THE MODEL HEALTH SHOW

EPISODE 786

Fasted Vs. Fed Training & How to Prevent Muscle Loss - With Alan Aragon

With Guest Alan Aragon

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SHAWN STEVENSON: Thank you so much for joining me today. On this episode, we're gonna be talking about this phenomenon that is impacting so many people in our world today called collateral fattening. We're also going to be looking at the truth around building muscle. Later in life, is it even possible? We're going to be discussing whether or not we should be doing our exercise. If our goal is fat loss, should we be exercising in a fasted state or in a fed state and so much more. This episode is packed with science backed, I mean, truly science backed insights. And I think that you're going to get a lot out of it. Now, speaking of building and protecting our muscles. And before we get to our special guests, you've got to know this.

There's a recent study affirming that this really remarkable food is able to support muscle and slow aging. Now the study published in the journal Nutrients is titled "Bee Pollen Improves Muscle Protein and Energy Metabolism", and now here's the key, this is an animal study, and malnourished old rats through interfering with the mTOR signaling pathway and mitochondrial activity. So they're taking animals that are really worse for the wear, they're not doing well and they're essentially bringing them back to life, improving mitochondrial activity, building muscle by utilizing bee pollen. There's something really remarkable about this particular food. Now bee pollen has been utilized for thousands of years. In fact, it's been utilized in nutrition and medicine all over the world. Here's an interesting fact. The German Federal Board of Health officially recognized bee pollen as a medicine. There are multiple studies indicating how bee pollen can improve microcirculation and dyslipidemia and reduce the risk of coronary heart disease.

Bee pollen has also been found to be cytotoxic against disease. Cancer cells has been found to improve immune system function, and have been found to reduce, dramatically reduce the risk of allergies and asthma. Now when you hear the word pollen, for me, I know that I did, I was skeptical around allergies and asthma and things like that because that's what I associated pollen to. But bee pollen actually makes you more resilient against those things. Now please hear this. As with anything, especially with bee products, quality matters. Quality matters. And the only place that I get my bee pollen is from Beekeepers Naturals. They're the only company that's dedicated to sustainable beekeeping. And utilizing third party testing for over 70 pesticide residues and things like heavy metals in their products. They're truly going above and beyond. And right now you're going to get 20 percent off when you go to beekeepersnaturals.com/model. That's BEEKEEPER ' S naturals.com/model and you're going to get 20 percent off their phenomenal bee pollen, their superfood honey, their propolis immune system spray, and so many other wonderful products. Head over there now, check them out, beekeepersnaturals.com/model for 20 percent off. And now let's get to the Apple podcast review of the week.

ITUNES REVIEW: Another five star review titled "Life Changing" by NoNoAhu. Three months into listening and I can confidently say this wilderness podcast has transformed my nutrition habit. Each episode offers insightful tips backed by credible research, making complex health topics easy to grasp. Shawn's engaging style keeps me hooked and the diverse range of guests brings fresh perspectives. From nutrition to mental wellness, it's a holistic approach to health that's both informative and rewarding. And inspiring. Highly recommended for anyone seeking to elevate their wellbeing journey.

SHAWN STEVENSON: I love that. I love that so much. Thank you so much for sharing that over on Apple podcasts. Truly do appreciate that. And listen, if you get to do so pop over to Apple podcasts and please leave a review for the model health show. And on that note, let's get to our special guest and topic of the day.

Alan Aragon is a nutrition researcher and educator with over 30 years of experience. He's known as one of the most influential figures in the fitness industry's movement towards evidence based information. His notable clients include multi time NBA champions like Derrick Fisher, tennis superstar Pete Sampras, WWE superstar Stone Cold Steve Austin, and many other folks, and of course a ton of everyday folks just seeking to have better health. Alan's work has been published in a ton of popular magazines and peer reviewed scientific journals. He actually co authored Nutrient Timing Revisited, the most viewed article in the history of the Journal of the International Society of Sports Nutrition. And now he's here on the Model Health Show to share his amazing insights. Let's dive into this conversation with the one and only Alan Aragon. We're going to talk about fitness. We're going to talk about nutrition. We've got the one and only, the one and only legend icon, Alan Aragon. Welcome to the Model Health Show, man.

ALAN ARAGON: Thank you so much, Shawn. It is amazing to be here. Thank you.

SHAWN STEVENSON: Of course, of course. Let's kick things off by talking about our nutrition in regards to training, all right? So there's a lot of debate going on about should we be training in a fasted state or in a fed state, i. e. Should we eat something before training for fat loss specifically? Let me be clear.

ALAN ARAGON: Sure.

SHAWN STEVENSON: Because I know what you're going to say immediately. What is the goal? So if we're training for fat loss, what does the data actually show? Is it ideal to do it in a fasted state or to do it in a fed state?

ALAN ARAGON: Okay. So there's several studies that have been done on this and there's even a systematic review and meta analysis by Hags, Hackett and Hagstrom. I've done this a few years back, and my colleagues and I have actually done a randomized control trial looking at this exact question, FED versus fasted cardio. It's effects on body composition and our conclusions reflected the meta analysis by Hackett and Hagstrom that you know what, it doesn't make a difference, it doesn't make a meaningful difference. And so like if what we did was we took two groups of people, we fed them the exact same diet, same amount of calories, same macronutrient breakdown and everything. And we just had one group have their breakfast before the cardio and the other group have their breakfast after the cardio. And it was your, you know, steady state.

Moderate intensity in quotes, the fat burning zone cardio. So we tried to facilitate whatever advantages fasted cardio might have. But sure enough, you know, there was no significant differences in fat loss between the two groups by the end of the study. And so what that tells us from the practical sense is that If you prefer to do fasted cardio and another cool thing about our study, we, none of the groups lost lean body mass. As we, you know, we made sure that their protein was sufficient and made sure the diets were good. I wasn't, I was in charge of the, you know, overseeing the diet side of things. So I made sure they had good diets. And so, both groups lost a similar amount of body fat. And our practical takeaway was do the type that you personally prefer and the type that you personally can stick to because some people actually feel better, doing their exercise, their cardio on an empty stomach. Some people just can't stand it and they'd rather do it like later on in the day and sometimes even after their resistance training bout if they happen to do cardio. And so even though the conclusion is anticlimactic. It's better for a individualizing programs perspective.

SHAWN STEVENSON: Yeah. I love that. That's really, I mean, this is the secret that shouldn't be a secret, you know, really boils down to you and what will you actually do, you know, in supporting that, setting up the systems around that. Can you talk about the mechanisms here? Because just logically speaking, if somebody's doing their cardio in a fasted state, their body's going to go and start pulling from those reserves faster versus when you have some food in your system and your body's going to be pulling from that. So how does this all even out at the end of the day?

ALAN ARAGON: That's a good question. So if two groups are consuming the exact same diets, and one group trains, let's say before breakfast, and the other group trains after breakfast, the group training before breakfast will oxidize more fatty acid during the training bout. Now the, the group that, now that's the group that trains before breakfast, the group that trains after breakfast, they will oxidize less fat during the training bout. But since we're talking about the exact same diets between these two groups, then the group that trains in a fed

state will be burning more fat in the subsequent hours after the training bout. And so at 24 hours, it ends up being the same. And so that's really kind of how that works.

