



Midlife Clarity with Dr. Tracy Page

"Clarity Changes Everything"

Hosted by Dr. Tracy Page

Episode #13 — Why Recovery Stops When We Age
CJC/IPAMORELIN

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Welcome back to Midlife Clarity. I'm Dr. Tracy Page. I have a functional medicine clinic in Appleton, Wisconsin, and right now we're doing a podcast series on peptides. Today, we're going to talk about one of my favorite peptides: CJC-1295 and Ipamorelin. So, it's actually two peptides. A lot of times you'll hear this one called CJC-IPA because it's most often used together, and you get the best results when you mix them. Now, growth hormone. This is what peptides affect: growth hormone. So I want you to know that women, especially when they hear the word growth hormone, get a little nervous. So just know that growth hormone isn't about making you bigger.

It's about telling your body when to rebuild. Every night in deep sleep, healthy cells use that signal to repair muscles. They also use it to restore tissue, replenish reserves, and really consolidate what the day has broken down. Because, you know, we're all busy, and we're all- I won't say abusing, but we're definitely using our bodies. By midlife, that signal is faint, and the rebuild is only partial. So CJC Ipa, or CJC-1295 and Ipamorelin, don't replace what's missing. They actually restore the body's ability to make it again. They do this in a natural, pulsatile pattern.

It's always been known how our body uses it. So, I can't wait to share more with you about CJC IPA. And I'm going to use a patient case, as I always do, because I think it really brings it home. And of course, I never use my patients' names. We'll call this patient Rebecca. But the stories are pretty profound, and you're going to find something about this story that relates to you, I'm sure. Because I hear one of these things about waist circumference in my office at least five times a week, if not 20. So I can't wait to share Rebecca's story with you and talk more about CJC IPA. It's the growth hormone duo that really restores your body's repair economy. That's how I like to think about it. So on with the patient. So, Rebecca's 51.

She likes to run. So she's run six marathons. She's always been a five-day-a-week exerciser, probably since college. And of course, she lifts weights, she eats clean, she



tracks her macros, more power to her. And she takes her supplements. She gets her annual physical. You know it. She does all the right things. So, by every external measure, she is the patient who is and who has done everything right. But when she came to my office last winter, she said, and she said this with that kind of quiet frustration because she, you know, when you look at her, she looks in shape. And so, she doesn't really want to say, you know, hey, I'm putting weight around my belly because most people look at her and what she does and think she's an athlete, right? But she came to my office, and she said, "My body has stopped responding to me. And let me tell you what she meant. She was sleeping seven and a half hours every night, but she was waking up exhausted.

Her sleep tracker showed her deep sleep had dropped from a healthy 90 minutes. And that was what she normally had in her forties down to 28 minutes now. So she was only getting that deep sleep for 28 minutes. She didn't need a sleep tracker to tell her because she could feel it. And I'll tell you all the ways it presented itself. So, her recovery from workouts had collapsed. A long run on Saturday used to require only Sunday as a day off. Now it required Sunday and sometimes Monday, and even Tuesday, before she felt ready to get out there and run again. Her muscles ached for days. Her resting heart rate ran eight to ten beats higher than her baseline from the previous decade. Her body composition had shifted in a way that infuriated her. And this is what I meant when I said I hear this at least five to ten times a week in my office. She was lifting the same weights, eating the same meals, running the same mileage, you got it. And yet her abdominal circumference had increased by almost two inches in just under 18 months. Her arms felt soft. Her quads had thinned. Her skin around her jawline had started to lose tone in a way she hadn't seen in her 40s. And remember, she's 51, so she didn't notice any of this in her 40s. And the smaller things, the things she almost didn't mention - a small cut on her hand took three weeks to heal when it used to take five days. The gray at her temple; she didn't remember it being there last spring. Now all of a sudden, she's turning gray a lot faster. The dryness of her skin that no amount of moisturizer will fix. The way she felt, like in her own words, noticeably older than I have felt in years. Her labs for her primary care visit came back, quote, all within normal limits.



The thyroid was normal. The metabolic panel was normal. CBC looked good. Cholesterol was slightly elevated, but again, nothing to worry about. Nobody had ordered an IGF-1. So, insulin-like growth factor. So IGF-1. Nobody asked her about her sleep. Nobody had connected recovery, body composition, skin, and sleep into one single picture. So, here's what I told Rebecca that nobody had told her before. Her growth hormone output at 51 is approximately half of what it was at 25. Not because she's sick, not because something is broken. This is just human, and this is what human bodies do. Our growth hormone secretion drops by about 14% per decade after age 30. So, by the time you're 50, you're working with roughly half of the signal you had as a young adult. Every recovery problem, every sleep problem, every body composition problem, every skin problem, even wound healing- all of those things are downstream of one master signal that has gone, what I would say, quiet. And the two peptides we're about to discuss exist to wake it back up. I know it sounds too good to be true. And I will say I have seen this peptide work really well. Today we're going to talk about CJC-1295 and Ipamorelin. And from this point on, I'm going to call it CJC-IPA. Why we use them together, how they work synergistically, and what they do that we say synthetic growth hormone does not. So, this is not a synthetic growth hormone.

And critically, because patients always ask how they differ from growth hormone replacement therapy that older men in testosterone clinics sometimes use. So, the answer is meaningful. You've also heard of the growth hormone many young children take because they're not growing. So, I'm going to explain why these peptides in the course of how they work is so important in midlife and how they can be a repair protocol for patients. Okay? So let me tell you what Growth Hormone actually is. Most people associate it with bodybuilding or with kids, like I said, who aren't growing well, and they miss the bigger story.

