

Jordan Sullivan: Fueling for Sports Performance & Body Composition

Perform with Dr. Andy Galpin · Episode 15 · March 5, 2025 · Transcript

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Dr. Andy Galpin

The science and practice of enhancing human performance for sport, play, and life. Welcome to Perform.

Dr. Andy Galpin

I'm Dr. Andy Galpin. I'm a professor and scientist and the executive director of the Human Performance Center at Parker University. Today, I'm talking to Jordy Sullivan. Jordy is a dietician who has worked with many of the best athletes in the world in a variety of sports. He's also a practitioner, having participated and competed in many jujitsu, ultramarathon, and other endurance events. Jordy's clients, as I mentioned, are some of the best of the best. You're talking about many UFC world champions, other individuals like Ned Brockman, who recently ran 1,000 miles in 12 days. So Jordy's knowledge of the practical aspects of fueling for performance are really unparalleled. In this conversation, we talked a lot about the details, how much water, how many grams of carbohydrates, what type of carbohydrates, and as many other details as I could possibly fit in to exactly how do I fuel performance or just getting enough fuel to exercise for people not competing in sports.

Dr. Andy Galpin

Jordy did a fantastic job in this conversation outlining how this does change in different scenarios with different goals and populations and people. So while Jordy has spent most of his career with these elite high-profile athletes, he's also been coaching non-athletes for well over a decade, and that comes through really clearly in the conversation. So please enjoy this conversation with my friend Jordy Sullivan. Jordy Sullivan, welcome to the show, man.

Jordan Sullivan

Andy, thanks for having me.

Dr. Andy Galpin

I've followed your work for a long time. It's in my opinion that no one even is close to rivaling you in your area, so really appreciate you being here. We're going to cover a lot of areas we'll globally call sports performance fueling, but I actually want to start with two things really quickly, and I want to see if you even know what they are. So this is a little bit of a challenge to you. So

let me read this one actually that I have written down for you. Okay. Number one, yogurt with berries and honey. Number two meal, Chipotle chicken with rice and avocado. Number three, tiramisu dates with oatmeal. Number four, lobster roll. Number five, a sports drink. Number six, lamb rice bowl. Number seven, a banana with honey. All that in one day. Do you know what I'm talking about?

Jordan Sullivan

I have a good feeling what you're talking about, yeah.

Dr. Andy Galpin

Tell us what that actually is.

Jordan Sullivan

Yeah. So last weekend, I participated in my first HYROX competition. And if you don't know, HYROX is kind of the new age CrossFit. So it's a mix of strength sports and then endurance sport. So the setup is you run eight kilometers as fast as you can, and then you jump in and out of these stations. So yeah, me and my team went down to Melbourne and did that, and that was the fueling plan going into it. So it was really good.

Dr. Andy Galpin

So you ate all of that in one day prior to competition?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

We're going to have to go through that in detail, and I want to know exactly why you ate that because my guess is you weren't just sort of eating whatever you had in front of you and trying to consume as much food. There was a little bit of intention and strategy with the food items, the calories, the macronutrient split, the time you ate that. All that was very strategic, I assume.

Jordan Sullivan

Yeah, there were definitely goals behind it. I'll be honest, though, that was my first competition, so a lot of that was just self-experiment.

Dr. Andy Galpin

Of that type of competition.

Jordan Sullivan

For that type of competition, right.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Same as you, Andy, you work with so many different types of athletes. A big one for me is if I'm telling these athletes, "Hey, go eat this way," and then I'm saying, "Hey, man, have all this food before you go and compete," I kind of want to know what that feels like because so many times I've done it where, "Hey, go eat X amount of carbohydrates before you go do this wrestling class." And it's like, there's no way I'm having two bowls of Cocoa Pops and three sandwiches before I go out there, because what's going to happen? Start rolling, start wrestling around, and bleh.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So going through that is, yeah, just a bit of self-experiment. But there was a lot of logic behind that, and-

Dr. Andy Galpin

Okay

Jordan Sullivan

... I think it worked pretty well. We'll go through it.

Dr. Andy Galpin

All right, great. And to clarify, that was not your first competition. You've been competing in jujitsu for many years. You've done a large number of endurance events, ultramarathons, and so on and so forth, which we'll cover. I want to read a second one to you, which I think is a little more interesting because I think you can hear that and go, "Well, that's great. If I'm going to do this crazy endurance events, I could probably eat like that. But I can't eat like that all the time. I don't do things like that." So maybe let me turn to something that's maybe a little bit more realistic sounding. All right? Let me read this one to you. Number one, a protein mousse cup with almond butter and berries. Number two, grilled salmon and pineapple salsa. Three, protein chocolate and almond mud cake. Four, jelly beans. Five, Parmesan chicken, and six, coconut cookies and chocolate. Do you know what I'm talking about there?

Jordan Sullivan

Yeah. That's the old fight week protocol.

Dr. Andy Galpin

This is a full-day menu. This would be 1900 calories, 60 grams of carbohydrates, 140 grams of protein, and 125 grams of fat. This is an actual meal plan that you gave one of your high-level UFC fighters during the week in which he was trying to lose probably what? 10 kilos? 8 kilos?

Jordan Sullivan

Yeah, 10% of his body weight. For him, that was about 13 pounds or so.

Dr. Andy Galpin

13 pounds or so. And so I'm pointing this out to say, I don't think people think if I have to lose 10 pounds in a week, that I would be eating a daily meal structure of protein powder, mousse cups with almond butter, grilled salmon, chicken, chocolates, and jelly beans. And yet somehow you've managed to get all of your high-level athletes on weight fueled correctly. How in the world is it possible that you can eat like that and lose that kind of weight while still performing?

Jordan Sullivan

Yeah. And I guess we'll go into it, but like you said, that was one for I think that was Kai Kara-France, wasn't it? About-

Dr. Andy Galpin

That was Kai Kara-France.

