

Diet Doctor Podcast with Bret Scher (Episode 42)

Dr. Bret Scher: Welcome back to the Diet Doctor podcast. Today is a little bit of a different episode, I don't really have to record an introduction because the guest today is... me. I'm just going to do this on my own today and part of this is brought on by a prior podcast. So let me give you the background here. In episode 4 I interviewed Dr. Joseph Antoun, he's the CEO of L-Nutra.

And they have a commercial product for a fasting mimicking diet. Now during that interview I didn't do a very good job of separating the topics of fasting and a fasting mimicking diet. In my brain I sort of kept them as one. I was including them together but I didn't really come out and say that.

So he was answering all the questions from the background of a fasting mimicking diet, which makes complete sense, because that's his area of expertise and I was sort of interpreting all that as a combination of fasting and fasting mimicking diet. Okay, so why am I going through all this? Because it made me think, well what do we know about the differences between fasting and a fasting mimicking diet?

What is the science, say, for one or the other? And how can we as individuals decide which is better for us depending on our health goals, depending on where we're starting from and just depending on our social situations? And is there enough science to say one is better or different than the other? So that got me thinking and saying, you know what?

I want to do another episode to dig into this a little bit deeper so that people can understand, so I can understand and I can help you understand a little bit better. Because like I said I compared the two and treated them as equal and I want to know if that's right or not.

So that's going to be our episode today, it's going to be a little bit different format, but as always you can go to DietDoctor.com to see the full video, the full transcripts and of course all the other information we have on Diet Doctor and all the benefits you can get by becoming a member.

So without further ado, we're going to jump right into it. First we need to define fasting because there's so many different types of fasting that we can talk about. So, personally I like to talk about time restricted eating, which can be anything from eating in a 12-hour window and not eating for the next 12 hours, all the way up to about 16-8, 18-6, or even one meal a day where you are just eating during maybe a 30 minute to two hour time window, you're basically having one meal; to me that's time restricted eating.

Well then you talk about periodic fasting or intermittent fasting, which is anything more than 24 hours, where you're going more than a full day of not eating - that's fasting. Now a fasting mimicking diet is when you're still consuming calories throughout the entire day, but it's in a way that's meant to mimic the physiology of fasting. And this is sort of, I guess you could say a new concept that's come up now with a commercially available product which is backed by some research, which we're going to talk about.

And then of course there's chronic caloric restriction that's just over the long-term - months, years, decades, reducing your caloric intake to again hopefully beneficially impact your metabolic health, your longevity, your lifespan. So time restricted eating, intermittent fasting, fasting mimicking diet and chronic caloric restriction; those are what I see as the four categories. Now a lot of this talk about intermittent fasting has come from benefits science has shown from chronic caloric restriction.

Pretty much regardless of the life form, from yeast and bacteria all the way up to primates, chronic caloric restriction improves health span. The organisms are healthier longer in their life. They don't get diseases as earlier. And for most of them it actually shows a longevity benefit, they actually live longer as well. Now with the primates there's been a little bit of a discrepancy with two main studies, one showing benefit, one showing no benefit for longevity, but regardless, health span improves.

So chronic caloric restriction improves health span. But here's the kicker, there's that old joke, well, we don't know if reducing your calories long-term make you live longer or not, but it sure feels like you're living longer. I mean and it's no fun. People don't like to chronically reduce their calories for long periods of time. It's just not that

enjoyable for most people. And also there is that concern of resetting your resting metabolic rate.

Then all of a sudden your body goes into starvation mode and survival mode. This is because we have some calories coming in but not quite as much as we really want. So we're going to lower the basal metabolic rate. So I'm burning fewer calories at rest, that's my survival mode. So there may be some benefit at first, that then the benefit becomes harder to maintain over time. So that's part of the concern with chronic caloric restriction.

So intermittent fasting or a short term fasting mimicking diet, those help to get the benefits of chronic caloric restriction without the downsides. So we're going to talk a little bit more about that, but first, like I said in the intro, is one better than the other? Is fasting or fasting mimicking diet better than the other? Do they accomplish similar or different benefits?

