5 Nutrient Deficiencies That Quietly Destroy Brain Function Transcript

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Introduction to Brain-Related Nutrient Deficiencies

Are you struggling with? Fatigue, brain fog, memory loss, and trouble concentrating? You may be deficient in a vital nutrient needed by your brain and nervous system.

And in today's video, I'm reviewing the top five nutrient deficiencies that are associated with brain problems. And I'm going to go through warning signs and lab markers associated with their deficiencies, and the best ways to optimize these key nutrients.

Now, the unfortunate reality is that most medical doctors will never test you for these nutrients, and they fail to recognize the warning signs that you have these key deficiencies.

Typically, they just tell you your normal or just give you a medication for anxiety, depression, or ADHD and tell you there's nothing more they can do for you.

These medications unfortunately, only further deplete the key nutrients that we're going to talk about, and they come with more side effects for which you get what, more medications, right.

Over time, you just end up in a medication roller coaster, and your health and quality of life continues to get worse. Thankfully, if you address these key nutrients with healthy foods, healthy lifestyle strategies, and targeted supplements, you can get your brain energy and overall vitality back.

So the first nutrient I'm talking about is magnesium. It's needed for 300 to 600 essential functions in the body, and it's critical for mitochondrial energy production.

Magnesium: Symptoms, Testing, and Supplementation

Now, experts say that 80 to 90% of the population is functionally deficient in magnesium. So most people need to be more intentional about supporting their magnesium levels.

You see, magnesium regulates calcium metabolism in neurons and dysregulated calcium metabolism leads to high glutamate to Gaba ratio. What does that mean?

Well, glutamate is your excitatory neurotransmitter. Gaba is it's kind of like the gas pedal for the brain. Gaba is like the brakes. And so when we have a dysregulated glutamate to Gaba ratio, we get too much excitation and we end up causing something called neuronal cytotoxicity, where the neurons actually excite themselves to death.

And when one neuron dies, it spills out calcium and other excitatory compounds that actually over excite the neurons around them, creating kind of this massive kind of systemic effect of excited toxicity.

So you end up damaging a whole lot of neurons. It's kind of like it's kind of like a domino effect. One domino goes down, all the rest go. And that's kind of what happens with these neurons.

And that actually causes neuronal cell death, which if we get enough neuronal cell death, we're going to have definite cognitive issues or we're gonna have more trouble with our memory.

We're going to have more trouble with our mood and our behavior. In fact, common signs of a magnesium deficiency include things like anxiety, depression, headaches, poor concentration, poor memory, muscle spasms, heart arrhythmias, constipation, and also tight muscles.

Your typical recommended daily allowance, or RDA for magnesium, is around 300 to 420mg daily, and most people

are not even getting that. And you need even more if you have a bad diet, if you drink alcohol, if you have poor blood sugar, balance, if you have low stomach acid levels, if you have insulin resistance, or if you're under a lot of stress, you're going to need more than just certainly a lot more than the RDA.

You're going to need more magnesium in general. There's also a number of medications just about it really. Just about every medication unfortunately depletes magnesium levels.

But the most common offenders are things like statin drugs, cholesterol lowering medications, antidepressants, lower magnesium pieces that they give for heartburn, right, or acid reflux, lower magnesium, blood pressure medications, ADHD medications, antibiotics, chemotherapy, pretty much every medication.

But those are some of the most common ones that people are taking that deplete magnesium levels. And this is why most functional nutritionists recommend 500 to 1000mg of magnesium daily from a combination of food and supplements, so you can get some of this from food.

But it's really hard to meet all your magnesium requirements from food alone, so this is in one case. I definitely do recommend some level of supplementation.

Now let's talk about what I want to see on labs because you can actually test your magnesium levels. So if you get a regular blood draw you can ask to have your serum magnesium level tested.

And oftentimes it's on your complete blood count. And so and your comprehensive metabolic panel is what I should say. It's it's on there. And I like to see the serum magnesium levels above 2.2mg per deciliter.

Now the labs are not going to flag it unless it's under 1.6mg per deciliter. But I like to see it above 2.2. So 2.2 or higher is where I like to see it.

