# #23 – Functional Medicine Testing: When it’s helpful, limitations, and the truth about test valid... Transcript

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## Introduction to Functional Medicine Testing

[music] Welcome to the trip lab kitchen table conversations about integrative medicine and psychedelics. [music] I'm your host and attending physician Dr. Mariela Wood.

Welcome back to another episode of the trip lab. Today we're going to be talking about functional medicine testing. So what it is, when it can be genuinely helpful, and where the limitations lie. So, I see all sides of this topic every single day. Patients who come in with stacks of expensive testing that were ordered after a single visit with a functional medicine practitioner. Sometimes a doctor, sometimes not, and we'll talk more about that later. And then I also see my more traditional western medicine colleagues dismiss any functional medicine testing outright because it's quote unquote not validated. And I also see plenty of patients asking for these tests without actually knowing what they measure or what questions they're trying to answer with the test. So, let's dive into all of this. And I will say right off the bat that I actually do use functional medicine testing in my practice, but almost never as the first part of my workup. I always start with a thorough history, a careful clinical assessment, and when appropriate, basic testing that can be done through traditional laboratories.

Functional medicine testing usually enters the picture only when those standard approaches fall short and we don't have a clear understanding of what's driving someone's symptoms. So at the end I'll also walk through the specific functional medicine tests that I do find helpful and use regularly.

We'll also talk about the limitations of those tests and also a few categories of tests that I don't usually recommend. So let's start at the beginning. What do we actually mean when we say functional medicine testing? So these are generally advanced laboratory tests designed to look at physiology, metabolism, and biological patterns rather than diagnosing a specific disease.

## What Functional Medicine Testing Is

Some examples of these include the Dutch hormone tests, comprehensive stool testing, food sensitivity testing, which is different than allergy testing, and functional nutrition testing. So all of these tests are not run through traditional hospital-based laboratories. They're usually offered through specialty labs, most often paid for out of pocket and not covered by insurance.

So that alone, I think, tends to raise concerns for both patients and clinicians and understandably so. Traditional medical testing is largely built to answer a very specific question. Does this patient meet criteria for a diagnosible disease? Functional medicine testing is usually asking a different question. How is this system functioning? where might it be under strain or compensating? So instead of focusing on whether a value crosses a diagnostic threshold, many of these tests look at patterns, ratios, metabolites, or dynamic changes over time. And they're meant to inform hypotheses rather than give definitive answers, which I think is the key. And I think that intent is where a lot of the confusion and controversy comes from.

These tests are not designed to replace standard labs. They are not diagnostic tests in a traditional sense and they're not meant to be ordered in isolation without clinical context. When functional medicine testing is used well, it's layered on top of a thoughtful history, a physical exam, and conventional testing. It's not a shortcut. And I think another important and sometimes uncomfortable part of this conversation is who is ordering these tests. Many functional medicine labs allow a wide range of practitioners to order testing, which includes physicians and nurse practitioners and PAs, but also chiropractors, nutritionists, and sometimes even health coaches depending on the state. I've also seen many patients who were able to just order the labs themselves. But I do want to be very clear here. This is not about saying that non-healthcare professionals like doctors, PAs, nurse practitioners, even naturopathic doctors shouldn't order the functional medicine tests. I do think that many non-clinian providers like

nutritionists and health coaches do do excellent work and do have a deep expertise in specific areas, but we do have to recognize the difference in training. physicians and I'm going to include naturopathic physicians here. NPs and PAs are trained extensively in differential diagnosis, pathophysiology, disease progression, and most importantly, what not to attribute to a test result. We're trained to recognize when a lab abnormality is clinically meaningful, when it's incidental, and when it actually may be a red herring.

## Validation, Interpretation, and Overtesting Risks

When functional medicine testing is ordered without that broader medical framework, there's a higher risk of over interterpretation, misdiagnosis, unnecessary supplements, that's a big one, or attributing symptoms to lab findings that may not actually be the cause of the problem. And I think from a patient perspective, this can be incredibly confusing. When results come back flagged as abnormal and sometimes very dramatically so with how these tests come up, it doesn't give a clear explanation of what's clinically relevant and what isn't. And that is how people end up with a long list of supplements, oftentimes also anxiety and actually very little symptom improvement.

So again, this isn't functional medicine testing is good or bad. I think the key here is how it's used and interpreted and whether it's being integrated into real clinical reasoning. So testing should support clinical judgment, not replace it. Next, let's jump into the biggest controversy with these functional medicine tests and that is testing validation.

