

Welcome to the Cutting Edge Health Podcast with Jane Rogers, where we discuss science to help prevent cognitive decline.

**[00:00:00] Jane Rogers:** Welcome to the Cutting Edge Health: Preventing Cognitive Decline podcast, where we're making 90 the new 40. I'm Jane Rogers. Buckle up for interviews with the world's brightest minds to help you live longer, better.

This podcast is all about helping your brain stay healthy and keeping it functioning at a high level. No brain fog, or worse, dementia. If your liver is struggling and it needs detoxing, that's going to affect how your brain works. The liver plays a vital role by regulating the levels of various nutrients, hormones, and toxins in our bloodstream. Functional medicine physician, Dr. Lisa Broyles joins us for more. Dr. Broyles, thank you once again for coming back on and sharing what you know.

**[00:01:06] Dr. Lisa Broyles:** Thank you, Jane. I really appreciate it and I absolutely love being on here just to talk to people and try to explain things a little bit easier. Thanks.

**[00:01:13] Jane:** Good. Now you have done a deep dive into liver health.

**[00:01:17] Dr. Broyles:** Yes.

**[00:01:18] Jane:** It's complicated, but there's so much that we can do. First of all, why is it even important that we care about our liver health?

**[00:01:25] Dr. Broyles:** The liver, it is complicated, but I'm here to try to make it understandable and help you to understand easy ways that we can support our liver in doing its job. Your liver is vitally important. The big thing we're going to talk about today is how our liver detoxes, how it removes toxins and chemicals that are dangerous for us from our blood and gets rid of them.

Also, I want to briefly talk about how the liver metabolizes hormones. The liver regulates our sex hormones. Estrogen levels and progesterone and to some extent testosterone, blood sugar regulations. People that are pre-diabetic, insulin-resistant diabetic, the liver is your storage for extra sugar and that's released when the body needs it. Your liver also is important for your immune health and your blood clotting.

That's why people whose liver is failing, they bleed really easily because their liver is not making those clotting factors that it should. It even acts to help the thyroid. People always think that the thyroid is the one that converts the inactive to the active thyroid hormone, but actually, that's done by the liver as well. People that are having trouble with having enough of their active T3 hormone, part of that may be liver dysfunction.

The liver also produces cholesterol, so it regulates our cholesterol levels. All of these functions are vitally important to us being healthy and all of them need a clean liver that is constantly staying clean so that it can do this job.

**[00:03:02] Jane:** All these bells and whistles are going off for me. Thyroid, hormones, cholesterol, these are all things that are on my list to really try to get a better handle on.

**[00:03:13] Dr. Broyles:** Yes.

**[00:03:13] Jane:** This is really important.

**[00:03:15] Dr. Broyles:** You can't have a healthy brain if your liver is not doing its job.

**[00:03:19] Jane:** What do we do? How does it detox, first of all?

**[00:03:24] Dr. Broyles:** There's three phases of liver detox and I want to briefly go into each phase, how it does it, and what we can do to help our liver do its job. The first phase is called oxidation. Your liver automatically starts doing this phase whether we want it to or not. We want it to start detoxing, of course, because that's part of what it does.

What happens is your liver adds oxygen groups to toxins that are surrounded by fat to make them more water-soluble. When a toxin or a compound is more water-soluble, your body can break it down easier and get rid of it and eliminate it easier. The problem is that you temporarily make these toxins more toxic with phase one. The process of oxidation creates something called free radicals and free radicals cause damage.

They're like little micro bombs going off. You want to activate these toxins temporarily just to make them more water-soluble and get rid of them, which is what the liver does in phase two. You can see why if the liver starts activating these toxins to prepare to get rid of them. Then phase two, there's a block and we'll talk about why.

Then phase one just happens all the time and you get this incredible amount of damage actually coming from the liver trying to detox you, but not being able to push those toxins through into the next phase, which is phase two. The enzymes that are so important with this phase one are this group of over 50 enzymes called the cytochrome P450 enzymes. A lot of people have actually heard of these because common medications like seizure medications and statins, which are cholesterol medications, directly affect the rate at which these enzymes do phase one.

