

## Paleo Solution - 303

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Robb Wolf: Hey folks. Thanks for tuning in to another edition of the Paleo Solution Podcast. Before we get to the fun, here's a quick word from one of our sponsors.

Mark Sisson: Historically, we've been told use condiments sparingly because they're not good for you. We wanted a product where we could say use as much as you want. In fact, use more than you need because it's all good and the more you put it in your meal, the healthier the meal becomes.

Nikki: Mark Sisson is the publisher of the popular health and fitness blog, [mark'sdailyapple.com](http://mark'sdailyapple.com), and the author of several bestselling books and now, he is a creator of Primal Kitchen, a line of primal inspired salad dressings and condiments.

Mark Sisson: The ingredients are avocado oil and about 70% of the products is avocado oil, the healthiest of all oils, organic eggs and organic egg yolks from cage-free hens, vinegar -- organic vinegar from non-GMO beets, and sea salt and some Rosemary extract. So it's a very simple list of ingredients. They are all very clean. They are all very helpful and I think that appeals to a lot of people as well.

Nikki: Right now, Thrive Market is giving away a free jar of Mark's avocado mayonnaise. If you're not yet a Thrive member, you'll pay just \$1.95 in shipping. Existing Thrive members can also get a free jar of Primal Kitchen mayonnaise with your next order of \$50 or more. Go to [thrivemarket.com/wolfmayo](http://thrivemarket.com/wolfmayo).

Robb Wolf: Hi folks. Robb Wolf here with another edition of the PaleoSolution podcast. Today's guest is someone that is one of my best friends, a mentor, the person I tend to go to when I have a question. One of the ironies of my life is that the folks that I learn the most from, the folks that I am the closest to from a friendship standpoint, I tend to spend the least amount of time with them unfortunately. This man is Scotty Hagnas. He is the founder of one of the first CrossFit gyms in the world, CrossFit Portland, and he has a laundry list of certifications and accomplishments which we will get to in just a moment, but Scotty, how are you doing man?

Scotty Hagnas: I am doing great.

Robb Wolf: Awesome.

Scotty Hagnas: Good to talk to you finally.

Robb Wolf: Great to connect with you. You've been one of these people, it's like we really need to get Scotty on the show, but there was almost some anxiety and trepidation about doing it because I feel like I'm kind of repetitious on the stuff anyway. But I had this feeling that like your show would be the last show we ever did because basically, every question would be answered. We just really wouldn't need another show, so I'm stoked to get you on here, but it probably won't be the last show.

Scotty Hagnas: So I hope this isn't the end game.

Robb Wolf: We'll see. I mean, if it's really good, I'm pulling the plug on it. We're just finishing on the highest note that we've had. Scotty, you have a really amazing background both athletically and from a coaching perspective. Can you talk to folks about that, going all the way from the trials bikes on up to what you're doing today and talk about all the damn certs that you have, everything from like OPT and Poliquin and I know another number of other avenues that you've explored as well.

Scotty Hagnas: Yeah. I'll try to catch on a little bit. So very unathletic as a kid. I was a nerd, loved reading, which would pay off later on, but about 16, I got into BMX bikes and that was early '80s, so kind of in their infancy, really enjoyed that, the challenge of learning new skills constantly and the fact that it was constantly evolving. There is constantly something new to do and kept me doing that for decades. In fact, I still do it a little bit. We have a group of older guys that ride and we still actually figure out how to do new stuff.

Somewhere in that process, I got into bike trials as well, which is riding over obstacles and did that for a few years and had pretty good competitive success doing that up to the world level briefly. And then really didn't do any training outside of riding my bike, which in hindsight, I realized gave me 15 to 20 hours of a row back activity weekly for many, many years nonstop, but I started lifting weights about the mid-90s, '96 or so.

I started tinkering with my diet and getting into weight training as an effort to be able to ride longer and found it really fascinating and so that began my research and learning about 20 years ago now. Somewhere after a number of years, I realized well, I kind of actually have learned a

lot about this and started doing some coaching to stand formally in clubs with some of the stuff we're experimenting with and that led me to find a number of things really early on like CrossFit in about 2002 I believe and it was my search because I thought that gymnastic strength training might actually be better for the bike than a lot of barbell stuff a little more specific and the only thing I ever found was the original CrossFit side and that was kind of where that all started.

**[0:05:17]**

Certifications, I know we're trying to count one time how many weekend or even week long courses I've been to over the last 10 years or so and we were at 60 and still thinking of them, so I spent a lot of time and a lot of money.

Robb Wolf: Basically, you've been to all of them like if there was something offered, you've been to it.

Scotty Hagnas: That, yeah, pretty much, but some of the things that have been really influential definitely the OPT certs. I was on the very first group doing the level 1 stuff, flying to Calgary five times in one year for that and then all the level 2 things that I did originally and just also as a personal mentor. I have done quite a bit of the Poliquin material.

Early on, I was very into the -- movement disciplines are now becoming popular, but some of Scott saw in CST stuff in the early years. He was kind of really ahead of the game there and then kind of through you Ido Portal and I became friends and he was here in town a fair amount. I've learned a lot from him over the years and various other sources, but I would say some of those folks are some of my main mentors. Nowadays, I kind of look into a lot of standard strength and conditioning kind of information working with guys in town here like Martin **[0:06:39]** **[indiscernible]** and some of the circles that prepare high-level athletes. It's kind of my main interest these days.

