Interview with Krista Varady

By Dr. Joseph Mercola

DM: Dr. Joseph Mercola

KV: Krista Varady

DM: You don't have to diet every day to lose weight. Isn't that a compelling concept? Hi, this is Dr. Mercola, helping you take control of your health. Today we are joined by Krista Varady, who is an associate professor of nutrition at my alma mater, the University of Illinois in Chicago. She's written a book, *The Every-Other-Day Diet: The Diet That Lets You Eat All You Want (Half the Time) and Keep the Weight Off*, and she's going to help expand on that concept. Welcome and thank you for joining us.

KV: Thanks for having me.

DM: You may want to open up and mention that you are a few months away from delivering your second child.

KV: Yes.

DM: It's not a weight issue; it's a bringing-life-into-the-world issue.

KV: Yeah. Exactly.

DM: You're really grounded in academic science. Maybe you can tell us a little bit about your training, why you decided to go into nutrition, and what prompted you to write a book on this topic.

KV: Sure. Basically, I wanted to do a PhD in the area of calorie restriction and fasting, maybe because I was looking at... Well, I kind of want to find out: do you really have to diet every single day to lose weight? I was looking at calorie restriction programs; I noticed that people just weren't able to stick to calorie restriction programs for more than about a month or two. Everyone just kind of dropped off of their diet.

DM: If they did, it would work.

KV: If they did, oh yeah.

DM: The problem is they can't do it.

KV: Oh, yeah, the problem is people can't do it. I thought: is there a way to kind of manipulate that eating pattern or something that will allow people to maybe stick to that kind of dieting for longer? I thought, "Do you have to diet every day? Is there a way that maybe you could diet every other day?" That way you can always look forward to the next day, where you can eat whatever you want. Maybe that would help people kind of stick to these diets for longer. I started doing research in that area.

DM: Was there another research that prompted you that? Or was it an independent thought? How did you come...

KV: There were some other studies in this area that looked at complete fasting every other day. I noticed that...

DM: What's your definition of complete fasting?

KV: Complete fasting is just a water fast 24 hours, midnight to midnight. There were two studies before. I thought it was really interesting. But then I was reading the compliance state for that, and people just couldn't stick to that either for very long. I thought, "Why don't we kind of manipulate it where you can actually have a meal of, let's say, about 500 calories, you know, kind of like a typical meal for someone, to break up that long period of fasting in the day?" It would really be modified fasting, I guess. What I've contributed to this field is really this modified alternate-day fasting or modified every-other-day dieting work for weight loss.

DM: The program you're proposing, would it make a difference whether you're consuming that 500-calorie meal toward one end of the other or in the middle of the day? Does it make a difference?

KV: That's a great question. We originally started with a mouse study just to see if it worked in mice. We actually just fed them at noon just because it was easiest for us as scientists.

DM: Sure. It's got to be easy for the researcher.

KV: Yeah, totally, because that's what I intend to do. And then when I started doing human studies, it kind of just translated directly into a lunch for the subjects. I also thought that for people, it might be a little bit easier to break up the day right in the middle, whereas I thought maybe if you have that meal as a breakfast, it would just be too long of a time after breakfast and people might cheat more. And maybe if we had that meal as a dinner, it's just too long to go without eating. The lunch was a nice time to break it up.

We have on our study, which we just finished actually a couple of weeks ago, found out that people can actually have it as either a lunch or a dinner. They can stick to it quite well. It doesn't work if you split it up into multiple many meals. Again, it's 500 calories.

DM: The total would be 500. But when you split it, it doesn't work.

KV: Yeah. In terms of compliance, what happens is if you're having, let's say, three many meals of like 150 calories a day, people tend to cheat more. It's just very difficult to have like a yoghurt in the morning with a piece of fruit for 150 calories and then not want to have more. We noticed that our subjects, when we only gave them kind of small bits of calories throughout the day, would eat more than 150.

DM: It's logistical and practical implementation challenges from that perspective.

KV: Yeah.

DM: But if they weren't able to overcome that and circumvent that challenge, do you think they still would lose weight? Or are there other metabolic issues that would interfere with it that also contribute to the inability to maintain them?

KV: That's a great question. I think it's mainly about compliance. If you are just eating the 500 calories that day, you will lose weight. It's just kind of an "energy in, energy out" thing. We are, however, noticing the benefits of fasting, basically not eating. Say, if you're having it as a lunch, not eating anything in the morning and not eating anything at night, and having your body basically just be clear of food. It seems to actually result in better lipid profile changes and better blood sugar-lowering effects.

DM: What you're proposing seems to me to be in complete alignment with some Paleo perspectives or ancestral medicine, where we replicate the behaviors of our ancient ancestors, which tend to be the fact that none of them had access to food...

KV: Constantly.

DM: 24/7.

KV: Yeah, I know.

DM: They would cycle through this feast and famine mode.

KV: Exactly.

DM: Almost everyone today is in a continuous 24-hour feast mode and rarely ever has to go without a meal.

KV: Yeah, exactly.

