MSAA Podcast:

The Impact of Nutrition in Multiple Sclerosis
Episode 4

Host: Peter Damiri

With special guest: Dr. Olga R. Thon, MD

Peter Damiri:
Hello, and welcome to the Multiple Sclerosis Association of America's podcast, “The Impact of Nutrition in Multiple Sclerosis.” I am Peter Damiri, Vice President of Programs and Services for MSAA, and your host for today's program. I'm honored to welcome our guest presenter, Dr. Olga Thon, to the program who will be sharing with us her insights on this important topic. Dr. Thon is the director of the Multiple Sclerosis and Immunology Center at Drexel University College of Medicine in Philadelphia. She is fellowship trained at Harvard, where she completed her residency in Neurology, and has a special interest in diet and MS. Dr. Thon, thank you so much for being here and giving us your time today.

Dr. Olga Thon:
Thank you, Peter, for having me here. This is a fantastic opportunity to talk more about wellness and diet in multiple sclerosis and I'm very honored to be here.

Peter Damiri:
Great. Well, thank you. So, Dr. Thon, what intrigued you to get into this area of study with MS?

Dr. Olga Thon:
So, we all have our personal history, right? So, for me, I had a pretty normal weight up until medical school, and then probably as a consequence of being sedentary and sitting down to read and study and not doing as much of the, you know, exercise that I used to do before, I used to have much more time to run and dance. And what happened was that I became overweight in my first couple of years of medical school. I have a very, very strong family history of diabetes, including my mother and other close relatives. And as a medical student, studying, being vigilant, and worried about things that could happen to me, I started looking for the literature. So, what is out there from data telling us what could be helpful.

And first, I tried a calorie-restricted diet. And as that wasn't very sustainable for me in the longer term, I went searching the literature, and that's when I found a lot of good evidence about both the restriction in carbohydrates, so a low carb diet, a low glycemic index, which we'll talk a little bit more about, and intermittent fasting. And I think even after medical school when I chose neurology and then became a specialist in multiple sclerosis - so, I’m a woman in my thirties

and my mid-thirties and my patients are usually exactly like me. The majority of them are also young women. And they are typically very interested not just in MS but in their health in general and diets that could be helpful for them and helpful for their families. So, I again went back to the literature and looked for things that could be helpful for them. And so, this is what we're here to talk about today.

Peter Damiri:
That's great. And it's just so important just in general, overall wellness.

Dr. Olga Thon:
Exactly.

Peter Damiri:
As we mentioned, our topic today is nutrition in multiple sclerosis. Dr. Thon, can you touch on the overall concept of wellness and the importance it plays in managing a chronic condition such as multiple sclerosis?

Dr. Olga Thon:
Absolutely. So first, let's define wellness. So, usually we're thinking of wellness as the “take your pills, go to your doctor, eat your vegetables, and exercise.” Maybe a little bit more than that is the emotional as well as psychological component of wellness and well-being. And it's hard to ignore that, especially when you see patients with chronic diseases such as multiple sclerosis presenting, especially when they come to my office, either with their first attack or with further relapses, mentioning that it happened during a period of stress in their lives, when their children are having trouble at school or when they were having a tough time at work, and it's hard to start neglecting stress as maybe an important component of this. But as maybe a bigger category, the physical component of wellness, which is what we're going to be talking about today, and specifically the diet. So as a whole, the human body can have other diseases such as diabetes, hypertension, high blood pressure, and all of those disorders are highly impacted by diet, by what we eat.

Peter Damiri:
Right. Great overview. Thank you. The main focus of our conversation today will be diet and specific dietary advice you might give to your patients. How about we get started with supplements? Are there any vitamins or supplements that you suggest?

Dr. Olga Thon:
That’s a question I get asked a lot in the office. So, there are some supplements and specifically, some vitamins that do have a good amount of data, a good amount of evidence in the literature that can have some benefit in multiple sclerosis. The most obvious and most well talked about is vitamin D. There was a large study that was initially performed in the Nordic population and specifically with Nordic nurses who are very good subjects and very good at reporting changes in their life. But within this study, what they found was that those patients, the ones that had a history of multiple sclerosis, seem to be impacted by the level of vitamin D in their bodies. So, the ones not specifically a causational relationship but the ones that had a higher level of vitamin D seem to have a lower incidence of relapses. Therefore, linking maybe modulation of disease activity related to vitamin D.