So many providers will dismiss these tests and use a blanket statement saying that quote unquote these tests are not validated. So what does that actually mean? How do we validate tests and our functional medicine tests actually not validated? In medicine, when we talk about validation, we're usually talking about a very specific process. So, traditional laboratory tests are validated by being studied in large populations and tied to clear clinical endpoints. So, we ask questions like, does this test reliably detect a known disease? Does it predict outcomes that we care about like morbidity or mortality? Does acting on this result change what happens to the patient in a measurable way? And asking those questions is how we end up with reference ranges, diagnostic cuto offs, and clinical guidelines. So tests like fasting glucose or an A1C or a TSH has been studied in tens or actually probably even hundreds of thousands of people. And we know what values correlate with disease, what values predict risk, and what interventions improve outcomes when those values are abnormal. Functional medicine testing is not built that way. Many of these tests were not designed to diagnose disease or predict hard outcomes like hospitalization or death.

They were designed to measure biological processes, metabolic intermediates, or physiologic patterns. And because of that, they usually haven't gone through the same large-scale validation studies that traditional diagnostic tests have.

So when someone says a functional medicine test is invalidated, what they usually mean is that it hasn't been linked to a specific disease diagnosis or clinical endpoint in a large population trial. So that part definitely is true. But I will say that lack of traditional validation does not automatically mean that a test is meaningless or unscientific. But it does mean that we need to be much more thoughtful about how we interpret it and what we use it for. And in fact, what I think a lot of people don't realize is that medicine uses plenty of tests and measurements that aren't perfectly validated in the way we like to imagine. For example, we routinely use surrogate markers. LDL cholesterol is actually an example of one. [snorts] We extrapolate the number from what we know about physiology. Then we make clinical decisions based on patterns, trends, and imperfect data. The difference is that we usually do this within a framework that acknowledges that uncertainty. So, some functional medicine tests do in fact have components that are analytically validated. They often go through a certification process, meaning that the assays themselves can reliably measure what they claim to measure. So, this is great. Another thing to note, too, though, is that these tests do generate a lot of data and sometimes with values flagged as abnormal, even when there's no clear evidence that changing that value will improve symptoms or outcomes. So, this should make us pause. We do need to interpret these results cautiously in context and in combination with the whole picture of the patient. I think a key way of looking at this is that functional medicine testing is rarely definitive. It gives you a snapshot in time. It does not give you answers in the same way that a biopsy or tropponin level does.

It gives you clues. And I think another problem arises when functional medicine testing is presented as more

precise, more advanced or more definitive than our traditional medicine. On that same note, I do want to briefly talk about when overesting actually can be dangerous and why I almost never start with functional medicine testing. So, when you start with really broad unargeted functional medicine testing, especially early in a workup, you dramatically increase the chance of finding abnormalities that may not be clinically meaningful. Inevitably, these tests, they're like 20 pages long, will produce something flagged as out of range. And without context, those flags can quickly turn into a quote unquote diagnosis where supplement regimens or protocols are given and it might not actually be what the patient needs. So I usually begin when appropriate with conventional laboratory testing, not because it's quote unquote more sophisticated, but because it is better validated, easier to interpret, and often enough to identify or at least rule out something serious or common. If we skip that step and jump straight into functional medicine testing, we may miss something basic or attribute symptoms to a functional abnormality when there might be something more straightforward going on. I think another real risk of overesting too is what it does to patients psychologically. When someone is handed a report with all these red flags, arrows, and complex charts, it can reinforce the belief that their body is broken. That mindset alone can drive anxiety, hypervigilance, and a constant sense of needing to fix something, sometimes indefinitely. So, bottom line with all of this, I use functional medicine testing when it's intentional and targeted, and usually only after a simpler explanation has been ruled out. So, with that long explanation and preface, let's talk about which tests I actually do use in my practice.

First, we'll start with the Dutch hormone tests. So Dutch stands for dried urine test for comprehensive hormones. It's a urine based test that looks at sex hormones and their metabolites along with cortisol patterns across the day.

At least the Dutch complete does. There are a few variations of the Dutch test. So unlike a single blood draw, it gives a more integrated picture of hormone production, metabolism, and clearance over time. What I think it does particularly well is assess hormone metabolites.