DM: I mean, most people watching this. Obviously, there are people who aren't for financial reasons, but we're assuming they're in the minority of people viewing this. There are many people watching this who have not gone without a meal for years, decades, or longer.

KV: Yeah, exactly. People eat every two hours.

DM: Do you think that's a component that we're actually replicating, activating, or optimizing genetic pathways and biochemistry that really is based on this ancient path?

KV: Absolutely. I think it's basically ruder than that. I think that's why we can adjust to it fairly quickly as well. In general, it does... One thing I want to point out is it takes about a week or about 10 days or so to get used to the diet, to kind of that up-down pattern of eating. But it's amazing. Even though people struggle through the first week, they always say, "After a week, I had no problem basically just eating 500 calories every other day." I think it's actually ruder than the fact that we never used to have a ton of food available to us constantly. Yeah, I really think it ties into that.

DM: Now, some people use the concept – to explain this to others, because people like metaphors – that the vast majority of people are really adapted to burning sugar as their primary fuel because of this 24-hour feast mode that they've engaged in, which sort of downregulates the enzymes to effectively burn or utilize fat as a primary fuel. I'm wondering: do you think that this process helps people transition into [having] a better ability to upregulate those enzymes to burn fat as a fuel. Most people are getting around a lot of fat. But the problem is they can't access that stored energy.

KV: I think in general we haven't tested out actual metabolic changes. I'm not sure exactly if that would happen when you're allowing yourself to have that meal every other day. I think you would kind of kick more into your fat stores if you're doing more of a 24-hour fast every other day in general. Are you talking about like ketogenesis?

DM: Well, actually what we've been promoting for a while is a concept called intermittent fasting, which essentially has people restricting their calories to a six to eight-hour window but eating every day.

KV: Okay.

DM: Literally, the amount of time that they're not eating is probably close to 16 or maybe 18 hours, and that's it. But they do it on a regular basis. It seems to be quite effective to help them kickstart those.

KV: You've measured those enzymes?

DM: We haven't done the actual test. We've seen the results clinically.

KV: Wow, that's great.

DM: It seems to be a challenge for many people who have tried everything under the sun and they're not able to lose weight once they implement the intermittent fasting approach. Yours is a different variation of it. There's no standard way to do it. Because some people recommended... I think some British authors were saying you can fast... It's either fast for two days a week or five days a week.

KV: Yeah. I wanted to explain that, too. Intermittent fasting is an umbrella term. That really involves fasting a couple of days a week or every other day.

DM: Right.

KV: There's the 5:2 approach, which actually stemmed from my research when I did a documentary.

DM: Is that right?

KV: Yeah.

DM: It's really popular in the UK.

KV: Yeah, in the UK absolutely. People really like it, and it's great. I also promoted the book in the UK, and they were pretty responsive.

DM: What is it? Five days of eating and two days of fast?

KV: It is five days of eating and two days of fasting, where you have 500 calories.

DM: Like fasting on the weekdays.

KV: Yeah. I did a documentary a couple of summers ago. Basically, the BBC came around, and they interviewed a bunch of professors who were doing different types of intermittent fasting approaches. The host of the show tried all these different things. He realized that the easiest thing for him was to only do two days a week. He ended up losing I think like 30 pounds. [That] became very popular because there was a documentary.

DM: The host actually wrote a book on it.

KV: He did. Yeah, right after.

DM: It's very popular.

KV: Yeah.

DM: It's sold as well in this country. But it was really popular in Britain.

KV: Yeah, absolutely. That's definitely another type that's available. What you mentioned is scientifically referred to as time-restricted feeding windows. It's interesting I just wrote a grant for that. Hopefully, it gets funded.

DM: Oh, you'll work at it?

KV: Yeah. I'm going to test that out.

DM: What parameters are you actually going to be testing?

KV: The first thing I will look at is compliance, if people can actually do it. If they can do it, can people lose weight? And then kind of the major clinical endpoints – blood pressure, cholesterol levels, and all that. But it would be interesting to look at more.

DM: Can you do enzyme assays to see if these...

KV: Yeah, we can.

DM: Lipases are actually in fact increasing?

KV: Yeah, [that's] what I was thinking.

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DM: I wouldn't know how to do that. But I would think that there's so much you'd be able to do.

KV: There are stable isotope methods, where you can actually look at fat metabolism.

DM: Oh, great.

KV: Yeah. You can actually see what the body is burning.

DM: Terrific.

KV: We can move into that afterwards. But yeah. Definitely there's a whole bunch of different ways around it. I just really think people should do something that they can stick to. That's the main thing, you know – find something that you can stick to and as long as you can do it after you've lost the weight as well. Because the minute people stop doing it... If they can only do it for the period of weight loss, and then they stop doing it, obviously they're going to gain the weight back. It's just this yo-yo effect, which isn't great.

DM: One of the impediments or challenges that anyone applying this or who wanted to could be that one-week transition period.

KV: Yeah.

DM: Let's talk about that because I think that's really where the key is: surviving that or getting through that. You can offer some tips hopefully; I'm sure you have a few. What's going on in that transition period? I'm suspecting that it's this transition into more effectively being able to utilize fat and getting off of some of the psychological cravings. Maybe you can comment on what your thoughts are on what's going on.