Another supplement that I often get asked about is fish oil. There's somewhat conflicting evidence. Some studies have pointed to a good effect of omega 3, the main component of fish

oil, that could have some heart protective factors and are specifically arthritogenic. So presenting fat to deposit in the blood vessels, not just in the heart, but in other areas like the big blood vessels that go up to the brain. And there are some other studies that haven't really shown that there seems to be any correlation. I'll be honest with you, in the majority of people, if you eat enough fish, especially if you eat enough of the foods that contain that fish oil, that is probably enough. So not necessarily use it as a supplement but if that's not a part of your diet, I don't think you're doing any harm to yourself.

Sometimes patients will ask me, what do you use? So, to be honest, the only two supplements that I do use are vitamin D and fish oil. So, I won't delve into some of the other ones, but those seem to be the best.

Peter Damiri:
Keep it simple.

Dr. Olga Thon:
Exactly. And then when you're talking about maybe some dietary supplements like things like spices or things that you might be using to cook. So, some of the most talked about condiments in general that might have some effect in modulating inflammation are turmeric, garlic, maybe flavonoids, or things like what we find in dark chocolate or red wine, for example, that might have some benefit in modulating inflammation in general, not just neuroinflammation, so disorders of the brain that have to do with it.

Peter Damiri:
Chocolate and red wine. Not bad.

Dr. Olga Thon:
Sounds pretty good to me, too.

Peter Damiri:
Well, let's talk about diets. I mean, there are so many different diets out there. Can you describe some of the different options and what is your recommendation for multiple sclerosis?

Dr. Olga Thon:
Yeah, absolutely. And I think that one of the main importances of this question is we get so much from social media nowadays. Right? We're living in a time that it's not just reading our newspapers or watching something on TV at night, but we're constantly bombarded, even on a five-minute break, pulling up Facebook or Instagram. And everyone has a friend that will swear by that a diet of eating, I don't know, only eggs for five days will cure any diseases. So, I think it's important to learn and to get some good information coming not just from physicians, but from nutritionists and so that's a very good point of being here today. So, I'll start maybe talking about some of the most common diets that patients might hear about.

So, the low-fat diet, and I'll start with that just because for many years and actually for many decades, it has been one of the most recommended diets by physicians, specifically, many physicians who recommend a diet consisting of no more than 10% fat. And that largely comes from studies done in the 1950s up to the 1970s that have linked the correlation of high cholesterol and specifically that high bad cholesterol, the LDL, with heart disease. So, it's hard to say that this is necessarily the culprit, especially with a higher body of evidence more recently that has been linking the carbohydrates, and I'll talk a little bit more about that when we delve

into the low-carb diets, but I would be concerned about restricting the fats in the diet. And one, the long-term ability to do that, the long-term sustainability of being on such a diet since the fats fill you up and help you not feel hunger. So, it's a little bit more sustainable to have a higher content of fat. And also, because so many vitamins such as vitamin D get absorbed through fat. So, it might be a little harmful to restrict fats a little too much.

Another very common popular diet especially for people that are trying to lose weight is a calorie-restriction diet. So, it's hard to argue with the success that you can have if you limit the number of calories. And again, I have nothing against it, especially when you go to a nutritionist and they tailor that diet specifically for you. I am more concerned about when you're by yourself and you are Googling, and you'll find a website telling you to eat 500 calories a day, and then you might be depriving yourself again of very important vitamins and nutrients that your body needs to function. And let's remember, fat is what is used in myelin, right? That protective substance that we talk about so much in multiple sclerosis. The other thing that I get worried about is, again, the sustainability of such diets, such as calorie restriction, and there are many available studies in the literature telling us that in the longer term, so after those studies are completed, after three or six months of calorie restriction, there's, unfortunately, a high percentage of patients that will then bounce back that will regain some of that weight in the long term.

Peter Damiri:
Right. Hard to sustain that.