Robb Wolf: Nice, nice and it's something that an unfortunate number of people are unaware of this that you've been doing a monthly column for the Performance Menu essentially since that the inception, the Cooking with Scotty piece. I believe you had probably the first Paleo cookbook that also happened to be broken down into zone blocks in the world.

Scotty Hagnas: Yeah, yeah. I think that is -- the first one I think 2007.

Robb Wolf: Yeah, 2006, 2007, yeah.

Scotty Hagnas: Yeah. I covered the material from that, and yeah, that was -- I did the 10-year column in the summer, I think it was August 2005. It was the first time, thanks to you, that I did that and little that I know that almost 800 recipes like still be going.

Robb Wolf: I don't know if that's like a sincere gratitude or you like things menu basically gave me cancer. I think you broke into that, but you...

Scotty Hagnas: I would say raising the cortisol level at times when I was late on the deadline, which definitely happens, right.

Robb Wolf: Right, right, shocker, shocker. So let's jump in like there's so much stuff I want to talk to you about from nutrition to training and your own training, aerobic base, just a ton of different things, but how has your view of nutrition changed over the years? I know both you and I were very early in the ketogenic intermittent fasting scene, but then you were also one of the first people to write a very thoughtful piece basically making the case for the need for a higher carb approach to Paleo -- explain that process. I think it would be really interesting for folks.

Scotty Hagnas: Yeah, yeah. So I definitely was your kind of hit that whole ketogenic fasting thing real early on. I had tinkered with my diet fair enough beforehand kind of following more typical body building strength athletic protocols and when I first made the switch, I felt good. I was already fairly lean, but I got really lean in that first 6 months or so, and what I didn't really realized is that kind of happened at the same time I was getting a lot of noobie gains from CrossFit.

Now, I've been lifting a long time, but it was a completely different stimulus so my performance seemed to be going up, but I definitely kind of stagnated after that. I had issues that I later realized was from thyroid issues and what was surely quite low testosterone and those were some of the things that kind of peaked my interest as I started to look into things that control -- that can regulate the levels of these other hormones.

I started to see some kind of clear patterns and I've noticed that in other people that I was working with. Looking into some stress physiology and those areas kind of led me to start tinkering with adding carbs back in and seeing what will happen. At one point, I had a body temperature of like 94 point something routinely. It's freezing cold unless it was 90 degrees, which it is like three days a year here in the Pacific Northwest.

Robb Wolf: Right, right.

Scotty Hagnas: It's 362 days a year.

Robb Wolf: You're like a turtle. You would have probably lived to be like 300 years old though.

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Scotty Hagnas: [laughs] Maybe.

Robb Wolf: Just cold, tired and low sex drive that whole 300 years, but yeah.

Scotty Hagnas: Yeah. It was kind of an interesting thing I had realized that the whole sex drive kind of fell off about the time that I started tinkering with my diet that way and I kind of just chopped it up, so well, I'm getting close to 40ish at that time. I never made the connection until later on.

So I added carbs back and a lot of tubers while I'm on my way to finding things besides sweet potatoes and felt really a lot better where I slept better. Recovery was better and got some sex drive back and thought all is well, but as I learned later on, I had some big thrush old still to go, which kind of happened a few years later when -- and it's a variety of things being able to monitor my training load and not push myself over the edge, which I'm inclined to do and left to my own devices. But as I added in more sugar-based carbs, so a lot more fruits and things and little less protein and less fat for sure and the change was just shocking almost. I felt like I was a teenager again and it just continued for the last couple of years really.

Robb Wolf: Give folks a little bit of a macro breakdown like how many grams of protein are we talking about? What's your height and weight and then give folks kind of a bigger picture of macro breakdown with where you are now?

Scotty Hagnas: Yeah. So right now, I'm about 180. I'm 5'11". I am eating around 3,000 calories a day, plus or minus depending on the day. My protein, I think more in terms of grams-ish anymore and I don't really do a lot more than about 120 or so, 120, 125, so lower than I have it since the '90s. Carbs, I'd probably at least 300 grams most days. It's definitely a bulk in my calories are coming from carbs. In fact, there still as much as 30% so I'm not low fat by any means by I just don't consciously add fat really and I don't seek out fatty cuts on meat and then one other kind of interesting thing I'm doing at the moment is for the first time in a very long time as I'm eating very minimal red meat based on some blood work I've had recently and that's another topic we can chat on in a minute if you want,

but that's what kind of what I do and I don't know what the exact percentages that necessarily would come out to honestly.

Robb Wolf: But clearly quite different than when we were really messing around with the ketogenic ratios. I know we played around with really high protein, the lower protein so that you could be in legit nutritional ketosis. I've always kind of leaned that way because it seemed to be the only way that I had some really consistent glycemic control. Like when I played with upping my carbs, I'd had like vision problems and all kinds of stuff.

When you wrote up your experience in the Performance Menu about shifting to a higher carb intake, you had like a month, month and a half period of some kind of fat gain and a little bit of seemed like some metabolic shuffling and then everything really hit a slip stream, like do you have any thoughts about what's going on with me? We've looked at small intestinal bacterial overgrowth, all kinds of stuff and haven't really come up with a ton.