I also look at something called GT, which is a liver enzyme if that is under ten. So normally the optimal range is somewhere about 10 to 25 for GT. If it's under ten it's often an indication of a magnesium deficiency.

So we want to address that as well. And then of course really the lab testing is not great for magnesium. So I'm really looking at a lot of those symptoms that I talked about above or, you know, some of the root causes, for example, high stress, blood sugar imbalance, insulin resistance, pretty much everybody that has blood sugar imbalances and insulin resistance is deficient in magnesium.

People that are taking those different medications that I talked about, people that are under a lot of stress, they're going to be deficient in magnesium.

People that aren't sleeping well at night, for example, under, under more stress, they're going to be deficient in magnesium. Now, five ways to support your magnesium.

Number one is magnesium rich foods, which I'm going to talk about. Number two is Epsom salt baths. Actually getting in a bath with magnesium sulfate. They call that Epsom salt. Right. And that's great.

You can also if you can't do a full bath, you could do a foot bath where you just kind of get a little, a little thing of water, put Epsom salt in there, a cup of Epsom salts or something in a foot bath, really about half a cup in a full bath, a full cup and get your feet in there and your body will absorb that magnesium sulfate.

So that can be really, really helpful. There's also magnesium lotions that you can put on your body and and you absorb the magnesium through your skin, kind of like in the bath.

And then you can take magnesium supplements. Now when you're taking magnesium supplements, here's what you want to avoid. Avoid magnesium oxide aspartate magnesium aspartate, magnesium carbonate and magnesium die hydroxide forms okay there.

They have poor absorption, so I don't recommend taking those magnesium oxide if if you're real constipated is really good for moving your bowels, but you're not going to actually absorb the magnesium at any level of significance to address a magnesium deficiency.

So I don't recommend that for addressing magnesium and increasing your magnesium levels. The better forms are going to be magnesium citrate, magnesium, glistening magnesium malate, magnesium or eight and magnesium L3 and eight.

Those are all better forms of magnesium where you're going to absorb more. Now, when it comes to magnesium lotions, most of them are magnesium chloride, and that's a good form for a lotion form.

Okay, so take take your magnesium until your symptoms improve. Roughly I recommend taking, you know, at least 200mg of magnesium daily from a supplement perspective, 2 to 400 is usually a good range, but for some people we need to magnesium load them or we'll take a full gram like a 4000mg of magnesium until they start having loose stools.

Now we also divide the dose. So we're taking it usually 2 to 3 times a day, right. Let's say taking something like 400mg twice a day and then maybe 200mg before bed.

And if that person has loose stools, then we back down to maybe 800, 706 hundred, 500, kind of find a good dose where they feel good, but they have normal stools.

Right. And that's that's key for getting the right levels. Now we talked about magnesium almost just as important as vitamin D. If you see vitamin D a lot of people are deficient in it.

And it plays a critical role in our brain health, including keeping brain inflammation levels under control and ensuring that neural activity and neurotransmitter function are normal.

Vitamin D works with magnesium to regulate calcium metabolism. We talked about that in the neurons. We talked about how dysregulated calcium metabolism leads to high glutamate to Gaba ratio and that neuronal cytotoxicity.

So we talked about how key magnesium is. Vitamin D also plays a role here. And it plays a critical role in optimizing serotonin, dopamine and endorphin levels in the brain.

And this is why depression, anxiety, poor concentration, poor memory and cognitive decline are all associated with people with vitamin D deficiencies.

So people with vitamin D deficiencies also tend to have a lower pain threshold. So they they notice that they have pain on things that most people don't have pain with.

Right. And maybe fibromyalgia symptoms. And that's because they have lower endorphin production, these neurotransmitters in their brain. So they're more hypersensitive to pain.

Now let's talk about vitamin D testing in the medical world. When they do a 25 hydroxy or 2500 vitamin D test, they're looking at, basically they think 30 nanograms per milliliter is like optimal levels.

Okay. Now in functional health, we say 60 nanograms per milliliter or above. In the medical world, they're going to say less than 20 nanograms per milliliter is considered deficient.

And a severe deficiency is under 12 nanograms per milliliter. Most traditional medical practitioners consider anything over 30 nanograms per milliliter to be optimal.