So, I call growth hormone the master signaling molecule of repair. Your pituitary gland, a small structure at the base of your brain, produces growth hormone in pulses. So, it comes out in pulses. This happens primarily during deep sleep stages but can also occur during fasting and intense exercise. Each pulse triggers the liver to produce IGF-1



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(insulin-like growth factor 1), the hormone that does most of the work in the body and the one we can measure.

So, you can't measure growth hormone because it's pulsatile, but you can. Once it travels to the liver, it makes IGF-1. You can measure IGF-1. Together, growth hormone and IGF-1 organize daily repairs. Okay? They tell your muscles when to rebuild after a workout. They tell your skin when to lay down new collagen. They tell your bones when to remodel. They tell your immune system when to refresh.

And they tell your sleep architecture when to drop into deep sleep. Restorative cycles. They tell your metabolism also how to partition calories toward building muscle and away from storing fat. In children and adolescents, growth hormones produce growth. In adults, it produces what we call maintenance. The same molecule, different jobs at different ages, right? So, the numbers. Growth hormone secretion peaks in adolescence and begins to decline in your 20s. Yes, you heard me - in your 20s, the decline is roughly 14% per decade after age 30.

By the time you're 60, you are producing roughly half of what you made at 25, okay? By 80, the decline can be 80 to 90%. And this phenomenon has a clinical name. It's called somatopause. So, we have menopause, we have andropause, now we have somatopause, okay? It's the slow-motion fade of the master repair signal. IGF-1 falls in parallel. So, the reference ranges for IGF-1 are age-adjusted, which sounds reasonable until you realize what it actually means. The medical system has built into its lab interpretation expectation that older adults will have a low IGF-1, and it calls those low values, quote, normal. That is exactly what happened to Rebecca. Her IGF-1 was technically in range because the range was lowered for her age. Her IGF-1 at 51 was at the low end of what a healthy 25-year-old would have had, right? 25. The reference range was telling her it was normal. Her body was telling her depleted.



So, there is a difference. So again, remember that the reference range has been lowered because she's older. So, making her levels look normal, but they really aren't. Great. Okay. So, what happens when your growth hormone starts to fall. Your deep sleep is first affected. The slow-wave sleep stages, where the bulk of growth hormone is released, decline by approximately 50 to 70 percent between the ages of 20 and in your 50s. This is not just a feeling-tired issue. Deep sleep is the construction window of the body. So, when you lose it, you lose the time during which the bulk of nightly repair happens. And I felt this - lean body mass typically decreases by one to two percent per year after midlife if no intervention is made. Body fat, particularly visceral fat around the organs, increases, and we're already at risk for that over 50. The shift Rebecca described, where her abdomen widened while her arms and quads thinned, is the textbook of somatopause body composition pattern. So that's actually what happens. We see that. Wound healing slows; skin thickening declines by about 1% per year after age 25, with collagen synthesis dropping in parallel. Recovery from any kind of physical insult, like a hard workout, a minor injury, a surgical incision, even a sleepless night, takes longer to recover. Think about that. I mean, I know when I worked out, I used to recover pretty quickly. Then I noticed that, gosh, you know, my legs felt heavy, or I just didn't feel like I had the strength to keep going the next day, so I had to take a break. Usually, I could work out four or five days a week, sometimes three or four in a row, with no problem. Bone remodeling also slows. Hair quality declines, nail growth slows, and there's just honestly a thousand small markers of how quickly your body is renewing itself, and they all trend downward together because they all depend on the same signaling cascade. So, I always like to use analogies to help you understand these concepts.

So, think of growth hormone as the conductor of your body's repair symphony. Okay, so every musician is in the orchestra. Your muscle cells is one musician. Your bone cells is another. Your immune cells, your skin fibroblasts have practiced their part their whole life. Okay. They know what to play, but they need the conductor to bring them in at the right moment to set the tempo, to coordinate the sections, so the music makes sense. And at 25, the conductor is sharp. The baton is high. Are the musicians still trying. So your muscles, your bone cells, your immune cells, your skin fibroblasts, they're all trying.



They're still talented, but there's no coordination. And what was once a symphony is now, you know, 90 individual people playing without a leader. And you can imagine that isn't going to sound good, right?

So CJC Ipamorelin, or CJC Ipa, they don't replace the orchestra. They wake the conductor back up. You're signaling. They wake it up, okay? Why does this matter, especially for women? The somatopause hits women particularly hard because it's layered onto perimenopause and menopause. Estrogen and progesterone both interact with the growth hormone axis. As estrogen declines, IGF-1 sensitivity changes. The same growth hormone pulse produces a smaller IGF-1 response in a perimenopausal or menopausal woman than before they went through menopause.

So even with a growth hormone pulse, the downstream effect is still blunted. Combine that with the natural age-related decline of growth hormone and with the hormonal context of perimenopause, and you got it. You get a perfect storm, and it's not a good one. Less signal, okay, weaker downstream response, fewer of the deep sleep cycles where the signal is supposed to fire, and a more inflammatory background environment that further suppresses the entire process. This is why so many midlife women describe the same thing Rebecca described to me about my life: how I've changed, my body has stopped responding. I mean, I probably have at least three messages in my portal relating to this because women are hearing the podcast and they're like, oh my gosh, that's me, right? It's been me too. I mean, we all go through it. I always say death and taxes and menopause, you can't get around it, right?