SHAWN STEVENSON: Awesome. Awesome. Now you mentioned, and this is probably the most important aspect of this. I mean, just from, from my perspective that jumped out was ensuring that they weren't losing muscle, right? So protecting their lean mass. Why is that so important in the context of fat loss and overall health?

ALAN ARAGON: Well, we want to be protective of lean body mass, muscle specifically, because you can look at muscle as the metabolic engine of the body. So the metabolic blast furnace of the body where all the fuels are used and partitioned and directed to where they need to go. And, you know, if we lose muscle tissue, then you can reduce your resting metabolic rate. You can get reduced functional capacity and a, just a reduced capability to metabolize incoming fuels from the diet. And so the importance of muscle and maintaining muscle mass. It just can't be overstated.

SHAWN STEVENSON: Now there's another, and there's, there is truth to this, but there's a huge caveat, you know, we get blasted with a lot of information around muscle loss, right, as, as just degeneration, as, as we get into older age brackets, but there's a huge missing piece because yes, obviously that's, that's an aspect of, of this conversation, but the missing piece is it doesn't have to happen that way that you think it happens. Because there's a lot of things that can be done to even build muscle later in life. So can you talk about this whole paradigm? Should we be afraid of, we're just going to lose our muscle, it's the end of the story, there's nothing we can do about it? Or is there something that we can do even in our 50s, 60s, 70s, 80s to actually support our muscle mass.

ALAN ARAGON: Yeah, for sure. Okay, so at the general population level, 40 is kind of a treacherous turning point for the average person, a sedentary person out there in the world who isn't really conscious about fitness and training. The average person in the general pop loses about half a percent. A year of, of their lean body mass starting from the age 40 and at age 50 that can double. And that can double yet again at 60 and up. And so it's this acceleration of lean body mass loss as people get older. And there's always this looming threat of sarcopenia when people reach their advanced ages like, like 60 and up. Sarcopenia really starts becoming a threat. The good news about that is that it's all preventable.

We all have to die at some point and we all kind of slow down at some point and we all lose the motivation to maintain the same degree of muscle mass as we have right now, you know, in our prime. Yes. Yes. But the fact of the matter is there's research showing people in their mid eighties can grow muscle when if somebody is deconditioned for a number of decades.

And they're in their mid eighties. All you need to do is just start them on a progressive resistance training program. And their muscle reacts just like a young person's muscle would when you start them training at college. Now some people are a little bit more banged up by the time they're older age. They, some people have, some metabolic issues, some orthopedic issues that you would have to kind of tiptoe around, when you're building that resistance training program. But nevertheless, it's. Literally never too late to wake muscle back up with training, get it stronger, cause muscle hypertrophy or gains in muscular size and function. There's no age at which it's too late to do that. Even in people's 80s, 90s. Yeah.

SHAWN STEVENSON: Yeah. The last past year I've spent quite a bit of time, you know, studying and listening to the stories of people who started lifting in their 50s and 60s and 70s. Who are just, I mean, complete transformations of their body and their health and building a substantial amount of muscle and it's just like, just hearing from their, of course these can be an end of one scenario, but just starting to see these stories piling up, it's just like, are they applying this? Are they doing it? Because a lot of times when you just mentioned being banged up and, You know, getting to those, you know, later ages, but, you know, experiencing all manner of health issues and then trying to start a weightlifting program. A lot of the stuff that people are going through that bangs them up can be prevented if there's strength training along the way.

Absolutely. And just coming into it, you know, more resilient. But, you know, with that being said, you said this as well, the average, you said the average person. You know, average pop. And right now we're not doing well as a, as a society, as a species, you know, obviously we've had epidemic rates of all manner of metabolic issues and, um, you know, increased sedentary behavior. What do you think is at the heart, you know, I know that this is a loaded question, but what do you think is like the foundation why sedentary behavior has just skyrocketed in recent years?

ALAN ARAGON: Ooh, man, it's a, it's a perfect storm of, of a few key elements. You know, we can blame the pandemic on a lot of things. We can blame kind of a downturn in mental health on a lot of things, especially with respect to how people just conduct their lives and have physically active lives or not. Anxiety and depression can just sort of hold people down and demotivate them from really just getting off the couch and doing what they need to do. I think that, That general society at large, there, there is a knowledge issue there. There is an education issue as what do we need to do to be healthy? What do we need to do to prevent the onset of any number of chronic diseases? I think that misinformation is rampant in the health and fitness and medicine sphere.

But certainly, like, you know, you, You and I swim around in the nutrition and fitness sphere, it's very tough to find science based information and the general public, they, they don't have the literacy actually. They don't have the science literacy to decipher when BS is being filtered at them through the media or whether it's high quality information. I also think there's environmental issues. I think that. Energy dense, hyper palatable, highly refined and processed junk foods are just really easy to access, very effectively marketed, and people have a tendency to use them to self medicate against stress. And this, the same thing can be said with various substances, alcohol included. Yeah. So, a little bit of a, little bit of a mouthful there.

SHAWN STEVENSON: I love this. This is leading into something I want to ask you about. Which is, you know, if we are misinformed and yet we are highly motivated and using a strategy that might even get us some short term benefits. You've, you've denoted this phenomenon that you call collateral fattening can take place for people. So what is, what is collateral fattening?

ALAN ARAGON: Yeah, think of collateral damage, like the original way that that term was used. One of the earliest contexts of collateral damage, So when you have to go in there and, you know, rescue some folks from a particular region or whatever, and then you gotta blow things up and then, well, there's casualties there. So that, that would be collateral damage. Collateral fattening is when you try to do the, you know, the, the, the noble, and legitimate effort of, let's say losing body weight. But in the process you lose a lot of lean body mass. And what happens when you lose lean body mass is the body doesn't know that you're just trying to get rid of the final 20 pounds or whatever.

At the end of the dieting cycle, your body senses an energy crisis. Let's imagine if you lost 10 pounds of lean mass along with 10 pounds of fat mass. Your body's like, oh boy, we need to survive. We got to get that lean mass back to gain back metabolic function. And so what happens is you will actually have higher levels of hunger hormones and your appetite will be just dysregulated and raging all the time compared to if you were to preserve lean body mass while losing body fat. And so what happens when you lose this lean mass at the end of the dieting cycle, along with fat mass, then the collateral fattening effect is when you have a weight loss. A behavioral drive to gain that lean mass back and then you end up overeating and that starts like the, the overeating cycle of, of the yo yo dieting circle.

And so gaining more fat back than you started off with would be kind of the ultimate bad case scenario of collateral fattening. It's like, okay, you lost weight, but you lost too much lean mass. You were too hungry at the end of the dieting cycle.

So your body sends an energy crisis ate back the calories to, in order to attempt to gain back that metabolically precious lean mass and then collateral fattening occurs. So that's what it is.

SHAWN STEVENSON: Before the show, we were talking about, we're talking about the, the battle going on with Drake. And Kendrick and Rick Ross and Drake sharing this screenshot of his conversation with his mom. And she's just like, you know, Rick Ross, this guy Rick Ross says that you got a nose job and you didn't look like you had a nose job when I saw you early this week. It's kind of tongue in cheek she's saying this to him. And he was just like, he replied to his mom like, This guy Rick Ross is the Manjaro has him kind of loopy. He's, he's hangry. He's not really getting nourished.

