



1031: Enzymes Deep Dive: Energy, Digestion,
and Cellular Cleanup (Solo Episode)

Child: Welcome to my mommy's podcast!

Katie: This episode is brought to you by Hiya Health. Everyone's talking about their New Year's resolutions, and while everyone else is promising to hit the gym in 2026, I am focusing on something much easier that'll actually stick (gym's already pretty well a habit for me) which is better nutrition for my younger kids.

And that is exactly why Hiya exists, to give parents a real solution in a market flooded with products that prioritize candy-like appeal over actual nutrition. Some children's vitamins on the market have up to seven grams of sugar per serving and are stuffed with additives and petroleum based dyes.

Hiya took the opposite approach. Zero sugar, zero gummy junk, just clean nutrition. And the crazy thing is kids actually love them. The taste, the experience, all of it. It's thoughtfully designed. They looked at what modern kids are eating and not eating, and formulated around those specific nutritional gaps.

Working alongside pediatricians and nutrition scientists, Hiya created a superpowered chewable vitamin that packs 12 organic fruits and vegetables, plus 15 essential vitamins and minerals, including B12, C, zinc, folate, and more. The ingredient list is clean with no GMOs. It's dairy free, allergy free, gelatin free, nut free.

They've thought of everything. Plus, they've earned their clean label projects, highest purity award certification, and they put every batch of product through third party testing for heavy metals and contaminants. So it's the kind of transparency that actually means something. They are designed for kids 2 and up, shipped straight to your door in a reusable bottle with refills that come every month.

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This podcast is brought to you by LMNT, and this is a company you might've heard me talk about before, and I really love their products because proper hydration leads to better sleep. It sharpens focus, it improves energy, and so much more. But hydration is not about just drinking water because being optimally hydrated, a state called euhydration is about optimizing your body's fluid ratios.

And this fluid balance depends on many factors, including the intake and excretion of electrolytes, which many people don't get the right amounts of. Electrolytes are charged

minerals that conduct electricity to power your nervous system. I talk a lot about nervous system on this podcast.

They also regulate hydration status by balancing fluids inside and outside of our cells. LMNT was created with a science-backed electrolyte ratio of 100 milligrams of sodium, 200 milligrams of potassium, and 60 milligrams of magnesium with no sugar. Since electrolytes are a key component of hydration, here's what happens when we get our electrolytes dialed in.

We have more steady energy, improved cognitive function, suffer fewer headaches and muscle cramps, we can perform better for longer, and especially the support fasting or low carb diet because when we stop eating carbs like during a fast, the absence of insulin allows the kidneys to release sodium.

So replacing that lost sodium with electrolytes can help you feel good on a fast. Since LMNT is zero sugar, it also doesn't break up fast. Electrolytes are also important for maintaining blood pressure, regulating digestion and proper fluid balance. Keeping skin hydrated, which is a big one that I feel like often gets missed and so much more.

I feel like proper electrolytes is a missing piece for a lot of people and I love LMNT's new canned drinks, which are sparkling water with all the same ratios and minerals I just talked about, and they are delicious. You can check it out and learn more at drinklmnt.com/wellnessmama. And at that link you will receive a free sample pack with any order.

Katie: Hello and welcome to the Wellness Mama Podcast. I'm Katie from wellnessmama.com. And this episode is all about enzymes. We're going to do a deep dive into them, the ways I've used them, how they can help with energy, digestion, cellular cleanup, and as I have found firsthand a whole lot more. And you've probably heard me say before, I don't take many supplements often.

I don't take anything every single day, and enzymes are something that I do take relatively regularly and have noticed good results from. I've used them differently in different times when I was recovering from autoimmunity. And now for different purposes. I'll get into some of those today. And before we jump in, I just wanna kind of set the stage.

I view enzymes as sort of precision tools for breaking things down and building things up within the body and they are things that we in theory, would get from food or produce. Though sometimes a little bit of extra help, it can be really important. I will always say minerals and light are also important components for these same processes, as well as for almost everything.

Those are separate topics though that I will continue to talk about in depth on other episodes. Before we jump in I also want to reiterate always that everything I share is only from my own experience and research. It's never medical advice or any type of advice. I'm simply sharing what has worked for me, what I found, and what I've learned and found interesting.