Scotty Hagnas: Yeah. I like to look at -- it goes with stress first, where anytime, I occasionally have blood sugar disturbances and I know always that it's something is going on. My autonomic system is out of balance. That's where having that finger in your pulse of what is your HRV scores or what is your kind of baro reflex sensitivity, so basically I like an orthostatic blood pressure type of assessment. I look at those kinds of things and generally, you're on one side or the other. You've been on one side or the other for a while and you can really dial in nutritionally even a little bit with knowing where you're at.

Robb Wolf: And mind folks about that orthostatic blood pressure that's basically taking it while seated and then standing up and checking the delta between those.

Scotty Hagnas: Yeah. So it's generally it's going to be a supine lying is the first and then you do a standing blood pressure and you're looking at the change. Now, it's called the Ragland sign or Ragland test, and it's a crude imperfect test but you can definitely get some interesting results out of that. Generally, you're supposed to stay kind of 8 to 10 higher when you stand is good, but you'll see less than that or you'll see an outright drop upon standing and not showing lower adrenal function, so you kind of keep your finger on the pulse of what are your adrenals doing day to day or week to week. That's when I tend to go with more like a weekly measurement unless I see it go sideways and then probably check it daily and see what changes.

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Robb Wolf: Okay, okay.

Scotty Hagnas: With that said, you can see -- you will find very little in the literature about having a very large increase and I typically, I have a number of people that measure that for me routinely. People that are not sympathetic dominant adrenal driven state, I mean, they will have 25, 30 increase in pressure upon standing so a really a high spike. So that's something I'd really try to avoid, we work on and those folks that are in that type of a situation as far as changes in body composition, it is tough to impossible.

Robb Wolf: Right, right because they're in that sympathetic dominant stress fighter flight mode and the body is not going to want to turn much over into those circumstances.

Scotty Hagnas: Yeah, pretty much in the extra calories at all even still with some metabolic slowdown are going straight into storage probably.

Robb Wolf: So how do you -- let's just say I've got a friend who exhibits a lot of those characteristics. Clearly it's not me, but let's say it's a friend. It's like buying condoms, I'm buying this for a friend. What do you do to tackle that person? I had a podcast a week ago with a gal who does a lot of GAPS diet and some genetic testing and what not and I've observed that if I get somewhere tropical, which means I'm on vacation and I get sun and I spearfish 80% of the day and all that, and my digestion is great. My carb tolerance is great, but I haven't really been able to replicate that when I'm a sedentary desk jockey trying to keep 15 different plates spinning. Like what do you do for those folks in that case? Some meditations apps, some constant low dose of opiate infusion, like what do you do with that?

Scotty Hagnas: Yeah. That is a tough question, but that is exactly what you see and it really shows that it is coming from the stress side. So the first thing I'm going to do is I identify that it is stress based where that's just conversationally or we've actually tested some things out. I'm going to at sleep and that's got to be a first one, how much, what times are you sleeping. If the sleep quality is poor, that's something else. It's going to have to be addressed.

Some other things I've used successfully, I have one guy we used heart rate confluence apps. There is one called HeartMath, basically where you're working on getting more parasympathetic through some kind of guided breathing. It's essentially a meditation, but I find the people liked technology and may have a real hard time sitting in the corner and

meditating are totally happy to flip on their phone app and sit there and be like so that actually works for a lot of people.

There is a new one out. Elite HRV has the ability to do that as well so it's going to assess your HRV in the morning, but then you can also use it as an app like. There is this another one, it's called heart rate confluence. Aerobic work is another one so a lot of this people have a very poor level of aerobic development even if they're athletic otherwise and so that kind of lower intensity work is really good at shifting you more into a parasympathetic state. So we're going to do work to develop that between giving folks things like walks to do or gym based sessions that are like long low intensity, but I rarely give someone go sit on the **[0:18:40] [indiscernible]** for an hour. We make circuits where they're doing mobility work interspersed to a several minutes of standard mono structural activity.

Robb Wolf: Okay, okay.

Scotty Hagnas: So that would be another thing stuff.

Robb Wolf: Do you have those folks wired up to a heart rate monitor and like what type of heart rate range are you getting for folks? Like I know Phil Maffetone uses like 180 minus age to kind of get a heart rate top end that you want to stay beneath, which for someone like me, that ends up being like 135, 145 beat per minute max to be able to stay in that aerobic zone. That's kind of one question then I have this other question that so much of what we're trying to do with that on a metabolic substrate side is actually goosing fat mobilization. So a lot of these folks who are really pushing this aerobic base and developing that parasympathetic response are also very much leaning more towards this kind of ketotic field story. So maybe we could parse those out in two different pieces, like how are you establishing your -- how you build that aerobic base deal and then maybe the contrast that you've shifted towards clearly a higher carb intake, but a lot of these other folks are kind of advocating a higher fat intake maybe even nutritional ketosis.

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Scotty Hagnas: Yeah, so I do like the Maffetone formula. It is one I actually use the Maff test or variance of that just to kind of assess someone's general base aerobic abilities. But sometimes, I will give this sort of a range that is specific to that person I feel, so it could be anywhere from 125 to 145 as generally, and usually the people I'm doing individual program for they all have a heart rate monitor because that's what we do with heart rate monitors or just even testing with them to make them useful, but once a person get understands the feel for it, then it's pretty easy and always

have to wear one, but I find people coming especially if they come from a high intensity training background, people have no idea what it's like to work at 145.