KV: What we've seen scientifically and just from our research is that a lot of it has to do with the cravings. We've really measured appetites and that type of thing. A lot of people are just used to it exactly before just eating constantly. Not only is it actual hormonal responses, but I think it's just habit, you know, just being able to grab something. Most people eat just because they're bored really. I think a lot of it is psychological. I think that's what takes people a while to get used to. I think that's the main thing.

DM: Sure.

KV: And then in terms of actually helping people get through that, we always recommend, of course, drinking a lot of water. Because people will often think that they're hungry, but really they're thirsty.

DM: Interesting.

KV: There's that.

DM: Do you have any scientific support for that conclusion?

KV: There are papers on it basically showing that people are thirsty rather than actually hungry. But I haven't measured them myself.

DM: Okay.

KV: We also tell people that they could consume teas, coffees, and basically calorie-free beverages. We don't really want people consuming a lot of diet soda because that stuff's not that great for you. But generally, yeah, things that are calorie-free are fine. We also tell people to actually watch less television. Because you don't realize how bombarded you are with food commercials. Something like 60 percent of commercials are about food. If you sit down and watch something, and you're not hungry...

DM: If you watch the commercials.

KV: That's true. I guess you could put through or just like...

DM: That's why I put everything on digital video recorder (DVR) and fast-forward.

KV: Yeah, exactly. Because it's amazing; you'll sit down and not be hungry at all, and then all of a sudden, you'll want a pizza or something.

DM: They're not foolish. I mean, there's large volume of revenue and finances to be produced.

KV: Oh, absolutely.

DM: They've studied that very carefully.

KV: For sure. That's why most people will end up getting a snack within half an hour when they're sitting down and watching.

DM: That's a good tip. That's a really good tip.

KV: Those are a couple of things that have really helped people out.

DM: You know, what surprises me in your comment of one-week transitions is that's relatively small. I mean, I'm actually almost shocked to hear that. Because from my experience, at least restricting the calories – where people are eating every day but restricting it to an six-hour or eight-hour window – is that it takes a lot longer, maybe two or three weeks.

KV: Okay.

DM: In my view, it's how insulin-resistant they are, how many extra pounds they have, how diabetic [they are], or how high their blood pressure or high their cholesterol is.

KV: I see.

DM: The more insulin-resistant they are (and we can actually measure that, of course, through fasting insulin levels), the longer it takes to make that transition. I haven't worked on it with a lot of people, but my guess is its due to their ability to be compliant with it. Because once you go off, of course, you're not going to be with it. Do you have any thoughts on that? Or have you seen any comparisons between this form of intermittent fasting, where it's restricted to eating every day but within a smaller window, and the every-other-day method that you're promoting in your book?

KV: I wrote a review article recently on time-restricted feeding. Most of the science is actually on animals right now. The human work is all on Ramadan fasting, so religious fasting where people are not eating while the sun is up but they can eat while the sun is down. I haven't seen anything in relation to a diabetic status, but maybe that just wasn't measured. There are no direct comparison studies between...

DM: Interesting.

KV: Yeah, it's all...

DM: This is really early on.

KV: Yeah, absolutely.

DM: I mean, because you've really got a good handle on the literature. If there's a study being done or was published, you know about it.

KV: Yeah. That's why I wrote [inaudible 14:40] – because I realized it was all just observational studies about religious fasting. No one's ever had subjects come in and say, "You can eat within this six- to eight-hour window and control it." It's not...

DM: Because it has such an enormous influence on our health.

KV: For sure.

DM: No one has even looked at the basics.

KV: I know.

DM: It's so exciting. I'm really glad that you're taking the lead out there.

KV: Thanks. Hopefully, it gets funded so we can actually do it.

DM: You have a type of funding that typically is really more true science. It's relatively not biased or prejudiced by industry.

KV: Yes, from the American Heart Association (AHA) or National Institutes of Health (NIH).

DM: They certainly can have biased perspectives, and they do when there are pharmaceuticals involved.

KV: Yeah.

DM: We see a lot of the science that's getting published is really almost worthless because it's just being done really to sort of rubberstamp the... They know what the results are going to be before they even start the study.

KV: I see. Yeah.

DM: But you're more of a pure science and really trying to understand basic human physiology.

KV: And see, can people stick to things? I try to always measure the compliance first. Because if people can't do it, then why get into all kind of the elaborate biochemical measures? That's the main thing I look at.

DM: What are some of the side effects that someone might experience if they were going through an alternate-day eating pattern? Is it headache or nausea? What are the concerns?

KV: That's a great point. We have measured kind of the safety issues. A lot of the questions I have are "What happens?" There are some issues with headaches at first. That's the main thing that people report.

DM: Is that almost a universal side effect?

KV: No. I'd say it's in about 10 percent of people.

DM: Ten percent – it's relatively small.

KV: Yeah, it's really small. The main thing people don't like about it is feeling hungry.

DM: Okay.

KV: The psychological effect in the first...

DM: It's hard.