Jordan Sullivan

Yeah, I was going to say, that definitely sounds like a Kai type of meal plan. Kai's one of the most elite UFC fighters in the world, but when UFC fighters compete, and you know this, Andy, you might be walking around at 180 pounds, but when you weigh in for the UFC, you might be 150 pounds. So there's 30 pounds difference between what your natural walk-around weight is and then what your contracted fight weight is. So that meal plan is actually part of a strategy where what we're doing is we're trying to strategically move water weight from their body, and it's part of a two-part process where we'll go through what's called a fight camp, which is eight weeks of training, really intense mixed martial arts training, which involves anywhere from one to four hours a day of training. And what we're doing during that process is we're strategically losing body fat. And so we can lose up to 5% to 10% of their body weight just in that period.

Jordan Sullivan

And then what we do is we move into the second phase, which is that diet where we completely shift these macronutrients around, and the goal of that is to shift 10% of their body weight again. But instead of losing body fat, what we're doing is we're pulling fluid from different compartments in their body, and the way that we do that is by changing the macronutrients. The problem traditionally with UFC fighters is instead of eating like that, they'll just eat chicken breast, nuts-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... water, and they'll do that three times a day. And anyone that has any enjoyment with food will do that for about two meals and go, "This is terrible." And so I guess that's our job, right, is we

come in and we go, "Look, we've got these principles. We know what we're going to do. We know we can do that. How do we make this whole experience so much better for you?" Not only is it makes the food way tastier, but just mentally, being able to look forward to a meal like that instead of boiled chicken and some almonds and going, "Ugh, God." It just makes it so much better, and then that just flows onto this whole performance principle where we have that where we want to get this guy going into this cage, peak physical condition, peak mental condition, and that's just part of the process.

Dr. Andy Galpin

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Dr. Andy Galpin

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Dr. Andy Galpin

We also know that electrolytes are critical to proper hydration, which I've been harping on for years. But you can't do that, proper hydration, by only drinking water. You need to get the right

amount of electrolytes in the right ratios, and that's why I'm a huge fan of LMNT. In fact, many of you will probably remember that I featured LMNT in my YouTube series on optimizing hydration nearly five years ago. I featured LMNT in these videos because their blend of 1,000 milligrams of sodium, 200 milligrams potassium, and 60 milligrams of magnesium really is unique and different than any other electrolyte on the market, and it has great scientific support. I use LMNT constantly, particularly when I'm sweating a lot, and I routinely make it a part of my clients' optimization programs. If you'd like to try LMNT, you can go to drinkLMNT.com/perform to claim a free LMNT sample pack with the purchase of any LMNT drink mix.

Dr. Andy Galpin

Again, that's drinkLMNT.com/perform to claim a free sample pack. One of the many reasons I wanted to have you on and chat is because you can come up with and you can look at the research papers, and you can go over basic physiology, and you can understand how many calories to give somebody. There is some discussion there, but for the most part, this is not incredibly complicated. You can then set a macronutrient guideline, so how much protein, how much carbohydrates, stuff like that. You could probably pull all that from academic courses and papers. But then how do you put that together in food?

Jordan Sullivan

Mm.

Dr. Andy Galpin

How do you make that something where somebody can, as you mentioned, enjoy that, sustain that? How can that be sustained while they're not also compromising long-term minerals and vitamins? And how do we put together structures? In the case of the UFC fighter, it's a little bit niche, right?

Jordan Sullivan

Mm.

Dr. Andy Galpin

Not many people are going to cut a bunch of weight for five days. But the concepts and the learnings we can get for that, I think, extend to everybody. So whether I'm fueling right before a sport performance or exercise, whether I'm fueling my day, whether I'm in a caloric deficit, whether I'm in a caloric surplus And so I really want to ask as many questions as I can and learn from you about how do we do that part, right? How do we do the art of taking the science there and then making it into a practice that makes life so much more enjoyable? So, we're going to get into all those things if you're so willing, and a bunch of other stuff. But I think to get us started, maybe we'll wind all the way back. You use a term a lot that I love, that I want to ask you about, and that is performance nutrition. So can you just walk us through what is the difference

between nutrition as we normally think about it and how you and your team define performance nutrition?

Jordan Sullivan

Yeah. I think when we think of nutrition, like you said, it's food, right? And food is integral to our life. We are what we eat, quite literally. The body that we're in is made by the food that we eat. And like you said, you can just break that down into little numbers. You can break that down into your macronutrients. You can break that down into an eating plan, and it can be quite boring. But when we look at performance nutrition, we need to look at it a lot more holistically. It's like, yes, there's the physical food, and we need to break that physical side down a bit more in depth than just the macronutrients. We're looking at, okay, how does Andy Galpin, what are the goals in his life, and how can I best fuel him to achieve those goals? Whether Andy's a UFC fighter, whether Andy's an ultra-endurance athlete, whether Andy's a busy CEO just looking to perform his best in the boardroom, meetings, relating with his staff, whether they're the stay-at-home mom, everyone has different goals that you're trying to achieve, and your food can play an integral role in that.

Jordan Sullivan

But each person, each one of those Andys, is going to have a slightly different plan and slightly different strategy based on those goals. And that's just the physical side of it. And like you alluded to earlier, yes, food is just what we put in our mouth, and you can just dial it down to numbers, but it's so much more, right? We get so much enjoyment from food. And you'd know it, it's the festive season. One of the best parts about Christmas is sitting around with your family, right? It's that connection as well. So it's like, how can you incorporate food so it's a bit more than just a meal plan, just numbers, just plain boring chicken, rice, and veg? How can you make a plan that achieves the goal of this individual, does it so they can perform at their best, but do it in a way that they love it, and that food doesn't become this boring, monotonous thing, and it helps them holistically?