Robb Wolf:

Right, right and correct me I'm wrong, but this is maybe a little bit of what you mentioned with the bike riding early on like you just had baked in the cake hours a week of aerobic-based development that was pretty low stress and lot of fun so you could argue as pretty restorative. From most of my life, I was coaching kickboxing and doing pretty active stuff and I feel like I had a pretty good aerobic base and then as good as CrossFit was for me and kind of exposing me to some new elements, my aperture of kind of movement options really constricted, like I didn't hike as much. I didn't do the kickboxing. My work became more and more sedentary, so it seem liked I was going from either sitting or standing, doing cognitive work all day and then I would go do a burner and surprisingly, I would be completely destroyed from that and also trying to do Brazilian jujitsu under a form of that, yeah.

Scotty Hagnas:

Yeah, I think that some of the initial success was absolutely from that huge aerobic base that I didn't really even appreciate that I had, but having worn a heart rate monitor when I ride occasionally now, I was clearly on that, the space aerobic development zone and occasionally a little bit higher, but not a lot for... I mean, a 90-minute was a short session and I did that nearly every day of the week, so you know in 3 and 4 hours, which is not uncommon.

Robb Wolf:

Wow, wow. So Scotty, talk a little bit about the fueling for that, like Phil Maffetone, a number of folks, gosh, I'm blanking on this, his name, the guy from South Africa Ted Noakes, like a lot of these folks who are renowned endurance coaches really into building an aerobic base, but they're tending to prescribe a higher fat intake. There was the recent study by Phinney and Volek where it showed that folks that are fat adapted, that are in nutritional ketosis, their fat mobilization was almost double what has been documented historically, like it literally required like re-writing the textbooks. What are your thoughts on that?

The one thing that I haven't seen come out of that is kind of like, okay, these folks are mobilizing more fat. Maybe this would be a really good argument for someone who is say like an ultra-endurance athlete or something along that line. But I'm not seeing folks say, okay I did this course with this time and then I became fat adapted and I did the course on less time, like these folks are definitely mobilizing more fat or using fat as a primary fuel source, but I'm not seeing them say very consistently that they're doing these things necessarily faster or dramatically faster.

What are your thoughts on the fueling particularly since you've shifted away from that more ketone-driven metabolism.

Scotty Hagnas: Yeah. So I'm nodding my head actually. Yeah, that is my observation feelings that if you're an indeed an ultra-endurance athlete, that's going to work in very low intensities, but for many, many hours, there may be some those really still relatively unproven benefit to that as far as from a peer performance standpoint, but very few people are doing that. Certainly from a health perspective, we're not doing that and from pretty much any athlete that -- extreme endurance athlete, you're going to be using glycogen whether it's in slow glycolysis or what.

So I think more in terms of reducing the stress on the body, which there is definitely a stressor in not having popped-up glycogen stores and even if you're going at a marathon pace, you're going through your glycogen regardless of how fat adapted you are. So trying to get the body back to restorative state dropped stressors as soon as we can after training and at all other times during the day as much as possible. I see giving that a better recovery and not impairing endurance performance at all and pretty great in folks who ultimately want to be great at like a 20-minute event if they are like CrossFit competitors. You need to have the glycolytic processes working well.

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Robb Wolf: Right.

Scotty Hagnas: So in the aerobic base, we are going to use glyco sugars because there is no way you're not.

Robb Wolf: Right, right, right. I was even reading some Phil Maffetone stuff, gosh, I guess yesterday. When you have kids and you're getting ready for the holidays, you're kind of like was that a month ago.

Scotty Hagnas: Right.

Robb Wolf: It was actually a day ago, but I was reading some Maffetone stuff and when he is in that aerobic base building period, he makes the point that if you pop the intensity up too much, and again, this is and we'll probably talk about some block periodization here in a bit. But one way that you can tell if you got that aerobic base training session done properly. At the end of it, you should feel good, should have little bit of euphoria to it, but there shouldn't be a really a strong desire for carbs specifically because you didn't necessarily super deplete your glycogen stores, and therefore, you didn't impact that stress response. I'm thinking like 50

different things here and I almost when like pause and take a bunch of notes and pop this thing back on.

So Mike Ruscio and I have talked a ton about this stuff and gut dysbiosis, there is so much understanding now that the gut microbiome ends up playing a huge impact on health, but it's been a little challenging for me to unpack exactly what's going on there because we know that if you have one group of folks that have what we call good gut bacteria and a group of folks that have bad bacteria, you can cross populate those two people, take the bad and stick it in the good, the good stick it in the bad and you can basically goose those folks towards a different health outcome, but we also know that just one night missed sleep or poor sleep negatively alters gut microbiota. It shifts it words kind of what we call a pathogenic profile.

Don't want to put words on your mouth and I don't want to jabber inanely because you're the smart guy on this conversation not me. Could you make an argument that the stress component is the bigger story here, like the allostatic load is the bigger story relative to like the gut dysbiosis and all that type of stuff, like if you just really get that stress piece dealt with, probably these things that we're typically characterizing as gut dysbiosis and glycemic control issues, that it's really an allostatic load issue versus bacterial overgrowth. The bacterial overgrowth maybe a symptom and not a cause specifically?

Scotty Hagnas:

Yeah. That's really my feelings exactly that it took me a long time to come around to that, but yeah, I think that's a symptom downstream effect of that allostatic load and what you're under. If you're subjected to more than you can recover from what the first like we see that manifest in the gut. We know that having proper parasympathetic tone is very important in keeping the inflammatory process down. There's some interesting to research on that I guess, just read as well.