For example, if you are on a cholesterol medication like a statin, okay, that slows down the rate at which phase one happens. This is actually a good thing because phase one, yes, you want your body to remove these toxins, but you don't want it to do phase one too aggressively, or you get too much free radicals, too much oxidation. That's one of the reasons that statin medications actually reduce inflammation.

You see a reduction in CRP and this high sensitivity CRP markers on labs when people are on statins because they're not having as much free radical oxidation with phase one. Paradoxically, your seizure medications, they increase the rate at which the liver does phase one. People that are on seizure medications can get much higher inflammation happening in the liver if phases two and three aren't happening.

It's really important for phase one, there are certain things that you can do for that. Eating cruciferous vegetables, so broccoli, cauliflower, Brussels sprouts, cabbage, and citrus fruits all support a healthy phase one, moving it into phase two. Also, vitamins like B vitamins, glutathione, amino acids, and phospholipids, which is something called phosphatidylcholine.

**[00:06:40] Jane:** You need to be taking those every day to make sure phase one is really operating, and this is not, "I do it once a month."

**[00:06:47] Dr. Broyles:** Either taking them or getting them through food. I'm going to talk here in a minute about certain food groups that help our body make its own glutathione. Amino acids come from protein. If you are eating protein and if you are breaking down and absorbing that protein properly, then you are going to get the amino acids that your liver needs.

Certain medications block our ability to absorb proteins. For example, proton pump inhibitors, this is omeprazole, Prilosec, Nexium. A lot of people are put on these medications and if you're on them, your stomach can't break down protein appropriately and absorb it correctly. You don't get the amount of amino acids that you need for your liver to do this correctly.

**[00:07:31] Jane:** Is phase one detoxification of the liver something that every single person needs to worry about? Is there a certain percentage you think of the population who just has a great functioning phase one? How can you tell if you're a phase one problem person?

**[00:07:45] Dr. Broyles:** I said certain medications are going to affect how well you do phase one. There are genetic variations that absolutely affect how well your P450 enzymes work, regardless of whether you're on medications or not. It's absolutely true that you are born with a certain type of cytochrome P450 enzyme complex that's either going to do a great job of phase one or a poor job before you're even put on any of these medications, not even based on what you're eating.

There is that initial genetic determination of whether you're going to do this well or not. Everyone's liver is going to do phase one. It's important, but phases two and phase three are really where we can modulate or we can affect more how things are going. Even if your liver is making too many free radicals in phase one, as long as your phase two and

phase three are working well, you're going to process those toxins just fine. You're going to get rid of those free radicals and it's not going to harm you.

**[00:08:41] Jane:** Let's move on to phase two. Ready to move on?

**[00:08:43] Dr. Broyles:** Yes. Phase two is the doozy. I really want to try to break this down because phase two, it's called conjugation, but the liver does this through six different very complicated biochemical pathways. Conjugation is basically the process of taking a toxin and making it more water-soluble so that you can push it into the bile and excrete it into the intestines and out of the body.

There are different toxins that are regulated and broken down in this phase two and hormones. Phase two is where your body breaks down its estrogen, for example. Women have actually three types of estrogen. We have the E1, E2, and E3, estrone, estradiol, and estriol. When a woman takes, say an oral form of any form of estrogen, most of the time it's estradiol, which is E2, well the liver then takes that estradiol and it's going to break it down into either estrone, which is the pro-inflammatory, pro-breast cancer type of estrogen that you do not want, or it's going to keep it as estradiol depending on how well phase two is working.

It's very important because the liver very much affects how well people are doing on hormone therapy or birth control. Their levels of estrogen are directed by phase two of the liver. Phase two requires protein again. You're seeing a common theme here of those amino acids are very important for phase two. One of the reasons for this is because phase two is critical for glutathione. Glutathione is your body's most important antioxidant, and it drives a lot of this detox process. Your body can't make glutathione if it doesn't have enough protein, if it doesn't have enough amino acids.