I believe that everything is all about personal experimentation, that we are each our own primary healthcare provider, that the best results come from living in harmony and listening to our body. I'm working with practitioners who view themselves as partners in that process and doing our own N of one study.

So everything I share is only ever for inspiration or a starting point for your own research. It's never prescriptive and certainly never for comparison. The human body is wonderfully and beautifully unique. So while there are generalizations that we can all kind of build from, we are each different as well.

So what worked for me would not necessarily in any way work exactly for you, but I believe there's also always something to learn from other approaches. So I share this simply as a starting point for your own framework. In this episode, I'm gonna get into how enzymes work within the body and how they can be especially helpful during times of stress if we're dealing with something in the body, especially inflammation, gut issues, how they relate to things like heavy metals, parasites and also for things like recovery and longevity.

There's also going to be a key distinction in this podcast of the timing of enzymes, because they actually function differently depending on when and how we consume them. So when we take enzymes with food, they work in a more digestive capacity as digestive enzymes and help us absorb and break down things from our food more effectively.

And we take enzymes away from food. They work in a more systemic way, work as more as proteolytic enzymes, which I'll explain in depth in a minute. So they have multiple uses, but timing matters just like it actually does with many supplements. And I feel like timing is not as often talked about when someone is talking about different supplements.

So to start off, I'm gonna attempt to explain some basic enzyme science as I understand it in plain english, because this was something I did not learn for many years and something I've experimented with now for about the last seven years and learned a lot both through trial and error and through research.

So from a scientific perspective, enzymes are catalytic proteins that lower activation energy and speed up reactions without being consumed in the body. And that's an important distinction. So there's specificity here with different enzymes related to kind of a lock and key metaphor of how and where they work in the body.

And an induced fit. So they, different ones serve different purposes within the body and they don't necessarily cross over. So for instance, a protease enzyme will not digest carbs. Nor will lipase, lipase helps digest fats, et cetera. So there are a lot of different ones and they all work differently and they can all have different benefits and also important things to understand about them.

Also, enzymes function within certain conditions. And this is also important. This is why they can function differently depending on some of these conditions. But some things that can affect how enzymes function are things like pH, temperature, co-factors and minerals. I will forever be on the train of minerals and light being very important levers for health, and I think often overlooked or underlooked in the modern world.

And also things like stomach acid and bile matter here as well. So I find enzymes helpful personally. They also don't work in a vacuum so I will also touch on some of the things that can help enzymes work more effectively. There's also a kinetics concept here, which is the idea when you have plenty of a substrate, you have faster activity up to a point.

So this is also why dose and timing change outcomes and dose and timing matter. It's why I personally have experimented and have noticed benefits from starting slow and paying a lot of attention to my body when adding anything new in this category. We have endogenous enzyme systems within our body.

Like I said, our body produces many enzymes. Of course, this is actually vital for life. So just to touch on a few examples of this. We have salivary amylase, which begins carb breakdown in the body. So carbs actually begin to be digested in the mouth. And then of course, that process continues in various ways throughout the digestive system.

Gastric enzymes and our stomach acid denature and help break down proteins at various points in the digestive process. We have pancreatic enzymes like proteases, lipase, and amylase. Who do most of our macronutrient breakdown. And this is important. I had, in hindsight, I didn't recognize it at the time, I had kind of inhibited function here and lower function in some of these areas for a long time and wasn't probably properly absorbing what I could have been from my food.

And I feel like enzymes were personally helpful for me in resolving some of that along with, as I've talked about before, really focusing on the nutrient density of the food I was consuming, not just the macro breakdown. And then there are smaller kind of peripheral ones called brush border enzymes that finish the job of digestion for absorption. What I'm gonna talk about mostly in this podcast are exogenous or supplemental enzymes.

So the ones I just explained are endogenous, meaning our body makes them. You can also supplement exogenously with some of these same enzymes. And these are plant and

microbial derived blends that compliment or fill gaps for what our body is already naturally doing. And I think this is an important distinction as well because I find and have learned the hard way that the best way to support the body is to work within the body's natural systems.

So I've talked about this before in the context of detox. Detox is not something we do to our body. We don't detox our body, we don't cleanse our body. The body is intricately and beautifully capable of this, and we can support that process when we understand it and give the body tools to do what it already does more effectively.