Dr. Andy Galpin

Yeah, I love it. One of the reasons why we called this show "Perform" was it's many of the same sentiments, right? It's not athletes, it's not sport, but it is you all want to perform a certain way. You gave a bunch of different examples of that. And what we can glean from your definition of performance nutrition, it is saying, great, let's just take our entire fueling strategy and gear it towards how we want to perform. And you define those terms of perform. You tell us the restrictions, the equations, and all that stuff, and now we'll just help you make that a better experience overall. I'll admit, I am quite terrible at this part. I am definitely much more of the, "Here's chicken, broccoli, and an ounce of almonds, and you can get the heck out of here." That's why I don't write meal plans for our stuff, because it's not a particularly enjoyable

experience. But, that's great. So performance nutrition in your perspective is pretty clear.

Dr. Andy Galpin

How is that different than something like periodized nutrition?

Jordan Sullivan

So I guess when we're talking about periodized nutrition, you're more talking about sporting performance, right? So let's take, for example, the UFC guy, just because we're on topic. So that UFC person might have a training schedule that requires them to train 20 to 25 hours a week. So what I would do, and I would come in as the performance nutrition, I'd go, okay, what's the goal of this, say, training block? Let's say we're in a fight camp. We need to lose weight. He's got to lose a crazy amount of weight, 10, 15% of their body weight. As part of that, I've got to work out, okay, this is his weekly calorie budget, so I need to periodize a weekly calorie budget for this person to hit this weight goal each week. And as part of that, they're going to have this training schedule, which varies, right? So Monday might be a very intense day. Tuesday, maybe not so much. Wednesday's a really intense day.

Jordan Sullivan

Thursday, eh, moderate. Friday, rest day. Saturday, very intense. So they're going to have all these different training intensities throughout the week, and then it's my job to come in and go, okay, I've only got this small amount of calories to work with. How do I best allocate these? And that's where this idea of periodizing nutrition comes in, where I go, okay, Andy just got signed to the UFC. He's making his debut. He's got this crazy training schedule. We've got 25 hours of training, but he's only got a calorie budget of anywhere between 1,800 and 2,800 calories a day. So how can I best shift those calories and those different fuel sources so that Andy's performing the best he can in those training sessions? Probably even more importantly, how is he recovering between those training sessions? You can only train as hard as you recover. And then how can we best support the adaptations that we want to get from those training sessions?

Jordan Sullivan

And that's what we mean when we talk about periodized nutrition.

Dr. Andy Galpin

So what you described is a weekly change, a daily change rather, in fueling, particularly in overall energy based upon demand, right? So, does that periodization then change from week to week? If you were to compare that to something like periodized strength training, where there's a day-to-day variation, but then there's also a, hey, this week to next week, volume's going to go up 5% or intensity or something like that. In these cases, when you've got, say, 4 to 10 weeks, whether it's a UFC fighter or any of your other many types of athletes you work with, or even non-athletes for that matter, do you see yourself generally plotting out those weeks in advance

as well? Or do you like to see how the week goes and then make the changes week to week?

Jordan Sullivan

Yeah. It's definitely a give-and-take type scenario because, and you know this just as well as me, Andy, you can have the theoretical best idea in the world.

Dr. Andy Galpin

Yeah, true.

Jordan Sullivan

And then How does that play out in practice? And food as well is one of those things where I can write it on the meal plan, I can have this great communication, but did you do it?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And I find with a lot of people, when you go into this periodized model and say, for an athlete, we go, "Okay, the goal here," say we're not in a fight camp, we're not losing weight. Let's just say we want to get you really, really strong, fast, explosive. We're really focusing on that high-intensity training. And when I look at that, I go, "Okay, that's your glycolytic system," which means you need to have a lot of carbohydrates on board. That's the predominant fuel source. We want to get all these enzymatic changes that help you get up there and stay there. So I'm looking for the volume of training that you're doing and the intensity that you're doing it at. This is the nutrition goal. And if that's the nutrition goal, I need to look at that and go, "Okay, how do I best fuel you for that?" When we're with our top-level athletes, we have some really cool systems where we can do weekly testing, where we can see, okay, you're doing these strength testings.

Jordan Sullivan

Theoretically, you should be getting stronger. If we're doing this and we're doing this training, theoretically, you should be getting fitter. You should be able to be doing more, and we can go even to the weeds of punches thrown each round with our elite-level boxers. You should be getting better if we're training these systems. They're the type of things that we're monitoring. But at the end of the day, every athlete's still a human, right? So it's like you need to have that feedback with them where we can look at the labs and we can look at the numbers and we can go, "Andy's tracking really, really well." But then you come back and go, "Jordy, I'm fried. I just can't do this." And then I look at it and I go, "Man, Andy's got six more weeks of this. What do I need to change to make sure that he can keep going?" Because the overarching goal of this is to get whatever this X adaptation is.

Jordan Sullivan

If Andy's telling me that he can't even get through the training for the next five weeks, we're not going to get that adaptation. So even though in theory this works out perfect, okay, I need to come in, me and Andy need to get together. We need to get with the strength coach. We need to get with the head performance coach. We need to figure out a new system and figure out where is it lacking. And it may not always be the nutrition, right? There's so many other things that go into performance. Could be your sleep, could be your hydration, energy levels, stress. You may have had a fight with your partner the night before or something else, some financial problem going on, and then that's leaking over into that. So we have to be aware of all of those things because that's what's going to determine how we progress, and they're all going to affect how we monitor your performance. So we need to be aware of the system holistically so that when we do track it, we have some quantifiable data to be able to go, "Yes, this is working.

Jordan Sullivan

This is not working."