Again, in functional health, we want to optimize vitamin D levels, so your level should be between 60 to 100 nanograms per milliliter. The best way to optimize your vitamin D levels is to get in the sun as much as possible, without burning.

How much vitamin D your body is producing depends on the time of year you're in the sun. Of course, in the summertime you're going to get a lot more vitamin D production in the wintertime.

In fact, a lot of places, you know, in North America, you can't even produce vitamin D in the wintertime, even if you are exposed to sun. Also the time of day.

So around the middle of the day is when you get the best UVB exposure for vitamin D. Also your skin color, right? If you're very pale white skinned okay, it's much easier.

You need less less sun than somebody who is dark skinned, right? And that just makes sense. The amount of skin that's exposed. So the more skin exposed to the sun, the more vitamin D that you're going to produce.

And then preexisting conditions are important as well. We know that people who are overweight or they have obesity or they have liver or kidney issues, they don't produce as much vitamin D from the sun, so they need more vitamin.

They either need more sun exposure or they need higher, vitamin D supplementation. And really, that's the second best way. And for most people, you're going to rely on supplementation at least for periods of time throughout the year.

Like in the colder months, you're going to rely on supplementation to optimize your vitamin D levels.

Vitamin D: Brain Health and Optimal Levels

And when you're doing that, I recommend supplementing with around a thousand international units per 25 pounds of body weight of vitamin D3. You know, D2, which is what the medical system will prescribe.

Vitamin D two ergo calcio for all, is a synthetic form that doesn't it doesn't optimize your vitamin D levels in the same way vitamin D3 does doesn't give you an active form.

So you really want vitamin D3 roughly about 1000 international units per 25 pounds of body weight will help you optimize your levels. Okay, so if you're not getting any sun and you're 200 pounds, it's around 8000 international units.

So that would be the optimal level. If you're getting sun, you probably will do fine with 5000 international units. So it's always key. Now when you're taking vitamin D to also have enough magnesium and vitamin K2, which work with vitamin D to optimize calcium metabolism, I typically recommend most people taking something like 5000 international units, or maybe up to 10,000 of vitamin D3 daily, with 2 to 300 micrograms of vitamin K2 and 2 to 300mg of magnesium.

That's usually a great ratio or a great dose. So we talked about the importance of magnesium. Don't forget vitamin vitamin D and you can take them together.

In fact you can get supplements that have vitamin D, magnesium and vitamin K2 all together in the right ratios. And that would be the best way to go here to address both of those very, very common deficiencies.

Now the third nutrient deficiency is B12. And a B12 deficiency has been shown in studies to actually mask itself as dementia. What that means is that people had dementia like symptoms, and then they went away when they started supplementing with B12.

So it was like here they had dementia. They started taking vitamin B12 two weeks later. They didn't have they didn't have dementia. That's pretty much what happened.

And so vitamin B12 is crucial for brain function. It supports the nervous system and it aids in the production of myelin, a protective sheath for nerve fibers.

It's what surrounds all the nerve fibers. And it's also B12 is also important for the creation of neurotransmitters like serotonin and dopamine. It also contributes to cognitive processes such as memory, focus and learning.

And a deficiency in B12 can cause symptoms like fatigue, poor sleep, depression, and impaired cognitive performance. Now, a little known sign of a deficiency is actually premature hair graying or thinning.

So people that are noticing the hairs going gray at an early age, or hair thinning at an early age, could be a B12 deficiency. Also, another little known symptom is increased wheezing and asthmatic, as well as infertility and sulfite sensitivities.

Other other potential deficiency symptoms are going to be things like allergies, acne, depression because of its role in neurotransmitters, as well as viral hepatitis.

Now, B12 is critical for red blood cell maturation and that's key. So the red blood cell starts in the bone marrow. And over time it starts as a large cell.

Over time it gets smaller as it matures. And that shrinking of the red blood cell allows it to deliver oxygen effectively. When it doesn't mature and shrink effectively, it doesn't deliver oxygen to cells as effectively.

So B12 is critical to get more oxygen delivered to the cells for good mitochondria health, good energy production. So very important there also B12 very important for homocysteine metabolism.

Homocysteine is a very reactive protein molecule that's that comes from methionine metabolism. This amino acid methionine and it's a very reactive amino acid.