ALAN ARAGON:(laughter) oh man.

SHAWN STEVENSON: And I'm bringing all this up to say that this collateral fattening, according to some data, that's just not coming out in regards to, you know, Manjaro, Ozempic, those kinds of things. I want to know your perspective on this because there's What it's looking like is like this is rebound effect once people come off of it, the, the, the, the weight is, is rebounding and also they're seeing, more fat accumulation versus, you know, the loss of lean muscle. So what is your perspective on, on these new weight loss drugs?

ALAN ARAGON: Yeah, that is a great question. And as you ask me it, I'm picturing people's emotions start flaring up. You know, this is just highly charged topic. You almost can't even. Express an opinion about it without somebody getting super upset. But here's my take. It's like this. I understand the concept of using these drugs, these GLP 1 RAs, as sort of a life jacket. So if you're rescuing a sinking ship and somebody doesn't know how to swim and then you say, ah, You don't need a life jacket. Screw these life jackets, you know, get over here. Do your best. Then they'll drown, you know, so, these obesity drugs are like the life jacket that you throw somebody if they need to get from the sinking ship to safety.

There's a double edged sword with these obesity drugs because there is an obvious vested interest to promote them. By the, you know, by the manufacturers, by the purveyors, by people benefiting financially, from these drugs. Do they work? Yes, they do. Do they work great? Yes, they work great. But, there's not enough, there's not enough programming at the outset for the goal to be to get off of them as soon as possible. To wean off of them or jump off of them, whatever it takes. You know, typically the implication is, all right, we're going to get you on these drugs and hopefully you stay on. And people have different biases coming in from that angle. Obviously, the people who stand to benefit financially from the drug would love it if people were just permanently on the drug. Myself, and you know, some of my

colleagues, not all of them. Coming from the fitness bias, from the exercise and diet bias. We want to see people get off of these drugs like ASAP. That should be the goal. Okay, got the lifejacket, made it to safety. Good. Let's get that lifejacket off as soon as possible.

And, I'm just, you know, I'm very skeptical and, and I'm actually concerned about the effects of these things in some individuals. If, if you can imagine the funding sources of, of the research behind these drugs, it's all going to be the producer of these drugs, the companies producing the drugs. And so inevitably the side effect data is probably going to have a tendency to be downplayed. And ultimately dude, it's, it's like this, people should not look at obesity drugs as a first line of defense or first line of intervention. Unless the case is. It's so hard to say. It is so hard to say because what I'm afraid of and what I don't like is seeing children being thrown on these drugs like ASAP. And what I also don't like is when people see this as a starting point. I see it more like a last resort whenever possible. It's like, here's bariatric surgery, last resort, it better be a last resort. Here's obesity drugs right next to bariatric surgery. Yeah, I have mixed feelings about it, man. And this is obviously coming from an exercise and diet practitioner perspective. But I have really brilliant friends who want to put the stuff in the water.

SHAWN STEVENSON: Yeah.

ALAN ARAGON: So we can, you know, have a civil debate about that. But yeah, I kind of see both sides. But my bias is to direct people towards the non drug route. And then have that as a last resort. You know, my, my wife, she's a, she's a trainer and, she's a, she's a personal trainer and she worked with a couple of people back to back and, one of them was very noncompliant with the instructions, with the diet coaching, with all that. She just didn't comply at all. And so, you know, she didn't get, didn't get any results. She went on Ozempic and she lost 20 pounds in the subsequent three months. It was super frustrating for my wife, right? My wife worked with her for a number of weeks. No results. Okay. Bye bye. You know, she goes on Ozempic, bam, 20 pounds gone in three weeks.

Now back to back, she works with another client. This client is able to follow her, follow her coaching. Obviously, you know, go through the training sessions. She lost 20 pounds in the three months, but she probably lost 25 pounds of fat and gained five pounds of muscle and gained a whole new set of habits of just behavioral countermeasures that allow her to have these skills to deal with a generally obesogenic environment that we live in. Whereas, you know, our other client, okay, well now she's on, she's on Ozempic, it's a different game and she probably lost. Those 20 pounds were a certain amount of body fat, a certain amount of lean mass. And when people get off of the medication, if they don't have the skills and certainly if they were, you know, they, they weren't coached to have the proper nutrition and training, then it's just a setup for rebound. And, yeah, man.

SHAWN STEVENSON: Yeah. You just said it. You said the key word, the rebound. And, you know, we'll put this study up for people to see. So this was published in Diabetes, Obesity, and Metabolism. And the title of the study is Weight Regain and Cardiometabolic Effects After Withdrawal of Semaglutide. All right. So they saw again, very effective in weight loss, but as soon as the test subject stopped taking it, the weight just rebounded in about the same amount of time, the weight came back. And what we're looking at here is a superficial treatment. We're not changing the underlying factors that's helping to keep them in a healthy cardiometabolic state. You know, there's certain, and the thing is, is this is not, this isn't, even when I say this is not rocket science, it's like a disrespect to rocket scientists out there, by the way. But this is not rocket science. You know, our genes expect certain things from us. There's certain inputs that have what we would deem a healthy expression.

You know, we need certain movement inputs. We need certain nutrient inputs. We are experiencing a time where there are so many inputs or so many signals that are incredibly abnormal. Like our DNA is never really, you know, hundreds of thousands of years of evolution in this form. Has never really been exposed to, you know, lucky charms. You know what I mean? Like the, those magic marshmallows are radically different signals. But our bodies are resilient, you know. We just have this really interesting way of figuring things out as far as our biology. And that speaks to also our bodies are really resilient too. Because even though extra weight that we might gain in youth.

You, you said a word earlier, an obesogenic environment, right? Even that adaptation of carrying more weight is an adaptation, right? And same thing if we have insulin resistance, our body's just changing the way that it's functioning to keep us alive, keep us going. And I think it's, it's a survival thing and in efforts to get back to a state of normalcy and a state of homeostasis. You know, I think our bodies are always seeking it, but boom, we come in with the blunt instrument to target. One particular satiety hormone, really, as if our body's working in a vacuum, as if this is gonna solve the problem. And again, on the surface, it looks really good. But, here's the thing, and I wanna ask you about this.

You know, from my perspective and experience, everything has a cost. You know, there's no free lunch in this universe. Like, every We live in a, we live in a universe of causality. There might be, like, Other dimensions, pocket dimensions where causality maybe doesn't exist. I don't know. But in our dimension, causality exists, you know, there's a cause and there's an effect. And the effects of this is so new. We don't know. We don't know the long term ramification. There's a black box warning on Ozempic also denoting in animal studies, increased incidence of thyroid cancer. All right. But it's in animals, not humans. Don't worry about it. And it's just like, there's so many question marks, but this is what I want to ask you about. It's quickly becoming almost fit into the box of standard of care, even for children.

And that's the part that I think you were really like, Hey, we need to slow down. We need to ask more questions. And we also need to look more towards what are the tried and true ingredients to having a healthy metabolic state.