Dr. Andy Galpin

I know recently at one point you had three current UFC world champions, so Alexander Volkanovski, Israel Adesanya, and Leon Edwards, right? Fortunately, unfortunately enough, I have a strong tie to Volkanovski. You and I have got to coach against each other. Hopefully, we'll get a chance maybe down the line to do it again. It's always fun. But you're managing three different people at that time, in addition to all your other elite athletes and things like that. You don't need to give us any information about them personally, but how much of a range at that highest level of performance do you see with things like compliance? Did they eat the food that they're supposed to eat? When they get to world championship, are they within 5% of the calories you tell them? I assume we're all up there. But what does that look like from an individual variation?

Jordan Sullivan

Yeah. I won't name individual names because this is an example that I always use, right? I've been very fortunate enough. At one time, they were two, three, and four pound-for-pound best fighters in the world, and that's incredible. There is one other human that is better than them at that sport, and that's incredible.

Dr. Andy Galpin

So if you took the five pound-for-pound best UFC fighters in the whole world, you were coaching three of the five.

Jordan Sullivan

Yeah, exactly. And it's incredible, yes, from like, okay, great for your career, but also from the science standpoint, right?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

To look at it, because in theory, yeah, these guys are all following the same principles. We're using the same fueling. Periodization principles are similar, but we're changing for their training schedule three very, very different humans. And as you alluded to, I always use this as a great example. One of them, very, very strict. I'd say 99% compliant, followed his meal plan, did everything right. When we're talking about periodizing, he made sure his pre-training carbs were good, his intra-training carbs were good. Whatever we did post-workout was amazing. Hydration, sleep, everything. You name it, he did it. Next person was probably about 80/20 of that. Mostly good, few snacks here and there, sleep would be a bit bad, probably stayed out a bit late than what he should've. And then one of them, really not that compliant. Really not that compliant.

Dr. Andy Galpin

That's a nice way to say it .

Jordan Sullivan

Yeah, that's probably the nicest way to put it. The thing is, though, is that when you look at that performance just on the surface, you're going, "Wow, that's three of the five pound-for-pound best fighters." Not even just UFC fighters, best fighters on the planet. And when it came to their performance, it's like, wow, they're performing at the absolute best. But when it comes to what I do with the nutrition, we've probably got one guy that's very, very good, one guy that's probably about here, and one guy that's not good. And then me as their practitioner, you obviously make allowances for that. We'd always never, ever miss weight with any of them. But what you tend to see then, and this is probably a very interesting conversation we can get into, it's everything else that happens outside of that and what makes up their performance. And a big one is, say, injury rate. How often are you getting injured?

Jordan Sullivan

And at least me sitting in this seat working with these guys, I can tell you that this guy did not get injured nearly as much as this guy.

Dr. Andy Galpin

The guy that had the high compliance.

Jordan Sullivan

The guy that was really, really good with his diet, sleep, recovery never had got injured, but never as consistently. Illness, sickness, even other things-

Dr. Andy Galpin

Missed training sessions, probably

Jordan Sullivan

... missed training sessions, even sleep quality. We've done sleep studies on them, and it's very, very clear. But at the end of the day We're still getting a very high-level performance. And I think it just shows two things. I think performance is very complicated, no matter how you want to define it, and I think it gets more complicated the more factors there are in sports. And I would classify mixed martial arts as a very multifaceted sport.

Dr. Andy Galpin

Yeah. It's complicated. It's very complicated.

Jordan Sullivan

Let's say running is, say, a single-faceted sport that has some considerations. Very multifaceted mixed martial arts. So there's obviously lots of other components that are making up this performance, but then I go, but what happens after these guys retire? And then we've got all these same habits that we built here in the most successful parts of their training years. Now they've got to live with them when they're not training. So what do we do now? And that's where I think, okay, our responsibility in this performance nutrition doesn't just extend to the periodized nutrition, to the training nutrition. You have to be teaching these guys skills for the rest of their life. Because it's very well known, especially in the wrestling world, we see when wrestlers retire, they tend to put on a lot of weight.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And the most simple, basic reason for that is they keep all of the habits from when they were an extremely active, probably extremely successful college wrestler, but then they have kids, they get a job, life gets in the way, we get busy. You might go to the gym here and there, but the activity comes down, but the eating habits stay the same, and all of the other habits stay the same as well. So you see this down slope where we go, okay, we're getting all these health problems. We're putting on weight, getting these deficiencies, because you can get away with it when you're just training really hard. But you can't get away with it later in life. So it's a very interesting example that I always use. It's, yes, even though at face value you might be performing at your absolute best, what's happening under the hood? And I think it's our responsibility as their performance team, yes, we need to get a great performance, but we need to make sure everything under the hood is still looked after.

Dr. Andy Galpin

I love the saying of, in theory, there should be no difference between theory and practice, in practice there is. Right? So what's a, just in your experience with your athletes and with your non-athletes, so your regular folks that you coach as well, what's a reasonable adherence?

Jordan Sullivan

I think 80/20 gets around a lot. Personally, as a company, what we promote is 90/10.

Dr. Andy Galpin

90/10.

Jordan Sullivan

And the reason that we say that is because that 90% shouldn't be something that's extremely rigid either. It shouldn't be something like you said, where we have this meal plan and it's like, "God, I've got breakfast. What's breakfast? Ugh, dried eggs."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"A glass of water. Okay, what do I have for my snack? A dry protein bar. Oh, God." It shouldn't be so rigid that, "Oh, man, this is horrible." And then the activity that you're doing, you're going, "Oh, God, my trainer wants me to do a HYROX session, and I hate HYROX. I just want to go for a walk," or, "I don't know, I want to do gymnastics." If it's that system, it's going to make it very hard, but if you set this up like we spoke about, to make it a holistic thing, and you work with the person in front of you, and you don't just go, "Hey, there's all the theoretical numbers," and you go, "Let's take this and mold it to this person's lifestyle, their goals, their needs, their wants, their situation, their financial situation," and you create environment where we go, "Okay, how can we stick to this 90%?" You can do that in a way where it will happen, it just has to suit their lifestyle. So instead of having boring plain chicken, okay, let's do a yogurt bowl with berries and let's add some protein powder and let's make it exciting, and, "Hey, you've got kids.