It also helps to understand because if within any of these systems, whether it's detox or enzymes, we don't want to try to bypass or overload the body's natural systems because that can actually lead to further downstream problems and kind of overload the body or kind of, kind of kink the hose in the body's natural healing process rather than working with it to help effective elimination.

So I mentioned there were different kinds of enzymes. I'm, like, from now on talking mostly about exogenous enzymes. So of course there's overlap here as a lot of these are made endogenously as well. But I'm gonna be speaking about them from an exogenous perspective. So there's different categories here.

There's proteases, which relate to proteins, peptides, and amino acids. So examples would be protease blends, bromelain, papain. Peptides like DPP and DPP-IV, and peptides such as gluten, casein fragments. Don't worry about remembering any of that. Just wanted to give some examples in case you've heard any of those words before.

There's lipases that deal with fats like glycerol and fatty acids and relate to bile synergy. So this, these are ones that address fat breakdown and absorption in the body. There's amylases like glucoamylase, lactase, alpha-galactosidas these deal with carbs, starches, lactose oligosaccharides, and other forms of carbohydrates.

There's also a lesser known class that I'm not gonna talk about as much today, but these are fiber targeting enzymes. And fiber might be a whole topic for a future podcast. Because I think there's also, I've seen a lot of misconceptions around fiber and types of fiber and how it works. But fiber targeting enzymes are ones like cellulase, hemicellulase, pectinase as some of these can help reduce gas from plant fibers.

So if you've ever had the experience of consuming fiber in various amounts, especially supplemental fiber. Or some plant-based proteins, which are also high in fiber and noticed bloating or gas after this could be why is a non-optimal amount of those particular enzymes.

I'm not gonna talk as much about the fiber targeting enzymes today. I'm gonna go deeper on the Proteases, lipases, and amylases. But I'll touch on them a little bit. And then there's a whole category of specialty enzymes. Which some of you might be familiar with. I'm not gonna go super deep on all of these today, but these would be like serrapeptase, nattokinase, lumbrokinase.

And these are more for systemic conditions and I'll touch on some cautions that I have found related to those later on, I also wanna just mention briefly, catalase and other antioxidant supporting enzymes as kind of a contextual mention, but I'm not going deep on those today either. There's also a lot of, to understand on labels.

So if you're taking enzymes, you might see different things, different abbreviations and words on the labels. And I feel like these, it's related to the measurements of these enzymes and their activity. And this, these units matter actually more than milligrams. So just milligrams of a particular enzyme doesn't tell you a whole lot of its actual activity and what it's gonna do.

So for things like protease, for instance, there's labels like HUT, HUT, PC and SAPU, that are related to their activity units. For lipase, the activity units is FIP. For amylase, it's DU for lactase, ALU, for bromelain, GDU or MCU. Again, I'm not gonna get super in the weeds on those today. The main thing to know is it's not just the amount in grams or milligrams of an enzyme you're getting, but also it's activity units.

So one thing I wanna go deep on to make sure there's a distinction on, because this was important for me and I now think of the same type of enzymes as two separate supplements based on this understanding is the concept of taking enzymes with meals versus away from meals, and then basically being two separate tools based on this.

So when enzymes are taken with food as a digestive use, these are then thought of as digestive enzymes. And they then are mainly functioning to help the body break down food and absorb it better. Get more from the food and reduce things that might come from not breaking the food down effectively. So digestive enzymes are often used for things like reducing post meal bloating or heaviness and to improve nutrient liberation from the food that we eat.

Many people who have had compromised gut function for any reason might notice a difference from taking enzymes for this particular purpose. In general as categories, the studies look at and seem to show benefit for digestive enzymes for people who have low stomach acid, pancreatic insufficiency which also is something that happens, these kind of happen with age. If we don't address it, we tend to make less stomach acid, less pancreatic enzymes. As we get older, so people in those categories can tend to see a

difference. Also, people who are on high protein or high fat diets might benefit from digestive enzymes simply because the body is tasked with breaking down more.

Or during times when we're eating kind of outside of our normal, like during the holidays or travel. So I especially bring enzymes when I'm traveling or during the holidays or if I'm eating at a restaurant. Because I'm kind of breaking my routine and the enzymes are helpful in those particular cases.