And it's supposed to be converted into something called Sam e, which is the precursor to dopamine and serotonin key neurotransmitters. And also it can be homocysteine can be metabolized into glutathione, which is our body's master antioxidant.

And what we know is that when homocysteine is high right up above, let's say eight, nine units, okay? It actually damages the capillaries, damages the endothelial lining of the blood vessels.

And that could damage the brain capillaries. Right. Which increases neurodegenerative conditions. And so that's really important. And so homocysteine metabolism very important.

And also B12 just very important for the overall density of the brain capillaries. Right. And the healthier the brain capillaries the healthier our brain is going to be.

And when our brain capillaries are have lost density, it increases neurodegenerative conditions in the body, which leads to dementia and oftentimes peripheral neuropathy as well.

Many researchers believe that the standard American tests that measure serum B12 levels are just way too low. In America, B12 deficiency is evidenced as serum level below 200 picograms per milliliter in Japan, a deficiency is found in levels under 550, so that's a big gap between 200 and 550.

Most B12 researchers and advanced functional nutritionists agree with the Japanese model. I definitely agree with the Japanese model. In fact, I like it even higher than that.

Research done through Tufts University. Framingham Offspring study suggested that 40% of people between the ages of 26 and 83 so wide age range 26 to 83, 40% have low to normal plasma B12 levels.

They found that 9% had an outright deficiency and 16% exhibited a near deficiency. Many of these individuals were suffering from neurological symptoms.

B12 deficiency is present in close to 50% of people over 60 years of age. So as people age, they stop absorbing

B12 as well. And we'll talk more about that.

So it's entirely possible that at least some of the symptoms we attribute to normal aging, things like memory loss, cognitive decline, decreased mobility, these things are, at least in part, caused by B12 deficiency because 50% of people over 60 are deficient.

And here are some of the major causes of B12 deficiency. Number one poor diet. So if we're not consuming enough in our diet, or if we have a diet that's just very blood sugar, dysregulated is full of processed foods.

That constant blood sugar spike and drop depletes B12 levels. Also, heavy alcohol usage will cause poor B12 absorption, low stomach acid levels. We actually need stomach acid to be able to absorb B12.

That's super critical if you're a vegan, right? B12, the best source of B12 is going to come from meat, and we're going to talk about that soon. But if you're a vegan, that puts you at risk for a B12 deficiency if you're not supplementing also leaky gut, gut inflammation in general, which is so common in our society, can lead to poor B12 absorption.

As people age, they tend to have low stomach acid, which means less B12 absorption.

Vitamin B12: Deficiency Signs and Lab Markers

Also, things like autoimmune pernicious anemia, diabetes, and taking medications like steroids, birth control pills, cholesterol medications, all the the same ones I talked about with, magnesium are kind of the same ones here with B12, antibiotics, metformin, chemotherapy, antidepressant, SSRI, different psychotic medications, cholesterol meds, PPIs, birth control, all that deplete B12.

So with B12, we also have to understand that it is a very large molecule compared to other vitamins. And it requires an enzyme called intrinsic factor, which is a protein produced in the stomach to metabolize and absorb the B12.

When we're under high stress and we have gut infections like H. Pylori infections or other other types of gut infections when we're taking antacids or PPIs or other medications that can deplete intrinsic factor, or in some cases, people can have autoimmunity to that protein, which can also cause a lowering of intrinsic factor.

And without adequate intrinsic factor, the body can't effectively metabolize B12. And of course, we're going to end up with a B12 deficiency. You see, the stomach has to be able to produce enough stomach acid for optimal B12 absorption.

And it's estimated at 30% of Americans over the age of 50. And 70% over the age of 70 do not produce enough stomach acid, an intrinsic factor, and that their current.

That's why they're currently dealing with some level of B12 deficiency. Now, there's also an issue with autoimmunity. Now this is more rare. It's about one out of a thousand people where their body will actually attack and break down intrinsic factor.

So these people either need B12 shots or preferably a sublingual B12 that you can take. Put it under your tongue and it will absorb right into your through your salivary glands, right into your bloodstream.

And that will elevate your B12 without the need for intrinsic factor. Now there are other people especially this is really common now is a lot of people have had gastric bypass surgery.