KV: Seven to 10 days people is that people feel... They feel hungry.

DM: Deprived.

KV: Yeah, deprived. That's the main thing that they feel. But then again, after 10 days, most people say if they kind of get through that hump, they're basically past that.

DM: I am just continued to be surprised at such a short amount of time.

KV: I know.

DM: Because the way I've been advocating really takes a lot longer, close to two to three weeks.

KV: With that time-restricted feeding? Yeah.

DM: That's been my observation.

KV: Okay.

DM: To me, from working with it personally and recommending it to people, the most profound epiphany of this whole process is the elimination of that hunger, the ability to have metabolic flexibility and freedom to control your food intake, and not having to rely on really poor processed food that we know is going to decimate your health.

KV: Yeah, absolutely. Sorry, to continue, the other part of your question was the other kind of safety concerns. There are also problems with regularity sometimes. To deal with both the headaches and regularity, we definitely recommend that people drink a lot of water. Because you usually get some amount of water from your food. If you're only eating 500 calories in a fast day, obviously you're getting less food and less water. Most of that is pretty much fixed with drinking about eight to 10 extra glasses of water a day.

DM: There are also two categories of individuals that many people believe are susceptible to complications of this. Those would be people who suffer from adrenal fatigue or stress, and women. I'm wondering if you have any perspective on that or concerns.

KV: With headaches?

DM: No, with engaging in this restricted eating or intermittent fasting, forms of intermittent fasting.

KV: Actually, most of the people in our studies are women. We have about 80 percent of women.

DM: Really?

KV: Yeah.

DM: Interesting.

KV: It's about 20 percent men. We actually haven't had many differences between men and women in terms of tolerability. I haven't noticed. In terms of pre-menopausal or post-menopausal, both seem to be able to stick to it just as well.

DM: And from your review of the literature and personal clinical experience, you haven't seen a problem with people with adrenal fatigue? Certainly, it sounds like there's not a sex difference.

KV: In general, we haven't measured like stress hormone levels and such.

DM: Well, just simple correlations – I mean, not specific measurements.

KV: No, we haven't actually.

DM: Inability to comply with it or side effects?

KV: In relation to that?

DM: Yeah.

KV: No. Maybe. We haven't measured it directly. Maybe that's something that if we took the people who were non-compliant, maybe that would be the issue.

DM: Okay.

KV: But we haven't measured it.

DM: There are some people who promote this and who advise concern in that area because essentially it's another stressor. And they're already stressed from adrenal fatigue, so that could make that problem worse.

KV: I see.

DM: Let's take this to the endpoints. The vast majority of people are overweight. Most of those people would benefit from this, with maybe the exception of adrenal-fatigued individuals. It sounds like women are going to be okay. But at some point, they address what I believe is their insulin receptor insensitivity. Their insulin and leptin levels are able to work well. They're optimized. They're in a balance. They're hungry but they reach their ideal weight. Do you think this is something that should continue on indefinitely? Or is there a maintenance phase? How do you address that?

KV: That's another great point. You're basically touching upon all the studies that we're running. Right now, we're running... Yeah, great, right.

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But that was one of my main questions. The first studies we really did: first of all, can people do it to lose weight? If they do, what are the metabolic benefits? And then now, we saw that over the short-term... Most of our studies have been about two- to three-months long. My next question was: can people lose weight over a longer term, say, six months? Once they've lost whatever amount of weight, usually around 50 pounds in that time range, what happens afterwards? Can people stick to this diet? That's the main question I get, "What should I do after?"

DM: Right.

KV: And so we have a study funded by the National Institutes of Health. It's a year-long study again where we have six months of weight loss with the every-other-day dieting, followed by six months of weight maintenance. We're actually comparing it to a traditional approach – calorie restriction and traditional weight maintenance strategies – where you eat just 100 percent of your energy needs every day.

DM: Okay.

KV: We're almost done with the study. What we're noticing now is that people can use every-other-day dieting for weight maintenance. However, you need to tweak it a little bit in that you reduce the fasting days down to three days per week, and instead of consuming 500 calories on each of those days you'd consume 1,000.

DM: You get a little more flexibility once you've reached your goals.

KV: Yeah. Most people will tend to lose. They'll still lose weight if they're only consuming the 500. It's a thousand [calories] three times a week. In terms of comparing it to daily calorie restriction, it actually does a little bit better. People in the every-other-day dieting group were actually able to maintain their weight a little bit better than people doing a traditional maintenance approach.

DM: It sounds like your primary suspicion for the reason for that is the compliance issue.

KV: Probably, yeah. That's what it is. Again, we're still running the studies. We actually have all these compliance measures. Right now, the main data that we have is just the body weight. We're not sure why it's happening. But I think...

DM: How do you measure compliance? Is it self-reported or are there some more objective criteria that you can use?

KV: We measure it in two ways. There are self-reports. But people who are overweight tend to kind of misreport by about 30 percent of their energy intake. There's something called doubly labeled water. It's a way of measuring respiratory quotient. I'm not sure how much detail you want about it.

DM: No, it would be good.

KV: But it's a way of... Yeah, stable isotopes.