And are certain sets of people better off for one or the other? Before we answer that question we sort of have to ask though what are we trying to accomplish because we all have different goals. Is our goal losing weight? Is our goal reducing our blood sugar and improving our diabetes and reducing insulin? Is it reducing our blood pressure, affecting our lipids or is it this concept of longevity, living longer, or having a higher health span? They're all similar, but yet also different depending on exactly what you want to get out of it.

And that's where looking at the science makes an impact out. Now, interestingly fasting is sort of a... I guess you could say it's a new topic in terms of health and science, but it's been around for centuries, mostly for religious and cultural reasons. The Ramadan fasting didn't come about because they were worried about autophagy and mTOR and all these fancy science terms we use now.

It's been around for centuries for culture but now it's getting a resurgence in medicine. And it's taken a frameshift because we've always been-- I say use the royal we for medicine... we've been afraid of people going into starvation mode and not eating and the dangers that it can bring on. A lot of studies looking at the dangers of fasting looked at people who were malnourished people who were underweight,

which is a completely different concept when you talk about people who are overweight or have diabetes or looking to change their health in ways like that.

So it brings up the concept though of, before we talked about, who should be doing fasting, who should not be doing fasting. And again it's the malnourished people, people who are already underweight, people with eating disorders, certainly people who are pregnant or breast-feeding and then most kids and I throw in the term "most", because if a kid is severely overweight or has diabetes, then intermittent fasting may have a role.

But when you talk about the growth trajectory of kids, fasting becomes a little bit more controversial, so certainly should be done under careful watching. But for most adults who don't fit those other criteria, fasting, at least for the short term, is generally pretty healthy.

One of the big concerns though is if you are taking blood pressure medicines or more importantly blood glucose medicines like insulin or SGLT2 inhibitors or sulfonylureas, drugs that can lower your blood glucose or in the case of the SGLT2 inhibitors can increase the risk of ketoacidosis, if you're taking those medications you have to work with your doctor with fasting. And anybody with any chronic medical conditions needs to discuss this with your doctor.

This podcast as with all our podcasts are meant for just some general information for you to assimilate and work with your healthcare provider to make sure you're doing this safely. Because with fasting and taking medications that lower your blood sugar you can be at risk for dangerously low blood sugar. So please be aware of that.

Always important to know who should not be fasting though before we talk about who should be. Also the elderly, the frail, this is not for them. Another concept is how should you feel when you're fasting. And it's okay to be a little bit hungry, it's okay to feel a little bit lower energy, it's okay to have a tiny bit of lightheadedness when you stand up, but you should not feel just wiped out, fatigue and unwell.

You shouldn't feel nauseous, you shouldn't be dizzy all the time. I mean those are signs that something's going wrong. And on the one hand it sounds a little silly, even if I say that, but I've seen people do this because they hear all the benefits of

fasting so they say, "I just need to toughen up. I just need to stick through this." Well, no, it's not for everybody.

And if you are feeling unwell, stop, drink and eat and consult your physician certainly if it's not going away. So fasting is not supposed to be something that feels awful, that you just have to get yourself through. It's not going to be the most fun thing you do, it's not going to be the most comfortable thing you do, but it shouldn't feel like a struggle the entire time.

So that's an important concept as well. All right, now that we've got all that other way, now let's jump into the science a little bit. So part of the problem and talking about the science of fasting, intermittent fasting or a fasting mimicking diet, is the protocols are very different. Are we talking about alternate day fasting where you eat normally for 24 hours and then you do 24 hours of no eating at all, or even 24 hours of like 500 cal?

Or are you talking about a week of fasting of just hydration? Or are you talking about a 5:2 pattern where you eat normally for five days and fast for two days? There are lots of different protocols. Now interestingly, most of the evidence that I've come across, came from this alternate day fasting protocol 24 hours on, 24 hours off, some with severe calorie restriction, some with no food. But that's where I sum most of the evidence for fasting. And you know, weight loss is the most consistent finding.

Pretty much any fasting protocol, you lose weight and that makes sense. You're not taking in calories, so you're going to start burning your own calories, your own fat for fuel and you're going to lose weight... that makes sense. But some of the other factors that were pretty impressive and backed by literature is improved blood sugar, improved insulin resistance, lower blood pressure, lower hemoglobin A1c, this all part of this metabolic syndrome, this metabolic disease, that is a lifestyle disease from too many calories, too many carbohydrates.