For this particular reason, I personally, and again this is not medical advice, but I have anecdotally found for myself that when I feel like I might be starting to get sick, especially if I have any kind of digestive related complaint, I will kind of up my enzyme consumption throughout that day. And I often find that helps me from progressing in whatever was going on. For digestive enzymes timing is important, so there's kind of two ways you can add them in one would be before the first bite or at the first bite of a meal or mid meal. And different enzymes are more particularly supportive depending on kind of the content of what you're eating. So as you would guess lipase, which is the fat digesting enzyme, is more beneficial when you're eating a high-fat meal.

Protease, if you're eating high protein. And amylase or glucoamylase for heavier starch. And so often digestive enzymes will have some amount of all three of those since often we're eating a mixture of macros at any given meal. I've done podcasts before about protein importance and quality of course, as well.

And especially as we get older, how our protein needs might change, as well as how I've benefited from actually consuming more food and especially more protein. And how that helped with my recovery and also shifted my body composition quite a lot, and I found, especially in adjusting to that, but even continually since then, that enzymes help break down the protein.

So I don't notice any discomfort from eating high protein, and I feel like I'm able to pretty effectively absorb the food for that. Now, there are some synergistic things potentially that the literature looks at that are helpful alongside digestive enzymes. Especially related to digestive complaints.

And just to reiterate, again, I am not a doctor or a practitioner. I am strictly a guinea pig who likes to test these things and share what I've learned. So definitely consult with a practitioner who is a good partner and who views you as a partner in your health if you have specific digestive complaints.

But according to the data, many people seem to also benefit from something like betaine HCL supplements if someone truly has low stomach acid. I've done podcasts in the past with Steven Wright about how to know if you might have low stomach acid and how to help

the body sort of rehab that so that over time you're creating the correct amount of stomach acid.

As well as how often what we think of as too much stomach acid and conditions like acid reflux might actually be ineffective or too low stomach acid to begin with and what to do about that. So, betaine and HCL is sometimes a synergistic supplement with enzymes, as well as things like bitters, which I love the Just Thrive one.

I've done a podcast with Tina from Just Thrive about bitters specifically, and I learned a lot I didn't know related to that. So now there's something I add in occasionally and then a couple ones that are completely free, that I think could be largely beneficial to a lot of us, even if we don't have digestive complaints but that actually have data to back them up.

Not that I think we need data because they also seem like common sense. Two things that can make a big difference are slower, more thorough chewing. So making sure we're actually chewing our food completely before swallowing, especially when carbohydrates, as I mentioned, those start to be broken down in the mouth.

So if we start that before swallowing, it actually helps the digestive process as well as our nervous system state and calm during meal times. So something as simple as calm breathing or like a few breaths before meals to get into a calmer state can actually have a measurable impact on how well we digest our food.

So that's a broad overview of the digestive use of enzymes category. Now, when enzymes are taken apart from food on an empty stomach this is considered a systemic use. So the enzymes would then be functioning in a proteolytic role within the body. So they're not being needed to break down food because we haven't just consumed food.

So the goal here is that these proteolytic enzymes enter our circulation in small amounts to help break down excess debris, protein debris or fiber and immune complexes, biofilm matrix components, and kind of function in more of a cleanup role. And I feel like, for me, this is why they were likely helpful when I was in recovery from autoimmunity addressing things like inflammation.

I've shared parts of my story as well, and I can link to a podcast about my reversal, of Hashimotos, but enzymes were one of the tools I used during this, along with, you've heard me talk about dialing in my light exposure, some other supplements that I found helpful, like Pectasol, but I feel like proteolytic enzymes were very helpful here.

And I have anecdotally heard from many people who have recovered from autoimmune disease that enzymes played a role for them as well. Especially if the body is in a compromised state, it might not be making as many of these enzymes as we need. And so

short term giving it some extra can sometimes help with this cellular cleanup and kind of support.

So some potential outcomes that I've seen discussed in the literature and also just anecdotally in my own practice or from others when people address enzymes from a systemic or proteolytic kind of concept is they report things like less morning stiffness, faster tissue recovery after movement or workouts.

Some people take them for lymphatic support and circulation and sort of easing the backlog that can aggravate immune reactivity. As a side note, again, not a recommendation, and I've talked about this before, I feel like for me this is why fasting was actually also a helpful tool in my autoimmune recovery.

However, of course there are cautions when it comes to fasting. I do recommend working with an expert when it comes to this, and for women especially, there's been a lot of talk about how if done incorrectly, especially, fasting can be stressful on the body. So if we're recovering from any kind of condition going on we definitely don't wanna add more stress to the body.