ALAN ARAGON: Yeah. I have fundamental. Issues with the idea preventing people from getting in touch with their hunger cues. I think that's super important part of being able to regulate health and regulate your dietary habits in the long term. You should be in touch with what it feels like to be hangry. You know, you should be in touch with what it feels like to be satisfied, full, the full spectrum. When you introduce an agent that eliminates the hungry part. Then you, I gotta say, if you cannot remain on that drug, if you don't have the resources and the channels to stay on the drug, then, I, I, I'm skeptical about the long term benefit of that. And once again, you know, I, I run with a circle of dudes, half of them love the drug and half of them don't like it. I can speak from personal experience. I've had decades working with clients, decades of being able to help most of them. Were there a few that would have benefited from this kind of a therapy? Yeah, maybe, but it's a slippery slope when, like you said, when you start introducing it as standard of care in one of the first line therapies.

And then we just wedge it in. Oh yeah, but we'll teach them how to train right, you know, eat enough protein, you know, retain the lean mass and stuff while they're taking the drug. And it's like, I don't know about first line therapy. I don't know about standards, you know, like as part of the, you know, standard routine. It's not like, it's not like creatine. It's not like putting people on. I mean, it's a genuinely like there, there's very little downsides. It's mostly upsides. And, it's, it's a different animal. It's a different animal. And, I generally don't have the greatest feeling about it, but I try to open my mind to the individuals in the populations for whom it might benefit. I'm not at the level of saying, Oh, we need to just get rid of it. We need to prevent it.

SHAWN STEVENSON: Shoot it into space.

ALAN ARAGON: Yeah.

SHAWN STEVENSON: A la the rocket scientists.

ALAN ARAGON: Right. I'm not there, but I am at a place of saying confidently, last resort, let's learn the skills we need to learn in order to get a win win out of this.

SHAWN STEVENSON: Yeah. I love that. And I, I feel very similar in that, you know, I, I, I'm proud of us for being able to create new innovations that can help people to achieve certain outcomes. And we also need to keep in mind the whole person. And, you know, again,

historically when we're coming in, we're trying to target things as if our body is working in a vacuum, like this isolated thing. Everything in your body is connected. Every single input, every, you know, every cell is a part of a community. And we gotta think about that. We can't just think about, oh, we got this superficial outcome. What is happening system wide, you know?

ALAN ARAGON: Sure.

SHAWN STEVENSON: And, so, but with that being said. You said one of the nobody's ever said this before and I love this man and it got me thinking about some experiences you said you're an advocate of people being able to relate to and understand what it's like to be hungry to have an Association with that feeling with our hunger cues with even being hangry Yeah, and I was thinking about when my wife and I just when we were, you know We were dating and, shout out to my mother in law, who's my, my first coach. And, yes, she helped me so much just to, to think about things differently and also to experiment, right. Not just to work on theory. And, you know, one of the things that she introduced me to was these different fasting protocols. And this is like, again, it's probably 18 years ago. And, my wife and I were doing a 21 day fast and I do not recommend this.

ALAN ARAGON: Woah!

SHAWN STEVENSON: 21 days was juice fast, like juicing and coconut water. And, you know, there were moments of like energy that I never experienced in my life before. And there are also moments of hanger that I never experienced in my life before. But it was during that process that I had this very distinct, like, separation from that feeling, like, I could see the feeling, I could, I saw it for the first time, like, oh man, like my, my wanting of something to eat is making, I've, I'm incredibly agitated, and my wife is, you know, my girlfriend at the time, she's doing this too, and we're pissed off at each other. We don't even have any problem, we don't even know what we're mad about, but just like, I could see that, My biology is making me incredibly irritable, right? So I, I got an association to these hunger cues and this feedback that has stayed with me since because I finally had the ability to like see the feeling and to, to, to give it like, you know, some, some analysis, like conscious analysis of how I'm feeling, you know, because you, I grew up in a environment where you just run from it, right?

You start to feel uncomfortable, like I'm hungry to eat something. You know, like never really just being able to see it and to actually appreciate that my body's giving me this signaling. It just becomes background noise. Like this is just something that's happening. And we're taught in our culture, like, you know, these things are a villain in essence, right?

ALAN ARAGON: Break it out. Stamp it out.

SHAWN STEVENSON: And so with that being said, man, like we've got this brilliant and this is really cool that recently there's a lot of study of these hunger and satiety. Cues, you know, like what are the mechanisms behind it? Thus, of course, ozempic and these other Pharmaceuticals are targeting these things, but it is incredibly Complex and beautiful, this immaculate system of hunger and satiety and I want to talk to you about that a little bit.

ALAN ARAGON: Sure.

SHAWN STEVENSON: You know and how food plays into that, you know with leptin signaling with you know, there's obviously GLP 1 There's ghrelin. There's all these different hunger satiety and satiety hormones What is our best bet if we're not jumping right into the, you know, new standard of care and we just want to really stack conditions in our own favor of what to eat so that we feel more in control of our bodies, we have a healthy relationship with our hunger and satiety. What does that look like? Like, what are the primary foods, nutrients, macronutrients? What should we be targeting?

ALAN ARAGON: Okay, that's, that's a great question. And before I get into that, I just sort of thought of an analogy that may hit or may miss. So, just the use of medications to intervene with pathological situations, even like, Like high degrees of pain, for example, like being universally against a drug that helps control people's hunger is, is sort of, it's similar to just being against technological intervention, for example, for pain. Okay, so I am not anti, take a, an, taking ibuprofen or take anti Tylenol or, you know, anti Vicodin if you just came off of a surgery or something, if it's prescribed. Okay. But there's also instances where if somebody just takes ibuprofen as a matter of routine because they can't learn how to not overtrain all the time, then that's kind of an issue.

You know, it's like you are putting a bandaid on the situation and you're not kind of getting more towards the root of, okay, what's going on? What's causing you to be in pain all the time? Can we look at that or do we need to just find the right bandaid to put over the pain? And then just continue. Sure, you can do either one, but I am more in favor of fixing the root of the situation. And I think that ozempic is a little bit more towards the band aid side of the solution, which has its place. Sometimes you got to stop the bleeding, but you have to find out what's causing the gunshot wounds, you know? Yeah, so back to your question Shawn. The three big elements or let me satiety in general.

So, Satiety is basically hunger control or the ability to control cravings, the ability to eat enough so that you actually stop eating at some point. The phenomenon of satiety starts at

the brain and even starts at the level of seeing the food and then it proceeds onto smelling the food and then you finally, you know, eat it and indulge, chew the food, all of that stuff. There is greater satiety. If you actually enjoy the meal, so there is greater satiety if the eating experience was positive. So what people tend to think is that, all right, in order to, you know, well, the fitness folks, okay, yes, protein is important, fiber is important for satiety, you know, certain amount of water in the diet, great, that's, that's all, those are all mechanical programmatic elements that we can do to increase the satiating effect of the diet, protein, fiber in a fluid volume, but the missing element is that you have to enjoy your meals.

It has to be a satisfying experience, a positive experience in order for you to not crave stuff and want to eat an hour after your dang meal. Okay, so I think it's really important for satiety to structure your diet so that you look forward to each of the meals. You know, work on that. Find a way to structure your meals so that you enjoy them and look forward to them. And you will actually be more satiated than if you were to do this kind of archetypical high protein, high fiber, high, high water, you know, for each meal and then, try to grid it out regardless of whether or not you enjoyed the meal or not. I think that's the missing piece with satiety.