There's also a supplement called NAC, N-A-C. It's the precursor for glutathione, so a lot of people will take NAC to help their body make more glutathione. Meats, chicken, and fish, and lentils, and mostly the proteins, lamb, beans, these all help us to make glutathione. Different types of sex hormones, melatonin production, I had mentioned earlier your thyroid being activated in the liver. The thyroid hormone going from inactive to active. That is all critical in this conjugation phase, something called sulfation. We need to eat sulfury foods. This is where the garlic and onion, this family of food is critical for sulfation. Again, we bring up the cabbages, the cruciferous vegetables, the broccoli, the cauliflower.

These all help your liver to metabolize those estrogen levels so they don't get too high. It helps your liver to make melatonin, to help us sleep at night, helps that thyroid go from the inactive to the active form of thyroid, which makes us feel good. This is where we need our sulfur. If people aren't getting enough sulfur in their diet, then they're not processing those hormones correctly, nor are they detoxing plastics like BPA, chemicals

like triclosan, which is in a lot of our common cleaning products and personal care products.

**[00:11:57] Jane:** So many questions. Protein. Protein is important for a lot of things. When I started to get my DEXA scan, I started to go south with osteopenia. I think it was because I wasn't taking in enough protein, and protein is important for all the detoxing phases of the liver. How much protein is the right amount before it starts spilling over and activates mTOR, which you don't want because that starts to age you? 24 grams, 30 grams with each meal, three meals a day?

**[00:12:25] Dr. Broyles:** That's a question that you can't say, everybody's different. This is where that genetic variation comes in and why I highly recommend doing a genetic test like the one I use is neutrogenome, where you can actually look at your genetic variability and determine how much protein does your body need because some people need a large amount of protein because their body doesn't absorb it well, doesn't break down well. It's inefficient, so your body might need more protein. Someone else might have an inherited kidney disease where they can hardly have any protein because it overloads those kidneys and worsens their kidney disease.

It's very hard to say everybody should do this amount. I think that people want a set, 24, 30 grams. If you have kidney disease, for example, like polycystic kidney disease, or you've been told that your kidneys aren't working at 100%, or you were born with one kidney that doesn't work quite right, then you can't be on a high-protein diet. You don't need a high-protein diet because your body is very efficient with the amount of protein that it has. Does that make sense?

**[00:13:31] Jane:** It does.

**[00:13:31] Dr. Broyles:** If you have healthy kidneys, then you are probably safe to eat a fairly high protein diet, but you have to balance that protein with enough vegetables and leafy greens because this is where your B vitamins come in. If your liver has too much protein but not enough B vitamins like folate and NAD from the leafy green vegetables, then it's still not going to work right in phase two.

**[00:13:56] Jane:** Excellent. Any more on phase two?

**[00:14:00] Dr. Broyles:** Yes, I wanted to bring up with phase two that also mold toxins are metabolized through the liver in phase two as well. Some people get very sick from living in a moldy environment because in phase two of their liver, something's not working right, either genetically they can't break down those toxins correctly or they have too much of the BPA triclosan, some of these other toxins that inhibit the liver's ability to get rid of its mold toxins. If you're really sensitive to it, a good liver cleanout can sometimes help with that.

Other ways that you can support the breakdown of the hormones correctly and everything is food such as trout, shrimp, and some of the algae like seaweed products. That's where your chlorella and spirulina come in. Omega 3, selenium, alpha-lipoic acid, all of these are critical for helping your phase two move properly so that those toxins are bound up and ready to move on into that gallbladder and out.

**[00:15:04] Jane:** Into phase three. That is the transportation part. Getting them out.

**[00:15:09] Dr. Broyles:** Yes, and phase three is where all of the toxins that your liver just broke down and put into these pretty little packages. Now, those are supposed to move from the hepatocytes, or to your liver cells into the intestines. The gallbladder is your storage stack for bile, which bile is made in the liver. Toxins are bound to that bile and pushed out into the intestines to then be excreted through our stool.

Phase three is critical for a healthy gallbladder. A gallbladder that doesn't have sludge or stones, which is a condition that we call cholestasis when the gallbladder gets sludgy and it's static and not moving properly. This is a huge problem for your detoxing because then if the toxins can't move through, they're not getting enough bile to attach to., then, they reabsorb. They're stuck in those liver cells.