So if you're again in a sympathetic dominant state, inflammation of the rehire and the gut is one of the first places that you're going to see that manifest so that same inflammation is going to give you that kind of fatigue feeling in the brain. It's kind of that break on the whole system trying to slow things down. But generally, what I noticed is you see gut and digestive issues in people that have chronically and too little, which is a lot of people in my experience frankly have over trained so both those are major stressors for people who are just under so much above work load. There is no restorative time, same thing, lack of sleep, same thing, but if you fix those things, the gut is much better. You can tolerate foods you wouldn't otherwise tolerate. It's kind of right back to your kind of

vacation example and I think you and I and others have probably known countless people to tell that story -- I went on vacation and you know.

Robb Wolf: I ate tacos and drank Margaritas the whole time and I came back leaner and then yeah.

Scotty Hagnas: Interesting.

Robb Wolf: Okay. I'm thinking like 50 different things here. So Scotty, once you've got somebody kind of buttoned up on dealing with the allostatic load via the monitoring and building, how long are you building an aerobic base for somebody and I assume that that's probably kind of contingent on what type of athlete they are, but let's say we're talking about kind of CrossFitter or maybe an MMA or Brazilian jujitsu athlete, like how long are you spending in building that aerobic base, weeks, months, before we start peppering in a little bit of specific glycolytic training.

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So typically the longest session that I do in a round is about 5 minutes. Sometimes we'll do 10-minute rounds but you know even if I go to competition in jujitsu, they're 5-minute round so I'm going to want to time index the bulk of my stuff right around that. But how long am I building that aerobic base and what time of like HRV scores you know resting heart rate and stuff like am I looking at before I shift gears and start doing some glycolytic work?

Scotty Hagnas: Yeah, a good question and of course as always it depends.

Robb Wolf: Right.

Scotty Hagnas: It depends on how long you have you know what's the timeframe to something that you're trying to perform while the competition or whatever, you have multiple years. It can take a really long time. It's something you can work on developing for quite a while but the volume of work if you're trying to increase left ventricle hypertrophy, increase cardiac output if that's what you're attempting to do to kind of build the base engine bigger, it takes an investment of a lot of time. I think that's why some folks have tried to do that say in CrossFit or other areas. They'll add in these 30, 40, 60 minute Z1 sessions. I don't see a lot of benefit and it just had physically done enough work.

It takes a number of hours a week just to see like a 20% increase over time. So it can definitely be a bit time consuming but I try to go with at least a few months of that to see some definite improvement and like anything like for you, it would probably take a while because you've been

consistently training for many, many years as opposed to someone that's maybe relatively new. I may see some pretty significant increases in just a few months of work.

As far as testing that, we can do it a number of ways. We can look at say the mass score on the math test like you mentioned earlier. Like I usually use a 30 minute Airdyne at a set heart rate but you can also look at HRV scores and resting heart rate. And those again also you have to be a little cautious of just because you have a high HRV that would make you appear that you had good aerobic ability and a low resting heart rate. There are people that are in a very metabolically kind of shutdown state that will exhibit those things where they kind of stuck in a parasympathetic mode.

I know at least one person that had a resting heart rate that looked like a pretty good endurance athlete yet did no endurance training whatsoever and it was just from metabolic slow down from under eating, under fueling, under recovery. So you have to be really cautious and then that's where the orthostatic blood pressure test that we talked about earlier comes into play because that person will exhibit a very large fall in blood pressure upon standing and then you realize, oh that's not what we want to see in the HRV. But generally you want to see the resting heart rate come down and HRV scores up depending on what score you use, unfortunately there's not really a real standard but one that people are familiar with like the BioForce and Ithlete would be around 70 and up or something you'd want to see.

Robb Wolf:

Okay. I'm talking notes on this stuff too so sorry to you and to the listeners because I'm taking some notes on this. How would you--So you mentioned that you structure some of this low level aerobic base with some kind of aerobic circuits like--you know I'm working out mainly in my home garage. I have a Concept 2 Rower and Airdyne and a versa climber and then I can do jump rope and do all kinds of other stuff. How would you break up time on each one of those elements? Like I've been doing say like 10 minutes on each one of the monostructural guys and then just rotating through and so I'll get 30 to 60 minutes a whack doing that. What you're saying is probably right on the ascend of actually even being effective. I tried to get multiple sessions like that a week. Is that a good time indexing? I haven't really been mixing other say like callisthenic movements or anything in with that. Like how would you improve that to help build this aerobic base?

Scotty Hagnas:

Yeah, so it doesn't necessarily have to be a really long session. It's the total accumulated volume over the week so you could do more than 1

session in a day if you wanted. The nice thing is they don't really require a warm up or cool down. You can just go in and do it. As far as keeping it interesting, I go with a little with the person what they enjoy or if they have a lot of mobility issues and we can work on that at the same time. So it could be something like 5 minutes on each modality and every time you rotate modalities you're going to do 1 minute of some sort of dynamic mobility movement. So I mean there's hundreds that you can pick from but maybe you do like long cossac switches or you do some sort of flow work if you have some you know.. you can do.

Robb Wolf:

**[0:35:40]**

Scotty Hagnas:

A problem with that.

Yeah. If you have background there, you can do it. That's one way to do it. Other times in other way I'll do it. sometimes is I'll give someone a long walk on one modality or maybe they only have one modality so every 5 minutes or every 10 minutes get off and do X number of gymnastic skills that allows them to kind of work on what they feel like that, at slow intensity, they're still moving. The heart rate still staying in the range and they're getting back on kind of breaks it up.