SHAWN STEVENSON: Listen, man, I'm loving this already. I didn't know you were going to say that as the first thing and, you know, it just really got me thinking about a recent conversation with Dr. Ellen Langer, who's done all of this mindfulness research, back into the seventies. She's the first woman to receive tenure at Harvard's psychology department and, one of her students, did this fascinating study, it's Alia Crum, she was at Stanford at the time. Looking at how your perspective about what you're eating impacts your metabolism, and in particular the impact it had on ghrelin. And it was, it's called the milkshake study, right?

ALAN ARAGON: Nice.

SHAWN STEVENSON: And so they blended up a batch of milkshakes that had the same amount of calories, we'll just say they were around, You know, 360 calories, but they slapped different labels on them. And one batch had like, they put like 180 sensible milkshake, right? Just like low calorie snack. And then another label said 620 calorie indulgent milk milkshake. Right? And so the people who were consuming these milkshakes and they're measuring them, they're taking objective measurements of what ghrelin is doing. When people were drinking what they believed to be a higher calorie milkshake, their ghrelin levels dropped three times, as if they had consumed three times more than they actually did. Right? So ghrelin is the hunger hormone, so their satiety was so much higher. The people who thought it was almost a nothing milkshake, you know, very, very low calorie, their ghrelin levels barely budged.

ALAN ARAGON: Yeah. Right. That's based on perception.

SHAWN STEVENSON: So what you're saying is so real and we don't think about it is so true. Our perspective about what we're eating matters. Like this is a top tier importance. And I'm so happy that you said that I was not expecting that.

ALAN ARAGON: Yeah. Yeah. It took me a while to kind of figure that out and accept it, you know, but it is supported by the literature as well. It has to be a sad, a meal has to be a satisfying and positive. Experience to seem fulfilling enough to hold off your urge to just start on the next meal. So yeah.

SHAWN STEVENSON: Awesome. Awesome. So now checking that box and giving ourselves permission to enjoy our food, right? Of course, including foods that we enjoy. And now with that being said, what types of foods might we want to go for if we're looking at constructing a meal that also supports satiety with the food itself?

ALAN ARAGON: Okay. So. You know, the data on this is, is, is pretty sketchy and mixed, but, Susan Holt back in the early nineties, I believe, she created this thing called the satiety index of foods and the foods with the highest amount of satiety were whole, whole fruits, potatoes, believe it or not, were white potatoes had the highest satiety index of all the foods by, by a large margin and, foods that, high protein foods, meat, meats, fish, poultry, they had a high satiety index and, the foods that had the lowest amount of satiety were kind of stuff that you wouldn't be surprised about, like desserts, pastries, cookies, cakes, those sort of things. So, just almost the stereotypical, healthy advice of having foods that are minimally refined and minimally processed would be, that would be sort of the, the go to for foods that satiate.

And a certain amount of fiber in the diet would add to satiety. As far as the position stand goes of the Academy of Nutrition and Dietetics, they, or rather the Academy, yeah, it is the Academy of Nutrition and Dietetics, they used to be called the American Dietetic Association. A few years ago, they changed it to the A and D. They are recommending 14 grams of fiber for every thousand calories in your diet. So most people running that, you know, 2000 ish calorie thing, they're going to want around 28, 35 ish grams of fiber in the diet. And as long as you can keep your in quotes, fun foods or indulgence foods or junk foods, keep them down to 10, possibly up to 20 percent of the diet. Then you'll be able to hedge your bets in the direction of maintaining a good level of satiety. Now, there's something real interesting about satiety and what I call the water trick. So you can actually preload with plain water before each meal and you'll eat significantly less in the meal following the water pre preloading.

And this is a good thing to do when you go out to eat dinner, especially, especially at the cheesecake factory. Two tall glasses of water upon sitting down before they bring over the fresh bread and the butter. That will significantly cut the amount of calories you end up eating. And those are a couple of the easy tricks that you can employ to make sure that your satiety is on point. And I always get the question of, but doesn't drinking water with a meal dilute the digestive enzymes, you know, and then you won't, you know, digest the meal properly. There's really no evidence for that. I understand what, what people are thinking about and the thought process there. But, when you look at societies, populations that eat a lot of soup, they couldn't be having more water with their meals. And they're digesting stuff just fine. So, I don't think people need to worry about that if they decide to use the water trick to, you know, put, put a top speed limiter on the cheesecake that they have after their main meal at, at the Cheesecake Factory.

SHAWN STEVENSON: Got a quick break coming up. We'll be right back.

Now, I don't know if you know this and you might be missing out, but Every single Monday, I'm sending out book recommendations, bonus content from the model health show protocols and gadgets that I might be experimenting with and so much more every single Monday for model Mondays. And the cool thing is you get access to model Mondays for free. Just go to themodelhealthshow.com/Mondays. All right. themodelhealthshow.com/Mondays. Mondays so you don't miss a thing and also now keep this on the low. We're also doing monthly giveaways. That's right. We're giving away some of my all time favorite things every single month. So this might be exercise equipment. This might be my favorite foods, my favorite supplements. We even gave away an entire cold plunge tub. All right. Those things are pricey. All right. So again, to make sure that you're not missing out on any of this goodness, head over to themodelhealthshow.com/Mondays and make sure that you're connected for model Mondays every week.

SHAWN STEVENSON: I would imagine as well, this goes back to a principle you mentioned of individuality, like what is going to satisfy you versus the next person and even yourself now versus five years from now or even, you know, next week. I found that for the most part, some high quality fats are the most satisfying for me in particular. And you know, I could do a, you know, higher carb, you know, like a protein and maybe like some sweet potatoes or whatever and eat a lot of it. And then be super hungry the next morning. Right? So if I had that for dinner, but if I had some fat in the mix, you know, maybe I could do something simple, some avocado, whatever, like I could wake up the next day and, you know, just go for hours, you know, just that having that dietary fat for me. And my meals just really does the trick. Now I'm saying that because in that database that she created, she had white potatoes up there, right? So carbohydrates being satiating. And I would imagine that to be true for some people.

And also I would imagine it to be. How is the potato being eaten as well? Because that white potato, I'm pretty sure she just means white potato. Right. And not with the, you know, not frying it up, but the salt and the butter and all the delicious things that, so, what do you think about that as far as individuality?

ALAN ARAGON: Really good points, man. There, there's limitations to Susan Holt's satiety index, if I remember correctly, it was like boiled potatoes or something.

SHAWN STEVENSON: Yum.

ALAN ARAGON: A whole different ball game from fries, right? Even from, you know, baked home fries and stuff. So, so it, it does boil down to individual response. So what we can say in general is that higher protein diets. Or most more satiating than low protein diets. What we can't say across the board is that everybody needs a specific amount of carb fat proportion to maximally satiate because I know a lot of people who feel much more satisfied on a high fat, low carb diet. And I also know people who are much more satisfied on the, on the opposite of that. And so it really does come down to individual response with respect to. The fat and the carbohydrate aspects of things. There's an interesting body of work on ketogenic diets being actually more inherently satiating than non ketogenic diets.