Dr. Olga Thon:
Exactly. Then we start getting about some of those specific diets that will focus on either one type of food or the other. So, let's maybe start in this category with the Paleolithic diet, or maybe a different name that people might have heard more about within the MS community, the Wahls diet. A protocol that was developed by Terry Wahls, another physician who suffers from multiple sclerosis.

And at the time that she was diagnosed with multiple sclerosis, she was having a very active course and she started searching in the literature for things that could help her. And then she found a lot of evidence about the Paleolithic diet which is basically the idea that humans should be eating more like our ancient ancestors, avoiding foods that are filled with condiments, things like processed foods, or kinds of wheat that are, again, processed. So going back to those healthier macronutrients, so focusing on protein and fat as well as other things that our ancestors would be eating, she actually had some very good results herself. I'll be honest I like this diet. I think it sounds like a very good idea, specifically focusing on things that might modulate inflammation as well. Like having a healthier content of protein and fat, and limiting the things that are processed.

Peter Damiri:
Right.

Dr. Olga Thon:
Then we start talking about salt. Is limiting salt helpful for MS? This is one of those recent hot topics that are out there. So, there are a couple of studies, there's one of which is an evaluation of some clinical trials that were done with medications, such as some of those older studies with the interference in analyzing the amount of sodium there was within their diet. So, when they compared patients that had a more active relapsing course versus patients that didn't, they

actually did not find much of a difference. But then more recent studies that were specifically focusing on sodium intake and following patients for as long as two years and then trying to correlate the periods of higher disease activity, actually found that there was a threefold higher amount of sodium within their urine when they were having a more active time of relapses.

Peter Damiri:
Really?

Dr. Olga Thon:
Yeah.

Peter Damiri:
So over that three-year period?

Dr. Olga Thon:
Exactly. So, we still don't have enough data and again, those studies need to be reproduced and we need longer-term data. Right? But my personal, and there are ongoing clinical trials about salt intake and specifically limiting or not limiting the salt intake in the diet, so not just measuring, but actually intervening on the amount of sodium that patients take that is being done currently in some very respectable institutions. I would say that on the heart and blood pressure perspective, it's only helpful to limit the salt intake to healthy amounts. So ideally not pouring salt on top of your plate after it's done. And this is one of those things that is probably just a matter of getting your palate used to it. Right? Such as not adding sugar to your coffee, after doing it for a little while, it just becomes normal for you.

Peter Damiri:
Right.

Dr. Olga Thon:
Then we start getting into some of those variations of limiting carbs. So, things like the ketogenic diet, or you might have heard about it as the Banting diet. So, the ketogenic diet focuses on limiting the exogenous, so the exogenous sugar that you add to your body, so not the sugar that your body will produce, such as from converting fat into sugar, but the sugar that you will be eating. And then as a consequence of that, since you're eating less sugar, it's a higher amount of fat and typically a higher amount of protein within your diet.

So there has been a lot of popularity of the ketogenic diet more recently, and there are actually some really good studies with mouse models. MS patients might have heard about this. The mouse model for multiple sclerosis, the EAE, and showing that mice that were exposed to a ketogenic diet actually had less evidence of inflammation within their brain and spinal cord, which is pretty amazing. There was recently a study that was done about the safety of the ketogenic diet within MS patients, and it was a pilot study. So basically, a small population of patients and just trying to make sure that we’re not causing harm when we change their diet like we're not going to make their disease more active.

And when this group followed patients for six months on a ketogenic diet, they did not see any evidence of increased disease activity or anything else harmful. So now the next step, which is something that I'm particularly very interested in, he's looking at the long-term effects of a low carbohydrate diet in patients with multiple sclerosis and potentially regulating not just things like fatigue, but also disease activity. So, since we talked about fatigue, one thing that is very talked

about within those studies of ketogenic diet, not just for MS but for humans in general, is that when you eat a higher content of fat and specifically when you limit the amount of carbohydrates, you feel a boost of energy. So, there are a few extreme versions of that which is putting butter in your coffee, which I won't personally recommend. It sounds pretty disgusting to me, to be honest. But limiting the carbohydrates. You might have noticed that after you eat a big plate of pasta, you feel drowsy, and you feel like you could just go straight to the couch. So, it might be helpful to limit even not just focusing on modulating the disease, but just on limiting those four facts fatigue.