If you've had that, you're at high risk for poor B12 absorption because most likely you're not going to produce enough intrinsic factor and enough stomach acid.

So you should also look at the salivary, or you should look at your, the sublingual B12 or getting B12 shots. Again, I prefer sublingual over the B12 injections.

Now when I'm looking at labs I want to see your serum B12 up over 800. Remember, the Japanese model is 550. The American model. They're not going to flag you as deficient unless it's under 200 picograms per milliliter. I want to see it at 800.

Like that's really optimal. B12 800 Pgmol or I also look at homocysteine levels, your homocysteine. Now, there are other factors with homocysteine, particularly vitamin B6 and folate, but your homocysteine levels really should be under nine K.

And ideally somewhere between like five and seven is really the optimal range. Okay. If it's up over nine, you're at dramatically increased risk of neurodegenerative conditions as well as stroke, okay.

Because it's damaging that homocysteine molecule is damaging the blood vessels, not allowing for enough, oxygen supply getting into your brain, which is going to cause more neuron damage, leading to neurodegenerative conditions.

And also the damaged blood vessels. You're going to have plaque formation, which can cause a stroke. Okay. So that's a big thing I'm looking at. You know, there's some other factors we'll look at.

For example, mean corpuscular volume. Ideally I should be between 85 to 92. That's kind of the the overall sizing of the blood of the blood cell. Right.

And with a B12 deficiency, you have a megalo blast stick form of anemia, right? Where your mean corpuscular volume, right, is high, but your hematocrit, your hemoglobin and your red blood cells are low.

Okay. So anemia means low blood red blood cells and low hemoglobin. But the actual sizing of the blood cell, the corpuscular volume is elevated. And that's kind of a sign of a B12 deficiency as opposed to an iron deficiency which would have a low mean corpuscular volume.

Now the RDA for B12 is about 2.3 micrograms, daily, right? Taken daily. But most functional nutrition practitioners recommend getting 5 to 10 micrograms from your diet.

So the best foods, your best foods for B12 are going to be organ meats, particularly beef liver. Now, beef four ounces of beef itself gives you about 2.42 micrograms of vitamin B12.

So pretty good amount, right? Half of where I want you, but more than the RDA. If you're a vegan, though, then you're going to have trouble getting it the best way.

If you are going to stay a vegan, you can either supplement or you can take nutritional yeast that's been fortified. You want to make sure it's been fortified, and typically it's going to have somewhere on seven micrograms per tablespoon.

So taking a tablespoon of that a day will get you in that 5 to 10, microgram range. So when you're looking at supplements you want to make sure you're avoiding cyano koba clean.

Cyano carbamazepine has a cyanide molecule that you have to detoxify. It's the lowest quality form. It actually stresses your liver. The best forms that are most absorbable and best used by the body are methyl, carbon, clean hydroxy, and a Denso carbon clean.

Now methyl carbon clean. Just to simplify this for you guys, it's the lowest cost. You're looking for methyl B12 or methyl koba Marlene. It's the lowest cost the hydroxy in a DNA.

So are a much higher cost. And the methyl is the most stable and effective for most people. So when I look at, you know, what? What are most people need when it comes to B12?

Really a good multivitamin with methyl carbamazepine is great, but in some cases some people are going to need

extra B vitamins support. In some cases some people need extra B vitamins support with A B complex and others need sublingual B12 due to intrinsic factor antibodies, or if they just can't produce enough stomach acid or they've had gastric bypass, they can't absorb the B12 in their stomach, then we give them the sublingual that they actually dissolves under their tongue, gets into the bloodstream. Okay.

So that's always key. And if that mean corpuscular volume is really high like up over 97 or up around 100, oftentimes we'll do B12 injections for a short period of time and then also get them doing the sublingual form of B12 to optimize levels.

So that's key. So the next nutrient I'm talking about is folate. And a study out of the British Medical Journal in 2022 showed that a folate deficiency was linked to 168% higher risk of dementia and almost 300% higher risk of all cause mortality.

That means dying of any major cause, and this was a prospective cohort study of 27,188 people aged 60 to 75 years without preexisting dementia for it.

And it went on, the study went on for at least ten years, and people were tested for serum concentrations of folate, and then they were followed up for dementia or all cause mortality.