And then another fun one is around the world training. If you have 4 modalities like you do, you can just rotate every minute on the minute so you're one on a minute, hop on the one next minute. That keeps it kind of interesting and you can add in running or different things in there too.

Robb Wolf:

Okay. I've done a little bit of that like I've done almost kind of a fight gone bad structure but I keep the pacing aerobic like you know it can be conversational but I'm going from like Airdyne to rower to versa climber to jump rope and then I'll do some usually some sort of a jujitsu type movement like I have a heavy bag on the floor and all, go from knee on belly, back and forth 3 times and then a couple of elbow and hammer fist strikes and then back and forth and basically a minute on each of those. But I never really tipping into the glycolytic kind of realm. Would you keep that 1 minute break at the end of that 5 minute deal or just keep that thing like a nice slow continuous pace?

Scotty Hagnas:

I think either can work. I usually tend to go with continuous but if you're staying in that heart rate, you know 1 minute is not really going to take you out of it and some people appreciate that 1-minute rest. The more naturally explosive or anaerobic a person is they tend to like the pauses. That probably applies in your case I think.

Robb Wolf:

Right. Yeah. So should I avoid that then or--

Scotty Hagnas: No. I think that's fine.

Robb Wolf: Force myself to stay more even keeled.

Scotty Hagnas: No. I would go with your nature a little more. One thing, I always try to think about is what is this person's natural, what is their natural inclination and you're going to produce less stress hormones doing things that work with your nature then you are so a very gifted strength athlete, you absolutely need to do some aerobic work but too much of it is going to be much more stressful than in someone who is more naturally on the endurance side like myself it's like oh cool. I'll do that. And I can't tolerate as much as the other.

Robb Wolf: Got you. Okay. This is a little bit more I guess biomechanics oriented but I've noticed that a lot of these monostructural elements, the rower, the Airdyne, even the versa climber oddly enough I thought it would be a little more gluten hamstring active. But it seems like all this stuff is very quad dominant. Are you seeing a lot of hip flexor issues with them? You know too much Airdyne, bicycling, rowing. It seems like hill walking or treadmill walking in an incline or sled drags are about the only way that you're getting like some posterior chain activation in that. Like how are you addressing that from kind of biomechanic balance?

Scotty Hagnas: Yeah, that potentially could be--potentially a problem and those aren't bad things to throw in the mix if you have access to them. The versa climber although I love it is surprisingly on the quad side. I almost always conclude sessions nowadays with various breathing drills that being tight is a symptom of poor core stabilization and breathing patterns really now in my estimation more so and doing some drills to kind of activate the diaphragm, also rebalances the nervous system but I find that you don't have to do a ton of stretching to release the hip flexor and in fact that's not always the best strategy.

Robb Wolf: Okay.

Scotty Hagnas: As long as you're doing some posterior chain work in the strength training side, you're going to be I think okay there.

Robb Wolf: Okay.

Scotty Hagnas: And then remembering there should be a phase and other times you're going to be doing a lot less of the aerobic work.

**[0:40:09]**

Robb Wolf: So when do you--again I'm sure it's highly dependent on what the person is up to. For me, I really don't have any aspirations for competing in jujitsu. I just kind of like to go to class and not feel completely smashed afterwards to have a decent gas tank for doing the training that I want to do at that time. If I don't have a specific peaking cycle that I'm looking at, how would you tackle that? Do I just keep building that aerobic base until the cows come home and rely mainly on the sport of activity to supply some of that sport specific glycolytic training or how long do I ride that aerobic base pony before shifting some gears on that?

Scotty Hagnas: Yeah. So I would pick a time that's a little ways out so in your case maybe you would do 2 to 3 months of kind of aerobic base work and then you'd work through a phase where you would bring the intensity up and I really kind of look at trying to do as much aerobically as possible even for CrossFit athletes now.

Robb Wolf: Right.

Scotty Hagnas: We're trying to work on the alactic aerobic side and the aerobic side and not really do a lot of work in the glycolytic side. Now there are rare cases where someone needs to learn to produce power. We'll go there. But having that ability will allow your work in that glycolytic pathway to be much better and you'll recover much faster. So the next thing I would after that phase is I kind of work in to some threshold work where you're going at controlled heart rate again but what we would estimate being kind of around and anaerobic threshold and work blocks at that. You can start adding in some more specific stuff so some different drills or it can be monostructural.

Again I try to mix it up. I can sport a CrossFit. What I typically do is at first start people to just monostructural efforts in that range but then moving into mix circuits where we're doing some of the lighter movements for reps. Again that can be done without throwing the person out of that zone we're trying to get into and it helps teach pacing as well. And then I've recently been playing with a little kind of where we intentionally do a short piece of it where it spikes, lactate a bit and so this can either be a harder effort, monostructural say like 400 meters at a higher pace and then maybe at first a thousand at a slower pace which allows you to recover and train the system to use that lactate produce better.

So a circuit that I was personally doing yesterday was like box jumps and wall balls for a little bit and then I went out on a run and I worked my heart rate down to a certain level and then speed up as I can maintain and then the run actually got faster over time and we're able to absorb

and use that lactate better. Then the final piece would be I would do a small amount of--I really think of the more cardiac power intervals where we're actually trying to develop strength of the heart muscle and train the heart muscle.

