



#602 How Glycans Predict Chronic Disease 10 Years Early and Test Biological Age with Nikolina Lauc

Dr. Wendy Myers

Welcome to the Myers Detox Podcast. I'm Dr. Wendy Myers, and today we've got a great topic about testing your biological age using a very unique method, that is, testing glycans. We're gonna be talking about that on the show today. On this podcast, we talk about all things related to anti-aging, longevity, detoxification, health issues caused by toxins and heavy metals, bioenergetics, which is one of my passions right now, and a lot of other advanced topics related to health. But today we're gonna be talking with Nikolina Lauc. She owns a company called GlycanAge that offers a biological age test that measures glycans, which are complex carbohydrates, not like simple carbs or the carbohydrates you're thinking about when it comes to your diet. These are complex carbohydrates that indicate inflammation levels and predict disease risk, many times, six to 10 years sooner than current tests.

These tests can also show age-related issues related to estrogen loss, especially in menopause. We talk about how menopause really ages you, which I think we already know, but we can see evidence of that on this test, and exactly why. Chronic stress is also a major factor accelerating biological aging. We also talk about personalized interventions like hormone replacement therapy, stress reduction in optimized diet and exercise, which can very significantly improve your biological age, and maybe

when you get your test results back, you'll be more motivated to improve on all these different factors. Niko's father pioneered glycan research, inventing one of the first biomarkers to measure molecular aging.

GlycanAge has analyzed over 200,000 glycans, representing 85% of the global glycan data. They were the pioneers of this type of testing and glycan age. This test measures biological age, inflammation levels, and specific disease-risk signatures. It can predict conditions like hypertension, rheumatoid arthritis, and other health issues like diabetes, so you can do something about them before you develop them. The issues of prevention are so important, and we'll talk about the key factors impacting biological aging, such as estrogen loss. Like I mentioned, menopause transition accelerates aging 10 years on average, and it's gonna be mitigated with hormone replacement, which is why I'm doing it.

We'll talk about chronic stress and how clinical PTSD diagnosis correlates with a 15-year acceleration in biological age. We'll talk about how moderate exercise is better than excessive training, which can increase inflammation, especially in women. We'll also talk about where you can get this test. You can get it on glycanage.com.

Our guest, Nikolina Lauc, is GlycanAge's CEO and co-founder. She is a successful entrepreneur with proven experience in scaling startups and is currently on a mission to unlock the human glycan for preventive health and longevity. GlycanAge stands at the forefront of the health, tech, and longevity sectors, boasting a technology forged from over three decades of rigorous research and analysis of over 200,000 test samples, utilizing the largest proprietary data set of the human glycan. GlycanAge is pioneering advanced blood biomarkers for the prediction of age-related diseases. You can do this biological age test at glycanage.com. Nikolina, thank you so much for joining the show.

Nikolina Lauc

Thank you for having me on.

Dr. Wendy Myers

Tell us a little bit about yourself, your background, and how you got into testing for biological age.

Nikolina Lauc

Well, it depends on what part of the story you want them to have. But if you wanna go back into history, it was because of my parents. My parents are scientists, and this was a random discovery by my father over 15 years ago. He told me when I was 19 years old that he could measure aging on the molecular level, and obviously didn't care about it much when he was 19. He invented one of the first biomarkers to measure aging on this level, called the glycan clock. The name of the company is based on that first paper they had. It was called the Glycan Bio Age. So, that's where it started. I don't think I personally had an interest in it until about five years ago because I mainly understood it. I think personally, I like aging. I like getting older every year. If anything, I've always been trying to up my age since people would ask me how old I am. But, from a biological perspective or a health decline perspective, it makes a lot more sense to monitor this and have it as young as possible so that you can have a good quality of life later.

Dr. Wendy Myers

So, tell us, what are glycans? You offer a test at your company, GlycanAge. What exactly are glycans, and why do you wanna measure them to determine your biological aging and how fast you're aging?

Nikolina Lauc

They're complex carbs. People always get confused when we say carbs because they think about simple sugars or dietary sugars, or maybe they think about how their biology will respond to these dietary sugars. We haven't yet reached that level of public awareness of glycans as a complex post translation modification or something that changes how your biology works beyond your genetics and epigenetics. There is this paper my father wrote over 10 years ago now, where he called glycans the third revolution in evolution. It's a way that we've evolved to change function without having to change our genes or turn certain genes on and

off. We change proteins in real time by altering their glycans, which are partially genetically encoded.