There's also a strong body of evidence that a ketogenic diet, not just in the safety of MS, but in the longer term, decreasing the amount of carbohydrates may be healthier for you. And specifically when you're talking about so what is this sugar that is coming in? So, the sugar, when you eat specifically, and I'm going to introduce some words and I don't mean to make this complicated, but the foods that have a higher content of sugar, such as processed, refined sugar. Right? A cake, or pasta, bread. Things that will have a higher, what we call, glycemic index. So much more sugar within each product. As soon as you eat that, you have a spike of insulin. And as soon as you have this spike of insulin, which is basically the hormone that is controlling the amount of sugar that can stay within the blood circulation, then that sends the message to your body that it's time to store the sugar. Now, we have no way of storing sugar itself. You can store very small amounts of it in the liver, but other than that, the rest of it needs to be converted into fat. And that is the fat that he's going to go to different parts of the body and specifically, the fat that is going to go around some of those organs that you have in your belly, and the visceral fat is the one that is going to cause a lot of harm. So, things like go to your coronaries, go in, and be associated with heart disease as well as stroke in the longer term. So, decreasing the amount of sugar will likely have a good effect not just in MS, but decreasing the amount of sugar, in general, will likely be healthier.

Peter Damiri:
And that’s the processed sugar you mentioned.

Dr. Olga Thon:
Exactly. Exactly. So, eating it from things like fruits and, obviously, here I'm no longer... I'm taking a little caveat and no longer just talking about the ketogenic diet where there might be a higher limitation of those exogenous sugars, but just thinking of a low-carb diet. So, things like fruits, also have a higher amount of fiber, right? So, while an apple does have a lot of glucose in it, and a lot of sugar, it also has a lot of fiber. So how slowly you absorb all of this sugar, it also has a higher... not as much of a bad effect. And then you're also getting a lot of the good vitamins and good things that come from fruits.

Then we start talking about variations of this, such as the Atkins diet, which is basically a low-carb, just not as extreme as the ketogenic diet, and the gluten-free diet, which might have some of those benefits of a low-carb diet. But I confess that I think I start the same thoughts that I have with the ketogenic diet of maybe being a little too extreme in the limitations. The gluten-free may not be necessary for patients with multiple sclerosis unless you actually have celiac disease or an actual disorder that might be better for you to limit the amount of wheat.

Lactose-free diet. And then I start delving into the same concerns that I have with diets that limit the fat, for example, that you're depriving yourself entirely of something, and that may not be healthy. So, lactose-free diet, I would specifically be concerned about the difficulty if you're not drinking milk, then decreasing the amount of calcium or vitamin D, which are important not just for bone health, but for MS as well.

Intermittent fasting. There has been a lot of good attention to intermittent fasting recently and there are ongoing studies both at Wash-U as well as Hopkins with clinical trials of intermittent fasting and those are, again, following initial results from basic science. So, looking at mice that have the model for multiple sclerosis that I mentioned. And when they were exposed to intermittent fasting, they also had some pretty good results in limiting the amount of disease activity.

And I'm going to finish talking about the Mediterranean diet, which is another variation of that low-carb diet. So, limiting how much exogenous sugar you're giving to your body from breads and pasta, but not just that, but adding things like olive oil and garlic and those flavonoids that we were talking about before that might have some good modulatory effect effects on inflammation. I'm a fan of the Mediterranean diet. We don't have any results currently on multiple sclerosis. But when we're talking about diseases like diabetes, or high blood pressure or when we pull all of those together and call them metabolic disorder, which is endemic in the United States, a higher percentage of us have it, then there have been some really good studies that Mediterranean diet in the longer term seems to have a good effect in controlling diabetes and high blood pressure. So, I'm particularly a fan of that. Within the neurology world, Alzheimer's, and dementia in general, seem to benefit from a Mediterranean diet. So specifically, there was a recent paper published in Neurology that showed, in 2018, that showed that adults from 30 to 60 years old had better volume measurements of their brains within the ones that were following a Mediterranean diet.

Peter Damiri:
Interesting.