There's an important enzyme. It's the door to kick the toxins out of the liver and out of the hepatocyte, and it's called the MRP3 or the MRP2. Those enzymes, if the liver can't get rid of these toxins fast enough, it actually takes that exit door and moves it to the front door. It turns it around so that when toxins enter that liver cell, they go right back into the bloodstream. The liver cells say, "Full, not taking any more trash until that gallbladder starts working right." All these toxins just get back out, and they go right back into the bloodstream, and you get that enterohepatic circulation of toxins right back into the blood.

**[00:16:46] Jane:** You don't want that at all. No.

**[00:16:48] Dr. Broyles:** No, and that's when you start to get chronic migraines, autoimmune disease, lupus, people with tons of arthritis everywhere, cancer. All of this chronic inflammation happens when that poor liver says, "I can't handle all of these toxins, help." It's not doing its job. You are living in this constant state of inflammation, and there are certain medications that make that worse like Tylenol.

Every day that you take Tylenol, your liver completely shuts down phase two. Can't do it. Alcohol, and that's why I tell people try not to drink alcohol. None at all is the best thing for you. Two days a week is my personal rule so that five days a week my liver is taking all of these enzymes are working properly. These toxins from phase two are moving into phase three. That does not happen every day that you have even one drink of alcohol or any Tylenol.

**[00:17:39] Jane:** Oh, fascinating. Also, as we age, you keep hearing women talk about liver spots. I have liver spots on my skin. Is that something that happens when your liver is blocked?

**[00:17:49] Dr. Broyles:** No.

**[00:17:50] Jane:** No.

**[00:17:50] Dr. Broyles:** Liver spots are just sunspots. That's sun damage.

**[00:17:52] Jane:** It's sunspots, oh.

**[00:17:54] Dr. Broyles:** They're brown. They can be the shape of the liver, so they got the name of a liver spot.

**[00:17:59] Jane:** That's where it comes from.

**[00:18:01] Dr. Broyles:** Yes, it's from sun damage.

**[00:18:03] Jane:** Is there anything else that you want to talk about, phase one, phase two, phase three before we go into the actual takeaways? We've done the food. We've done the supplements for each phase, but some other things to do as we're wanting to clean out.

**[00:18:14] Dr. Broyles:** I do just want to say a few things lifestyle-wise that we can do for phase three. If you have been told that you have gallstones or your gallbladder isn't functioning correctly, or you just suspect that it is, so women that have had children, any pregnancy increases the risk of cholestasis, chronic stress increases the risk of cholestasis. How many of us have that? Oral contraceptives, so women that have been on birth control for years probably have a dysfunctional gallbladder. Proton pump inhibitors, again, the omeprazole, Prilosec, Nexium. These all do it as well.

Things you can do to improve that is when you eat, don't overeat. A bit of a calorie restriction. Eating to where you're about 80% full instead of 100%. Exercise, overnight fasting, where you get at least 12 hours between dinner and breakfast, ideally 14 to 16. We've talked about some of this lifestyle. This helps with lengthening our lifestyle, our cellular aging. Dr. David Sinclair really talked about a lot of this stuff when we talked about his book *Lifespan*. That is all true for supporting phase three as well. Also, taking bitters before you eat or eating more bitter foods, broccoli sprouts. Those are all really good to help that liver move things through.

Another great trick to soften stones is apple cider vinegar. Anything with malic acid in it. Organic apple juice, tart cherry juice, and apple cider vinegar are three great sources of malic acid. Malic acid softens and breaks down calcified gallstones. If you're told you've

got some calcified gallstones in your gallbladder, they recommend that you get your gallbladder out. I say, "Hey, before you go and get surgery, let's see if we can get you to soften and break up those stones and pass them."

You can drink about 16 ounces of water with three ounces of organic apple cider vinegar, is a great way to do it. You drink that daily for about a week and then you can actually do a gallbladder flush and that's about a 24-hour period. There are some specific gallbladder flushes. I don't know if you want me to talk about how those go, but-

**[00:20:22] Jane:** I would. Yes.

**[00:20:23] Dr. Broyles:** -you can actually pass the gallstones and get rid of them and not have to have surgery. Now, if your stones are too big, they're not going to pass. If you have smaller stones, you can soften them with the apple cider vinegar or the tart cherry juice and then you can pass them.