DM: We don't even have to tell you we interview the experts in the field.

KV: You're looking at basically the amount of carbon dioxide (CO₂) out for the amount of oxygen in. We give people something called doubly labeled water, where we're actually labeling hydrogen and oxygen so we can measure that directly. That will actually tell us basically how many calories someone needs and then how many calories they've actually consumed.

DM: Interesting.

KV: It's all through like calculation...

DM: I didn't know this technology existed. That's fascinating.

KV: Yes! It's fairly new. We can actually... It's really interesting, too, to compare the food record data to the actual calories that someone has eaten as well.

DM: It's interesting too (this is an aside but it's an interesting one) that you knew the sex of your child is going to be a boy. I said, "That's interesting, because you're obviously interested in health and I thought you might be concerned about the ultrasound exposures." And then you said, "No, now they can do it with a blood test." I had no idea.

KV: Yeah, it's amazing.

DM: A simple blood test. Science continues to advance.

KV: Early on, too, 10 weeks. You can find out pretty much right away.

DM: Yeah. That's really great. I know that the studies haven't been done. But I'm wondering, because you really have a fairly good grasp of the science of this, if you have any intuition or scientific suspicion of one way or the other or if it really doesn't matter – the 5:2, every-other-day, or the restricted-time calorie window. Maybe the benefits and the disadvantages of each one if you could, or any other that I may have left out.

KV: Sure. I'm sure those are the main ones really in terms of the kinds of intermittent fasting. In general, the every-other-day dieting, that's the only thing that I've personally studied. But I'm familiar with the literature in the other areas.

DM: Sure.

KV: You'll lose weight a little bit faster than you would with the 5:2 diet because with every-other-day dieting, you are literally doing the fast days every other day. You have a day of eating 500 calories as a lunch or dinner alternated by days where you eat whatever you want. With the 5:2 diet, there are only two fast days a week. Of course, if you're only fasting about half of the time, the weight's going to come off a bit slower. There are actually no studies in the 5:2 diet that have directly tested that approach.

It's hard to say, but I think a lot of these metabolic benefits are really just regulated by weight loss. As you're losing weight, I think your blood pressure, blood sugar levels, and lipid levels tend to go down in relation to that. Anything that would basically produce weight loss I think will produce those effects in the majority of people.

Time-restricted feeding also has very good... What you were saying with the six- to eight-hour window. Even they were all Ramadan religious fasting studies, there's really nice data there, too, showing that people can actually stick to that. I find a bit more just for the longer periods of time. This is kind of anecdotal as well. Just because I think eating within six to eight hours every day is pretty... I think it's probably easier than having 500 calories every other day.

DM: Right.

KV: Or maybe I'm just speaking from my...

DM: That's what I was interested in your particular suspicion, because obviously it's not just the measurements.

KV: Yeah, because I work with them. We've probably run like, I don't even know, 700 obese participants through these types of studies. It's really interesting speaking with them and kind of seeing what they find difficult. Again, I haven't run that study yet, the time-restricted feeding one. But I'm really interested to see. I think personally it would also be easier because I would assume the adjustment period would be shorter, though. It's interesting that you're saying that it's two to three weeks.

DM: Its variable depends upon the... I think it could be longer. But maybe it's longer in some because they don't have the discipline or the obsessive-compulsive drive to stick with it.

KV: Yeah.

DM: And they're not compliant essentially.

KV: But I think the main take-home message is just find something that you can do. I think different people, you know. Some people really like the 5:2 diet, and that's great. Some people really need the kind of regimented every-other-day approach to stick to it. Some people might like the time-restricted feeding thing. And even if calorie restriction works for you, that's great, as long as you can find something that you can stick to. But the thing is be able to stick to it and don't jump from diet to diet every two months.

DM: Right. It's risky.

KV: Yeah.

DM: The devil's in the details in most things in life and certainly in science. It sounds from our discussion today that really the focus has been on pure calories. You restricted to 500 calories on the days of the fasting. Is there a limit to the calories on the other days?

KV: There is none.

DM: It's unlimited.

KV: With every-other-day dieting. With the 5:2 approach, I believe they limit it to 1,500 calories or something. You do have to count calories on the other approaches. But with every-other-day dieting, our first study actually showed – and this is the main thing I wanted to test – how much you are going to eat in response to only eating 500 calories on the fast days.

If you have 500 calories on the fast day, are you going to eat twice as much as you normally do than on the feast day? Because I thought 500 calories is about 25 percent of someone's energy needs. I thought the next day, they would eat – instead of the 100 percent that they usually eat or whatever – maybe 175 to fully compensate for that lack of food. But people only eat about 10 percent more than what they usually eat.

DM: Interesting. They can wind up getting a deficit?

KV: Yeah. I don't know what it is. We're going to possibly measure stomach shrinking. It's a pretty invasive procedure, though, that involves a balloon and an MRI scan of the stomach.

DM: Well, wait a few years and we'll have a non-invasive one.

KV: Yeah, exactly. But for some reason, even people who are used to eating a lot of food are not able to basically binge on those feast days when you have those alternate fast days.