They're inherited as a complex trait, or you have a number of different genes that would define the type of glycan that would attach to a certain place on your protein. It's a step in evolution that enabled multi-cell life. All of our biology communicates with glycans, and every single process since we've been multi-cell is mediated by glycans. For example, your blood groups will be defined by different glycans on your blood cells conception. They happen because of glycans and all immuno communication happens through glycans, which is this system that keeps us alive. What we focused on is this adaptive immune system or this aging immune system that would learn throughout life and prepare you for threats.

Unfortunately, as we get older, we become a threat to ourselves by accumulating this low-grade chronic inflammation, or losing certain function that I had when I was young, meaning to suppress inflammation after they've activated it for a legitimate threat, like a virus or cancer. So, we became obsessed with this field and my father is actually the second most published scientist in glycan biology. He has dedicated his last 30 years to it, and it's a very exciting space.

Dr. Wendy Myers

At GlycanAge, you're measuring your biological age and you guys are doing a lot of research in this glycan biology field. Can you talk about some of the research that you're doing that helps people determine their actual ages, and maybe let's define the age as well?

Nikolina Lauc

You can think of it more as an immune age or something we call inflammation. It's this accumulation of damage to your immune system throughout life, which would then accumulate and predisposes to disease and mortality. It's very different to skin aging or some other ways you can measure aging on a different system, but it's very relevant to your health outcome and health risks in the long run. So research wise, it again, depends on what you wanna focus on because we publish more than 300 different clinical trials all looking at natural aging or different biobanks and

longitudinally following people to see what happens to their PLAs and specifically looking at certain diseases. Also understanding that this is something that's relevant to aging that happened because we started to look at these big cohorts of people that hasn't been done before.

In 2006, our lab pioneered the first large human glycan home study, and we analyzed the first thousand human glycan that were ever analyzed. Everything before was maybe up to a hundred, and that was a high scale study. A thousand was never imagined before, and then we went to 10,000 today where over 200,000 glycans that were analyzed in our lab. And that's over 80% or 85% of what the world has looked at so far. So we specialized at the time in a niche area, but something that's very relevant to preventative health and also personalized medicine and healthcare.

The most interesting finding about glycans is that you're looking at this very early molecular level of health decline. And if we're connecting this to a specific disease, glycans are like language. They're sugar languages. It's inflammation where a certain signature would lead to cardio inflammation. Another signature would lead to autoimmune inflammation where something different would lead to a metabolic disease. So you can define where this inflammation is going to go in 10 years time and with this work with the longitudinal bio bands, we've seen that throughout a certain glycan signature, or they're called glycosylation patterns, we can predict hypertension six years ahead of time with 98% accuracy.

We can predict rheumatoid nearly 10 years ahead of time with 92% accuracy. So they're very good at preempting a problem before it actually becomes a problem, and in some cases we even know how to prevent it. So the signature that would indicate cardiovascular problem in the future would respond to physical activity or the signature that would indicate diabetes or insulin resistance would respond to dietary changes like caloric restriction and weight loss. So you can tell somebody on time that they're heading towards a healthcare concern or a problem, but you have plenty of time to actually do something about it and prevent it from happening.

Ads 12:04

If you're taking protein powder, you need to stop and listen to this. The Clean Label Project recently tested 160 of the top selling protein powders in the US. They tested 83% of the market, which is 70 different brands and 40% of the products tested exceeded Prop 65 safety thresholds for lead. 21% had more than two times the Prop 65 safety thresholds for other heavy metals and toxins. 65% of chocolate protein powders tested over the Prop 65 safety thresholds, and 77% of plant-based protein powders tested above these thresholds as well. That's definitely not what you want from products that are supposed to support your health particularly. It's something that you're consuming daily.