## Dutch Hormone Testing

So rather than just telling you how much estrogen or progesterone is circulating at one snapshot in time, it shows how estrogen is being broken down into different pathways, how progesterone metabolites look across the ludal phase, and how cortisol is rising and falling throughout a day. That information is something that we don't get from a standard blood test. And this is why I find the Dutch test most helpful in situations where symptoms don't match what we're seeing on those tests. For example, someone may have a normal serum estrogen and progesterone level but still be experiencing significant PMS, PMDD, pmenopause symptoms or even stress related hormone disruption. And in those cases, understanding hormone metabolism, the cortisol rhythm, and the relationship between stress hormones and sex hormones can be very clinically useful. That said though, this test is not diagnostic. It does not diagnose hormone disorders, adrenal disease, or endocrine pathology, and it should never replace basic labs to rule out those conditions. I also want to be clear that the Dutch test is not something that I use as a screening tool on people without symptoms. It's a targeted test that I use when there's a specific clinical question I'm trying to answer, particularly around cycle symptoms, mood changes tied to the menstrual cycle, or stress hormone interactions that aren't explained by conventional testing. There's also a few variations of the Dutch test that I think are worth mentioning briefly. We have the Dutch cycle mapping version which is designed to collect samples across an entire menstrual cycle. This can be helpful in more complex cases where symptoms may vary from phase to phase or where ovulation timing is unclear. It's definitely more intensive. You have to collect your urine at on different days throughout the entire month. So, it's not something that I use routinely, but in select cases, it can provide a valuable insight. We also have the Dutch adrenal test which is more focused and narrowly on cortisol and cortisone patterns throughout the day. So this can be useful with patients with significant fatigue, sleep disruption or stress related symptoms when we're trying to understand that cortisol rhythm. So overall, I think the Dutch test is a good example of how functional medicine testing can be helpful when it's used thoughtfully. Next, let's talk about the GI MAP test, which I think is one of the more commonly used comprehensive stool tests out there. So, this is a stool test that uses PCR based DNA analysis to look at the gut microbiome.

It assesses bacterial, parasite, viral, and fungal DNA along with markers of digestion, inflammation, and immune activity in the gut. I think this test can be helpful for patients with persistent GI symptoms like bloating, abdominal pain, diarrhea, constipation, or post-infectious IBS, especially when our standard GI workup has been unrevealing.

In those situations, it can help generate hypotheses around microbial imbalance, inflammation, or altered gut

immune signaling. However, I think it's important to know that the GI map test detects the presence of DNA, [snorts] not necessarily active infection or clinical pathology.

## GI-MAP Stool Testing

So, just because an organism is detected does not mean that that's what's causing symptoms. Many bacteria show up as quote unquote abnormal on these reports in healthy and asymptomatic people. Another major misconception that I want to really address here is the idea that knowing your specific microbiome makeup tells us which probiotics you should take right now. This is just simply not how it works.

Even though the GI map can give us a snapshot of your microbiome, we do not have evidence yet that choosing a specific probiotic strain based on the microbiome leads to better clinical outcomes.

Maybe in the future we'll get there, but at this point, seeing low levels of a particular organism does not mean that you need to replace it with a probiotic.

And seeing high levels also does not automatically mean that you need to eradicate it. The GI map test is helpful for looking at broader patterns. And those patterns allow us to act more like detectives. They can help us point toward potential root causes like chronic stress, prior infections, medication effects, diet patterns, motility issues, or immune dysfunction that may be shaping the gut environment in the first place.

So, we're not trying to micromanage the microbiome. We just want to understand it a little bit better. So, I use it selectively when there's a clear clinical question and when the results will meaningfully influence management.

In many cases though, I'll actually start with mindbody approaches for gut dysfunction like gut- directed hypnotherapy before jumping straight into a stool test. We'll do a whole episode on this later, but even modern medicine now classifies IBS as a functional gastrointestinal disorder, meaning there's a strong mindbody connection. And treatments like therapy and gut-directed hypnotherapy are now actually included in clinical guidelines, which I think is a big shift from how IBS was approached even a decade ago. Next, let's talk about organic acids testing, often abbreviated as oats. So, the organic acid test is a urine based test that looks at a wide range of metabolic byproducts, which are small molecules produced as the body breaks down nutrients, neurotransmitters, and energy substrates. These markers give us indirect information about things like mitochondrial function, nutrient status, oxidative stress, neurotransmitter metabolism, and overall metabolic efficiency. This test is very different from traditional labs. It's not diagnosing disease and it's not telling us that someone definitely has a deficiency or disorder. Instead, it offers a functional snapshot of metabolism. So, how efficiently certain biochemical pathways may be working and where there may be increased demand or stress. One way I often explain this to my physician colleagues is by comparing it to how we use homocyine. So, homoyine is not a direct measurement of B12 or folate levels. So in a sense it actually is a functional marker.