So if you can reduce that with fasting, the evidence shows that those improve. Interestingly not many of these studies though are done on people with diabetes.

Most of these studies are done with overweight people, but not necessarily people with diabetes.

Now that's where we can turn to some of these anecdotal reports, some amazing reports by Dr. Furlmi and of course by Dr. Fung at IDM that just with three days of fasting, they get people off of insulin completely and there are some published anecdotal reports. Of course it doesn't mean it happens that way with everybody, but it shows you the power of what it could be used for, for patients with diabetes.

I'd love to see more studies in patients with diabetes, but for the most part people are just overweight or insulin resistant. The studies definitely show that those improve. Now lipids I find it interesting one, of course as a cardiologist I have to spend a little extra time on lipids, but triglycerides lower across the board, HDL does tend to go up a little bit with fasting.

Probably not as much as if you're eating a high-fat diet, but HDL does go up a little bit and LDL, is interesting, because some studies show LDL goes down, and some studies show LDL goes up. I think a lot of it has to do with the duration of fasting. For instance one study from back in 1999 showed that seven days of fasting increased LDL and ApoB, but shorter terms of fasting can decrease it.

And then we don't have as many studies for a week, or two or three weeks, but I'm less concerned with that. In the short-term it can impact LDL. But again, what are we after? Personally as a doctor I'm not worried about what happens to your labs over the next couple of days or weeks. I want to know what happens in the long-term. So big question is, "Is this sustainable?" And all your lab change is going to be sustainable?

And that's where I think the triglycerides are shown to be pretty consistent and stable if you can do intermittent fasting. With the LDL I'm less convinced that there's going to be a longer-term change in the LDL with fasting, although there was another study in 2013 that showed the LDL size improved. So less of the small dense or LDL and more of the larger less dense LDL with just 10 weeks of alternate day fasting.

So I think there is some impact there and again that goes along with improving metabolic health. So the science supports in fasting, certainly in alternate day

fasting, improved blood sugar, improved insulin, improved blood pressure and improved triglycerides and HDL, improved weight, all of the things that go along with this metabolic syndrome. And again it makes sense, you are lowering your insulin levels.

And insulin is thought to be a main trigger of this whole metabolic health, that we have too high insulin levels that are just persistently elevated and fasting is a great way to lower those. Now one of the other most important concepts about intermittent fasting is how it differs from chronic caloric restriction. Because remember I said the concern about chronic caloric restriction was lowering your resting metabolic rate and also losing muscle mass.

Those are some of the main concerns of chronic caloric restriction. So intermittent fasting for 1 to 3 days actually increases your resting metabolic rate, which means at rest you're actually burning more calories. Now at first it sounds too good to be true. I'm not taking anything in and I'm burning more calories. But that's what the science shows.

Within one to three days you actually increase your resting metabolic rate and it makes sense from an evolutionary standpoint. If you're not eating, that means you need to go out and find food. And you're not going to do that as well if your body starts to shut down and decrease your energy expenditure. You need to be able to go out there and have enough energy to find your food. So from an evolutionary standpoint I think it sort of makes sense.

But your body can actually improve your resting metabolic rate for the first three days. In addition your growth hormone increases and that's important because that can help with muscle growth. So if we are concerned about losing muscle mass in the short-term of fasting, it actually looks like our body is smart enough to be able to compensate for that and increase our growth hormone levels so we can actually not lose muscle mass.

Now beyond three days it gets a little murkier I guess you could say. There's some evidence to suggest we do lose a fair amount of muscle mass if we fast beyond three days. But the three-day mark seems to be sort of the sweet spot. And again,

the studies for longer than three days are a little controversial because it depends on the patient population. Are you overweight or are you not? Do you have plenty of excess fuel to supply or do you not?

And that makes a difference. But the other concept that I think is important and I haven't seen as many studies on this but staying physically active during intermittent fasting can help maintain muscle mass as well. So don't use this as an excuse... "I am not eating, I'd better not exercise." Go for walks, do some body weight exercises, keep your muscles stimulated to help prevent any potential muscle loss.