What the study found was that Puori PW1 protein powder was awarded the number one cleanest protein powder out of 130 different brands. The choice is clear. That's why I love Puori's PW1 Wave protein powder. Every batch is third-party tested against 200 plus contaminants. They don't sell any product unless it passes these tests, and they make all of their third-party tests available via a QR code. You can scan this QR code and see exactly what is in this product and what this batch tested for. No other brand is doing that because they won't pass the test. Each serving gives you 21 grams of minimally-processed, clean, high-quality whey protein powder from pasture-raised cows' milk. So, no hormones, no GMOs, no pesticides, nothing to worry about. I personally love the bourbon vanilla flavor. You get real vanilla seeds from bourbon, vanilla from Madagascar, which is known as the best vanilla in the world. It's high quality. It tastes amazing. Even my daughter mentioned how she loves the vanilla flavor in it.

I worked with Puori on an amazing deal for you. You can get 20% off, or if you choose the already discounted subscription, you get almost a third off the price. But you're only gonna get this deal if you visit my exclusive link at puori.com/wendy and use coupon code Wendy to get 20% off this amazing deal of the highest quality whey protein powder that's been tested for 200 plus contaminants. You can bet this for quality. This is my number one recommendation for protein powder because the results are in. Puori is the number one cleanest testing protein powder on the market.

Dr. Wendy Myers

It's much easier to prevent than when you develop it, and there are all kinds of damage and inflammation in decades of damage that you may not be able to undo. It is really valuable information. When you do your glycan age test, what can people expect? What kind of markers or predictive information can they glean from doing this test?

Nikolina Lauc

The simplest thing about it is that we can give you a biological age, which then puts you into context of where your level of inflammation is or inflammaging compared to this large cohort of over 200,000 people. So are you 10 years ahead or 10 years behind? That in itself is a good general marker of overall health. Then we look at anti-inflammatory and pro-inflammatory aspects of your immune system. These glycans that would create inflammation where they would suppress inflammation, and you need a balance between both, not too much, not too little on any side. Then we have some certain glycan structures, which will be specific to risk factors like a cardio risk or a metabolic risk.

It depends on where you do the tests. If you do it as a consumer, we can't give you any disease association, or indication. Well, if you do it through a private clinic and we work with thousands of clinics across the world, we give them additional information and we give them the overlap of your glycans with the different disease signatures so they can do early additional diagnostic testing or put you on the prevention protocol. What we encourage with consumers is to share these reports with your doctor. There's an option where you can share this extended medical version of the report with your own doctor and then have somebody check it because we don't want to scare consumers.

I think that's a mistake a lot of companies made where they gave this scary information to an end user who didn't know how to respond to it or, or use it for its purpose. If we have somebody who can read a paper in between and make an educated conclusion from it, that really helps in understanding and adoption of change.

Dr. Wendy Myers

I think doing a test like this is a fantastic biomarker. You're not gonna get this at your typical conventional medical doctor, but it's really important to track your biological age to see how you're doing with your diet, lifestyle choices, and detoxification strategies, hopefully. Say someone does the test and they wanna improve a lot of the markers on the test. What are the top factors that will improve biological aging that you recommend people do?

Nikolina Lauc

Some things depend on what we've been able to research and publish, so we can make very firm claims and some are based on what we see in practice. We have smaller studies with smaller corporate sizes, but we see very strong effects. And of course, diet and exercise have a positive effect in the right measure. So it's not overexercise because then we see that you can actually promote inflammation, but moderate the right level for the right person is very anti-inflammatory. Same with diet, weight loss, and caloric restriction. It really depends on what you as an individual need to improve? That can also be sleep. We see that somebody who's diagnosed with sleep apnea, on average, they have seven years acceleration on their clock.

This would assume that if you fix this problem or you improve sleep, you can also improve that acceleration. But if you ask me what is the strongest factor on the clock that would accelerate it, but also decelerate it connected to natural aging, that would be estrogen loss both in men and women, but more severely in women because of menopause. We see this acceleration of aging in the menopause transition. Perimenopause to menopause is about 10 years on average, that can be much more or a little bit less, and that can be rescued with the replacement of estrogen, which of course needs to be timely and personalized. It's an area with a lot of controversy for unnecessary reasons because now we do have long-term trials showing that estrogen does prolong lifespan.

There was a big study that just came out from the UK Biobank of 300,000 people, where they looked at all the commonly prescribed drugs, what prolonged lifespan and reduced mortality, and they evaluated about 406 drugs. The majority of them reduce lifespan and promote mortality. But there were 14 drugs that increased

lifespan and decreased mortality, and four of these were estrogens. So we do know that this is a very big factor for our longevity and that's where we can see big acceleration if you lose it and big deceleration if you replace it, which is an average also these seven to 10 years.