DM: Interesting. Let's talk about the type of calories, because there are many people who believe that it's the quality of the calories. Even if they're fasting or not fasting at the end of your program, if they're eating the typical American foods – which would be processed foods loaded with sugar, high in carbs, breads, pastas, cereals, rice, potatoes, not many high-quality fats or, even worse, low-quality fats like trans fats with omega-6, and eating at fast food restaurants all the time... Have you looked at that? Are you giving any guidance in your program?

KV: We have. We actually have. The next question we have after we found that people could lose weight on this diet was: what do I have to eat? What types of foods? The only study I've run so far is comparing kind of a healthy low-fat diet while doing alternate day fasting to a high-fat diet. It wasn't fast foods in particular, but it was high... It was high-fat in general. So, 45 percent of the calories as fat versus a low-fat diet, which is 25 percent. We actually found the exact same results in both groups after.

DM: Interesting.

KV: But it was a short period of time – after 10 weeks.

DM: I'm not sure if you're aware, but you probably are. You're a pretty bright researcher. In the Paleo community, they have the labels reversed. The low-fat diet would not be healthy; that would be unhealthy, highly unhealthy. In fact, a high-fat diet is closer to 80 to 85 percent.

KV: Eighty-five percent?

DM: Fats.

KV: Wow.

DM: By calories, not by volume of food.

KV: Okay.

DM: Because if you're eating a bowl of sprouts, it might be a gallon or three quarters of a gallon.

KV: I see what you mean.

DM: It might only be 70 calories.

KV: Yeah.

DM: It's going to take you 45 minutes to consume that food.

KV: Yeah, absolutely.

DM: The vegetables have the vast majority of the chew time.

KV: I see. Right now, there's a lot of research leaning toward saying that. Consuming a high-fat diet actually might not be that bad for you.

[----- 30:00 -----]

DM: Yeah.

KV: Ten years ago, we thought that it was horrible. But now, if you look at really massive observational studies, like the Physicians' Health Study and that type of thing... If you consume higher-fat diets, they might not be that bad. They might not directly lead to high cholesterol levels like we thought.

DM: Well, the devil's in the details again. It depends on the quality of the fats.

KV: Exactly.

DM: The saturated fats that have been vilified for ages are actually turning out to be the healthiest fat.

KV: Exactly. The coconuts, the oils, and yeah...

DM: Assuming that you don't eat it... You change the chemical nature of the food, and you have trans fats.

KV: That's the problem with nutrition, I guess. Every 10 years it's a whole other story it seems.

DM: But the reality, at least in our perception of that because we're trying to make things better...

KV: Yeah.

DM: Ultimately, technology... I mean, you could find the sex of your child within 10 weeks of conception. But there are some downsides to it. We think we make things better, but we actually make them worse. What we need to do, at least from my perspective as a clinician, is to re-evaluate our thinking. This is why I evaluate new studies and new information, frame it on an ancestral perspective, and see if it made sense if our ancestors' physiology, biochemistry, and genetics would be exposed to that type of process. Decades ago, when Olestra came out, that fake fat, we knew that was not going to be good. You didn't need to be a rocket scientist to figure that out.

KV: It's horrible.

DM: Yet they said it was really good. I mean, it's a similar type of concept. It's exactly what your book is doing – it's replicating our ancestral pattern of eating.

KV: Yeah. I definitely recommend eating kind of whole foods over processed foods. We do have chapters on basically eating in restaurants and also some processed foods. But we did put those in there because I found that when I was advocating or basically showing subjects how to do this diet, some people really rely on those types of foods. We try to have them... The book also advocates more of a Mediterranean-type approach.

We do want people to slowly change their eating habits. But we find that if we kind of overwhelm people with not only the "eat 500 calories every other day" but then tell them to change all their dietary patterns right away, people quit the diet and tend to do nothing. It's good, you know. If you can just start the actual up-down approach of eating, just the 500 calories every other day, and then slowly transition into whole foods and basically healthier foods, that's great.

DM: Now, let's get back to maintenance again, because for many people, that's what they're going to wind up. It's not forever. If you've got 50 pounds, you're looking at six months or so of engaging in this type of behavior, at least in the approach that I'm familiar with, which is a variant of Paleo and which has a relatively low amount of protein (high-quality protein) usually from animals that are not raised in confined animal feeding operations (CAFOs). It's somewhere on the range of 40 to 80 grams a day of protein. Obviously, if you're pregnant, you would need more – 25 percent more – because you're eating

for two. But essentially, a high-quality-fat diet and pretty much a low-carb diet restricted to green vegetables.

In that type of scenario, it seems to be really helpful getting to the weight loss and maintenance. But once you're doing that, there may be... Some people are concerned that there may be a concern for continuing in that type of eating behavior and that it might be better to cycle through maybe a high-carb diet, like 40, 50, to 60 percent with lots of fruits, and really relatively low-fat.

KV: Okay.

DM: And then you kind of alternate between those two based on listening to your body. I'm wondering (probably there's no study on it, I would suspect, which you can confirm) if you have any...

KV: Like combining that type of thing with the type of eating with the meal patterns?