Dr. Olga Thon:
I know, right? We're all interested in the ability to keep our brains the way they are. So, anything that might help.

Peter Damiri:
Certainly, in the range of neurologic disorders, it probably has cross purposes as well.

Dr. Olga Thon:
Exactly. Exactly. And it's just like the points that we were making in the beginning, that it's human, right? You can't just treat multiple sclerosis. You have to focus on things, if the patient has diabetes, what are the other things that might be helpful or harmful? Once you start making changes in not just their medications but their diet, we can't ignore the fact that a lot of our patients, especially as they age, will also be exposed to things like dementia, especially when we're talking about a chronic disease like multiple sclerosis, that in the longer term that will typically have cognitive effects, then we have to take into consideration the diet as well as prevention.

Peter Damiri:
Right, right. Well, that was quite a lot. You covered quite a lot of diets and options. So, when people come in and see you and you review this information, what do you generally recommend to your patients?

Dr. Olga Thon:

Right. So, I think based on all the data, everything that we see in the literature, and that that's the first thing that we want to do, use the good information that is out there. I would say a low carbohydrate diet, but not completely limiting the carbohydrates, but a low carbohydrate diet that is also rich in protein and fat and all those things that we see from the Mediterranean diet, like olive oil and flavonoids. So, a healthy amount of red wine and chocolates like we mentioned before, and things like garlic or turmeric can seem to only be helpful. And why we don't have, it's hard to make interventional studies in which you change people's diets completely, and since you're not there every day to control what it is that they are eating. But those are the things that seem to have stronger evidence of healthiness in the longer term, not just for multiple sclerosis, but in general.

Peter Damiri:
Right. Great, great advice. Great information. Since we had opened up and talked about wellness in the beginning, can you comment on smoking, exercise, and other lifestyle changes?

Dr. Olga Thon:
Absolutely. So, like we were talking before with considering the other diseases, specifically smoking seems to be extremely harmful in multiple sclerosis. Think of it as a double-hit effect. So, if you already have multiple sclerosis, and parts of your brain, such as those connections, those cables that are taking the message from one place to the other, which is where the white matter is, protecting this message from going from one place to the other. When you smoke in the longer term, just like high blood pressure, starts stiffening some of the blood vessels that are supplying the nutrients to those areas that connect things in the brain. And once you start, then smoking in the long term can cause disease in the white matter that can look very very similar to multiple sclerosis. And there's irrefutable data out there showing that for patients with multiple sclerosis and smoking, they have a worse prognosis. So, they do worse in the longer term, not just with cognition, but with motor and several other measurements.

So, exercise. And a lot of time those things will come together, right? We're all humans, you get really excited about your diet, then you want to change other things that are only good in your life. So, exercise will typically come along. So there are studies showing that even as little as 30 minutes of brisk walking are three times a week, so a minimal amount of exercise, I'm not talking about doing high intensity or biking or, you know, things that are also great for you, but not even that much, so even as little as 30 minutes of brisk walking on a treadmill three times a week can have an extremely good effect, not just on the motor aspect, but also cognition and vision.

Peter Damiri:
Interesting.

Dr. Olga Thon:
So, my suggestion would be that any kind of exercise that suits you, if it is walking, or walking your dog, or biking, any of those things will help you. So, I run with my dog every morning on the Schuylkill River Banks, and if you go there probably around 6:30, you're probably going to bump into me. And sometimes I will do it for 10 minutes, but it's literally whatever your life can allow it and, you know, making things that are compatible with your lifestyle. So, if you get home from work and you're extremely tired, that may not be the best time of the day to do it. But then waking up a little earlier might do it, might give you that extra time throughout the day.

Peter Damiri:

Right. And we have a lot of patients that call us and talk about aquatic exercise and find that very helpful.

Dr. Olga Thon:
Yeah, absolutely. Yeah.

Peter Damiri:
Gives them that range of motion in the pool with the buoyancy in the cool water. It seems very helpful.

Dr. Olga Thon:
Yeah, I completely agree. It is low impact, so it's not going to have any harmful effects on your joints in the longer term. And again, it gives you that amount of exercise and as well as pleasure, right? It's fun to do it.