Dr. Wendy Myers

When I went into menopause maybe two years ago, I started having all these musculoskeletal issues and for sure inflammation and constantly injuring myself, and it was just driving me crazy. And then after a while, it finally dawned on me that it was the lack of estrogen and that I needed to look into hormone replacement therapy and God, I feel so much better. I'm just not having this inflammation and muscle injuries. And that really also causes a lot of other problems such as sleep issues, lack of ability to exercise because you're not able to exercise, which promotes longevity and sleep. It's just this catch 22 that I found myself in for over like a year, 18 months before I was able to finally figure that out. I think a lot of women don't realize they have pain syndromes. They have more injuries in low progesterone as well, which helps you to sleep and turns off estrogens as well. There are a whole host of problems that happen when those hormones start taking a nose dive in well before menopause as well. I wish I'd been tested and started a replacement much earlier than I did.

Nikolina Lauc

The problem is there's no test you can actually run to make that conclusion. Hopefully there will be, and I think that'll be an inflammation based test only. We actually discovered a novel biomarker there to indicate when you've lost estrogen overall, before your cycle has stopped. That's one of the problems because now a lot of people promote Astros as anti-inflammatory. Actually it's what keeps our body and homeostasis or this perfect balance of the organism. So there shouldn't be too little, there shouldn't be too much. It should be an optimal balance for you as an individual. The problem is that this reference range for estrogen is very broad. It's from 65 to 365 or 350.

When you were 20, maybe your level was 200 or 250. Now you're testing your estrogen for the first time at 45, it comes back at 65 or 70 and your doctor tells you

your estrogen is normal, you're fine. Well, because your individual level declines, you have all these symptoms, but you don't know where they're coming from because you can't look at estrogen directly. So what we see is as your individual level drops, the level that keeps you in balance, inflammation goes up. And that's the main reason we see this inflammaging in that age period. Put the estrogen back. And you also have to optimize the dose because we're very individual and the way it's prescribed, or at least what's written on the label, it's kind of the smallest dose. That's what you should start with.

It should be optimized to what your body needs, which might be the small dose, might be a bigger dose, and it might be a combination of different hormones, and that's where we're lacking tools. In clinical practice. So if you look at the statistics, they're horrendous. There was a survey in the UK where they showed that you visit your doctor six to seven times with menopause symptoms before that actually gets correctly identified. That could be insomnia or depression. You can get sleeping color and antidepressant, but you wouldn't get estrogen. There's a big fear around prescribing it because of the WHI study that was done 20 years ago, which kind of vilified estrogen. In the long term, as we looked at the data, even that old synthetic form of estrogen was better than that.

It is something that will take us a long time to rectify in the public eye. So now when you look at the amount of women that have symptoms of menopause, it's between 80 and 90%. It's the majority of women who have symptoms of menopause. Between seven and 14% are actually on estrogen. That's 14% in the UK, less than 7% in the US. There's a drug, and this is so sad, that removes all these symptoms that all women are suffering from and it prolongs lifespan. It has a lot of positive effects, yet we're all scared of it and we choose to suffer.

Dr. Wendy Myers

I spent years trying to figure out why I couldn't sleep. I literally have become an expert on sleep because I just couldn't no matter what I did. I was like, oh, you know what, it's just stress. But taking progesterone reduces stress. It produces gaba. Progesterone is also life-changing as well for many women. It's good to know that estrogen, the hormone replacement, is anti-inflammatory, anti-aging and improves

health outcomes. Is there anything else we should be aware of, something that really helps to change the number, improve your testing and improve your longevity as well?

Nikolina Lauc

If you look at the second highest impact, from what we know right now, it's of course very hard to measure stress. If you have a clinical diagnosis of PTSD, that gives you an average of 50 years on the glycan clock. Menopause gives you an average of 10. A chronic stress state gives you 15. We've done another study that's just coming out now on medical residents in their first year, resident medical doctors, and there you have the lack of sleep, very poor diet, but most of all, very high levels of stress because lives are addressed and you've never done this job before.