So people that had low folate, as defined as having less than 4.4 nanograms per milliliter of serum folate, had this significantly higher risk of dementia and significantly higher risk of dying early.

Now 4.4 nanograms per milliliter, right? Even if you're even if you're at five, to me, that's really deficient. I like to see it at 15 nanograms per milliliter.

And this is a really easy test that you can ask your doctor to run just a serum folate test. When you're getting your blood drawn, you want to see it up over 15 nanograms per milliliter.

And folate is key for cardiovascular function for neurotransmitter production, liberty talks, ification processes, and for cellular methylation. It's also key for red blood cell development and for immune function.

Folate actually comes from the Latin word folium, which means leaf because it's so abundant in green leafy veggies. There's some of the best sources of folate.

Now, your RDA for folate. Your recommended daily allowance is about 400 micrograms daily and up to 600 micrograms daily for pregnant women. But I'll tell you, that's far too low, as a deficiency can lead to infertility, poor pregnancy outcomes, miscarriages, and congenital abnormalities, and an increased risk of cancer, depression, anxiety, elevated homocysteine levels which are associated with stroke, dementia, neurodegenerative conditions.

So folate is so key. We need more than just the RDA. And it's critical for Aids critical for methylation. Now methylation is a it's a big word but it's really a complex physiological process that works to turn on and off gene expression and plays a big role in neurotransmitter production, inflammation control, and detoxification.

A methylation abnormality is common in individuals with an HFR gene mutation that's the most well-studied gene, Amt, HFR.

Folate: Methylation, Homocysteine, and Food Sources

And, you know, many of you guys are probably heard of that. And that's thought to be present in roughly 65% of the population. And about 25% of our society have a double MT HFR gene mutation, which can cause further worsening of methylation processes.

Basically, if you're not methylated well, you can't detox well, you can't turn off disease causing genes, right? So methylation is how we turn on and off genes.

Gene expression. And if you can't methyl eight well you're going to have pro-inflammatory genes and chronic disease, genes that are not going to be regulated.

Well. So you got to be able to methylation well folate and B vitamins such as vitamin B6 and B12 are required for methylation. And they're required to convert homocysteine.

And we talked about that earlier into methionine through a methylation process which stabilizes homocysteine levels. The detox process is essential for the proper synthesis and repair of DNA and RNA.

Okay. Remember the RDA is 400 micrograms daily, but most functional nutrition practitioners recommend closer to a thousand micrograms daily of folate from your diet.

Some of the best sources include pinto beans, which has 500 micrograms and a half a cup. Asparagus is also a great 268 micrograms per cup. So remember we're trying to get about a thousand micrograms.

So that's you know, if you have a half a cup of Pinto beans and, you know, you get a cup of asparagus, you're almost you're three quarters of the way there.

Spinach has 263 micrograms per cup beef liver has 215 micrograms in three ounces. Lentils have 179 micrograms per half cup turnip or collard greens have 170 micrograms per one cup.

Broccoli has 168 micrograms per cup, and then chickpeas, black beans, papaya, arugula and avocado are all good sources of folate as well. When you're supplementing with most people need some level of folate supplementation.

Now, you guys may know I have not mentioned folic acid, and that's why most people, most people, when they communicate about folate, they will say folic acid.

And the reason why I don't say that is you actually want to avoid folic acid. It's an oxidized precursor that needs conversion. While methyl four later five mg f is an active, ready to use form of fully.

That's what you're looking for in a supplement. All folate that you consume in your diet as well as supplements, have to be converted into five methyl tetra hydrate, folate, or five mg form a good multivitamin with 300 to 500 micrograms of methyl folate could also be labeled five mg.

HIF can be good for most people, but some are going to need a methyl b-complex supplement with 600 to 1000 micrograms in it, and this can be especially helpful if you have a double gene mutation or if you're lab show that you have very high homocysteine, let's say, up over, you know, ten, 11, 12, you know, I've seen some people with homocysteine at 15, 16 that's causing major damage to their endothelial lining.

So these are people that get on higher doses of B12 as well as folate. Super critical for getting that homocysteine down. The last nutrient I'm talking about is vitamin B6.