So, in this segment, we're going to talk about the science because, you know, we have to understand how it works, how these two peptides work together, because it really is beautiful how they help each other and give you the best result. So CJC-1295 is a synthetic analog of growth hormone-releasing hormone, or GHRH. So GHRH is the natural molecule your hypothalamus uses to tell your pituitary to release growth hormone. The problem with natural GHRH is that it has a half-life of just about a few



minutes. So the body breaks it down almost as fast as it makes it. So, it doesn't really help you. CJC-1295 is GHRH with one critical modification.

A chemical group called a drug affinity complex or DAC, it allows the molecule to bind reversibly to albumin in your blood. So, albumin is a protein in your blood. That binding extends half-life dramatically. So CJC-1295, because we were just talking about the one peptide, with DAC, D-A-C, which again is Drug Affinity Complex, stays active in your system for approximately 6 to 8 days. With a single injection, it can elevate plasma growth hormone levels by 2 to 10-fold for 6 days or longer. and IGF-1 levels by 0.5 to three-fold for 9 to 11 days after that injection.

So, there is also a version of CJC-1295 without DAC, sometimes called Mod GRF (1-29), which has a much shorter half-life and is dosed daily. Both versions work. They're used in different protocols based on patient preference and clinical context. Okay, Ipamorelin, the pulse trigger. Ipamorelin is a different kind of molecule. It's a growth hormone secretagogue, a peptide that mimics ghrelin. So, think about growing ghrelin, the hormone that signals hunger and also stimulates growth hormone release. Ipamorelin binds to GHSR, okay, the receptor on the pituitary, and triggers a sharp, clean pulse of growth hormone release.

All right, so remember, Ipamorelin is a pulse trigger. It mimics ghrelin. It signals hunger and also stimulates growth hormone. Ipamorelin binds to GHSR, okay, and the receptor on the pituitary and triggers a sharp, clean pulse of growth hormone release. What makes Ipamorelin special is its selectivity. Older growth hormone secretagogues like GHRP-6 and GHRP-2 also stimulate cortisol release, prolactin, and other unwanted effects, and we don't want those. So Ipamorelin doesn't. A 1999 human trial showed that Ipamorelin produces dose-dependent growth hormone release with no significant effect on cortisol, prolactin, or ACTH. So think about cortisol and ACTH in the adrenal glands, and prolactin in the brain.



It sometimes is called the cleanest peptide in its class for exactly this reason. So, it was steady. So why do we use them together? Here's where the elegance comes in. CJC-1295 and Ipamorelin, now I'm going to call it CJC-IPA, work through two completely different mechanisms on the same pituitary cells. So CJC binds to the GHRH receptor, okay. Ipamorelin binds to the GHSR receptor. The pituitary integrates signals from both receptors. With both receptors activated simultaneously, the resulting growth hormone pulse is significantly larger than either peptide alone could produce. So, they're very synergistic. Picture a pituitary gland as a vault that holds growth hormone, okay? The vault requires two keys to open fully. CJC is one key, and Ipamorelin is the other. If you turn only one, the door opens partway, and a small amount of growth hormone gets out. Turn both keys at the same time and the vault opens up completely. The pulse is larger, more physiologic, and more like the pulse you used to get spontaneously when you got it when you were 25. The duo isn't about getting you twice as much.

It's about unlocking the full pulse the body was designed to have or release, right? So, it's not about getting you more. And I always say this to patients. You don't want to take more than what we write on the script and how to take it because the receptors can only receive so much. And if you take more than what's been written for, what the dose is, you're actually just wasting it, because the receptor can only hold and see so much, right? There're only two keys. There're only two locks. There're only two places. And they have to fit, right? That's why dosing is so important.

So why is this better than a synthetic growth hormone? Patients ask me all the time why we don't just give synthetic growth hormone directly. And after all, you can prescribe it. I mean, we prescribe it to kids who aren't growing. Some men on testosterone replacement therapy use it. But why use this peptide instead? The answer is in the pattern of release. Synthetic growth hormone is given by injection, so that small subcutaneous injection produces a sustained elevation of growth hormone in the blood. That sounds good, right? But your body was never designed to have a continuously elevated growth hormone. That's not how it works. It was designed to



receive growth hormone in pulses: sharp peaks, then quiet valleys, then peaks again, and then quiet valleys. That pulsatile pattern is how your cells received the signal for the first three decades of your life. So why would we want to mess that up? Continuous elevation is a different signal entirely. Receptors downregulate, side effects start to accumulate, and the body adapts to constant stimulation by becoming less responsive. So remember, you can only put so much in there. So, think of synthetic growth hormone as a merry-go-round. It moves at a constant, predictable speed all day long.

Eventually, you stop noticing it's even moving at all. Pulsatile growth hormone, the kind your body actually has evolved to use, is a roller coaster. There are dramatic ups, then quiet stretches when it's down, then more ups. The contrast is what makes the body pay attention. Okay, so CJC ipamorelin produces the roller coaster signaling, the up and down, the pulsatile signaling, and synthetic growth hormone produces a merry-go-round signaling. So, the same amount all day long, all day long, right? Both move you forward, but one is what your biology was designed to listen to, and it becomes very, very effective. This pulsatile pattern also brings safety advantages because the body still controls when, how much, and how long growth hormone is elevated.