We've done the psychological questionnaires with a hundred residents and measured their glycans and with the scores on anxiety, depression, and stress. Stress had the biggest correlation with your results. In some cases, and this is not a published paper, so I don't wanna say something wrong, but I think the average acceleration will be above 15 years and sometimes even 20 in that period of time, which is all of course mainly attributed to stress. That's something that's hard to measure and hard to intervene in because you have two choices. You can remove the stress or you can get better at stress. And getting better at stress is very hard to do.

Maybe I'll give you a case study where that was very easily fixed because you can only accumulate some stress. But there was this executive that worked with one of the functional medicine practices. Every few months they do a case review with us and they show us some interesting case studies and practice. There was this lady who had a high level executive job, very stressful by nature, and two young kids. She did HIIT training every evening, and her glycan clock was 15 years above what it should have been. Her doctor was like, okay, well we can't take it with the kids. We can't change your job right now. Let's change HIIT to yoga because that's physical stress, but you're putting it on top of psychological stress and a very demanding schedule.

She changed the HIIT to yoga. Within less than three months, her age dropped to 14 years. She got much closer to her age. So if you can identify what is the stress factor in that person or what is the one thing you can change that's high, in fact, that can basically remedy the majority of the damage.

Ads 28:39

I want to take a minute to talk about the health benefits of olive oil and thank one of the sponsors of the Myers Detox Podcast called Fresh Press to Olive Oils. Like many of you, I'm always trying to eat healthier, and that's why I love really good olive oil. I eat olive oil every single day for its many antioxidants and longevity benefits. Olive oil is the cornerstone of the Mediterranean diet, proven to be among the healthiest in the world. Sicilians from Italy and some islands in Greece have some of the longest-lived people in the world because they're eating olive oil every single day.

Check out this article from Life Extension Magazine: Olive Oil Markedly Extends Human Lifespan. In a long-term clinical study, those who ingested the most olive oil derived polyphenols live 9.5 years longer if they're over the age of 65. The Harvard School of Public Health has announced the results of a 28-year study showing that just over a half a teaspoon of olive oil per day is associated with a lower risk of dying from cardiovascular disease, cancer, neurodegenerative disease like Alzheimer's, and respiratory disease. It's been shown in the research to reduce high LDL cholesterol. It helps prevent type two diabetes, high blood pressure and obesity, and it may also help to prevent arthritis and osteoporosis. There are so many health benefits. So, whenever you buy olive oil, the four most important words to remember are the fresher, the better.

Olive oil packs the most flavor and the most nutrients when it's fresh from the farm, and that's the problem with supermarket olive oils. They're not fresh. They can be sitting on the shelf for months transported over sea on ships, losing the polyphenols and antioxidants with the healthy fats even going rancid, the longer they sit in the bottle and that defeats the whole purpose. Not only that, but most olive oils sold in the US are not actually olive oil. They're mixed with canola and other unhealthy industrial GMO seed oils that you're trying to avoid by choosing olive oil in the first place. It's really shocking that this has been allowed to happen, but there just isn't

much oversight in the industry. That's why I stopped buying olive oil from the grocery store years ago because you just have no idea what you're getting.

That's why I love getting my olive oil direct from someone that I trust, that is from TJ Robinson, who's known as the olive oil hunter. He has found all these artisanal small farms producing olive oil like they've done for thousands of years. I look forward to my quarterly shipment of olive oil from Spain, Italy, Australia, and other countries. This one is from Portugal, and depending on the country, the olive oils are ripe and in season. They press the olive oil and they bottle it and they send it to you right away. So, it's the freshest that you can get. And so when I tasted TJ's farm fresh oils, I fell in love with them. They're so fresh, they're so pungent. This is how olive oil is supposed to taste, and they're incredibly delicious on salad, veggies, pasta, meat, fish, you name it. Olive oil also has zero carbs, so it's ideal for low carb ketogenic and paleo lifestyles.

As an introduction to his fresh pressed olive oil club, TJ's willing to send you a full size \$39 bottle of one of the world's finest artisanal olive oils, fresh from the New Harvest for just \$1 to help them cover shipping. You can go take advantage of that at getfreshwendy.com. You get a \$39 bottle for only one dollar at getfreshwendy.com

Dr. Wendy Myers

I don't think people realize how stressful it is. People do this high density cardio, especially at night. I can only imagine that it makes your cortisol, your blood sugar goes up and then it screws up the rest of your sleep for the rest of the night.