Now this helps make neurotransmitters including dopamine and serotonin, and also helps metabolize protein, fats and carbs from food and turns them into energy.

So it's really key for energy production. It helps create new blood cells and helps keep your cell healthy. It also plays an important role in over a 100 enzymatic reaction.

So we also talked about magnesium and how we need that for 300 to 600 reactions in the body, or B6 isn't too far behind it. Needed for over 100 enzyme reactions, it's essential for brain development during pregnancy and infancy, and it also supports the immune system.

And so we're going to talk about B6. Some of the key you know, and little oftentimes little known signs of deficiency include things like anxiety or an MSG and food additive sensitivities.

So if you've had, you know, for example, gone into a Chinese restaurant or had soy sauce and felt really bad, had headaches afterwards, oftentimes that's associated with the vitamin B6 deficiency.

If you have nausea and water retention during pregnancy, oftentimes a B6 deficiency if your blood sugar spikes, like if you're wearing a continuous blood glucose monitor and you just notice your blood sugar spiking and dropping a lot can be a B6 deficiency.

B6 is also key for preventing kidney stones. So if you're having recurrent kidney stones or just overall poor oxalate metabolism breaking down these plant compounds, you may have a B6 deficiency.

If you're not remembering dreams, like if you have really poor dream, recall can be a B6 deficiency, and then also another common one is caffeine intolerance.

Like where you have a little bit of caffeine and you're just really jittery oftentimes, especially at B6 and magnesium. In fact, B6 and magnesium really work hand-in-hand.

They're their partners in a lot of things, including balancing the glutamate to Gaba ratio. In fact, B6 and magnesium are key for, the enzyme, which is called glutamate, the carboxylate enzyme, which converts glutamate into Gaba.

And so if we have too much glutamate, again we get neurotic cytotoxicity.

Vitamin B6: Neurotransmitters and Deficiency Clues

We need magnesium and B6 to help convert glutamate into Gaba and balance that out to reduce anxiety, create more peace, more relaxation, more calmness, and better overall brain function.

Now why? What are some of the risk factors for a B6 deficiency? One is poor diet. Chronic infections can cause low B6 malabsorption, a high toxic load or high caffeine or alcohol use can also lead to B6 deficiencies, taking things like birth control pills and other prescription drugs.

We talked about statin drugs before. PPI is antidepressants all deplete B6. Also food dyes like if you're consuming a lot of food with food dyes that depletes B6.

So those are all big factors. Now when I'm looking at a blood analysis for B6, I'm looking at homocysteine. Of course, that's not sensitive to B6 because of that, because B12 and folate play a really big role with homocysteine.

Again, we want that under nine, ideally around 4 to 7 K with homocysteine. But I will look at that for B6. But it's just not as good a number k. Also a decreased m cv mean corpuscular volume of under 85 with pretty normal iron and ferritin levels can be a B6 issue.

And then low liver enzymes. So when we're looking at liver enzymes like for example Alt and AST, these two key liver enzymes if they're under ten that oftentimes indicates a B6 deficiency.

Now we're looking at the RDA for B6. It's between 1.3 to 1.7 milligrams a day for males and 1.2 to 1.5 milligrams a day for females, and around two milligrams a day for pregnant and breastfeeding women.

The best some of the best food sources are going to be things like chickpeas, bananas, potato, squash. These are all, you know, good forms of B6. Also meat.

We can get some B6 out of meat and then supplemental forms are going to be 10 to 20mg daily of things like, pure doxil five phosphate. That's what I typically I'm looking at.

What we want to avoid are the pure dioxane HCO. It's more inferior form, kind of like the siano cyano commonly in form of, B12. We're looking for the p5 p form usually most people are going to do well with about 10 to 20mg of vitamin B6.

If you're really B6 deficient, we might go up to 50 to 100mg, 1 to 2 times daily for a short period of time, maybe a week or so, to get your levels up real high and then drop you back down to about 10 to 20mg daily.

So guys, I went through a lot right there. It was a lot of information on these key nutrient deficiencies. But make sure that you're looking at your magnesium levels, vitamin D and then those B vitamins vitamin B12, folate and B6 all critical for healthy, brain healthy mood, memory and cognition.

So make sure you're addressing those and you're going to start feeling a lot better today.