**[00:20:40] Jane:** It saves the pain of passing a gallstone-

**[00:20:42] Dr. Broyles:** Yes.

**[00:20:42] Jane:** -which is horrible. I do a liver gallbladder cleanse twice a year. In the fall and in the spring.

**[00:20:48] Dr. Broyles:** Wonderful.

**[00:20:48] Jane:** It's the kind of thing you drink tart cherry juice for five days, and then at the very last day, there are a couple of things you do. You end up drinking olive oil and grapefruit juice. Fresh squeezed grapefruit juice right before you go to bed. There's a whole protocol for it. Then the next day you pass this stuff. It's amazing.

**[00:21:09] Dr. Broyles:** You do.

**[00:21:09] Jane:** Oh.

**[00:21:09] Dr. Broyles:** It's so interesting really. I have to admit I've done this myself and I've seen it work and it's pretty incredible. You've done the five days of the tart cherry juice or the apple cider vinegar. You've softened your stones beforehand. You make sure that you're not constipated. You may even want to do a colon flush ahead of time. Then you have to drink Epsom salts at certain intervals in water. There's a certain amount of Epsom salt mixed in water and the critical thing about the Epsom salts is that it dilates the bile ducts.

It makes them as wide as they can be to help those softened stones pass. It's really brilliant because you soften the stones, you widen the ducts temporarily with the Epsom



salts and then you drink the olive oil, grapefruit juice concoction, which wasn't as bad actually as the bitterness of the Epsom salts to me. Then within hours you start passing gallstones and some of them are soft and not calcified, but you can see the calcified ones, those ones will sink to the bottom of the toilet bowl. Usually, you have to do that multiple times and you'll see hundreds and hundreds of stones go out.

**[00:22:13] Jane:** Amazingly, after I've done all that, I've done the Epsom salts and I've done the olive oil with the grapefruit juice and I lay down and they say, don't move, as you're going to sleep, just stay there. I can feel those stones coming out of that duct. They pop out and you go, "Oh my gosh, I had no idea I was that messed up." Very important.

**[00:22:33] Dr. Broyles:** Yes, it's very interesting. I felt a little vague discomfort. Not bad. Nothing extremely painful but I did feel a little bit of discomfort and then everything started moving. I will say, there is a risk that if you have a large stone, it can get lodged in a duct and become an acute problem. We call that choledocholithiasis where you've got a stone that's blocked a duct and has to be surgically removed, but that's very rare. If you've gone through the week ahead where you've softened your stones, and you've done it correctly, then you should be able to pass those stones.

**[00:23:08] Jane:** What are some other things that we should do to love up our livers?

**[00:23:11] Dr. Broyles:** Like you do, Jane, I do think that every six months, ideally everyone should do a liver and gallbladder flush and followed by some colon hydrotherapy, both before and after. I have several different companies that I like their liver kit cleanses. There are everything from two-week to one-month to several-day programs. I feel like the company Quicksilver has the most comprehensive liver detox kit. Of course, it's also the most expensive, but Quicksilver uses nanoemulsions, which is sublingual formulations so that you absorb the nutrition and the amino acids, and the glutathione. Everything that's in it actually absorbs much better as a nanoemulsion that's sublingual under the tongue than if you swallow these things orally.

He's trying to bypass any already existing liver issues there than absorb through the mucosa. That's one reason I like Quicksilver, but his most comprehensive detox is called the cube. It actually pulls out heavy metals as well, which if you have mercury amalgams in your mouth, you don't want to do a liver detox like the cube that will pull out heavy metals because it'll actually leach mercury from your teeth. If you've already had your amalgams removed, then that's a wonderful detox. That one's too expensive to do every six months.

I do think maybe once a year a cube type of detox, which is just pulling out, it's got the glutathione, it's got the B vitamins, the amino acids, phosphatidylcholine. It's supporting each phase, phase one, phase two, and phase three where you mobilize the toxins and then he gives you binders to prevent those toxins from recirculating back into your

bloodstream and making you sick. I like how Quicksilver of all of the kits seems to support phase three the best, which is that transportation into the bile and out.

