

Everyday Immunity Podcast Ep. 12 - Phase II Liver Detoxification: Are You Detoxing Correctly?

Hey! Welcome to the Everyday Immunity podcast - a place where we talk about different ways to boost the immune system naturally each and every day. I'm your host Alicia Rosati of Rosati Nutrition.

Hello, you guys! Welcome back to another episode. This is a continuation of the last episode that I posted about liver detoxification, your phase I and your phase II detox pathways. I'm really excited to be talking about this and continuing on last week's message, which is to take care of your liver! Your liver is so important in so many different things. So, I'm going to give a quick little recap.

But, before I dive into today's topic, I do want to let you guys know, just shout this out there - I did start a Patreon account. If you guys have never heard of Patreon before, it's basically a way for supporters to help support content creators like myself. There's a donation basis, where you can pay \$5 a month just to support everything I'm doing. It really really helps me out, and really helps me continue to be able to do this and make a living off of it. I really appreciate your guys' support. Just listening to these episodes really helps me out and helps me get up there on the views to be seen more and reach more people to help fulfill my purpose on this earth, which is to help educate you guys on how to be your most healthiest self.

I really appreciate it and if you guys were able to support any which way possible, you can click the link in my bio on the show and that will take you to my Patreon account, or you can go to [Patreon.com/rosatinutrition](https://www.patreon.com/rosatinutrition). I really appreciate the support, you guys.

Back to today's regularly scheduled content! Quick little recap on the last episode in case you haven't listened to it yet. We are so chronically exposed and overexposed to toxins each and every day. And that includes pesticides, chemicals in our air, air pollution, water pollution, medications and birth control and things like that getting into our cities waterways. Yes, the city does purify your fluoride, which will be a whole other episode because fluoride is terrible for you! So stay tuned for that. But, they can purify our water as much as they want from the city, but these organic things are still getting through. So like, your birth control chemicals and hormones are still getting through our tap water.

This also includes toxins like our every day hormones. Estrogen can build up, testosterone can build up, progesterone can build up if your liver is not functioning as it should. And again, just to remind you, we have two major detox pathways - your phase I and your phase II.

If your phase I is working effectively and efficiently at 100% and your phase II is not, this can be detrimental and this is what most of the population actually deals with, which is why we are so chronically sick. So think of it this way, think of a hand off. You guys ever see, you have a trail of people or a chain of people passing a sandbag to each other to build up a sandbag wall in case of flood. Think of that kind of system. If the guy at the front is working super quickly, super effectively and he's tossing those sandbags like it's nothing, but the guy next to him is a little slower and a little sluggish, you're going to get a buildup of sandbags where they shouldn't be in the middle of the chain.

And that's exactly the same thing that goes on in your liver when your phase I is working effectively and your phase II is not. So, this can obviously lead to damage in the body because our phase I detoxification breaks down these toxins about halfway so they become more dangerous metabolites. And that's so that it's easier for your phase II to break them down because half the job is already done. But like I said, if your phase II is not working effectively or efficiently, then these toxins actually build up and float through your body and can do even more damage than before they were broken down in the first place.

And now, because our phase I detoxification makes these toxins more dangerous, our phase II needs to come in and neutralize that threat quickly and effectively. And there's a few different ways that that reaction happens. One of the main ways or forms that this happens is through a process called conjugation, where a compound combines with the toxin and essentially neutralizes it.

There are six phase II pathways and I'm going to briefly go over some and dive a little more into the others.

The first one and the most common and arguably the most important one is glutathione conjugation. Now, if you guys have been around or have come to one of my workshops, or have been around on Instagram, you'll know that glutathione is the king of kings when it comes to antioxidants in the body. This is your primary antioxidant that comes in to neutralize everything. He's the real MVP when it comes to this.

So, how does glutathione conjugation work? Glutathione itself is an antioxidant, but it's actually a compound composed of three different amino acids, which are: cysteine, glutamic acid and glycine. Which is why it's so important to make sure that you're getting adequate protein during the day. And that does not necessarily mean *animal* protein. Plant-based protein is just as effective at this.

Now, I believe I mentioned this in the last episode, but if not, it's a really important thing to remember. Phase I, when it breaks down these toxins, it makes them either water-soluble or fat-soluble; usually water soluble so that they can be quickly excreted through your urine, which is why your kidneys are one of your detox organs. When they're fat soluble, they are sent with your bile to your intestines and the bile helps break them down.