The negative feedback loops that protect against excessive levels all remain intact. And this is so important because I always tell my patients we never want to cause a problem while we're trying to fix one, right? So, if you're not sleeping, your skin laxity is bad, and you're putting on visceral fat and everything, we want to fix that, right? But if we're giving you something that's going to mess up the body, then we're really not helping you. So, it's so important that we keep this negative feedback loop in place. And using pulsatile patterns brings that safety advantage. This body remains in control.

It's never going to release more growth hormone than your body will allow. That's why I said, don't take more than the dose that's prescribed because you're just wasting it.



Your body can tell the pituitary to stop. With synthetic growth hormone, that conversation is completely bypassed entirely. So again, that's why we like the pulsatile, because if you give synthetic growth hormone, that conversation never happens. There's no feedback loop. So, side effects like joint pain, fluid retention, and the rare risk of diabetes and certain cancers are largely tied to continuous elevation, not pulsatile signaling.

So, if it's used appropriately, the CJC-IPA combination has a meaningful, clear safety profile. I want you to know I always try to be honest and share all the research. So, I'm going to tell you what we know and what we don't know about CJC-IPA. So CJC-IPA has been studied and published in human trials. So, I did say human trials. Multiple human studies of CJC in 2006 and also in 2013. They've demonstrated sustained dose-dependent increases in growth hormone and IGF-1 with favorable safety profiles. Ipamorelin has human trial data from 1999 and forward. These are not unstudied molecules, so we have studied them.

But the long-term safety data over decades in mass-market populations, you know, that's less robust because, honestly, you're probably just hearing about CJC Ipamorelin for the first time, although I feel like peptides are kind of getting their day right now. But you might be just hearing about it for the first time. So, you can imagine there's not as much research happening around these molecules. So, for mass-market populations, it's less robust than it is for, say, statins or maybe medications like beta blockers. We have lots of clinical trials there. So functional medicine clinicians use them carefully. We use them with monitoring.

We use them with informed consent. So, patients know that they haven't been studied long-term. And that's really the honest landscape around these. I've seen amazing results with these peptides. I've used these peptides myself. I mean, my first peptide was CJC IPA. So, it was one of my first ones. So, I do, you know, I do practice what I preach, and we do everything in a safety context. And I'll talk to you about who these are for



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and who has contraindications. Okay. So, let's talk about sleep architecture. So let me walk you through what patients actually notice when this combination is doing what it should. This is the part most patients tell me they wish they'd known before they started. So, it sets realistic expectations because I had patients come to me who have been on things before, before they got to WIFM, right?

And WIFM is just Wisconsin Institute of Functional Medicine. Okay. So, sleep architecture, weeks one through four. This is almost always the first thing my patients notice. Within the first 1 to 2 weeks of starting CJC IPA, deep sleep increases substantially. I love those sleep watches because you can actually measure it, right? Patients describe falling asleep faster, sleeping more soundly, and waking up less during the night. Sleep tracker data confirms it, and that's, you know, pretty consistent. Sleep stages roughly double, and that's awesome, and sometimes even triple in the first month. For patients like Rebecca, who had been getting 28 minutes of deep sleep, returning to 80 or 90 minutes is pretty transformative for how she feels, right?

Everything downstream depends on this. Sleep is where the body actually does all of its work. The duo gets the construction crew, what I say, back to work, right? Okay, so think of it this way. Deep sleep is the midnight repair shift. It's when the construction crew shows up. They do the rebuilding. The daytime crew was too busy to handle. At 25, the night crew shows up on time, works hard, and clocks out at dawn. By 51, half the crew is calling in sick.

The repairs that were supposed to happen overnight don't happen. And the body wakes up still carrying yesterday's damage. We all know how that feels, right? So CJC Iverland sends the crew a message: come back to work, show up on time, and show up tonight. The repairs that have been backing up for years finally get done, right? That alone just makes you want to start it right now. I mean, it makes me want to go back on it right now. Okay. Number two, what do we notice from exercise? So, in weeks two to



six, and I would say by week three or four for sure, patients describe a noticeable change in how their body responds to training.

The two-day muscle soreness Rebecca was experiencing after long runs typically resolves in 24 hours instead of 48 to 72. Workouts feel more productive. The next workout doesn't carry the fatigue of the previous one. I've had that. I would say for active patients, weekend warriors, women returning to fitness in midlife, I encourage this a lot during my patient practices. This is often the change that makes them feel like themselves again. So, as I said, a patient is in the portal waiting because you listen to the podcast and they're like, I need this.

Like, this is me. Like, I, you know, I want to exercise in midlife, but my body is not responding to the way it used to. So, what happens to body composition? So, I would say now we're in months. So, months two through six. And I can tell you about my own personal experience. So, I went on CJC 1pa, and the vial usually lasts around three months. You do it five nights on, two nights off. I started to notice changes in three months, but I really noticed them from months four, five, and six.

So, I always tell patients, right after you've done three months, it's not the time to stop it. You really want to see what happens in months four, five, and six. And then we take a little washout period, which I'll talk about. Okay. So body composition changes. They're slower and quieter than sleep changes. and they require the foundations to be in place. So, I've preached these till I'm blue. Adequate protein, strength training, sleep, and stress management.