So personally, I introduced fasting very slowly with at first just spacing out kind of a time restricted eating window. So I would eat within eight hours a day, and then over time building up to just 24 hour fast. And then adding longer ones in over time in the like kind of peak of my recovery, once my nervous system was calm and once I was supported from a nutrient perspective, my personal decision, what I tried to do and what seemed to work for me was that I fasted for three to five days, about once a month. I also, now, I've talked about before, do a 7 to 10 day fast once a year, which I do more for emotional, mental, and spiritual reasons.

However, it also serves a physical purpose of cellular cleanup when done correctly. Like I said, it can also put stress on the body so this is not something I would jump into on the first line of anything, and not that I'm recommending, just something that has been helpful for me. When it comes to systemic enzymes, proteolytic enzymes, so when you're taking them for that purpose, you can take, like I said, the same enzymes to accomplish this. The timing matters here. So these I've timed as more like 45 to 60 minutes before meals, or two to three hours after, so that they're getting used systemically and not digestively.

And consistent daily use for weeks is typically needed to notice changes. This was the case for me. What I did was keep these on my nightstand and in my bathroom so I would notice them and take them in the morning and before bed. I also often take Pectasol before bed just to support cellular cleanup while I'm sleeping and I can link to some posts I've done about that as well. What to watch for with enzymes is you might see subtle shifts at first. So

what I noticed was that I, especially with enzymes and Pectasol in combination, started getting more deep sleep. Especially, my sleep quality improved and I felt less puffy in the morning.

Which is definitely not a clinical thing that you can measure, but I noticed like my rings are looser and things like that. And then I noticed bigger changes in lab levels later on.

Okay. I also wanna touch on some things I learned peripherally that can maximize the benefits seemingly of enzymes, especially digestive enzymes, and make them work better. I've talked a lot about foundational fundamentals before on this podcast, and I think if we're going to add in supplements or biohacks, it's well worth making sure that we've built some of these foundational things first because they're gonna let any other tool, especially tools that we have to buy, let them be more effective. So to me, this is a "both and." I always recommend addressing the free lifestyle factors first, whenever possible so that we can maximize the benefits of more complex or costly interventions later on.

So these are the things I talked about so much like light exposure, I would put minerals as actually an essential nutrient category, not as a supplement. Just maximizing the nutrient quality in our food and prioritizing sleep hygiene. Things like morning sunlight, avoiding artificial light after dark and having a consistent sleep time and wake time.

Sleep was an issue for me for a lot of years and I found some of those things very helpful. I've done multiple podcasts with Molly Eastman that I would recommend. She's the expert behind Sleep is a Skill, and she has a lot of extremely practical advice for improving sleep hygiene. But when it comes to specifically helpful foundational things related to enzymes, some things that can help or be to stimulate phase one and two digestion, with things like being aware of our vagal tone.

So one I've mentioned before, humming actually can help with vagal tone. And for me, this is I think why I started actually seeing a benefit from taking voice lessons because I was stimulating my vocal tone more through singing and humming. Also, slow eating in a calm state, not on our phone, not standing up, not in chaos.

Ideally outside after doing some deep breathing. Chewing everything well. And then simple one, but not drinking a lot of fluids with meals. You probably heard that tip before, but we're trying to support our body in maximizing our natural production of stomach acid and enzymes. We don't wanna dilute that during mealtime.

Of course, hydration is very important. But some people can see a difference in digestion simply from separating, eating and drinking. So drinking more in the morning and at night, and between meals versus with meals. Also, you might be tired of hearing this, but minerals

are important here as well because adequate minerals play an important co-factor role when it comes to digestion.

And enzymes, especially sodium magnesium and in this context, zinc. So I've done podcasts, many multiple podcasts about sodium and about salt and how perhaps the paradigm we were told of salt being problematic is actually missing a large part of the story. And how salt functions both electrically, biochemically, within the body to aid a lot of things that it's applicable here as well.

So when we have adequate amounts of those minerals, enzymes also tend to work better as well. And of course these things benefit other areas as well. Anything we can do to support normal stomach acid and bile flow also help enzymes to be able to be more effective within the body and also just naturally help support digestion.