Towards the end this would be circuits of it can be a couple of minutes up to about 5 minutes and they're pretty much like full out maximal effort with one to one rest and then a longer rest and these are build right. These are really horrible. But you only need to do a very small amount of them. The residuals of the training effect can last quite a while and the fatigue curve you know if you're actually monitoring you'll see it pretty promptly so it really only takes a small amount. I'll tend to do one week, 2 sessions in 1 week, a week off, 2 sessions in another week and then 1 to 2 weeks off before whatever event or test or just another phase and there's a little bit of research shows how long the residuals will last on that and that further training that ability doesn't actually give you much improvement beyond that.

Robb Wolf: I remember reading an article that you had and also just the super compensation phase like you've got to ding that bell and wait for everything to recover and then the recovery part is where then you want that competition phase to occur.

Scotty Hagnas: Yeah.

Robb Wolf: Nice.

Scotty Hagnas: Yeah. And having just a clear difference in going into something recovered and ready and being able to push anytime you're in the middle and it's just you're in the suck, especially if you've just started you know you weren't fully recovered to do that.

**[0:45:01]**

Robb Wolf: Right. Scotty, so I saw this in our gym like we were taking folks that both had an inadequate strength base but often times also an inadequate aerobic base and you know we fry them. We put too much intensity on them. I see this a ton on the Brazilian jujitsu scene too like jits typically is a pretty glycolytic sport particularly if you've got a reasonably competition oriented kind of risky population of folks.

I've really been trying to stir our training at our school and just the training that I do more in that aerobic base kind of realm and so we use drills and flow rolling and stuff like that like how--does that sound right? I mean it's just so hard to get people and coaches to dial that intensity down and build volume over time, keep people more aerobic in their

sport of activity. A lot of folks the only exercise that they do is say like that 3 days a week of jujitsu or something like that. Like that is their time to train. A lot of people kind of look down their nose at that. It's not hard enough. What are your thoughts around all that?

Scotty Hagnas: I have kind of a no pain, no gain culture and there're definitely people that are a little low to not work at max intensity. One thing we do a lot here is build rate limiter into the workout in some way that kind of makes it hard to go with that level whether it's either in force or asked or you're doing something on a pace or just the movements themselves lend themselves to you can't go that fast. That's one way to do it and then just education. A lot of people come to me know kind of know that I take a long approach of training so I don't have to do as much but there's definitely a phase that you have to go through with folks to explain it why this is going to benefit and if they can understand physiologically what you're trying to do. But you know in group classes especially if you know and different people coming and going that can be difficult to do.

Robb Wolf: Super challenging.

Scotty Hagnas: Yeah.

Robb Wolf: Yeah. Absolutely.

Scotty Hagnas: Sometimes we like to do the things that aren't the best for us unfortunately.

Robb Wolf: Shocker. Yeah. Well it's definitely been an uphill battle to sell this idea like drills and skills class where we could get in and work positional sparring. If you have a disparity in weight or technicality for the person who's heavier or more technical to dial back the input that they're giving so that the person drilling it is both successful but also getting a decent level of work output but not totally smoking themselves and getting them out of that fight or flight response and it's been a tough deal. I've found that I have to do the bulk of my training on my own if I want to try to emulate something like that.

Scotty Hagnas: Yeah. I could definitely see that being a problem but hopefully over time-I think as more and more people look to ways of monitoring themselves as the quantified self-movement probably continues to grow, people will realize the impact that some of the things they're doing have on them. The cat will be out of the bag so to speak, but it may be a long time before we see that.

Robb Wolf:

Right. Speaking of long time like you've done a ton of different things with kind of an eye towards health and longevity, you're not a small guy but you've had plances, planche, pushups, front levers, back levers, some pretty impressive gymnastics skills. What are you doing and what are your thoughts on this kind of long term approach? I know that more recently you kind of got into a little bit of a body building kind of phase, a little more barbell oriented. Like what are your thoughts on kind of the ultimate skinning of performance, health and longevity like a little smattering of gymnastics body weight stuff with a decent amount of barbell volume to keep some muscle mass and neural integration going. Like how are you looking at all that?

Scotty Hagnas:

I do really enjoy the gymnastic movements. I haven't done them a lot lately and that just every few years and I focus--tend to change to keep that interesting. I'm sure I'll cycle back around to them but I like using gymnastic base progressions for upper body work not exclusively but I think that's probably better for my health and longevity perspective once someone has good range of motion, good control specially the scapula, etc. And the lower body, it's hard to load it well enough just purely body weight. I mean yes there's definitely some challenging pistol variants you can do and those are great to work on if you wish but I think you still have to pick up heavy things or at least reasonably heavy things.

**[0:50:34]**

And I think we're kind of a body building type of style of training is not a bad idea for health and longevity for sure. I mean not the volume, not all the isolation movements necessarily but just kind of the idea of time under tension maybe using set tempos to produce certain responses that you're looking for that can be really beneficial for folks and the longer time and attention, better joint conditioning, joint strength. With the gymnastic stuff, it's interesting now seeing that that's actually kind of catching on and different methods kind of coming around training it. One thing I've seen is people that are already really strong and that have been doing training for a number of years, spending what seems to be in order amount of time on some of the super basic skills that they're clearly beyond and that where I've had conversations with folks about look at the bigger picture here. Maybe you don't need to follow this exact set routine if you're not starting from square 1 and understanding that this is designed for someone starting from square 1 possibly.