With those in place, patients typically can see lean body mass increase by 2% to 5% over 6 months. And fat mass, particularly visceral fat around the midsection, decreases pretty meaningfully. The textbook somatopause body composition pattern really does reverse. Arms start to regain their tone. Quads firm up. The waistline tightens. And it's not



a dramatic transformation. So, it's not going to happen overnight, but it's a gradual restoration of the body composition that you had several years ago, especially if you were that person who was eating adequate protein, strength training, sleeping, and managing stress. So, if you've never done that before, you should expect your results to be a little delayed, right? Because the body has to catch up on what has not been given and what it's not been doing. Okay, number four, skin, hair, and nail quality. So, months three through six, collagen synthesis improves. Skin thickness measurably increases. Patients describe their skin feeling thicker, more alive. The dryness Rebecca was fighting begins to resolve from the inside, not just her moisturizer. Her hair growth quality improves. Nails grow faster and stronger.

None of this is dramatic in the first month. So, I really want to emphasize that. These are tissues that turn over slowly. But by month four or six, patients often comment that strangers have noticed something is different about them because, of course, they look the same, but they can't quite name it because they're starting to look healthier, younger, and more vibrant. Throughout this whole process, I'd say wound healing starts to improve. So, I have used these peptides in patients post-surgery who are not healing. They have been pretty amazing. This and another peptide I'm going to talk about later. But this is one of the most striking effects. The same small cut or scrape that took three weeks to heal pre-treatment now heals in the expected five to seven days. Post-surgery recovery accelerates. Bruises resolve faster. The body's repair machinery works better. And that's all because the conductor is back in place. And so, the body's just hitting its tempos, right? Everything is, you know, symmetric. Everything is listening. You can hear it, right?

Just like a beautiful symphony. You can hear it. It all chimes in together. And that's what's happening in the body. And then finally, energy and cognition. Well, that and bone density I'm going to talk about. So, energy and cognition, this is harder to attribute to growth hormones specifically, because remember, they're sleeping better. So, I always kind of argue with this one, like, is it the better sleep and the deeper sleep? But we do see that energy and cognition definitely change around months one through



three. Okay, the experience of having that is just amazing. Better sleep produces better daytime energy, better mood stability, better cognitive clarity, and patients describe feeling more present and less foggy when they take CJC IPA. Okay, let's go back to our construction site. So IGF-1 is the on-site foreman that the growth hormone hires. Think of it that way. I think I want to tell you this. So IGF-1 is the on-site foreman that the growth hormone hires. Growth hormones give the order. IGF-1 actually directs the work crews on the ground. And those work crews are yourselves. Your muscle fibers, your fibroblasts, your bone-building osteoblasts are still all on the payroll, right? They're all part of your crew.

They haven't retired. They've just been waiting at the job site all this time for someone to hand them out the day's work orders, right? So, all this is in your body. It's all sitting there waiting, but remember, your growth hormone- you're not producing it. So, your body doesn't have anything to do, right? It's just sitting around. So CJC IPA restores the chain of command. The CEO, let's call that your pituitary, issues the order. The foreman, IGF-1. Okay, let's do that. So, the CEO is your pituitary.

Growth hormone, so remember, growth hormone hires the on-site foreman. So that's IGF-1. Okay, so the CEO, your pituitary. Growth hormone hired your IGF-1. Your IGF-1 is your foreman; he shows up, the crew- all your cells, all the things that turn over in your body finally get the instructions they have been ready to execute for years. Because they're there, right? They're just quiet. So, the last one I want to talk about those changes is bone density. This is a longer-term benefit, and one that matters more to women than men because when we lose estrogen, our biggest risk factor besides cardiac and brain is also bone. Okay. So, growth hormone is part of the signaling cascade that supports bone remodeling.

With a duo in place alongside adequate vitamin D, calcium, and weight-bearing exercises, bone density measurements often improve modestly over a year or two of treatment. So, it's not like it's, you know, months. We're not talking for months. Okay. For



women in early menopause, this is a genuine effect, right? Because we don't want osteopenia or osteoporosis. So, it is an intervention. I have used this, especially in patients who are also taking AlgaeCal; they're working out, getting their vitamin D and magnesium, and trying to maintain their bone. And CJC is what can be very helpful. Picture your endogenous growth hormone. The pulse - it's kind of like a porch light that signals the body to repair overnight. So, at 25, and I've used this example before, the bulb is bright, right? At 51, the bulb was dimmed to about 50%. Okay, your body still tries to read the signal, but a dim signal produces a dim response.

The CJC Ipamorelin doesn't replace the bulb. Nothing changes about the bulb. They turn the dimmer back up, so the signal is bright. The body, reading bright light again, finally responds with the full repair effort it was capable of doing all along. So, remember, this is just aging. So, once we stop aging, or while we're aging, we can actually stop this process and restart the anti-aging, so I like to call it, or live with more vitality and wellness because we actually wake up ourselves to do what we always are meant to do. Okay, so how do I use this in practice?

I've talked about that a little bit, but I'll go a little deeper because I want to get specific about how I prescribe. And again, this is not medical information for you. This is medical education to make you aware that you should meet with your provider. You should have a normal doctor-patient relationship in order to use these. So, from a form and administration standpoint, both peptides are administered as subcutaneous injections. That's how we get them into the body. There's no effective oral form of either of them. You'll see them out there, but I do not find them effective. The molecules are too fragile to survive the digestive tract.