And this would be things like natural light exposure, enough movement, humans were meant to move. My friend Lauren says, motion is lotion. So this could be something as simple as walking in the morning or after meals and things like bitters, which are natural for plants. Some people will benefit from HCL, but again, do the research on that one. If that's something that you feel like might apply to you, work with a practitioner and you can listen to Steven Wright's episode to see how you can kind of self test at home if you might need some stomach acid support. I am a big fan of post meal walking or gentle movement also for mobility and lymph, but they help with digestion as well.

It's funny that we need studies to tell us this, but there are studies that show that even just short walks, post meals can make a big difference in digestion, in blood sugar regulation, in metabolism, and in much more. And I've done a whole podcast on the lymphatic system, I think I've actually done two.

And how unlike our circulatory system, which has the pump of our heart, our lymphatic system does not have a manual pump that is moving it. So it only moves if we move. And as humans, we were designed to move a lot. Doesn't mean we need to do high intensity workouts every day. It means we need to move throughout the day pretty regularly. And if you wear a tracker or an OURA ring, I consistently get reinforced data that the days I'm just consistently moving, even if I don't exercise or work out specifically, but I do lots of housework and yard work, I get consistently good scores on my tracker. And then another one is stress reduction around meal times.

I know this can be a tough one, especially if you're a mom like me, and meal times can be busy, especially at night, but this helps avoid sympathetic shutdown of our digestive secretions and enzymes that we need to properly digest. And perhaps you've even

anecdotally noticed if you've been really stressed and tried to eat, your body responded differently to the food.

If you maybe got bad news, upsetting news, or were just really stressed, even if you were hungry, maybe it didn't feel like you were digesting the food well, and this can be partially because of that sympathetic shutdown that happens when we are stressed. Something as simple as a few calming breaths before meals, or this is why also putting like prayer, which can be very centering, many people pray before meals. Anything that can help calm our vagal tone, calm our nervous system, can actually have a measurable change in your digestion.

So, to briefly touch on some use cases and protocols that I have used when it comes to enzymes, again, not from a place of advice, just from a place of sharing what I have done, is using them for digestive support. Anytime I was changing my diet and needed to kind of adapt to something new, like when I was adding more protein or anytime I just might be out of my normal routine like travel holiday meals I find enzymes especially helpful. For these I try to like look at a broad spectrum blend and I'll link to a couple that I use in the show notes and then I adjust the dose to meal size. I have not dealt with this, but I know some people including some friends of mine that are lactose intolerant and they will take targeted lactase with dairy containing meals or lactase I mean, I'm sorry, to help break down lactose. Enzymes can be used in a targeted way.

I haven't used them specifically in this way because I haven't needed to, but I know people who haven't found that very effective. And then people who have trouble breaking down things like beans and brassicas and high-FODMA foods sometimes find that alpha-galactosidase, I hope I'm saying that right, and fiber targeting enzymes can be helpful, especially in the short term. And with all of these, even though I take enzymes and rotate them occasionally for digestive support and cellular cleanup, the goal is also to work with our body to naturally kind of optimize our production of these things endogenously as well as exogenously so that we don't depend on them, but we have them as a tool.

I also am a fan of enzymes for performance and recovery and when I've worked with athletes, it's actually something that a lot of them have found helpful and I don't hear this talked about as much, though I'll link to the masszymes from Biooptimizers, and they both come from a fitness background, the two founders, I've done podcasts with them as well, and they have certainly utilized enzymes from a performance and recovery perspective. Most people that I've talked to personally and for myself, I started using them much more from a like I said, autoimmune recovery, more broad recovery perspective, but they can serve a very effective role in athletic recovery as well.

People on higher protein diets, like I said before, might see a benefit from proteases to improve amino acid availability and reduce the heaviness of those meals or gas and bloating that can happen with high protein diets. So the jokes about online in bodybuilder communities about kind of the uncomfortable bloating and really smelly gas that can come with super high protein consumption.

And sometimes this can be a clue that someone might not be breaking down the protein effectively, which seemingly would be important if someone's consuming a lot of protein for a very specific goal like bodybuilding. So digestive enzymes, especially proteases, can help with this protein breakdown. I personally also know a lot of athletes who use proteases as post-training away from food.

So in a systemic paralytic role to support muscle tissue recovery because similar thing is happening when muscles are utilized and broken down some, that those are then mobilized within the body, so this can seemingly help tissue recovery as well as using digestive blends with protein heavy meals to help replenish that process.