But, it is a little harder to excrete these toxins through your intestines, especially because so many of us are actually really chronically constipated and we don't even realize it. You should be going every day 2-3 times per day minimum. Just think, you're eating three meals, you should be going to the bathroom three times.

So, your body actually opts to make these water-soluble because it's the quicker and easier method to get rid of these toxins. I mean, most of us, if not all of us and likely all of us, go number one more often than we go number two, right? And that's because our body is getting rid of these water-soluble toxins.

Glutathione will bind to the fat-soluble toxins and turn them into water-soluble toxins, so that they're more easily excreted through our kidneys. One really important and effective way that we can improve glutathione conjugation is by eating foods that are high in glutathione. And this includes foods that are in the brassica family, or also known as cruciferous vegetables - your broccoli, cauliflower, kale, Brussels sprouts, collard greens, arugula, bok choy, rapini, there's a whole bunch of them.

Kohlrabi is a really good one. I had never tried this before, I'd never heard of kohlrabi in my life. I went up to my cousin's farm on a whim one day and we had lunch and she grew kohlrabi. So they made me a salad with some fresh kohlrabi and tomatoes and just some olive oil, salt and pepper. You guys, the taste is out of this world. It's almost like a cross between an onion and a really crisp apple, I want to say? It's really really nice.

So I actually grew them for the first time in my life in my little side of the house garden. And they were delicious! I absolutely love kohlrabi. So if anything, I hope this episode encourages you to branch out and try different vegetables - maybe try kohlrabi next time!

So yeah, kohlrabi is a really great source of glutathione. Other ones include asparagus, avocado and walnuts as well as anything that's high in limonene. That includes citrus peel, dill weed seed, or caraway seeds. Now, lemon and lime themselves do have some limonene in them, but it is quite diluted. What I like to do is put literally **one** drop, absolutely no more than that of lemon essential oil in my tea first thing in the morning. I found this has really helped in my liver department with my overall feeling and wellbeing because I do have a sluggish liver, which was contributing to my estrogen dominance and estrogen build up in my body. And ever since I've been doing the one drop of lemon essential oil in the morning, I just - I feel less sluggish and I feel a lot better. I've noticed my hormones have balanced out. So, I really really enjoy doing that.

If you are going to do lemon essential oil, make sure it's from a reputable company from reputable sources and it's a really clean and pure product. I also have a blog post titled "Lemon

for Liver Health" and that will explain a little bit more in depth why I like using lemon essential oil and all of its benefits.

Now, another really, really important point that I want to knock home with this is that glutathione supplements unfortunately are not the answer. A lot of us just opt to take a pill because it's a lot easier than putting a little bit of thought and effort into our food choices. But unfortunately, glutathione supplements are not the case. They will not work as effectively as if you get glutathione from your food. And honestly, it's quite easy to get glutathione from your diet because if you're eating a diet rich in amino acids, your body will put together those three amino acids to create glutathione as needed.

If you eat foods in glutathione, that's a direct source for your body to use. However, if you're using glutathione supplements, your body has to essentially break those down before it can use it. They're not really absorbable, they're not the optimal way to get your glutathione for the day. So, just get it from your food. I gave you quite a few dietary options so just eat your broccoli, your parents were right.

Now, the second phase II detox pathway that I want to talk about is amino acid conjugation. This uses the amino acid glycine, which is also one of the amino acids that makes up glutathione. And glycine again neutralizes toxins by binding to them. Eating a diet rich in proteins and amino acids, not necessarily animal-based proteins but plant-based proteins can really effectively boost your liver detoxification for your phase II pathways.

Eating foods like beans, lentils, chickpeas and essentially every single vegetable does have some amount of protein in it. So, if you just eat a well rounded diet, you eat the rainbow every day, chances are, you are getting the correct amino acids. That's an argument that a lot of plant-based people get all the time from meat eaters or people who are completely against the vegan diet; that plant-based eaters are not getting all the amino acids or getting enough protein and such. But, this is absolutely not true. If you eat rice and beans together, you're getting a complete amino acid profile. Rice and beans is a staple in a lot of cultures. It's really easy - you don't have to eat your amino acids in the same meal to get a complete protein. You can have half of your amino acids and half at dinner time and your body will use them as it sees fit.

I'm getting a little bit on a tangent here talking about plant-based proteins and stuff so I apologize, but I just really want you guys to understand that it's easy to take care of your liver, it's easy to eat well, it's easy to eat a well balanced diet and it does not have to include the standard american diet - the typical "Eat your steak for protein!" It doesn't have to be that way.