Jordan Sullivan

How can you make a meal as well and get the kids involved so it's like a family thing and we're enhancing that way? Hey, you don't want to do these crazy high-intensity workouts. Do you like swimming? Oh, let's figure out how we can get you to the pool. Do the kids swim? Let's integrate this." So if you can do all that and make this part of your lifestyle, sticking to it 90% of the time becomes much easier. And we say 10% because, in reality, we're always going to have a Christmas lunch.

Dr. Andy Galpin

Oh, yeah. For sure.

Jordan Sullivan

We're always going to have a Thanksgiving dinner. We're always going to have a birthday. There's always going to be something, and you need to be able to give yourself that allowance to not feel the guilt and shame that comes with, "Oh, my God, I cheated on my diet. I did that. I

didn't get the workout in." It's like, life happens. Life's busy. You've got things going on. 90% of the time you're killing it. It's all right. Go have a beer with your dad at the pub. Go enjoy Christmas lunch with your family. It's fine. You're killing it most of the time. Life happens. That's why we like to say 90%. 10%, leave it for those little things.

Dr. Andy Galpin

10% is actually a reasonable number.

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

That still gives you many feedings throughout the week that are not off plan. So if I'm tracking that right, 90% would be sort of the gold standard. Probably not where most people are, but that's where you guys are aiming towards. 80/20 is probably enough to get most people pretty good results. 75 is like we're not getting anything or we're still getting some. Where's the bottom end of that spectrum where you're like, "Okay, if you're here, then you need to change things"? And by changing things, we probably mean systems, your system, things like that, right? We need to change the approach. Would you say like 70, 75, is that cutoff point, or is it lower where someone would say-

Jordan Sullivan

I would probably say it's a lot lower. I think if you're doing absolutely nothing, and then if you go to do something, that's a lot better than nothing, right?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And it's probably just a scale. And I think where people get mixed up is they don't know how to integrate it into their life. But if you're not exercising, you're not eating any nourishing foods, and say nourishing is going to be different for, say, an athlete and an everyday person. But let's just say you're just eating whatever you can. There's no thought, there's no logic behind it. You've got other priorities. If you're not doing any of that and then you just go, "Okay, I need to increase my protein, increase my hydration, and I'm going to aim for 10,000 steps a day," there's going to be big gains to be had from that. And it's like that old saying in jujitsu, if going from the couch ... onto the mats is far harder-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... than going from white belt to blue belt.

Dr. Andy Galpin

Right.

Jordan Sullivan

And if you're at the bottom and you're at absolute ground zero with your health and fitness, going from that to even a white belt in that area is very difficult, but you'll get really good gains from it. And then it's just a scale up. So I was going to say a number. It's tough, I think, yeah.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

90/10, very idealistic, but something's better than nothing.

Dr. Andy Galpin

Is there any other core principles that you always like to follow, regardless of the person, regardless of the goal, or do you think we've covered most of those already?

Jordan Sullivan

I think we could probably give numbers, and I think I'll explain why we give those numbers-

Dr. Andy Galpin

Sure

Jordan Sullivan

... for these principles. Right? And I think the way I look at it, if someone comes in, and again, when we've got elite performers, athletes, it's a bit different because, again, we're using this periodized approach like I used with that example. Performance isn't always the healthiest thing.

Dr. Andy Galpin

Mm.

Jordan Sullivan

But when we're talking about just the everyday Joe, like you and me, Andy, there's a few things I like to tick off, and I think they're probably universal goals and principles, right, where most people want to be able to live into their old age and be healthy, be strong, be able to play with their grandkids, and be sound of mind enough to be able to hold conversation. And then overall, have a pretty good sense of health. Right? Like overall, their ticket's going to be pretty good. And then when I look at that, I go, okay, if that's the goal, I could probably break these down into some pretty low-hanging fruit that you probably should pick off. And if you do that chronically

over time, it'll set you up for that pretty well. So I'd say, let's think about it. If you want to grow old, you want to, say, be strong, be able to carry the groceries in, play around with your grandkids, your muscle's going to be really important.

Jordan Sullivan

And so what's the main thing we need to think about from a nutrition standpoint with your muscle? Is protein.

Dr. Andy Galpin

Right.

Jordan Sullivan

So I think that's the first and foremost, the easiest thing that we can just say, okay, if I want to write myself a diet and just get started here, let's get a good amount of protein. Now, Dr. Stu Phillips, not sure if you're familiar with him.

Dr. Andy Galpin

Oh, yeah. I know Stu very well.

Jordan Sullivan

Yeah. Stu. I love Stu's philosophy.

Dr. Andy Galpin

Many years of knowing Stu.

Jordan Sullivan

I love the philosophy Stu has against, not against the RDA, but the-

Dr. Andy Galpin

Yep

Jordan Sullivan

... that 0.8 grams per kilogram or 0.3 grams per pound-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... probably not enough.

Dr. Andy Galpin

No.

Jordan Sullivan

And I would say, as a base, 1.5 grams or about 0.7 grams per pound of protein, great place to

start.

Dr. Andy Galpin

That's still pretty low.

Jordan Sullivan

Still pretty low. Great place to start.

Dr. Andy Galpin

Easily achievable. I know some folks, when you hear protein recommendations, a lot of comments I get back are like, "Well, that's so hard to get to that number." But the numbers you gave would be not that challenging to get to.