And one other potential very interesting benefit from intermittent fasting is in cancer treatments. So not cancer treatment alone but augmenting cancer treatment. There's some suggestion that fasting, restricting all caloric intake, can actually sensitize tumor cells to chemotherapy and radiation therapy. Now this is still in its infancy and there's a lot more evidence that we need to think before comes mainstream. But major institutions like University of California San Francisco, their cancer institute they promote this.

And it's a big turnaround from sort of the common teachings for cancer therapy because it used to be, you just need to get as many calories as you can, because chemotherapy and radiation therapy it's difficult on the body, can make you nauseous, it can make you not want to eat, it can make you weak, so you need to get as many calories as possible.

Some institutions even recommending like the Dairy Queen blizzard shakes to get as many calories but that seems like the last thing you want to do is put more fuel to the fire by giving yourself more sugar, higher insulin levels when you're undergoing this therapy. Now there's a suggestion that intermittent fasting may actually help sensitize tumors and help you do better with your treatment. So something to definitely discuss with your physician.

Again don't do it on your own, that's something you definitely need to discuss with your physician as you're going through this, but it's very interesting, and we should look forward to more studies coming on the road. Now let's switch for a second for the fasting mimicking diet. This is the importance of differencing between the two.

That was the science behind intermittent fasting, mostly alternate day fasting. Now the science behind an intermittent-- I'm sorry, the science behind a fasting mimicking diet. So first let's define what a fasting mimicking diet is. Most of the studies are done with what's commercially available. That makes sense, they have a product to promote and they are going to do science to try and do that. I'm not faulting them. You know, it's just how we've gotten some good science.

The way this product is set out... on day one is about 1000 cal, 25 g of protein, 62 g of fat and 85 g of carbohydrates roughly. Days two through five, it's about 700 cal, 15 g of protein, 34 g of fat and 82 g of carbs. So the key being lower calories, low-protein and relatively high carbohydrate. I mean for people who are on a keto diet, 20 g of carbs a day, they think look at this, I think this is crazy.

There's no way I'm going to eat 80 g of carbohydrates per day, but when you look at the general population 85 g of carbohydrate is lower than certainly the standard American diet or the standard westernized diet. But for most people already following low-carb and keto, this is actually an increase in carbohydrate which is interesting and I'll talk about it. The one that's commercially available is plant-based and low saturated fat and there has been one human study with 71 patients who did this fasting mimicking diet five days per month for three months.

And what they found was weight went down, glucose went down, triglycerides went down and CRP, an inflammatory marker, went down. And so did IGF-1, and we'll talk a little bit about IGF-1. But you can see how it's sort of similar to what the fasting showed with the blood sugar, the blood glucose, the triglyceride, the markers of metabolic syndrome and insulin resistance improved.

Interestingly, those who are at higher risk or sort of started off from a worse baseline improved more and those who were at lower risk or started off from a better baseline still improved, but improved less. So that makes sense. The further you have to go, the more impact you're going to get on this type of intervention.

Now the question about IGF-1; they seem to make a big deal about lowering IGF-1, because that is a growth hormone, a growth stimulant and has been associated with increased risk of cancer. But we also need it for muscle growth. So if you're lowering

IGF-1 and you're not doing anything else to stimulate muscle growth do you put yourself at risk for sarcopenia?

And again that's why you probably don't want the chronic calorie restriction but maybe five days of this per month as they did might still be beneficial with intermittent lowering of IGF-1. So I think that's got some potential. Now a lot of the evidence that they have to support this come from my studies.

And this is where some of the most exciting stuff is, although it's not yet in humans which makes it-- I have to temper my enthusiasm a little bit but in mouse studies they showed that liver cell regeneration, they showed shrinkage of organs that then regrow upon refeeding and one study even showed that pancreatic beta cells could regenerate. So type 1 diabetic mice could reverse their diabetes. The same with Alzheimer's disease, a mouse model for Alzheimer's disease and a mouse model for multiple sclerosis, all showed benefit.

So there's a lot of excitement about this but we have to see it translate to humans first. So it's this concept of basically regenerating ourselves, getting younger cells, and part of this is what we talk about with autophagy as well, that we can recycle and get rid of some of the older less well-functioning and potentially detrimental cells and replace them with newer cells. I mean that truly is sort of the Holy Grail of longevity.