The third phase II detox pathway is methylation and this one is something that I am very familiar with, given my genetic mutation that I have mentioned quite often. But I'm really still fascinated by it and I really encourage you guys to get genetic testing done to see what mutations you have. Methylation adds a methyl group to your toxins. Now, if you guys didn't do

grade 12 chemistry that's fine! Or, if you're wondering what the heck a methyl group is, all it is is a carbon atom attached to three hydrogen atoms. In organic chemistry we look at how these things combine together and you don't really need to know that. All you need to know is that's what methylation involves. It needs different amino acids and vitamins and things like that to make this happen. It needs methionine, choline, vitamin B12, and folate.

Notice I said folate and not folic acid. If you guys look at your supplements, if you're taking a multivitamin or a prenatal, make sure that it says folate or methylfolate, not folic acid.

If you do not have an MTHFR mutation, and as long as you're eating a diet rich in B12 and folate and choline and methionine, you're generally okay with your methylation. But, if you do have the MTHFR mutation, what this means is your body cannot convert folic acid into folate, which is the usable, absorbable form in your body. This can be really dangerous, meaning that you have low levels of folate in the body and if you're trying to get pregnant, this could be really bad. This could lead to miscarriages or it could lead to birth defects, so it's really important to check your levels prior to that.

It can also effect how your liver functions. So I found out that my liver enzymes were a little bit high because I had stopped taking my methylfolate supplement. Again, this shows directly that I was low in folate and my liver enzymes were high. Meaning, my liver was a little bit damaged and it was not functioning 100%.

It's also really important to make sure that your methylation pathways are working correctly because if you're low in folate, homocysteine can build up in the body and that's just an intermediate amino acid metabolite and it can be really damaging. It can cause heart damage and brain damage, so we want to make sure that our folate levels are adequate in the body.

Some B12-rich foods include animal-based products like meat, cheese, eggs, things like that. There's also a lot of plant-based that are fortified with B12 and nutritional yeast is actually a great plant-based source of B12. And folate rich foods include dark leafy greens and supplements. Again, if you're taking a supplement, make sure it says methylfolate not folic acid.

The fourth pathway is called sulfation, which binds sulfur compounds to toxins. This pathways specifically detoxifies pharmaceutical drugs, food additives and steroid hormones like estrogen, as well as other toxins here and there. It increases the water solubility of toxins, which makes them easier to get rid of through your kidneys and your urine. It also needs methionine and cysteine. What's really good to know is methionine is abundant in a ton of different foods, which is really good to know because we don't really have to worry about being deficient in it.

So, ladies if you specifically are dealing with PMS and you know that you have an estrogen dominance issue in the body due to a slow liver and estrogen build up, it's really important for you to be eating sulfur-rich foods every single day. So what my naturopath had told me to do was to eat three broccoli florets every single day. It didn't have to only be three, but minimum three. And what that does is, because broccoli and the other cruciferous vegetables are so high in sulfur, it really does help breakdown estrogen and other steroid hormones in your body and effectively get those through so they don't build up.

Some other sulfur-rich foods include eggs, red peppers, garlic, onions, and of the cruciferous veggies that I had mentioned previously.

The fifth pathway - we're almost done - is acetylation, and I'm probably pronouncing that wrong. But, it's conjugation with acetyl co-enzyme A, or acetyl CoA is what it's short-form as. And this is how your body gets rid of sulfa drugs, so if you've been on a sulfa based prescription medication. It specifically needs vitamin B2 (thiamine) and vitamin B5 (pantothenic acid) and it also uses vitamin C.

Foods that are rich in the B vitamins, which is really whole grains, pretty much any vegetable, a lot of fruits, and especially vitamin C is a lot of your fruits, bell peppers, strawberries, kiwi, that kind of thing. And again, nutritional yeast is a great source of B vitamins. If you make sure you're eating a well-balanced, well-rounded diet, you likely are not going to be deficient in these B vitamins and vitamin C.

It's also really important to note that most B vitamins and vitamin C are water soluble, meaning if you take a high dose of them first thing in the morning, they're probably already out of your system within roughly four hours. So, it's important that you're not just eating your fruits and veggies first thing in the morning and then eating empty calories for the rest of the day. It's really important to make sure that you're eating that well-balanced, well-rounded diet that's rich in all the different colours of the rainbow all day long.