Jordan Sullivan

Very, very easy to get to. Couple feedings, if not two feedings a day, you could do that.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

I think the next one that a lot of people ties up them up is just your overall calorie intake, and I guess we can get into the weeds about this a bit more. But when we talk about calories in, calories out, and energy balance, I like to think of it, the energy availability, which essentially just means how many calories does your body have after it accounts for all the activity that you're doing in your day, your metabolism, everything else. How many calories do you have available to fuel your body? And it would make sense that you have enough to make sure all your bodily systems are working, your immune system, your lungs, your heart, everything else, your muscles, bones. You have enough calories to support those body systems. And that may sound really simple, but it's quite hard in reality, right? And people will go, "Okay, well, how do I know what's right for me? And am I doing too much?"

Jordan Sullivan

And we know if you do too much over time, that can cause weight gain, and then there's metabolic effects that are associated with that. So how do I get that right? So understanding that and going, okay, Andy, these are probably a good range for your calories to be aiming for. You know what? Here we go. Let's add this protein in. The next thing I would say is, okay, well, let's get some fat in there. We know fat's extremely important for the body. Very important for your hormonal health. How much fat do we need? I would say lower end that I would take for my fighters, 0.5 grams per kilo. That's exceptionally low, though.

Dr. Andy Galpin

Yeah. That's a very-

Jordan Sullivan
Exceptionally low

Dr. Andy Galpin
... standard starting point. Yeah.

Jordan Sullivan
So I would say even for the average person, you're looking up to 1.5 grams per kilogram. Even then, we've got a lot more wiggle room. And I go, okay, well, let's set that, and then that's your fat that you can put in this theoretical diet that you're looking at.

Dr. Andy Galpin
Somewhere between .5 and 1.5.

Jordan Sullivan
At the lower end.

Dr. Andy Galpin
Yeah.

Jordan Sullivan
And even come up one to 1.5. Let's stay around there. And then we go, okay, carbs. And then everyone goes, "Oh my God, carbs." The demon word, carbs. And I go, look, because the first thing that everyone says, they go, "Oh, carbs aren't essential. If I'm not an athlete, I don't need to be using them." I go, "You know what? You're right. But we also don't need to be driving Teslas down the 101, but like they're there, and we use them. It makes life a lot easier." The thing that I first and foremost I talk about with people when it comes to carbs, I go the F word, fiber. I go, carbs are such a great source of fiber, and we know. It's probably one of the only things we know in nutrition, that if you have a certain amount of fiber for a certain period of time, for a long period of time, it's hugely beneficial to your health. So no matter what your views are on these carbs, if you're just setting up your bare bones diet, use the amount of carbs to get at least 25 to 30 grams of fiber a day.

Dr. Andy Galpin
Yeah.

Jordan Sullivan
And then we go, okay, well, then we've got this really cool structure. And that's not even talking about, okay, let's get any micronutrients. You've just got your bare bones structure here. So from there, we can go, okay, I've set my calories. I've got an upper and lower limit for protein, fat. Depending on what your lifestyle is, you might go, "Okay, I need more carbs for this activity. I don't particularly like carbs." Whatever, but make sure you're getting this amount of fiber. And

when you do this activity with people, you'll usually go, "Okay, Andy, we've broken down these numbers." All of that, if you do the upper limits of all of these macronutrients, you eat enough carbs to get 30 grams. Let's say we're trying to hit 2,000 calories, but then we work it out and we go, "Andy, actually, with the activity and everything you're doing, you need 2,400." And you go, "You've got an extra 400 calories to play with."

Jordan Sullivan

And then you'll go, "Jordy, what's the best way for me? What do I do here?" And I go, "Well, what do you like?" And I go, "This is where we can start setting up this 90/10 principle." Because if you go to me, "Jordy, man, I just don't really like eating a lot of fat." And I go, "It doesn't matter, Andy. It doesn't matter, pal. Here's the plan. Get more fat in."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Probably that 90%'s going to start to slip. But if you say, "Hey, Jordy, you know what? I'm hitting all these numbers, but man, I just love having more protein in my diet." I go, "Man, we got 400 calories to spare. You know what? Let's bump this protein up. Let's get this in."

Dr. Andy Galpin

There's a lot of protein you can go for.

Jordan Sullivan

Yeah, and you can just bump it up, and that's how we can make this more relevant to you. But I think using a structure like that, just to get your bare bones framework, is really useful. And it's really, really useful because it doesn't use a lot of diet ideology either. So you can have this conversation with people who love keto, who love carnivore, who love animal-based, and you can make it work for them. And I think that's where you get this adherence and compliance from where, "Hey, you know what? I don't really care what you love. And it's okay. You can love keto. You can do whatever." Like you said, as long as we're testing this over time, making sure your biomarkers are good, you're performing in whatever it is you need to perform in, eat whatever way you want, but let's tick these main things off, and then let's look to optimize once you've absolutely nailed this.

Dr. Andy Galpin

So starting with protein for the most part, having a sense then of total caloric intake, playing with different combinations of fats and carbohydrates to balance the final number. Within that, though, probably in the neighborhood of 10 to 14 grams of fiber per 1,000 calories, which is going to net you at 25 to 30, 35 for most sort of people. So if you get those, that sort of predetermines the kind of carbohydrates you're getting for the most part, right? You're not going

to get 30 grams of protein a day in jelly beans. Or 30 grams of fiber in jelly beans. That's going to be pretty tough. So by default there, you're setting almost a little bit of backdrop for quality of food. So at this point, is this is when food choices come in and food quality, or how do you think about that?

Jordan Sullivan

Yeah, exactly. And it's a funny area, right? Because I feel like especially nutritionist dieticians, my position is that whole foods are important. I really do think whole foods are important because I've-

Dr. Andy Galpin

What a stunner.