Robb Wolf:

I have a good friend of mine, Patrick, a pretty big dude, 200-215 pounds Brazilian jujitsu black belt, pretty damn strong and he was hang up for like a year at the 5 1-minute rounds of lock offs and I was talking to him I'm like you know I think that you could probably skip that one like he had 3 or 4 5-minute rounds but he is super literal just like dot the I cross the T

kind of thing and I'm like I will give you permission to bypass that for a while and see how you do and so he did and I think he's pretty stoked with going with that. on the one had you do want to honor the programming and the structure that's been put into place but then at the same time you know it's kind of like okay 120 pound person doing 5 1-minute round of lock offs probably is not a big deal, a 215 pound person totally a different story.

Scotty Hagnas: Yeah. I saw that exact same progression actually waylay some people, same thing just people are spending months on that kind of literal guys and bigger dudes usually.

Robb Wolf: Right. Interesting. Interesting. So Scotty, you're making a bid for the Masters CrossFit games here in a year, a year and a half, tell folks about that.

Scotty Hagnas: Well I mean I'm not the most gifted of athletes by any means. I appreciate that though because it makes me study and learn and try different things but we'll see. My CrossFit competition in 2004 which most people don't even know there were competitions back in 2004 but the CrossFit championship which proceeded the games in Seattle and have entered on and off for a number of years and I just find the sport fun. I don't like doing WODs all the time and so I do very structured training but I enjoy testing myself now and then and the complexities of preparing for the sport I think really interest me. so I've been on a kind of 4-year plan until I turn 50 and just developing the pieces and working on skills and just kind of having fun with it and so that's kind of where I'm at.

Robb Wolf: So you've got a 4-year plan on it. Okay.

Scotty Hagnas: Yeah. Well it hasn't been longer than that but I kind of built that Olympic cycle so to speak.

Robb Wolf: Right.

Scotty Hagnas: And if you hear some--to bring up some of the things where I might need them to be might take that long. So aerobically that side seems pretty solid, get some work in some other areas and some skills that I've neglected and some skills I've done forever in a day. Other I've kind of neglected working on as much as I should have. Like I've always been pretty good at handstand pushups and I realized you do have to be good at keeping them and thankfully I got that down really fast but other things not so fast.

Robb Wolf: Right. What about the Olympic lifts. Where are you on the Oly lifts?

[0:55:03]

Scotty Hagnas: Those are always kind of a bit of bugaboo and you know the one area that I've always struggled with is my elbow issues from writing. Well those are far better than they used to be. They do cause some problems with the O-lifts and locking out and somehow they haven't seem to be such problem with the body weight skills but O-lifts and things like that, they definitely have.

Robb Wolf: Interesting.

Scotty Hagnas: So coming along but not nearly I would like.

Robb Wolf: I saw--I forgot who it was. Somebody observed that they just don't see many people make master of sport in kettlebell lifting unless they get into the sport pretty early because you need so much mobility and perfect orthopedic placement to be able to rest and make the whole thing efficient and kind of makes me think about that in a way where if you've accumulated some desk jockey stuff or thoracic impingement or issues, it definitely makes ton of the overhead positions where it's kettlebell or Olympic lifting a lot more challenging and I think potentially a lot more orthopedically impactful because you're just not carrying things in the nice lines and the planes that would be ideal for maximal loading and some good longevity on that.

Scotty Hagnas: yeah, I see that and I think that's something I'm personally battling a little bit too because my job has actually turned into more of a desk job, I write training programs for people all the time now and I don't teach many classes at all and I don't have that many one on one clients that I see on a weekly basis so I sit behind the computer and undoubtedly getting laptop smart phone syndrome going.

Robb Wolf: Right.

Scotty Hagnas: And though I've always had good overhead mobility with my shoulders, the fact that the elbows don't completely lock out kind of negate some of that.

Robb Wolf: Right. You just need to do some jujitsu and have somebody really break that elbow.

Scotty Hagnas: Crank on it.

Robb Wolf: To hyperextend that baby and probably it'll be good. You know it might limit your training for a little while but it will fix that orthopedically.

Scotty Hagnas: On straight arms.

Robb Wolf: They just don't bend anymore actually because it is where you snap the biceps tendon.

Scotty Hagnas: Yeah.

Robb Wolf: Scotty, it's been fantastic having you on the show. I apologize for taking so long to do this. You're one of my dearest friends. I hope folks get a little bit of an appreciation for the depth and breadth of your knowledge like you're literally is the guy that when I've got a question about something, I'd go to you and you've got an incredibly credible answer and if you don't know then you at least have some good theory about what the heck the answer to a question is. So it's been awesome having you on this show.

Scotty Hagnas: I certain appreciate it.

Robb Wolf: Scotty, where do folks track you down on the interweb or you train to hide and you don't want them to track you down?

Scotty Hagnas: Well I'm trying to write and do things a little more lately so you can find me at the gym site at [crossfitportland.com](http://crossfitportland.com) of course and then of Facebook I mainly share and write there a little bit. But those would be the two places right now.

Robb Wolf: Okay. We'll get links to that in the show notes. Scotty, great chatting with you, happy holidays and thanks for coming on the show.

Scotty Hagnas: Absolutely, Robb. Thanks for having me and happy holidays to you guys too.

Robb Wolf: Okay. We'll talk to you soon.

Scotty Hagnas: Arlight.

Robb Wolf: Buh-bye.

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**[1:00:31]**

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