With that body of research, it's hard to separate or isolate the effect of when people get on ketogenic diets, they tend to like double their protein intake compared to their habitual protein intakes. So, but there's interesting stuff going on there with higher fat diets and satiety. When you look at short term response data, fat seems to be less satiating than the other macros, but there is a hypothesis and a speculation that's also seen in the field that fat may have a longer term effect on satiety through the day, you know, instead of just looking at it for the first few hours after consumption of a meal in a lab setting. So yeah, I hear what you're saying about having fat included in the meal, even a higher fat level to, as sort of a satiety tactic. If you have that individual response towards it, for sure.

SHAWN STEVENSON: Yeah, this is making me want to just encourage people to experiment a little bit, you know.

ALAN ARAGON: Absolutely.

SHAWN STEVENSON: And not get tied into one specific diet framework. There's so many now.

ALAN ARAGON: Yeah.

SHAWN STEVENSON: But give yourself permission to try different things. And also knowing too that, you know, we change over time as well. And, I want to talk to you, I cannot have you here without talking about training. So, I want to ask you about, you know, you kick this off, you know, we talked about being able to build and maintain our muscle mass and how important that is, especially as we advance in age and how possible it is. Now, my question is, and what I really always taught from, you know, when I was working with people was what is the minimum effective dose? Yeah, right, and I've written, even my first book I was writing from that perspective like what how little can we change somebody's habits in their life to get them these results. Yeah. So I want to talk about minimum effective dose as far as strength training. But I want to start off by talking about optimal.

ALAN ARAGON: Ok, cool. Get ready, get ready!

SHAWN STEVENSON: My passion I know a lot of people who listen as well, you know what is optimal for us to build muscle, you know as we advance in age and So that we can protect and sustain our muscle. What is the ideal strength training structure, like how often should we be training?

ALAN ARAGON: Man, this is a great topic. I love this topic. There's been a bunch of really good research that answered or attempted to answer these questions within the last 10 years. And so I have to give my colleague, Brad Schoenfeld, a lot of credit there. So let's start off with a set volume per week. Set volume per body part per muscle group per week. Optimal for maximizing muscle growth. The range is roughly on the upper end, on the upper end 10 to 20 sets. Okay. So like once you start crossing into the 20 sets per week, then you really start courting the potential for overuse. So wear and tear, overuse, injuries.

SHAWN STEVENSON: Junk volume.

ALAN ARAGON: Junk volume, etc. Yes. That's right around the 20 ish point. Now we're talking sets per muscle group per week. Okay, so. That leaves us with this kind of sweet spot that, okay, it's for the advanced dudes, somewhere between 10 and 20. For people in the real world who have maybe an hour to train per session, it's honestly difficult to get more than, depending on, you know, rest time between sets.

It's honestly difficult to go much more than 12, 12 sets per muscle group per week. 12 You know, 14, 15 possibly sets per muscle group per week. So if you look at a model where if, for example, you hit a body part twice a week and that's a whole other, you know, conversation, typically when you start, when you start doing more than eight sets per muscle group per week, it might benefit you to split the frequency up at which you train the muscle to two

times a week rather than just getting it all in one. One single session so that break over point seems to be like eight ten ish sets if you're at that level. So if we look at 12 sets per muscle group per week, you hit the muscle twice a week. You hit it with two exercises, three working sets per exercise. Most people can do this. Most people can fit that in And most people can get in and out of the gym in less than an hour when they do it that way.

So, if we're talking about, you know, optimal, optimal for advanced, advanced guys, well, some of those guys will be pushing beyond the 12 sets per muscle group a week towards the 16. George 18 some guys will be pushing the 20s, but they're typically if you can honestly do 20 sets per muscle group per week and take them all to failure or close to failure. You're probably gonna have to cycle that. You probably won't be doing perma 20 20 work sets to failure per muscle group per week. If you're a you know a real world working person. So yeah, your, your question about optimal, it's almost like, okay, what is, are we talking about an influencer, you know, a fitness model type who can shoulder that 15 to 20 ish and are we talking about a regular working person in the real world will probably top out at 12 to 15. And would probably be do just as fine with six to 12. Okay. So that's, that's optimal. And I know that that was very. That wasn't super specific. So I'm hoping I answered the question somewhat usefully.

SHAWN STEVENSON: Absolutely. Yes, you did. Yes, you did. Because, you know, And within that average, what an average person could do, that would put you in, in our society today, really like the top 5 percent fittest, you know, in society, you know, if you, if you have that kind of training volume and that I think that's doable for a lot of folks is just having the, the insight that you just delivered on, like, what do I actually need to do, like how much, like where, what would put me in that, in that space. And now with that being said, for those who are like, I just want to get the benefit and I'm not trying to be, you know, superhuman or super fit or in that top, upper echelon. I just want to age healthfully. What is the minimum effective dose?

ALAN ARAGON: Okay. Okay. I'm going to answer that, but I want to add some nuance to that. You know, the optimal stuff I've talked about would like that 10 to 20 ish range where you're pushing advanced adaptations. And of course, with the 12 set limit being what most people in the real world can do. It's a mistake to treat every muscle group the same in terms of how hard you're going to go at it and how much effort you want to put in.Every one of us has our strengths and limitations. Every, every one of us has our muscle groups we want to bring up and our strong muscle groups that kind of grow when you just drive by the gym, right? So when you're trying to optimize muscle hypertrophy and you're juggling these larger volumes of stuff, some muscle groups, just train them casually. Train them at maintenance. Lower the volume that you train them at. Lower the effort that you train them at.

Effort and volume that you train them at. Save that energy for the muscle groups that you are trying to purposely bring up and, or the ones that you are already good and you purposely want to make them stand out. So that's a little bit of nuance that I would want to add there because you can't be, you know, adding, you know, doing like 20 sets or 10 to 20 sets for every single muscle group and putting the same kind of effort. For every single muscle group. You don't have to do that. Just the parts that you want to work on. And for most people, it's not going to be all parts. So, yeah, I just wanted, wanted to add that.

SHAWN STEVENSON: Thank you. Yeah, that's great. Yeah.

ALAN ARAGON: Minimum effective dose per, you know, as research stands today for muscle hypertrophy and maintenance of. I have to say, you know, the populations that we study in, in research trials are not extraordinary specimens. People who are resistance trained, the way that you qualify as being labeled resistance trained for a given research study, typically if you've been training for six months, then they call you resistance trained. And some researchers are a little more diligent and they'll say, okay, we'll try to recruit subjects who have been training for at least a year.

And the reason for that is it's hard to find. Participants for research studies. So if you put these pretty strict and lofty parameters, okay, we can only find people who've been, you know, training for at least five years and can, you know, bench press, like triple the body weight. It's like, you're not going to have a study. You're not going to find participants. So, as the research stands today, you can maintain muscle gains. As a non extraordinary specimen. On as little as three sets per muscle group per week. Three to six is kind of the catch all minimum effective dose. Three to six sets per body part of the muscle group per week. And you know, the question from that always comes up about, okay, how do you judge a muscle group or a body part? Like, for example, don't the pulling movements train the biceps? And don't the pushing movements train the triceps and so on and so forth. So, you, you, you know, you can get lost in the weeds with that, but typically in the research literature, they count all pushing movements as training the triceps as well as the chest.