Jordan Sullivan

And because I've been fortunate enough to work with these elite level athletes, like I said, Andy, where I've seen, okay, this guy eats mostly whole foods, this guy doesn't, and I've worked with them for six, seven years, and we're testing everything and we're seeing and we're going, "Man, this does make a difference." And the reason that we set that up and we say, "Hey, carbohydrates, let's get 25, 30 grams." Like you said, very hard to get 30 grams of fiber from jelly beans.

Dr. Andy Galpin

Yeah, it's tough.

Jordan Sullivan

Very, very tough. So it sets up this backdrop of, okay, we probably need to include these whole foods. And I'm not saying you need to eat them all the time. A big philosophy that I practice by, and I'll steal these words from Dr. Graham Close from Liverpool John Moores-

Dr. Andy Galpin

Sure

Jordan Sullivan

... is that whole foods first, but not just food alone.

Dr. Andy Galpin

Yeah. Wonderful.

Jordan Sullivan

And what that means is that, yeah, we want to choose whole foods, but at some point, the food's not going to be the best option to fit these goals. And I think a great example of this is creatine monohydrate. Whole foods first, for sure, but if you're loading creatine monohydrate, do you really want to be eating three to five kilos of steak a day?

Dr. Andy Galpin

Tough.

Jordan Sullivan

Probably not realistic, right? Maybe some people.

Dr. Andy Galpin

I would love it.

Jordan Sullivan

Maybe some people. Yeah, maybe for some. But that's an example where we go, yeah, whole foods first, but not foods alone.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So let's just take that back and let's just have a couple scoops of creatine here. I think whey protein is a great example of that as well, where we go, "Oh, man, we want to get 30 grams of protein here." That's a chicken breast, a small chicken breast. And we go, "Or if I don't want that, if I'm eating seven to eight of them a day, I don't want to get to this much protein. Let's just have a scoop of whey protein here." It just makes it so much easier, especially when it comes to these elite level athletes or just people who train, not even elite level athletes. We work with what I call professional amateurs-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... which, and everyone knows them, everyone has them at the office. You know the guy way too into triathlon. He comes in, it's the men, what do we call them? The mammals, the middle-aged men in Lycra.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Don't get me wrong, big fan, and I'm an endurance guy, so I get it. But they are training basically like a professional athlete.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Going to be very, very difficult for them to eat 4,500 calories, complete whole foods, and achieve the training nutrition goals that we've set out for them. So I really do, I believe that whole foods should make up the bulk of your diet, but there is a time and place for these more processed foods.

Dr. Andy Galpin

Today's episode is brought to you by Parker University. If you haven't heard yet, I moved my research lab, teaching, and all academic activities to Parker in mid-2024 and could not be more excited about it. Parker is one of the fastest-growing universities in the country because the facilities, technology, and student experience are truly unrivaled. I've honestly never seen anything like what they've built at Parker University. On top of that, we're currently building a 64,000 square foot Human Performance Center that will push the boundaries of sports science and human potential. Parker and the Human Performance Center are physically located in Dallas, Texas, and feature elite academic programs in 35 healthcare fields, such as human performance, strength and conditioning, nutrition, chiropractic, and much more. But we also have incredible undergraduate and graduate tracks that are fully remote, meaning you can get a master's degree from me in strength and performance from anywhere in the world.

Dr. Andy Galpin

The Human Performance Center will open later this year and feature groundbreaking research and scientific capabilities, immersive student experiences, a visitor center dedicated to human adaptability and resilience, and a suite of services that are open to the public. So all of you who've emailed me over the years asking to come to my lab to get some testing done, now you can all do that. To learn more about our academic programs at Parker, set up an in-person visit, or attend one of our incredible seminars, visit parker.edu. One more time. That's parker.edu. Today's episode is also sponsored by Eight Sleep. Eight Sleep makes smart mattress covers with cooling, heating, sleep tracking, and more. I've personally been sleeping on an Eight Sleep mattress cover for years now, and it's absolutely glorious. I love it so much that I hate traveling away from home because it means I can't sleep on my Eight Sleep Pod 4 Ultra.

Dr. Andy Galpin

As you'll hear me talk about endlessly on this podcast, there really is nothing you can do that makes more of an impact on your health and performance than getting tremendous sleep. And getting great sleep requires having your body temperature drop a couple of degrees at night, and that's hard to do on your own. The Eight Sleep has been a game changer for me because I run hot at night, or as my wife calls it, I'm a furnace. If I don't have something like an Eight Sleep helping me cool down, I'll wake up in the middle of the night overheating and not feeling great. This is something I've also found in many of the people that I coach, especially those who are

really physically active. The Eight Sleep Pod 4 Ultra has two times more cooling power, yet is virtually silent, and it has high-fidelity sleep tracking and even has snoring detection that'll automatically lift your head a few degrees to improve airflow and stop your snoring.

Dr. Andy Galpin

If you'd like to try Eight Sleep, go to eightsleep.com/perform to save \$350 off your Pod 4 Ultra. Eight Sleep currently ships to the US, Canada, the UK, select countries in the EU, and even Australia. Again, that's eightsleep.com/perform. Okay. Somebody shows up to your door, whether they're the, I forget the acronym you just used, but the guy who likes triathlons way too much. I love that. No offense, Rob.

Dr. Andy Galpin

The other person, the professional athlete, fine, doesn't matter. What should I be testing, what should I be paying attention to before I start my fueling program, my new performance nutrition strategy? What do I got to have first?

Jordan Sullivan

So if you're walking in, if we've got the-

Dr. Andy Galpin

Yep

Jordan Sullivan

... overexcited triathlete-

Dr. Andy Galpin

Sure

Jordan Sullivan

... comes through the door, Rob's come through the door.

Dr. Andy Galpin

Yeah. No offense.

Jordan Sullivan

So first thing we need to do is let's start with just the calories, right? And Andy, you've probably got access to some amazing metabolic equipment, right? But people like you and me who have access to that is very much the minority. We can't just take the everyday person and say, "Hey, go get a resting metabolic rate test, and we'll figure out exactly how many calories."