DM: It's the cycling between those types of eating patterns once you're at maintenance phase.

KV: Definitely not with this type of dieting or anything with intermittent fasting. There might be just, in general, if you're eating 100 percent of your calorie needs to see if... But I haven't actually looked at those studies. I'm not sure if...

DM: Okay.

KV: You mean consuming like maybe one of week of like...

DM: Well, it might be a few days. It might be two weeks.

KV: Okay.

DM: It's just kind of based on how you're feeling. I suspect you've noticed or are certainly familiar with it that we do have a high-carb diet, especially even like a lot of fruits and things, which are healthy foods in moderation. But the hybridized version that's available to most people now is completely different from what our ancestors we're exposed to.

KV: Yeah, absolutely.

DM: They're getting lots of sugar.

KV: For sure.

DM: Even though it's natural, it's...

KV: It's still very sugary.

DM: It's going to push that biochemistry in the direction that probably is not going to facilitate weight loss or at least ideal health. I'm wondering if cycling between those, from your understanding of the science, if you have any thoughts on that.

KV: From a high-protein diet to...

DM: Well, not high-protein.

KV: Okay.

DM: Actually more of a high-fat, you know. Because the protein levels stay the same in both. I mean, your protein needs really don't change unless you're pregnant or you're doing a lot of strength training. There's no reason to have a high-protein diet, from my perspective clinically.

KV: Okay, yeah, because people are just really into...

DM: Those people are confused.

KV: Absolute wondering.

DM: They are really confused. The benefit of a high-protein diet is typically it's associated with a high-fat diet. But there's danger to excess protein because the protein is catabolized to carbohydrates – excess protein if it's not utilized, of course.

KV: Yeah.

DM: You're eating extra carbs. It's just an appropriate amount of protein and then high-quality fats like avocados, coconut oil, macadamia nuts – you know, the typical Mediterranean type of foods.

KV: But in terms of... To be honest with you, I don't know much about cycling between those.

DM: Okay.

KV: I haven't really seen studies where they've done that.

DM: It might be an area you can incorporate into your future research.

KV: Yeah, absolutely.

DM: I think in the refinement of this process, we're going to get some huge golden nuggets...

KV: Oh, absolutely.

DM: That are going to benefit millions of people, hundreds of millions of people, who do have the relative luxury that we do to have an abundance of calories. I mean, this has not been the state of human existence for that long.

KV: Oh, I know.

DM: And a large portion of the world, still today, dies of not enough calories.

KV: Yeah, absolutely.

DM: Maybe not a large portion but large numbers of people, certainly millions of people. I think eventually technology will advance to the point where we have energy that's much easier and virtually almost free to do. We'll have essentially unlimited water and energy, and we'll be able to create food abundantly almost for free. And then these questions become even more important.

KV: Yeah, absolutely.

DM: Because we can have this wide range of choices. In your research or the literature you've reviewed, I'm wondering if you've looked at integrating exercise into this. If so, what types of exercise and maybe the timing, if you can comment on that?

KV: Sure. That was the next question we had after basically what types of foods you can eat. The main question we really had was: can you exercise on the fast day? Are you going to have enough energy to actually exercise on that day? What should you be doing? Basically, the main study that we ran on this was to see if you combined every-other-day dieting with exercise, when should you time the exercise session? And do people even want to do that?

We found out that, yes, you can exercise on the fast day. In general, it's better if you exercised before the fast-day meal. Because what happens is about an hour or so after you exercise, a lot of people experience this hunger surge. If you have that fasting meal right after you exercise session, you get to eat the meal and you're happy.

DM: But you're relatively anorexic an hour prior to that time.

KV: Prior to, yeah.

DM: It happens that you just don't have an appetite.

KV: Yeah, people, right when you stop exercising, there's I'd say about 30 to 45 minutes where people, yeah... I find myself just not hungry at all. But then one hour post, people get really ravenous. As long as you have that meal afterwards, you'll be fine. We find that people don't cheat that much. However, say, if you've had your lunchtime, your fasting meal, and then you choose to exercise after that, we see a lot more cheating with that. People end up eating something small as a dinner or maybe something large.

DM: Okay.

KV: They'll basically surpass their 500-calorie goals if they do the exercise session after the meal.

DM: Really, most of the benefits are from the compliance perspective, which is your personal experience and research shows as really the key, the core, to success in this program.

KV: Yeah. It's really like how do we get people to stick to those 500 calories that day? We're really trying to figure out all the main ways. In terms of what types of exercise, we've only really done endurance training. People would just do like aerobic exercise. People are on elliptical machines, treadmills, and that type of thing for the American College of Sports Medicine recommendations of 45 minutes.

DM: That's an evolving area of research, too. The newest stuff from my perspective, because I started exercising in '68 and for over 40 years I did endurance training... It was better than nothing. But I have regretted doing that because there are far more efficient ways to exercise and get better benefits, which is primarily the high-intensity exercise.

KV: Yeah, that's becoming very popular now.