And that brings me to the sixth and final phase II detoxification pathway, which is - bare with me, glucuronidation. I'm probably butchering that but, such is life. This includes glucuronic acid that binds with toxins using the enzyme UDPGT. This is where biology and the body gets really confusing with all these letters and acronyms and the like. I'm going to try to break it down for you as best as I can.

Specifically, this method of detoxification is what breaks down Aspirin, menthol, artificial vanilla (vanillin), food additives like benzoates - if you guys go look at your ingredients, you'll probably see sodium benzoate which is pretty much in everything. It's not the best for you. So, this is what breaks that down. As well as, some hormones.

So again, how to improve this detox pathway is by eating a diet rich in sulfur foods. And I just went over that, but again, your cruciferous veggies, bell peppers, nuts, seeds, whole grains, legumes, garlic, onion, leeks, leafy green veggies... There's a really really big variety for you guys to choose from. If you're not the biggest fan of spinach or broccoli, you can eat cauliflower. If you still don't like cauliflower, you can eat Brussels sprouts. If you still don't like Brussels sprouts, you're probably a picky eater and you can try including more garlic and onion or leeks into your diet.

Find something that you like. I encourage you to branch out and try new things and again, eat the rainbow, eat a large variety of foods.

So now, I've gone through phase I detoxification and phase II detoxification. I know this episode is a little bit longer than the last one and I apologize but there's just so much information that I wanted you guys to really understand and have for your own knowledge.

If you do suspect that your liver is a little sluggish, and maybe you're dealing with things like hormone build up or you're feeling fatigued, and remember that little questionnaire that I asked in the last episode. I'll go over it again really quickly:

1. Do you feel you're not as healthy as others your age, yes or no?
2. Do you have low energy levels and do you often feel sluggish, yes or no?
3. Do you have difficulty thinking clearly and do you often experience mental fog?
4. Do you often feel down and depressed?
5. Do you get sick more than once or twice a year?
6. If you are a female, do you experience PMS, irregular periods, fibroids or fibrocystic breast disease?
7. Do you normally have sore, achy muscles for no reason?
8. Do you often have bad breath, stinky stools, or bad body odour?

If you said yes to any of these, you may need a detox and your liver may be working a little bit sluggishly. If you answered yes to most of these, it's very very likely that your liver is being overloaded with toxins and it could use a little bit of help.

Some really safe and effective ways of promoting your liver function include things like decreasing your toxin exposure whenever possible. That includes staying away from alcohol, cigarettes, fumes, whenever possible. Eating a balanced diet that focuses on fruits, veggies, whole grains, nuts and seeds, so a whole foods, plant-based kind of diet. That does **not** mean you have to cut out animal products. It just means lower them and focus your diet on plant-based foods.

It's also really important to eat an adequate amount of fibre. Remember, a lot of us are chronically constipated. We need to up that fibre intake to make sure that our intestines are moving effectively and removing those toxins from our liver so they don't back up and build up.

It's also important to remember that doing a cleanse or a liver detox can potentially be very dangerous. If you're dealing with a ton of toxin exposure, you don't want to be releasing those into the body with nowhere to go. If you think that you are really dealing with a liver problem and you've already adopted these healthy eating habits, I advise you to go to a naturopathic doctor to discuss doing a liver cleanse and they will help you with extreme guidance and extreme supervision to make sure that you're not doing more harm than good when you're releasing these toxins into your body. You want to make sure that there is a place for them to go.

So, if you are someone who is dealing with chronic heavy metal exposure, I do not recommend you just picking up any cleanse or detox and doing that. That could be very very dangerous. For that specifically, I recommend that you go to a naturopath because they know what they're doing, they know what they're looking for and they want to make sure that these heavy metals are getting out of your body, not floating through your body.

I know I threw a lot at you guys within these two episodes, especially this one and I just really hope that you guys picked up some information. And one main point that I did want to drive home was to eat a balanced diet. try eating more cruciferous vegetables, they are quickly becoming some of my absolute favourites and a big staple in my diet. And there are so many different ways that you can incorporate them.

I hope you guys enjoyed this episode! If you would like to support me, please visit my Patreon page, again that's patreon.com/rosatinutrition. Any support really means the world to me. If you are not able to support financially, I totally understand the times we're in, but you just listening and encouraging me is support enough.

Once again, thank you for listening to this episode. This has been your host Alicia of Rosati Nutrition and I will talk to you in the next episode!