That's how you can make yourself younger, increase your health span and live longer. So if you have a pet mouse, seems to make sense to have him try it, but for us, I'd like to see some human data but it's certainly exciting. Now what's hard to know is, is that something that's only for fasting mimicking diet or does it apply to intermittent fasting as well? We don't have studies comparing one to the other.

The intermittent fasting studies haven't looked at this as much. But personally I don't see any reason why it would be different. They noticed the regeneration on the refeeding, so sort of when you finish the fasting mimicking diet on days like six and seven it's when you start to see a lot of the cell regeneration.

So that makes me think it has more to do with fasting and then starting up your calories again and not so much about the small amount of calories that you have

during the fasting mimicking diet, if that makes sense. So the bottom line is I think they are pretty similar, the fasting and the fasting mimicking diet.

When it comes to metabolic health they both reduce your glucose, they're both going to improve the markers of metabolic disease, they lower triglycerides, they can improve blood pressure and of course cause weight loss. Now what about longevity? Because that is a big reason why a lot of people look at fasting. And it's so hard to study longevity in humans, you just really can't do it. So it's a lot of mouse studies, some primate studies.

And some markers that we have to make sure we are following the right one and that's the question of, you know, IGF-1. And we hear a lot about the nutrient sensors: insulin, mTOR, mammalian target of rapamycin and MP kinase. Those are the sort of the three nutrient sensors that for longevity the theory is we want to reduce them. Well, insulin, we know about it, we hear about insulin all the time and fasting definitely reduces insulin, intermittent fasting can reduce insulin.

Now curiously, a fasting mimicking diet for most people should reduce insulin if they are coming from a high carb diet. I'm really curious if you come from a low-carb or keto diet what's it going to do to your insulin levels because you're actually eating more carbs than you were before. So I actually have some doubts whether fasting mimicking diet is going to be beneficial for people coming from a low-carb background in terms of insulin.

Then there's mTOR. mTOR similar to IGF-1 I think is something that we want to selectively regulate, because mTOR is necessary for growth, for muscle growth. We don't want to suppress it so much that we lose muscle mass, because then we risk frailty. And here's one of the important points about longevity research; things can be a trade-off, right?

So just because we're lowering something that's associated with a cancer risk, so the thought is chronically high mTOR increases growth which can increase growth of potentially dangerous cells like cancer cells or cells in the brain that can cause Alzheimer's disease, but they also stimulate muscle growth. So if we get rid of it, the trade-off is we become more frail and then our risk of diseases or frailty.

So are we actually benefiting ourselves? So we don't know, it's all one big guess. So that's where this concept of intermittent fasting, intermittently suppressing mTOR seems to be pretty exciting or potentially beneficial. And that's why this is a low-protein fasting mimicking diet. So the fasting mimicking diet and intermittent fasting I think are pretty equivalent in terms of how they impact mTOR. mTOR is a pure nutrient sensor, so that's just calorie, so obviously fasting is going to impact that as well.

And the fasting mimicking diet is likely low enough that it's going to impact that. It's hard to measure in humans although the mouse studies seem to indicate that. So why they go through all this? Well, again because it's comparing fasting and fasting mimicking diet. So again I think fasting wins, intermittent fasting wins, because it's going to hit all the markers, it's definitely going to hit insulin and mTOR and mTOR kinase, you are going to get all the metabolic benefits.

Fasting mimicking diet likely is going to but I still have that question about insulin. Now let's get to the practical side of it. So a little personal, I've tried three to five days of fasting... I hated it, I got to be honest with you... I do not enjoy it, I don't feel great on it. I tried the fasting mimicking diet and it was a lot easier for me.

So that's me, I have plenty of patients and you can see plenty of stories on Diet Doctor, people just sail through fasting and they do wonderfully with it. So if you are that type of person and you can do three or five days of fasting with just water, just electrolytes, a little bit of tea, staying well-hydrated but no calories, I think that's the best way to go and I think the science probably supports that as well. How often to do it? That's a little more controversial.

Probably anywhere from one to four times per year, I don't know if you need to do it more than that, but again that's sort of like an educated guess based on the science rather than hard science, but where the fasting mimicking diet really has a role from my standpoint is for people like me, people who struggle with fasting and don't enjoy it. And that can be from a psychological reason, it can be from a social reason.