Nikolina Lauc

It's a contradiction because we all believe that this more is more with HIIT and that it will optimize our performance in high stress. You get an adrenaline rush from it, but there is such a thing as too much, and we know it from the studies we did on different types of exercise. We were comparing people who just start to exercise, people who moderately exercise where they're the majority of their lives, professional athletes and PE and people who are overweight and sedentary and they never went to the gym or did any form of training.

Inflammation levels in the sedentary, overweight population compared to professional athletes was the same. So you have the same level of chronic inflammation as a thick athlete as you would be if you were sally and mildly overweight, not the Elise. Then we looked at men and women, and if you compare them, women had the highest biological age as professional athletes. They were sky high, much more like they had much more damage than men and you would see it in their symptoms as well because they would frequently lose their cycles, or we have other consequences of the sports, which could be a loss of bone density as well.

A lot of these things mimic and I think the complexity there is that we try to train everyone as a professional athlete. So, even if you go to a random hit class across the street, they're trying to push you as much as you would push an athlete. They don't take into account that maybe you just finished a 12 hour shift and you're not getting enough sleep, you're all gonna go in there and try to push yourself to the maximum. Female athletes are trained the same way as male athletes. And there are some differences that should be taken into account that we haven't yet fully explored.

Dr. Wendy Myers

Are there any differences, say between men and women when it comes to aging, other than say the athletic comparisons? Are there any important differences there when it comes to aging?

Nikolina Lauc

Absolutely. The immune system is the actually most striking difference if you compare the cohorts. Women generally do better with menopause. They're more anti-inflammatory and that's probably connected to their hormone profile, but they will have very gradual changes with age. The algorithm we have for men and women is very different. This main age acceleration would happen at menopause or perimenopause to menopause, and then they would get on the same line as men. Sometimes they would overtake men for a period of time, and then they age on the same curve as men and men just have a straight line with aging. There are no curves in between.

Dr. Wendy Myers

That's probably why we live longer as well. We have improved inflammation. We generally take care of ourselves better and men, bigger consumers of health information and supplements and things like that.

Nikolina Lauc

We live longer, but we actually have more disease burden post menopause than men. We spend about 25% longer with chronic disease than men do. That spend might be related to the more challenging health for postpartum moms. That's something that's always not taken into account because we say, oh, men live longer, but women suffer a lot longer, and those extra years don't necessarily come with health

Dr. Wendy Myers

Interesting. You do a lot of research at GlycanAge. Have you noticed a difference in interventions that impact men and women differently?

Nikolina Lauc

Unfortunately we don't have enough research to separate them in terms of interventions. That's an area we want to expand on and fully understand differences with drugs, with different lifestyle choices. There just hasn't been big enough in intervention trials to make those conclusions apart from maybe one. We did a study with access involving people who haven't trained before going to the gym for the first time at age 40 or between 40 and 60. We saw a more prominent change in women in terms of the cardio markers. Their cardio risk responded a lot better than in the men in that same cohort for some reason. That's the only anomaly I can suggest and that was a relatively mild form of exercise. That was very factual for cardio health.

Dr. Wendy Myers

Say someone does a GlycanAge test and their biological age is high, what are some things that people can do to improve their biological age?

Nikolina Lauc

You have to identify the cause and the cause is very individual to person. What we do even on the consumer side, you have the consultation. That's free of charge included with the product. We highly advise that you use that and you talk to a specialist on their team, which goes from clinical nutritionist to a medical doctor to discuss your results and put them into perspective of you as an individual. We don't ask you for a lot of data and it's optional. We learn most through conversation. It's very hard to get that through just the health report you fill. And then of course we work with private practices which have their own protocol.

It depends on what's driving the inflammation for you. That can be stress. It could be hormone related. It could be dietary. You really have to pinpoint and try to find the right intervention for the right person. Otherwise, something that's beneficial could actually be harmful like exercise. We see it's positive in most of the studies we did. If you have a high stress job and you have other stressors, maybe you should be going for something lighter. We did a trial with HIIT training and we saw that within 12 weeks it was anti-inflammatory and we reduced the ages in the study we did. But that doesn't apply in every circumstance.

Dr. Wendy Myers

And also the timing probably depends too. It's better in the morning than in the evening, for instance. And yeah, everyone's totally different as well.