DM: Instead of the two or three hours of cardio, you do 20 minutes. And you don't do it every day; you do it two or maybe three times a week. No more than three because you're going to hurt yourself. The recovery component is integrated into the program.

KV: Yeah.

DM: But they can use other things like strength training or kinds of stretching.

KV: Oh, absolutely. Yeah, we use them. We didn't incorporate that just in terms of...

DM: But you may want to look at the high-intensity workouts.

KV: I was. I was thinking if those two could go hand in hand.

DM: I think you can find some really surprising results, especially metabolically. If you integrate it in a fasting method, because my understanding is you'll get really significant improvements in many of the hormone distributions...

KV: Yeah. That's what I'm really interested to see.

DM: Brain-derived neurotrophic factor (BDNF), human growth hormone (HGH), and all these other beneficial effects that we get from exercising, which just seem to be manifested when you get the high-intensity workouts. There are just a lot of ways to do that.

[----- 40:00 -----]

My perspective is that a lot of people are eating the wrong way. But most people who are committed to exercising are just wasting their time.

KV: Those who are doing it for hours a day, yeah.

DM: Yeah, sitting on the treadmill or the bike, the recumbent bike, reading their book. It's the "calories in, calorie out" thing. It's just a matter of sort of catalyzing that metabolic machinery to get in gear. And it really, again, replicates ancestral patterns.

KV: Absolutely, yeah. Think of all those back then.

DM: I mean, people weren't doing cardio all the time. It was the rare culture that was doing that.

KV: That was really bouts of...

DM: Yeah. You had to run away from something, just climb a wall, or get out of a forest or something. Well, I think I've covered most of my questions. Do you have any summary points you'd like to make or emphasize?

KV: Just again to summarize what the diet actually is.

DM: Sure.

KV: I'm not sure if I actually stated it clearly enough. But really it involves something we call a fast day, where someone would consume 500 calories either at lunch or at dinner. Those are the most effective.

DM: Not breakfast.

KV: Not... Honestly, we haven't tested breakfast because I just assumed that would be a failure. We should. That's one of the main... We still haven't published the study now and everyone's like, "Well, let's just check the breakfast," and I'm like, "I don't know."

DM: At least you can prove it.

KV: That's true. Maybe we can.

DM: The assertion for almost everyone is that breakfast is the most meal of the day. We know, at least clinically, that it's the worst meal of the day.

KV: I know. If you actually look at the literature, all those...

DM: The literature supports that, too.

KV: Yeah, all those studies are funded... I think children should definitely have breakfast before they go to school.

DM: Sure.

KV: But all those studies are actually funded by cereal companies. If you really like dive in... That's the main thing that people ask me. They're like, "Oh, you're just skipping breakfast, hmmm..." I did a massive literature search and I found out that it's actually not that bad for you. You just have to look at who's funding the studies.

DM: Yeah. I did not realize that. Very good point.

KV: I know.

DM: Yeah. I wasn't aware of that.

KV: Not to mention that...

DM: I'm not surprised but it's good to know.

KV: Other things I definitely advocate with this diet, just things to make it easier, are drinking tons of fluid will make things... For headaches and regularity, drink a lot of fluid throughout the diet but particularly on your fast day. Try to consume a fair amount of protein on that day. – it helps with satieties. It helps with kind of keeping you full. It really depends on what your body size is but maybe 30 to 40 grams of protein. I usually recommend...

DM: Well, that's not a lot.

KV: A salad.

DM: A lot for some weight trainers might be 200 to 400 grams.

KV: No. I know.

DM: We're not saying that.

KV: Yeah. Not a lot. But a nice meal for the fast day if you're wondering – and we do have a lot of good recipes in the book, of course – is a salad with some type of protein on it, like chicken. If you're vegetarian, [it's] beans or that type of thing. Those are kind of the main points of how to get through it. The great thing is you don't have to count calories every other day. Every other day, you really get to kind of feel normal. A lot of people say that they actually have healthier cravings on the feast day. It's really interesting. The body's kind of like resetting itself.

DM: It's like magic. When that hunger desire just disappears, you have a whole new life.

KV: Yeah.

DM: I mean, it's really an incredible freedom.

KV: Yeah, exactly. None of these constraints of wanting some sugary coffee beverage every two hours or whatever.

DM: And feeling deprived when you don't have it.

KV: Yeah.

DM: The feeling of deprivation is not there. It's just the most amazing thing.

KV: For sure.

DM: If people would like your book, the title of the book is...

KV: The title of the book is *The Every-Other-Day Diet: The Diet That Lets You Eat All You Want (Half the Time) and Keep the Weight Off*. My name is Krista Varady and my co-author is Bill Gottlieb.

DM: Okay.

KV: It's available on Amazon or that type of thing.

DM: Sure, the place to get the books.

KV: Yeah.

DM: All right. Thank you for joining us. Thank you for all of the wonderful work you have done, are doing, and will do to provide the support for this phenomenal approach to stay healthy. I went to medical school and learned about health. But it became really obvious to me very early on that unless you get the diet right, it's going to be very difficult and impossible to control most diseases.

KV: Absolutely. Great. Thank you so much for having me.

DM: Okay.

[END]