I hate sitting down at the dinner table with my wife and kids and I'm just staring at a blank plate or staring at my herbal tea while they're eating. That's challenging

psychologically. But if I have even a little bit of food, it makes a difference. So the fasting mimicking diet can really help from that psychologist standpoint.

Now the commercially available one is very nice because, you know, I open my box and I'm only eating what's in this box. I have no decisions to make, I can't cheat or fudge, it's just whatever is in this box. It's also processed and boxed and not real food. So I'm a fan of sort of creating your own fasting mimicking diet and I would like to see it a little bit different. More like 500 cal and much lower carbohydrates. Try and stick to 20 g of carbohydrates to make sure you're still impacting your insulin levels.

And you still want your protein to be low, about 10 g or so of protein, with the rest coming from fat. You can get your fat from macadamia nuts and olives and avocado and you can cook a little bit of steam vegetables with olive oil. That can be your fasting mimicking diet. The thing is to have it clear what you can eat during the day so there's no question marks. Because again that gets into the psychology of food.

So as a quick aside, one of the lessons I learned going through all these experiments with fasting and fasting mimicking diet is what a complicated relationship we have with food. And I know that it's probably not a surprise for most people, but it's interesting to go through the process and see what you learned.

Just the anticipation of food, knowing that is there or not there, the texture and the crunch and the social aspect of being with other people. Those are real issues that we have to address. We can't just tell people, "Just don't eat and you'll be fine." We have to address these issues because they go through people's minds. Some of the other things I learned are kind of how ridiculous our portion sizes are.

When you can do a fasting mimicking diet and you realize you are not that hungry and then when you start to get back to your regular food and you go out to eat and you see how huge these portions are, it's obscene how big they are. So I think a fasting and fasting mimicking diet experiment for people is very good to sort of help with the rest of your life to understand how as a society our portion sizes have gotten a little bit out of control.

One of the other big things I learned is this concept of hunger. Like how we feel hunger and how we react to hunger. Because remember, in the beginning I said, it is

like the medical community has this fear of hunger and it's been instilled in people that we have to avoid hunger at all cost. Hunger is not that big of a deal and that you need a fast or a fasting mimicking diet to understand that.

Hunger is all relative and it's so interesting that most people agree that hunger is worse in sort of the first 24 to 48 hours of a fast and then it gets better and you can realize that you can live with hunger and even you can readjust your sensation of what hunger means and that's an important lesson for people.

So beyond all these scientific benefits of fasting and fasting mimicking diets, I really enjoy the psychological benefits for myself and for my patients and I think you might be able to benefit from that as well, because it really helps you reset your hunger cues and then the rest of your life whether you are doing time restricted eating, whether you are doing intermittent fasting or just eating normally, you realize what those hunger cues mean and that they don't mean as much as you thought they did.

So that's sort of my rundown of both the science and the practical aspects of fasting, intermittent fasting and a fasting mimicking diet. In summary the science is still in its infancy, we're going to learn a lot more. I don't know that there's a whole lot of science saying one is better than the other but my version of fasting mimicking diet would definitely have lower carbs to try and lower insulin more.

I like it for the psychological and the social aspect of it, but don't think it provides anything more than intermittent fasting does. Now the last point I'll make is when you break your fast it's not like you go right back to eating a full meal, because your body is not going to be happy with that. So you have to think about it if it's a three or a five-- say it's a five day fast... you have to think about it as a six day fast.

It's five days of fasting, one day is a transition day and then back to your regular diet. The transition day being some light snacking, still try and stay low-carb, not full meals yet, maybe some soup, some bone broth, that type of thing and then on your next day that's when you can sort of get back to your regular diet.

Remember to remain hydrated, supplement with electrolytes, remember the precautions we talked about in the beginning and of course this doesn't mean everybody should run out and try it. This is just information for you to assimilate. If

you have any medical problems or you're on any medications make sure you talk to your physician before doing it.

But hopefully this helps you understand sort of the differences and similarities between fasting and fasting mimicking diet. I know it helped me and it helped me to sort of bring closure to that other episode where I didn't do as good of a job separating the two. Thanks for joining me and hopefully you enjoyed this format. I know it's a little bit different.

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