So, patients self-administer at home using a small insulin syringe, typically a 30–31-gauge needle. Most patients describe it as a little pinch. Sometimes you don't even feel it. You squeeze your skin, then insert the needle. Your body registers touch over pinprick. Don't even feel the needle going. Okay. The injection, as I said, is subcutaneous, usually in the



abdomen or the top of the thigh. And you want to rotate your sites because we don't want to repeat injections in the same spot.

That's not good for the body. Most patients use a small notebook or an ab to track their injection sites, and they rotate them. Some patients just remember. Some people just move around the body. So right to left and then across those thighs and then back across again. So just find an easy way to do it. Timing is important. So, this is interesting. Timing matters more for this protocol than almost any other peptide I'm going to talk to you about.

So, this is really important to hear. Growth hormone is naturally released during the early stages of sleep, specifically the first slow wave cycle, typically 30 to 90 minutes after sleep onset. We want to dose the peptides to amplify that natural pulse, not to fight it. So, the standard timing is to inject 30 to 60 minutes before bed. So, my patients will even inject 90 minutes before bed if they don't go to bed right away. But I usually say 30 to 60 minutes before bed on an empty stomach. Why is it an empty stomach? So why fasting? Because elevated insulin and glucose blunt growth hormone release.

So, if you're eating, you're basically turning off this peptide that you just put in your body, right? So late dinner with carbohydrates effectively cancels out a meaningful portion of what the peptides are trying to do. So, let's not do that because that's just a waste of money, okay? We coach your patients to finish dinner around 7 p.m., inject around 10 p.m., and be in bed by 10:30 or 11 pm. And that's if someone stays up late. Of course, I'm going to move that back because I try to get my patients to bed and to sleep by 10, okay? Some protocols use a second injection in the morning, also on an empty stomach, to capture an additional pulse.

The protocol you use depends on your goals, your tolerance, how you respond to it, and your clinical contact. So again, these are not protocols for you to follow. These are



not medical prescriptions. This is just education to help you talk to your provider about how you would use a peptide like CJC IPA. And I'm not going to give specific dosing on a podcast. Dosing requires clinical context. But the order of magnitude of Ipamorelin is in the 1 to 300 microgram range per injection, I'd say.

And for CJC, without DAC is similar. CJC 1295 with DAC is dosed differently, typically 1 to 2 milligrams per week or twice weekly. Given this long half-life. So, I should correct that. So, we actually do the CJC 1295 without DEC so that we can inject five days a week. Most clinicians use a graduated escalation starting at the lower end and increasing over the first 4 to 8 weeks based on the patient's response in the IGF1 if you're monitoring it. I would say some clinicians don't monitor it. It's provider preference. But if you don't test, you're probably guessing, right? Cycling, unlike steroid hormones, peptides like CJC and IPA do not require strict cycling, but I would say most clinicians I know use them in cycles, as do I, typically three to six months, followed by one to three months off, because I've just seen the best effects with patients if we take some time off in between.

So, it won't go longer than six months on a peptide, and then they have to come off at least a minimum of a month, but anywhere for one to three months before they restart it, the same peptide or a different one. The rationale is to preserve pituitary responsiveness and prevent receptor downregulation because you can have downregulation, especially if you're overdosing, taking too much, or using it for too long. Some patients run continuous lower-dose protocols long-term. I don't do that. Others prefer a more cyclical approach. Really, it depends on what the right pattern is for the patient, what the clinician is comfortable with, and what they've been trained to do. Like I said, I did four separate educational modules over the course of one year to be peptide certified. So, a lot of training, a lot of cases, and a lot of learning to prescribe them comfortably and know what to expect. Monitoring is key in peptide protocols, where lab monitoring matters most. So, we do check IGF-1. It's good to check a baseline. Then we check again in about 8 to 12 weeks, depending on how long the patient will be on the peptide. Then we also do periodic checks during ongoing



treatment. We want IGF-1 to increase from a low or low-normal range up to the upper end of the age-adjusted normal range. So again, age-adjusted normal range, not above it. I just want to say that above the upper limit of normal is associated with, I would say, risk, including potential effects on insulin sensitivity and a small association with certain cancers. And I would say the peptides do not cause cancer. This is a really important concept to hear because I've had patients who have cancer who have been on peptides, and it depends on the peptide and what type of cancer they had. Okay, so I'm going to say that. So that's two different things. They could have had cancer. They can be on a peptide that doesn't have receptors for cancer. So that's something the clinician really needs to know and understand.

And I always tell patients - peptides do not cause cancer. But if you have cancer inside your body, peptides cause an increase in growth hormone, which increases the IGF-1. That increases everything the cells need to function and to produce. So, if you have cancer that you don't know about, peptides can cause cancer to grow. Okay. All right. So that's really important because we don't want anyone to get cancer. We don't want to cause a problem while we're treating, right? Okay. We adjust the dose to keep levels in the optimal range. We always do that. And we also monitor fasting glucose and hemoglobin A1C. Those are part of our typical wellness panel. And we monitor those anyway when we see our patients. Growth hormone signaling can transiently affect insulin sensitivity, particularly early in treatment. So, if it's going to happen, we'll learn it pretty soon and pretty quickly.