I've probably used enzymes most from an immune and cellular cleanup perspective. So the more systemic proteolytic enzymes. So this is away from food for things like debris, clearance, fiber, and load, and healthy microcirculation. And what I did notice was that I started very slow, let my body adapt. I didn't wanna overload any detox pathways or overload any enzyme circuits.

I started slowly and worked up and kind of gauged how my body felt in that process. At times during my recovery, I was taking sometimes as many as three to five of these on an empty stomach, morning and night, as well as taking them with food for digestion. Because these are things we do also make endogenously, I didn't notice any negative effects personally from taking those. In fact, I noticed a lot of positive effects. But again, work with a practitioner, if you have anything specific going on, do your own experimentation and seemingly starting slow is helpful. I also found it helpful during this phase for me to tie in gentle lymph support as well, like hydration, minerals walking, light bouncing and rebounding, and then sauna and cold contrast if tolerated.

I think those could be supplemental to that kind of cellular cleanup component. And then there is the aspect of gut terrain support. Which I've also used them for. I haven't had as much specific gut issues though. Usually when there's autoimmunity in the body, there is something going on in the gut as well.

So I feel like it was probably helpful here, even if I wasn't specifically working on my gut health at the time. But enzymes can reduce the substrate for fermentation within the gut because they help the breakdown of food. So this is why they might help ease gas and

bloating while other gut support can help with the rebuilding, things like probiotics. I know gut health is a very nuanced and complex topic, and of course very personalized. And we are more bacterial than human. I've done a lot of podcasts with gut experts and I can link to a few of those in the show notes, but enzymes can also play a role here as well.

From a practical perspective, here's what I found helpful. Like I said, I started low with like one at a time, gauged how I felt. Kind of kept a log of if I noticed anything, and then I built up slowly over the course of weeks, based on my own response. I now travel with enzymes because I find I'm more likely to experience kind of digestive differences while traveling.

And I know many people talk about this as well or with bigger meals with the holidays. So I keep enzymes in my travel bag. For systemic enzymes, I did find in the healing phase for me that consistency was very important. And that the timing windows were very important. So I took them regularly and away from food, so morning and evening for a while, and then I started noticing changes.

To briefly touch on some safety cautions and quality as well. And again, this all still, I would say, if you need specific advice, work with a practitioner who knows your condition and knows what you're working with, but look for quality markers like activity labels, or activity units on the label for pH stable enzymes and third party testing where appropriate.

Like I said, I'll link to the ones I personally have noticed a benefit from in the show notes. But there's many available you can research. Of course, if you have any allergy or sensitivity, especially since these are plant or microbial in origin, if you're allergic to anything in them, obviously don't take them.

Some people, one specific here that I'll call out if you are sensitive to pineapple, then you might wanna be careful with bromelain or get advice on that before trying. Or if you're allergic to papaya, the papain enzyme or papaya enzymes of course could be problematic as well. I'm not a doctor, but I do know from researching this that you also want to be cautious with enzymes related to certain medications.

And of course this is a category where check with your specific doctor about your specific case if you are on medication, but the literature talks about people who have, are on blood thinners or have bleeding disorders, need to be careful with systemic proteolytic enzymes like nattokinase, serrapeptase or lumbrokinase.

So this is a consultant practitioner category. Certainly post surgery is another time because this can kind of, might disrupt some things that are going on there or be too much. So check with your surgeon if you're having surgery. Also, people who have ulcers or active GI bleeding or severe reflux, definitely wanna work with a practitioner before adding in anything that's addressing digestion.

And then as a category, pregnancy and breastfeeding is a definite check with your practitioner category and take a conservative approach. I didn't know a lot of this when I was pregnant in the past. However, I feel like personally I would take at least digestive enzymes and likely systemic personally.

But again, check with your practitioner. That is definitely not medical advice. When it comes to kids, definitely check with their pediatrician, but there are kid appropriate doses of certain enzymes and targeted enzymes that are specifically studied for kids like lactase for dairy intolerance, et cetera.

However, some kids do seem to notice a benefit from enzymes and my older kids do take enzymes for athletic recovery if they start getting sick. They now all do this naturally on their own and or if they notice any digestive struggles.