All pulling movements is training the elbow flexors, biceps as well as the back. But in reality, it's more like. For every, for every set you do for chest, you're only really getting like half a set for the tricep because it's a, it's a different focus. Yeah, that, that, that's a little bit of a side note that may or may not be useful for everybody.

SHAWN STEVENSON: Is there any type of training modality that, you know, has really interest you in the last couple of years? Because of course there, there, there are a lot of new

innovations that have been around actually for a long time. But is there anything in particular that you've personally. Implemented that you've been finding a lot of value from.

ALAN ARAGON: Okay. So, maybe, just techniques. There's equipment and there's techniques. So equipment, my wife just got, sponsored by a power block. And you know, there's just, it's just a really fantastic home, resistance training type solution where dumbbells are just sort of stacked into each other and stuff. And they just sit down. I don't know if you've seen the power blocks, but that's that. So that would be an equipment thing. That's been a cool thing recently that we've employed. And as far as techniques go, I have been really enjoying cluster sets mixed with drop sets. So, the way it would go, and this is actually, it, it, it's sort of a fun game you can play with a given, with a given set of a given exercise.

So for example, you, you, your first working set, you choose a weight where you essentially fail out somewhere or at least 12. If you can do, you know, 14 to 16, then, you know, it, this method, it works even better. So number one, you have to be not squeamish about doing higher reps for, for the initial set. And so what you do is instead of resting the, the conventional, you know, one to two, possibly three minutes to get the most out of your subsequent set, you just do 10 slow breaths. And then go into the same weight that you're using and try to do half the number of reps that you did with the first set. And so that would be one, cluster set, if you will. And the thing is you take these sets to failure. Everyone's scared to train to failure nowadays, but train to failure is fun.

It's really good from a metabolic and just sort of energy expenditure standpoint is not everybody is out here trying to, you know, become the world's strongest man trying to win powerlifting contests in which case, you know, these, these techniques are kind of irrelevant. But, now here's the thing that you do once you've done that. Okay, let's say for set one, you were able to get 14 reps, okay. 10 slow breaths. That's one. That's not two. That's one. As you do this stuff, you're going to breathe really slow because you want to give yourself some space to get those, to try to hit that target for the next set in that cluster. And so once you've hit that second set, let's say you did 14 reps for the first set, you were able to get eight, eight reps for the second, you were able to get at least half.

Then you drop the weight by 30 to 50%, depending on the exercise. And then you just take that to failure. So that is a cluster drop. And what you try to do with the drop set is you try to duplicate the amount of reps you did with set number two. So with set number one, you try to hit your 14 to 16. Set number two, you try to get half of that after 10 slow breaths. No rest, drop the weight 30 to 50 percent, go to failure, try to duplicate those, you know, seven ish reps that you got with set two. You will only be able to do cycles of that for like a month at a time because it's freaking, it's, it's demanding and it's exhausting and you have to get a lot of sleep.

Before you do that, but doing a set like that takes care of a lot of the, it economizes the time that you spend in the gym. Then conventional straight sets. I mean, it takes a lot longer to do conventional straight sets when you can kind of condense that three. Now, granted, you're not going to have the same volume load, so you will not be doing them. Weights as heavy as you could if you did conventional two minute rest, you know, do the thing, two minute rest. However, there's some really interesting research on drop sets that's pretty, pretty recent showing, um, equivalent hypertrophy with straight sets, even though the amount of volume load, the amount of tonnage moved around for that particular exercise bout was less than the straight sets. And so I read this and I'm like, dude, okay, so I can lower the risk of injury and I can get this done quicker and it feels pretty, pretty damn good and you're also, you know, this hasn't been tested but you probably are getting a greater cardiovascular effect from the training route. So it's almost like win, win, win. So I tried it and I cycle it into my program when I'm feeling energetic enough, when I've gotten enough sleep and, you know, when I'm feeling froggy.

SHAWN STEVENSON: Ah, I love this man. This is inspiring for me because it's been a while since I've done drop sets and just to, you know, to, to couple it with the cluster set. All right. This is, we're going to call this a cluster f**k because man, all right.

ALAN ARAGON: Okay. Okay. Let me just tell you this man. Like I called it that. I told my wife, I want to call it Cluster f**k, and she's like, oh, Alan, no, no, no, you can't, no, you can't call it that, and I'm like, okay, I'll call it in my head, and she's like, okay, that's fine.

SHAWN STEVENSON: Get the t-shirt. But you know, years ago, man, 25 years ago, you know, I've been dabbling with the weights for a long time. We'll just say even 30 years ago, my, my friend who's an owner of a wonderful gym now and shout out to Jeff. But he was the first person to like really expose me to the iron, you know, my family just moved out, you know, the, The, you know, sketchy neighborhood, back to kind of where my grandma's house was. And, he was my neighbor, like, when I lived with my grandmother when I was a little, little kid, and, you know, we used to play in the neighborhood together, but now, like, we're competing against each other, you know, playing basketball all the time, and he had a weight set, right? So he had, like, a bench and all these weight plates, and he's the first person also to take me to a gym, which was amazing. But when he got some new stuff, you know, he basically gave us slash like maybe a game like 10 bucks for a bunch of like weight plates. And you know, I just got a little piece of equipment over time and you know, thank you for that blueprint, Jeff.

Shout out to Jeff again. But when I really like saw somebody who knew what they were doing like at a high level and he had won. I believe the competition was called Mr. Caveman, Missouri. It was like a natural bodybuilding contest.

And shout out to my guy Atah Ikong Nigerian guy Who worked with me at the casino, right? So when I was in between colleges, right? When I was just trying to figure things out, I worked at, at a casino and just like, it was like a real life soap opera, you know, just seeing how adults work. Cause I was like 19, I was like 18, 19 in this environment. And he was like, you know, just come through, let's train together, you know, so we started going to, I, I'm not, I think it was Vic Taney in St. Louis, but, or Bally's, it was Bally's. Bally's Gym in St. Louis, and the first thing that he taught me was these drop sets, right, so this is like 25 years ago. And man, I put on so much muscle so fast.

ALAN ARAGON: That's great. That's great.

SHAWN STEVENSON: I couldn't believe it, right? And also, he's the person to introduce me to like, amino acid supplements and creatine and all these things. And, you know, just being able to, again, learn from people who figure some things out. Like, I didn't even know that was a thing, right? Generally I do, of course, straight sets and do different combinations of things. I'm a big fan of supersets. Love it. You know, doing antagonistic body parts. For sure. I'm a big fan of that for economizing things. But drop sets, man, when you can mix in a little bit of that. And just, here's the thing, and this is what I want to ask you about. There's so many different ways to send the signal to your muscles to grow and to change and to adapt. And I think one of the most overlooked strategies is like doing different things not getting tied to just one way of training because even I was just doing some agility training and kind of like react working on reaction time with some tennis balls the other day and just like, you know kind of drop catching it really quickly You And man, like I started sweating, you know, and I'm like, I was very acclimated to being able to do it.

I picked it up very quickly, but it's just like my nervous system, you know, was just like, Oh, this is a new stressor. This is, you know, and so like, even when we're training, because when you mentioned doing that cluster set. That aspect of slowing down and doing those deep breaths. You're really working your nervous system to be more adaptable and resilient as well and to recover in a way like there's so much baked into that. But again, and I want to ask you about this, and I think I already know the answer to what you're going to say, but what do you think about adding in, like, say you've been doing a certain strength training protocol for three months. What do you think about changing it up, doing something totally different?