Okay, foundations first. This protocol works dramatically better when foundations are in place. So, I can't tell you how many times I say that for everything we do. For every intervention we do at WIFM, we have foundations, right, that we all should follow. These are modifiable lifestyle changes that you can make to have better outcomes. That means adequate protein- at least one gram per pound of ideal body weight, which most midlife women are not eating, sometimes myself included. I just did my in-body the other day, and I'm unfortunate to say that I did lose some pounds of muscle, and I know exactly why: because I've been working a lot, I have not been sleeping as well as



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I normally sleep, so I'm probably not making any growth hormone either, right? And it results in a loss of muscle and poor recovery, which I told you I was having earlier, right? So we want at least 1 gram per pound of ideal body weight. And I always tell patients, if you're going to spend money on the peptide, do the foundational things. You're going to get the most out of it; you'll get the biggest bang for your buck. So why wouldn't you do them, right? Okay, strength training. So, we want to make sure we're strength training at least twice a week because growth hormone signals repair, but the body needs the mechanical input that tells it what to repair and where. Sleep in hygiene. The peptides are designed to amplify sleep architecture, but they cannot manufacture it from nothing if the patient's going to bed at midnight, sleeping with their phone in bed, and not using good sleep hygiene. So again, let's use the peptide to its maximum benefit. And limit alcohol because alcohol profoundly suppresses deep sleep and growth hormone release. And that's why it's really interesting with alcohol. So patients think, "What helps me fall asleep?" Well, it may help you pass out, fall asleep, or relax, but it doesn't help you get that deep sleep. It actually blocks it and suppresses your deep sleep and your growth hormone release. Okay. Synergies. CJC 1295 and Ipamorelin pair beautifully with several other peptides we have covered. So, we talked about BPC 157. So, you get systemic repair signaling plus localized tissue repair. So, this is ideal for active patients with chronic injuries.

There's also Thymosin Alpha-1, a peptide I mentioned earlier. I think it was the previous podcast. When you pair all three, you support the entire repair and defense ecosystem. And so, I should revisit what I said earlier, because I said you want to use peptides for three or six months and then come off of it. But you can stack certain peptides together. So, it is important to know that. And again, this is where your provider is going to use their knowledge of what is best for you and which ones should be stacked together, based also on your history and clinically what we're treating. So larazotide is my favorite gut peptide that addresses the gut barrier. So, if you have a leaky gut, it's important to have larazotide on board because it will help with the repair process as well. I really use the duo alone in my practice. I would say it's rarely used alone because we almost always have something else we're treating. I would say the majority more



often than not. But we have used it all by itself too. So, I don't want to say I never use it alone. And they were not cheap. So, I do want to make sure patients can afford them. So sometimes I will stack them but not stack them all together. So, we'll do one, then the next one, then the next one.

Okay. Contraindications. Let's talk about those things. As I mentioned, active malignancy is an absolute contraindication. We do not use any peptide that elevates IGF-1 in patients with active cancer. Since IGF-1 supports cell proliferation, as I mentioned earlier, diabetic patients with poor glycemic control should not start this protocol until their glucose is stabilized. So that's my other patient. Pregnancy and breastfeeding are contraindications.

We don't have enough research to know, and also because of birthing a baby. Like, let's just let what needs to happen happen. So, we don't want to do it during the time that you're breastfeeding or pregnant. Patients with severe pituitary disease or active acromegaly are obviously contraindicated because, again, this affects the pituitary. So, and we use caution in patients with a strong family history of certain cancers, particularly hormone-driven ones, even when the patient is currently cancer-free. Again, these decisions are very individualized, and you have to discuss them with your provider. They have to know your history.

You know, it's in a clinical context of how we do things. So again, these aren't protocols because they don't apply to every person; every person has a different history. Okay. Here's exactly what we did for Rebecca. As always, the sequence matters. So, sequence, sequence, sequence. I always say that matters, sometimes even more than the treatment itself. Okay. First, testing.

We ran a full functional medicine panel, including IGF-1. We ran a thyroid panel and reverse T3, her sex hormones, which include testosterone, free testosterone and SHBG,



estrogen, progesterone, DHEA. So, we want to make sure we're pregnant with all the estrogen, estradiol. We want to make sure we get them all. Fasting insulin, hemoglobin A1C, vitamin D3, high-sensitivity CRP, of course, a comprehensive lipid panel. And we test even more than that. So we did our wellness panel and all the other tests we do. Those are just some of them.

And again, I told you her IGF came back. Hers was low. So, at 78, technically within the age-adjusted reference range, but at the bottom. Her fasting insulin was 9. Her vitamin D was 32. Way too low. Her DHEA was also below the reference range. And her testosterone was at the bottom of the female range, too. So, she had quite a few things going on. Now we work on her foundation.

So, protein, we set hers at 110 grams per day. A strict 9.30 p.m. wind-down with a hard screen cut-off. Strength training added back in at least twice a week. And she had a coach who, you know, was used to working with midlife women. So understood that sometimes it's a little bit different. Vitamin D supplementation. Magnesium glycinate at night. And I gave that because it also assists with sleep and also bone health. Removed alcohol entirely for the first 12 weeks. Because again, why are you going to pay for these if you're going to blunt the effect that they do?

We adjusted her marathon training volume. She was overtraining for her current recovery capacity. And we needed to lower the demand while we restored the supply. And I would say this is one of the hardest things for patients who are active, myself included, to really cut back when we don't have recovery capacity. I even talked to my fellow colleagues about this when we were working hard. Like we have to be kind to ourselves. We have to listen to our bodies. That doesn't mean we can't go full throttle at some points in our lives. But sometimes you can't do it all the time.