To go a little deeper on my personal story in how I felt enzymes were helpful in my autoimmune recovery, just as an anecdotal example, this is my experience only, again, tired of me saying this, I'm sure, but it's not medical advice. What I first noticed when I started using enzymes correctly, so digestive with meals, systemic outside of meals, I noticed less digestive heaviness, clearer head, steadier energy, and less puffiness.

So when I was kind of in the heat of the autoimmunity, my joints felt kind of just sticky and heavy and I felt like I had extra fluid. And with that, through that recovery and with enzymes, I felt like things like my rings got looser. I didn't feel puffy in my hands when I woke up. So the paralytic enzymes, especially, I noticed less morning stiffness, improved recovery, and kind of a reduced sense of internal congestion. And this one is a hard one to quantify. I don't think there's any kind of test for this at all. But if you've ever had the experience of, I only noticed it when it went away, but less kind of like stickiness or internal congestion.

And I kind of described it as like, I felt like someone had turned on like cool air inside my system, like my digestion, everything just felt like it was smooth and functioning where it felt like there had been stickiness I hadn't even noticed until it cleared. I feel like enzymes for me are part of a broader protocol that was really helpful during my intensive recovery phase, and now that I still cycle and use regularly, which also includes things like mineral depletion.

I think this is absolutely vital and a very important lever for me being protein forward with high nutrient focused whole food diet and getting lots of sunlight. You've heard me talk about this one, I'm sure quite a lot. Sleep optimization, working with the body's natural detox pathways, including movement for lymphatic function and then nervous system work as well.

And I talked about all of those things separately on other podcast. What I noticed is the importance of layering and patience. I feel like enzymes could be a catalyst within a broader approach. They do seem to take time, especially if we have, as in my case, I would guess with autoimmunity and a lot of the things I had at the time, I just probably had a lot of buildup of some of these things going on in the body.

And it took a while, both from a nervous system safety perspective and from a biochemical perspective for my body to kind of catch up and for me to start seeing difference.

This has gotten already longer than I expected, but I will end by sharing some practical takeaways and what I do, and you can always leave questions in my dms on Instagram or in the show notes, and I will respond to them. What I found is if digestion is the issue, a broad spectrum digestive probiotics seem to help the most, and taking that with the first bite of meals starting low and then titrating the dose up till I really noticed a difference.

When cleanup and recovery were my main focus, I used proteolytic formulas quite a lot. So away from food, I started low and then worked up over the span of weeks. And I do feel like I saw a massive difference from this when I got to those kind of therapeutic levels. Also helpful to stick to those foundational fundamentals.

Things like protein at breakfast, getting enough minerals and sunlight, walking post meals and addressing stress levels at meals. And then I would also recommend with anything to measure so that you can see what's happening. So track your outcomes, even if it's just the kind of notes around your bloating, meal heaviness your bathroom habits and how that is, morning stiffness, energy, sleep depth, et cetera.

Because it's more helpful to see patterns over time, of course, than within a single day. And a lot of these do take time to really see the most profound benefit. So I hope that didn't get too sciencey. I actually, I find this whole topic really fascinating. It was something I didn't know about for many years when I was trying to recover and something that I do actually feel like was a needle mover and a lever for me.

And so it's one I wanted to kind of get a little bit nerdy and go into the science on as well as some of the practicality of understanding how these things work and then why and how they specifically can be used. I will include more links to the show notes if you wanna go deeper on any of these topics, as well as the ones I actually use and notice a benefit from.

And again, I think this all comes into personal experimentation and finding what works for us, but I wanted to share something that has worked for me. And as always, I love to hear, when you guys get feedback of what topics you would like me to cover, I love to address those. I love to hear your feedback and I would be honored if you would spend just 30

seconds and leave an honest rating and review wherever you listen to podcasts, which helps me with feedback and also helps other people to find this podcast as well.

And which is one of the biggest things you can do to support Wellness Mama. I'm always very grateful and read every rating and review, and you can do that wherever you listen to podcast. And anytime you wanna send feedback of who you would like me to talk to next, or what topics you would like me to cover individually, I love to hear those as well.

For today and for this episode, thank you so much for your time. For sharing your energy and attention with me today. Love to know if enzymes have been helpful to you or if you experiment with them, anything that you notice. But for today, thank you for listening and I hope you'll join me again on the next episode of The Wellness Mama Podcast.