ALAN ARAGON: I like the idea and having been in personal training for many, many, many years prior to my nutrition career and then prior to my, my research career, it's like people it, it, keeping people's interest in the training program, it doesn't just necessarily apply to your clients. I mean, you have to keep yourself interested in the training program. And so there.

Almost as a, almost as a psychological benefit to introducing novel stimuli, at least on a monthly basis. So, like at the turn of every calendar month, replace one of your bread and butter exercises with a different exercise that you haven't done in months or years. You know, you can still focus on training that same muscle group or training for that same goal, but rotate in a new, completely different exercise each calendar month. And I think that even something like that. helps with keeping you motivated, keeping you interested. And, you know, there's actually some research that, you know, back in the, back when P90X was, was being pushed out, the whole muscle confusion concept that all the, everybody makes fun of and stuff.

There's actually some research supporting the benefit of more variation in, in the training, in the training program from either day to day or week to week. And it has more to do with the compliance and the fun involved with the training program rather than some sort of specific physiological benefit of doing it, confusing the muscle. And I think that if you were to do it methodically, rotating in a new exercise each month and progressing with that exercise within the month, and then just switching it out for a new exercise. Then I think that could, That could help. So it's something worth giving a try.

SHAWN STEVENSON: Awesome. Awesome. I want to ask you about one more thing.

ALAN ARAGON: Yeah.

SHAWN STEVENSON: Because we are proactively doing the thing, sending the signal for the muscles to, to grow. But if you don't eat, you don't grow.

ALAN ARAGON: Yeah.

SHAWN STEVENSON: So, what do we do? What is the, what is the most important aspect of nutrition to support muscle growth?

ALAN ARAGON: It's honestly, it's the combination of progressive resistance training with a proper, properly designed program for muscle hypertrophy and a strategic caloric surplus and sufficient protein.

SHAWN STEVENSON: Yeah.

ALAN ARAGON: And, and underneath the, you know, that umbrella, enough carbohydrates. I mean, if you want to maximize muscle hypertrophy, so it is totally possible to grow muscle on, you know, very strict carb restriction, like ketogenic diets, people can put on muscle on keto, but it's just not going to happen maximally. It's not, the process is not going to be optimized. But the kind of the bigger rocks, enough protein, a caloric surplus of roughly 10 to 20 percent above maintenance. There's some new research that came out by, I believe it was Helms and colleagues who looked at, Very small surplus versus a larger surplus and they found fat gain with the larger surplus and not necessarily muscle gain, but When you look at the amount that the surplus was it was almost in 30 percent for the for the the highest for the high Surplus, so the subjects doubled and tripled their caloric surplus assignment So they were assigned like a 5 percent surplus and a 15 percent surplus but They more like had double and triple that.

And so therefore they did gain some body fat. So I will still stick to the recommendation of, for most people, 10-20 percent above maintenance is what you would target as a caloric surplus for muscle gain. Another point I wanted to make with that study is that a lot of research studies have a lot of problems, man, because they claimed to have used highly trained, highly resistance trained subjects. But they also admitted that the exercise program they put them on, which was a total of nine sets per muscle group per week on average, was probably represented a downstep or a deloading from what their habitual training routine was prior to engaging in the study. So when you drop training volume and you pump up that caloric surplus, of course, you're going to gain fat. But with people who have been training progressively and they want to push the envelope 10 to 20 percent above your maintenance requirements, make sure protein is at a good level for muscle hypertrophy, which is what we know today as being somewhere between about 0. 7 to 1. 0 grams per pound of body weight of target body weight. You know, if you want to get granular with it. And, and then those, those are the big rocks for that, ah, minimum amount of carbohydrate to maximize muscle gain, at least observationally, this has not been systematically investigated, but just, just looking at populations, looking at different athletes. It appears that roughly 3 grams per kilogram of body weight in carbohydrate grams per day, is sort of, should be seen as sort of the minimum. If your goal is to maximize muscle hypertrophy, certainly you can go lower than that, but you're probably not going to be maximizing muscular adaptations to training.

SHAWN STEVENSON: Man, this has been amazing and you're such a wealth of knowledge and there's so many different subjects. And of course, we're going to do this again, man, I'm going to have you back. And I just appreciate you taking the time to come and hang out with us. And also for you, just all the body of work, the, the, the true demonstration of longevity. And also the fact that you are, you know, getting out here and, and teaching at such a high level is, is really remarkable, man. If you could, can you let people know where they can learn more from you? Just kind of like get connected and, and get involved in what you're doing.

ALAN ARAGON: Sure. First of all, thank you so much for inviting me out, man. You know, I'd love to talk about all kinds of subjects. And I was thinking a lot about just life success and thinking about Robert Hastings. Well, right up called the station and just sort of enjoying the journey and stuff. And so this right here, I'm, I'm really soaking it in, taking it all in, really appreciating it. And this is one of those moments where, you know, I really feel successful and at a good spot with you inviting me to talk about these things. And it's just so awesome to be here, really. So thank you so much for that. And for the people interested in my work, you can just go to alanaragon. com. And I, I only have a couple of products actually.

My wife's like, why don't you have 12 products? And I'm like, I like to spread myself real thick. So, I have a book called flexible dieting that I put out two years ago. It was published by victory belt publishing. I'm that's one of my babies. I'm proud of that book, but I'm particularly proud of my monthly research review, which I put out and I started this in 2008. So over 16 years of just, Monthly issues and I actually started the research monthly research review model in the fitness space. So, yeah I would direct people to that if they're interested in really kind of getting into the weeds of it and that's alanaragon. com

SHAWN STEVENSON: Amazing amazing. Well again, thank you so much for sharing your brilliance with us and my man. Can't wait to connect more. Appreciate you.

ALAN ARAGON: Absolutely, man. Thank you so much.

SHAWN STEVENSON: Awesome. I appreciate you so much for tuning into this episode today. I hope that you got a lot of value out of this. If you did, you know what to do. Sharing is caring. Share this out with somebody that you care about, who you want to give a little inspiration, a little education to, and support. And you can send this directly from the podcast app that you are listening on. You can also pop over to the YouTube channel, come and hang out with us in the studio, hang out with me on YouTube. And of course you can leave a comment for the episode, share your biggest insight. It's definitely a great way to engage and share your heart. And listen, I just appreciate you so much for being a part of this mission. And it is a growing mission. And I'm very, very excited about this. We're making a big difference. And you know, but here's the cool thing. We're just getting warmed up. We've got so much more in store. We've got some epic masterclasses, world class guests coming your way very, very soon.

So make sure to stay tuned, take care, have an amazing day. And I'll talk with you soon. And for more after the show, make sure to head over to themodelhealthshow.com. That's where you can find all of the show notes. You can find transcriptions, videos for each episode. And if you've got a comment, you can leave me a comment there as well. And please make sure to head over to iTunes and leave us a rating to let everybody know that the show is awesome.

And I appreciate that so much. And take care. I promise to keep giving you more powerful, empowering, great content to help you transform your life. Thanks for tuning in.