## Organic Acids Testing

When homoyine is elevated it suggests impaired methylation or increased demand for the B vitamins even when serum or blood B12 levels appear normal. So the organic acid testing works on a very similar principle but much broader gives you a lot of numbers. Instead of looking at one functional marker tied to one pathway, the OAT test looks at many functional markers across multiple metabolic pathways at once. So that makes it really comprehensive but also pretty complex to interpret. I find this test most helpful in patients with chronic and non-specific symptoms that we haven't been able to figure out what's going on. So things like chronic fatigue, brain fog, low energy, exercise intolerance, or even neurocognitive symptoms when basic labs, imaging, and standard workups are all normal. So this test can sometimes highlight patterns that suggest mitochondrial stress, increased oxidative burden, or higher demand for certain micronutrients involved in energy metabolism.

So that information can help us guide more targeted lifestyle interventions like nutrition. We always start with nutrition and supplementation, but I always try to optimize those lifestyle interventions before recommending a specific tester or supplement. Moreover, because the markers on the organic acid tests are indirect, they are influenced by diet, recent activity, gut function, medications, and actually timing of the sample as well. So, we really

need to keep all that in mind when we interpret. So, those are just a few functional medicine tests that I do use in my practice. Last, I do want to talk about two categories of functional medicine tests that I usually don't recommend, and those are mold testing, such as urine microtoxin panels, and broader environmental toxin testing like microplastics or chemical exposure panels. Now, this is not because I don't think that mold or environmental toxins impact people. I actually do think that they do. There is nuance which we can definitely dive into a separate podcast about particularly with mold toxicity or candidada where I see people claiming it as the root cause of a lot of things. Um but we'll get back to that another episode. But with these tests, it's not that I don't think that mold or environmental toxins are real. It's because the results of these particular tests don't change how I treat patients. So let me explain a little bit further.

When we expect a mold or environmental toxin exposure is suspected and we suspect that it's causing dysfunction or symptoms, the core interventions are largely the same regardless of which specific mold or toxin shows up on the test. So, it's going to be first and foremost removing the source of exposure.

## Mold and Environmental Toxin Testing

After that, treatment typically focuses on supporting the body's natural detox systems like sweating with saunas, optimizing hydration, sleep support, nutrition, and sometimes targeted supplements, but again, there's not one specific supplement for one specific mold or toxin. So, my recommendations don't change dramatically based off whether a specific micotoxin or chemical shows up. So because of that, I find that this test often just adds cost and complexity without adding actionable value. In my practice, I usually start by asking detailed questions about exposures. So things like water damage or visible mold in the home, occupational exposures, building environments, chemical sensitivities, and symptom patterns that correlate with these certain spaces. But I will say these tests aren't entirely useless. I think there are situations where mold or environmental toxin testing can be helpful.

For some patients, having objective data can validate their experience and confirm that exposure may be contributing to their symptoms. And in rare cases, identifying a specific toxin can help patients be more precise about where they need to focus eliminating. for example, identifying a particular building that's contributing to ongoing exposures or removing specific microplastics from the home. But I will admit getting to that point is pretty rare. More often I see patients undergo extensive and expensive testing only to end up with a result that confirms what we already suspected and without offering a clearer or more effective treatment path. I do have many patients that have undergone this testing and then were recommended extensive supplement protocols to get rid of those specific toxins, but the truth is that they don't end up feeling better and there's not a lot of evidence for these protocols. But again, we won't get into that now. We can do a separate episode all about that. So, in summary, I'm not denying the impact of mold or environmental toxins. I'm just being honest about what these tests can and cannot do, at least in my practice. When my treatment approach is largely the same regardless of the results, I'm much more likely to focus on exposure history, prevention, and foundational support rather than expensive testing.

So, with all that, to close out this episode, I want to bring it back to the bigger picture. Functional medicine testing isn't inherently good or bad.

It's merely just another tool in the toolbox. And like any tool in medicine, its value really depends on when it's used, why it's used, and how it's interpreted. So more testing doesn't automatically lead to better care. And fewer tests doesn't automatically mean that something is being missed.

Integrative medicine is about using the right tools with intention and restraint and always guided by clinical reasoning and the whole person in front of us.

Thanks for listening to the trip lab.

## Closing Thoughts

If you liked this episode, please subscribe and share so we can get the conversation started about integrative medicine and psychedelics to destigmatize it and fully explore what this could mean in the world. [music]