And I want you to hear that because I think there's a lot of guilt with cutting back. But remember, you're giving to your body. So, whether you're giving your body sweat and exercise or you're giving your body rest and recovery, they all matter. And they're all needed. So, the third thing we did was a targeted protocol. We started her with CJC without DAC, plus Ipamorelin. Dosed nightly, 30 minutes before bed on an empty stomach. We did hers for about 30 or 45 minutes. Fastest date. So, we supported her hormonal foundation with low-dose bioidentical progesterone, and we also did an estradiol patch, and we added back in DHEA because she was low.

At eight weeks, we evaluated her IGF-1 and found it had moved from 78 to 156, right where we wanted it. Three months in, here's where Rebecca was. Her deep sleep had increased from 28 minutes a night to 92 minutes. Her recovery from long runs had returned to a single rest day. Her abdominal circumference was down by an inch and a half, so not quite there, but almost. Her arm tone had returned. She lost two pounds of fat and gained three pounds of lean muscle. And we measured that by a DEXA scan also in the body. She told me she felt better for the first time in approximately two years, and she felt like her body was coming back.

So, this is what CJC IPA can do in the right patient, with the right protocol, with the right foundations in place, and monitoring done carefully. It's not magic. It doesn't happen overnight. But it is biology that when we turn on the conductor or make the light bulb bright, it actually does work. Okay, what can you do this week even before you see your physician talk about this? You can get your IGF-1 tested. It's not in a basic panel you can ask for. Most primary care doctors will not order it unless asked. Specifically, request IGF-1, and you can request IGFBP-3.

It's another version of IGF-1. The age-adjusted normal range hides real depletion, so the goal is to know where you stand and aim for the upper portion of the range, not the bottom. Stop eating after 7 p.m. Late carbohydrate intake spikes insulin, which blunts the natural growth hormone pulse during sleep. This signal change can meaningfully



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improve your endogenous growth hormone release at no cost. So, you can just improve it that way. Strength training twice a week minimum. Resistance training is one of the most powerful natural triggers of growth hormone release. Cardio matters, hear me, for cardiovascular health, but it does not produce the same growth hormone signal that you get from lifting weights.

Prioritize the first 90 minutes of sleep and protect it like your life depended on it. The largest natural growth hormone pulse occurs in that first slow wave cycle, typically 30 to 90 minutes after sleep onset. Cool, dark room, no screens after 9, alcohol-free evenings, consistent bedtime. This window is where the bulk of the rebuilding actually occurs. So, if you recognize Rebecca's pattern in yourself- collapsed recovery, declining sleep depth, body composition shifting despite the same effort, slower healing- talk to your physician specifically about growth hormone, secretive eye peptides, or seek out a functional medicine clinician who is familiar with these protocols, who has studied them, and look to see if they've had proper training. Like I always say, the chain of command where you get them from is just as important as taking them. What is just even more important is the sequence in which you take them, okay? If you recognize Rebecca in yourself, if your recovery has collapsed, if your sleep has gone shallow, if your body composition is shifting despite the same effort you have always given. If the small markers of repair, like your skin, your wound healing, your hair, your nails, all show signs of aging, I want you to hear something. This is all fixable.

The master signal that organized your repair economy for the first three decades of your life, let's say 25 to 30, is just quiet. And nobody told you about it. And you didn't know it could be restored, but it can. Your cells are still capable. Your pituitary has the machinery to work. The conductor on the podium, the baton that he uses to conduct, is just hanging at the side, and we need to lift up the baton, right? Wake it up, okay? Patients tell me, patients like Rebecca, like the others I see week after week, is that change does not feel dramatic, and that's normal, okay? It feels familiar. They feel like themselves. They feel like the of themselves that existed two or five or ten years ago, the version they had quietly grieved without naming or knowing what the loss was, right?



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So, the duo doesn't turn you into someone you weren't; it returns you to someone you are, or you were, okay? In our next episode, we'll talk about Tesamorelin, one of my other favorite peptides. It's an FDA-approved peptide that targets the visceral fat that has refused to respond to anything else. We all have it. And it often becomes the next layer of treatment once the master signal has been restored. And so, you may have noticed I'm building and building and building because you have to have gut health, right? You have to repair your gut before you move on to these other things. So, and then we talked about BPC. We talked about Larazotide. We're talking about the immune system being in place in Thymosin alpha. And now we're talking about CJC-IP-A, and then we're going to Tesamorelin. So, I want you to know that I'm building on these in this order because I want you to understand how they work and why they work the way they do.

So, after we do Tesamorelin, then we'll talk about TB500 or TB4. It's a recovery peptide for mobility and connective tissue. I can't get it right now, but hopefully in July, when we have that hearing, it will become available. So, it's coming up to a couple of episodes. If today's episode resonated with you and you know you have friends and family that are struggling, women in your own life who have been doing everything right and can't get the results they want, there is a name for what's happening, and there is a way to address it and share this podcast with them. And hopefully they'll be able to seek out some help, whether it's with a functional medicine practice here in Appleton or another functional practice where you live. The goal is that you get help and that you're educated, and that the healthier people we have in the world feeling amazing is always going to be a better thing, right?

Thanks for listening. I'm Dr. Tracy Page, and this is Midlife Clarity, and I can't wait to talk to you about our next peptide, Tesamorelin, so stay tuned.