**[00:25:05] Jane:** Can I ask you a question before we move further? You said if you have your amalgam, so if you have silver fillings, you really shouldn't be doing this because you're pulling those toxins out of the fillings.

**[00:25:13] Dr. Broyles:** You shouldn't be doing one that is for heavy metals like the cube. There are other liver cleanses that are not pulling heavy metals out that don't have glutathione or at least high levels of it, don't have EDTA, and those ones are safe for you to use.

**[00:25:27] Jane:** Does that also mean people who have had a new knee or a new hip that's metal in a body?

**[00:25:32] Dr. Broyles:** No, there is no mercury in-

**[00:25:34] Jane:** It's mercury. Okay.

**[00:25:35] Dr. Broyles:** -joint replacements. Dentist today don't use mercury amalgams anymore, but they were used and say those of us that have the old ones from 10, 20 years ago need to have those removed.

**[00:25:48] Jane:** In joint replacements they have chromium and cobalt. Wouldn't that pull?

**[00:25:52] Dr. Broyles:** They do, there is a small amount, but glutathione doesn't bind to those nearly as much. Mercury is the big one and arsenic, which are not in your joint replacements. You may have a very small amount from your joint replacements, but any that is, is just going to be bound up in the liver cleanse product and pulled out.

**[00:26:12] Jane:** Then you were saying the cube and you should ideally do it once a year because it takes care of the phase one, phase two, phase three, but then you were going on to explain more.

**[00:26:20] Dr. Broyles:** Yes. The most inexpensive one that Quicksilver has is called the liver push catch. I use that one a lot and it doesn't have the glutathione, but it has something called his liver sauce. He's got multiple other support for phase one and phase two that's in that liver sauce and then he's got a binder that you take 10 minutes later that helps to bind up any of those toxins that you just mobilize and latch them onto that bile and push them through the phase three transport. I do use that most routinely because that's affordable. It's about \$120.

I also over the years have used a company called Designs for Health. They have a veggie cleanse, 14-day detox and that consists of powder that you pour into water or juice or milk to make a shake. I just stir it up into water. My children and my husband, they mix it into almond milk so you can mix it into whatever liquid, and you drink it twice a day, and then you take a capsule that has amino acids, which there again is your protein. Then it's got the B vitamins and its digestive enzymes to grab onto it and help push it through.

The Designs for Health kit primarily focuses on healthy phase one and phase two and doesn't necessarily support phase three. If you've got some cholestasis, what if you don't have a gallbladder at all, then your liver is making bile, but it's not concentrated in the liver. Even if you don't have a gallbladder, then you should be taking a bile salt supplement and still doing the cleanses. Now, you don't have to do a gallbladder cleanse obviously if you don't have a gallbladder, but you should be doing the liver cleanse.

**[00:27:59] Jane:** Fascinating. I think you've answered all my questions.

**[00:28:01] Dr. Broyles:** Jane, I've been wanting to do this subject for a podcast for so long, but it is so complicated, and my fear was can I break this down in a way that people will understand and make sense and not feel overwhelming. I hope we've accomplished that today.

**[00:28:15] Jane:** I didn't feel overwhelmed. You made it simple.

**[00:28:18] Dr. Broyles:** Yay.

**[00:28:18] Jane:** Thank you.

**[00:28:19] Dr. Broyles:** Thank you.

**[00:28:19] Jane:** Very much.

**[00:28:20] Dr. Broyles:** I appreciate it.

**[00:28:21] Jane:** Have a great day, Dr. Broyles.

**[00:28:22] Dr. Broyles:** Thank you, Jane.

You've been listening to the *Cutting Edge Health* podcast created and hosted by Jane Rogers. The website is [cuttingedgehealth.com](http://cuttingedgehealth.com). We hope you enjoyed the show and would very much appreciate your writing a review. They help a lot and we read each one. Any information shared on this podcast is for educational purposes only. Guest opinions are their own.

*This podcast is not responsible for the veracity of their statements. The comments expressed are not medical advice. Do not use any of this information without first talking to your doctor. This podcast and Jane Rogers disclaim responsibility for any adverse effects from the use of any information presented. Thank you for listening and have a beautiful day.*