Sometimes I get questions about coffee. So, in preparing for this podcast, I was getting into the literature to see if there's any evidence of coffee and MS, and I'm surprised to say that there's not much out there. And it's hard to think about coffee and not think about the effects that it can have on things that happen to our patients on a daily basis. Right? So specifically, if you have bladder symptoms, if you have urinary urgency, or incontinence, then coffee might not be the best option for you. Because you will probably increase the amount of your urinary frequency, the number of times you need to go to the bathroom. But if you don't have that, and let's say that you're starting to experience some memory issues, or fatigue, for example, then coffee might be helpful. So, I would say that just modulating those things based on your particular needs, and maybe who knows within the longer term we'll know a little bit more about the effects.

Peter Damiri:
And I guess everything in moderation.

Dr. Olga Thon:
Yeah. Exactly.

Peter Damiri:
Well, Dr. Thon, you provided such great information; a lot of helpful insights today. As we wrap up our program, we want to make sure we provide the audience with some key takeaways and any helpful resources that you could suggest.

Dr. Olga Thon:
Yeah, absolutely. So, I think, number one, talk to your doctor, and your doctor might also be a good connection to like a nutritionist or someone else. Don't make any big changes before consulting with the healthcare providers that are helping you. They're your ally. They're not there to say, you know, a strict "no" or strict "yes". They would just provide you with good information. Specifically, so when I was talking about supplements, I get concerned about things that you might be buying from not so trustworthy places on the web. And you might sometimes have a few components in there that I would say if you can't read the name, there's a good chance that it may not be good for you.

So, you know, don't hesitate to either send that link to your doctor or bringing the bottle if you already have it. I've had patients doing that, and sometimes I'll read a component and I'll say,

you know, it doesn't look very harmful. Worst case scenario, you're just paying a little too much for it, it's just going to go out in the urine. But it's always good to check, specifically if you have, obviously, the intent of the advice here is to provide good information in general, not particular to any individual. So specifically, if you have celiac disease, diabetes, you should always be consulting with your physician, not just with your neurologist, but with your primary care physician to make those decisions.

And third, unbelievable amount of helpful resources from institutions like the MSAA. So, this today is a good example of that. Right? Connecting the information that the patients want to know, what the people want, which is advice about diet and, in this case, exercise as well. But connecting the patient with the information that is out there, as well as the ability to connect patients with patients and patients with other helpful resources.

Peter Damiri:
I want to go back to a point you mentioned earlier about talking with your doctor about vitamins or supplements. Do you find patients are reluctant to mention this information to you?

Dr. Olga Thon:
Yes. This is such a good question. So, I think a lot of times patients will feel like they are almost being judged by their doctors, and they don't want to ask the wrong questions. They don't want to seem like they are about to do the wrong thing. So, they rather just go to the Internet or go to their friends instead of asking their physicians. So don't be afraid. We are people just like you are. And I also sometimes will Google things that may or may not be helpful for me. So, ask your physicians because when you're going, specifically, when you're going to an MS specialist, it is someone that, just like you, is also interested in MS and is going to provide you with some helpful information. And, you know, sometimes the answer will be, I don't know, there's not enough data out there to say if it can be helpful for you. But while we can, most of the time, help answer, "is it going to be harmful?" Right? Is there any ingredient there that could not be good for me and could cause, let's say, kidney or liver damage, which is the last thing that we want to do?

Peter Damiri:
Sure. So, you both want to be on the same page. You want to be informed and not be afraid to share that information.

Dr. Olga Thon:
Exactly.

Peter Damiri:
Well, again, great advice. And we really appreciate all that you've shared with us today. So, this concludes our podcast, "The Impact of Nutrition in Multiple Sclerosis." On behalf of the Multiple Sclerosis Association of America, I would like to thank Dr. Olga Thon for sharing her insights on this very important topic. I would also like to thank Gradwell House Recording for hosting us today and producing the program, and our funding partners, Celgene and Novartis, for supporting this podcast as well as additional programs spotlighting MS and the family.

This podcast, along with additional information on multiple sclerosis, can be found on MSAA's website at mymsaa.org. Once again, thank you so much for joining us.