Nikolina Lauc

And you never have everyone respond the same to the same intervention. Every time, even with what we do in healthcare today, most of the drugs we prescribe, we don't know if you're gonna respond or not. It's an assumption at the beginning. And then we follow you and we hope, if you haven't responded, we give you the next option and then the next option. Studies will eventually help us make these decisions quicker. We recently did a few trials in diabetic medication and also metformin in the healthy population. It was assumed that metformin is a longevity drug and there was this data that was coming out. A lot of people started taking an off-label for

longevity. We got excited because, okay, let's get a placebo controlled trial. And we had a few friends who tried it and in one case lowered their glycan age.

In another case, nothing happened. So we're like, okay, we need to research this. It was a study of overweight, healthy people, no diagnosis going on Metformin, testosterone or just testosterone. It was all men. We saw that it didn't have a statistically significant effect in healthy people. There was one out of 20 people who saw positive anti-inflammatory change. Majority of the people who take metformin off-label for longevity might actually be causing more harm than good, although it's very well marketed. The harm they mainly cause is this suppression of testosterone. That's why of course the testosterone had a positive effect, but most warming will lower your testosterone and lower your energy also.

Dr. Wendy Myers

I mean, you get tired. All these weight loss drugs, Ozempic and Wegovy and others, make you tired as well. They're lowering your blood sugar, which you need for energy. So it might be great if you're a diabetic, but if you're a healthy person, that's not a desirable side effect.

Nikolina Lauc

Again, it depends on what this individual needs and testing if the first assumption will also be helpful. We did another trial on diabetic drugs, Metformin, one that I forgot the name of and the GLP-1. We see that in the diabetic arm, about 50% of patients respond to Metformin. If you do have diabetes, or maybe even a predisposition to diabetes, metformin could be a great thing for you. In the GLP-1 diabetic arm, we would see if they would respond in terms of glucose or in terms of weight loss? You can have benefit in both, but not necessarily both from the same person. So, it's personalization and we don't have these tools in practice. We're developing them now and we're actually hoping that the genomic space will open personalized medicine, which didn't come to fruition. But with lichens, we do see a lot more promise and practicality in utilizing them to see if something works or doesn't work in a patient before you have to monitor for symptoms or spend months in a drug that doesn't work for you.

Ads 43:04

For anyone listening who really wants to detox their body, go to heavymetalsquiz.com. I created a quiz for you. It only takes a couple of seconds and it's based on some lifestyle questions. You can get your toxicity score and get a free video series that answers all of your frequently asked questions about how to detox your body. Check it out at heavymetalsquiz.com.

Dr. Wendy Myers

I'm taking Berberine and that's supposed to work on the same, similar pathways as metformin without some of the side effects and that's easier to take. I don't need a prescription as well. Why don't you tell the listeners where they can get this test? Roughly, what is the price point and what is the whole process involved?

Nikolina Lauc

We have a consumer platform or a web shop. You can buy it online. It's available in over 60 countries so far. Most places we can cater to, and that's because it's a dry blood stain sample that you do at home and it's stable in the post for over two weeks. We get samples from Japan, Singapore, and all across the world. It's priced at \$348. That's the test and includes the consultation. It's not mandatory, but we offer it as an additional layer of service. If you are already a patient in a longevity clinic, you're not a secure client in a longevity clinic where preventive health practice or a functional medicine clinic, we work with a lot of these over 2000 or even now, 2,500 across the world.

So, it could be that your practice provides it. The added benefit of that is that they can often give you a prescription. If it is somebody going for menopause or you are looking to try some early preventive therapies, there are a lot of options there. And that's of course much better guided by a medical professional than trying to do it on your own.

Dr. Wendy Myers

Okay, fantastic. Go to glycanage.com. That's it. Get your test. I did the test, fantastic information. And definitely, it's one of the biomarkers that I'm tracking because I

wanna live a long time and I wanna figure out what I'm not doing right and what I need to tweak. There are a lot of markers I'm following these days. I've got my aura ring, my continuous glucose monitor, and tracking my biological age every year as well. So, definitely I highly, highly recommend it.

Everyone, thanks so much for tuning in to the Myers Detox Podcast. I'm Dr. Wendy Myers, and on this show, we explore all types of topics related to heavy metal and chemical detoxification, health issues caused by toxins, anti-aging, longevity, bioenergetics, and more advanced topics in health. Thanks for tuning in every week. There's much more to come.

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