Dr. Andy Galpin

Is that what you like to do for your folks?

Jordan Sullivan

If we've got elite level athletes who have access to that and it's not a financial burden to them, which adds to the stress of the whole situation-

Dr. Andy Galpin

Yep

Jordan Sullivan

... for sure, I'd love to be able to do that. The reality is-

Dr. Andy Galpin

How available are those in Australia usually?

Jordan Sullivan

This is the thing, not very. I would say-

Dr. Andy Galpin

Oh, okay

Jordan Sullivan

... unless they're a UFC athlete who has access to the Performance Institute, we're probably not going to be able to get them. Some of our New Zealand-based athletes, New Zealand High Performance-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... if you're close to the Australian Institute of Sport, maybe. But outside of that, very, very difficult to get them done.

Dr. Andy Galpin

Okay, because it's pretty easy to get it done here in the States.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

You're generally probably \$100, 200 bucks, so that test would be pretty easy to get done. So ideally you'd like to see something like that if you can.

Jordan Sullivan

Yeah. And if you can go down the road to the physio or the doctor's surgery-

Dr. Andy Galpin

Yep

Jordan Sullivan

... and you can get that done, for sure, because it's going to give you a pretty good number. Other than that, you've got to use what we call the standardized equations, which-

Dr. Andy Galpin

Yep

Jordan Sullivan

... range. There's so many of them, Andy. The Harris-Benedict-

Dr. Andy Galpin

Mm-hmm

Jordan Sullivan

... so many types of them. Basically what they're doing is taking all this population data and going, "Hey, based on your age, weight, height, and a couple other factors, this is how many calories we think you should be having per day."

Dr. Andy Galpin

Yep. And we'll put direct links to all that, of course, everyone on the show knows, but these are free calculations, right?

Jordan Sullivan

Free calculations.

Dr. Andy Galpin

You can Google them, you can go on there and enter a pretty minimal amount of information, typically height, weight, demographic stuff, and it'll tell you then how many calories you're burning throughout the day, roughly.

Jordan Sullivan

Exactly. And you can just go to Google and-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... put "calorie calculator." To be honest, Andy, and I'll explain why we do this, is that you could use all of these, and when I'm with a very specific audience, say the fighters, the Cunningham equation is something that I think-

Dr. Andy Galpin

Yep

Jordan Sullivan

... is very, very accurate. But for the everyday person, I don't think that's necessary. If we dial that back to that energy availability, okay, I want to make sure that I'm getting enough calories to support my body, but not too little that we're kind of burning everything down, but not too much that we're putting surplus and putting our stores away and putting on body fat.

Dr. Andy Galpin

Is that 5%? Is that 12%? Is that 15? What's a rough number there?

Jordan Sullivan

For body?

Dr. Andy Galpin

Either way. Surplus or deficit. How much are we looking to get them at?

Jordan Sullivan

If we wind back and let's just say I'll establish this and I'll just give an equation where I go take your body weight in kilograms, and sorry for everyone in pounds-

Dr. Andy Galpin

No, kilograms. Yeah

Jordan Sullivan

... divide it by 2.2, and then if we just take it in kilograms, if you can times that just by 40, the number 40, you get a pretty good estimate and go, "That's my daily calories."

Dr. Andy Galpin

So if I weigh 70 kilograms-

Jordan Sullivan

Times it by 40, and there we go. And then we've got our calories. And then you go, "Oh, is that that accurate?" And you go, the thing is, unless we're in a controlled metabolic environment, we're never going to know if it's that accurate.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

The way that you figure out if it's accurate is based on what happens after you put it to use.

Dr. Andy Galpin

A little bit of a flag here. We can test resting metabolic rate in our lab. We have a bunch of other technologies we can use and other ways to do it, and we still do exactly what you're going to talk about. It doesn't matter. You can take that data that I'll share with you. You can take your body weight in kilograms, multiply by 40, and I'm telling you right now, you're going to be in about the same starting spot we're in.

Jordan Sullivan

And that-

Dr. Andy Galpin

Because it's the next part that matters. Yeah.

Jordan Sullivan

And that's exactly what we've seen. I've had so many athletes-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... go get tested at performance centers and comes back and we go, "Did I really need to just send them off to do that when I could've just done this calc?" And then spent two weeks trialing this out and narrowing in. Is it completely-

Dr. Andy Galpin

Look, I'll be honest, the only time we do that is if we have really high pressure, like the first time we've ever worked with an athlete and we have short notice, or they've had troubles in the past or something like that where it's like they're really nervous about it, they're scared. There has to be some really additional circumstances going on for us to do that for that exact same reason. I know where you're going to be at anyways, and none of that matters until this part, so we don't do it very often, even though it's pretty accessible, because of the next part.

Jordan Sullivan

So that's a great starting point. When we go back to your goals, so say if you did want to go into a deficit, "Oh, hey, Andy comes to me, I want to lose a bit of body weight before we go into the Christmas period." Okay, we need to set a deficit. The rule we use is about 10% to 15% from that number that you get.

Dr. Andy Galpin

2,800 calories is what we calculated a second ago. 70 kilos by 70 multiplied by 40, 2,800, and you want 10% to 15% lower than that number.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

So you're going to cut off 300 calories.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

320 calories, something like that. Maybe a touch more.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Maybe up to 400 or 500 calories, right?

Jordan Sullivan

And-

Dr. Andy Galpin

Something in that ballpark.

Jordan Sullivan

Yeah, and then the next natural question that people go is, "Hey, I'm exercising a lot. I do this. How do we account for that?" And it is important you do account for it, don't get me wrong. The more you exercise, the more you burn. You do need to think about that.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

I think for most everyday people, if it's just the everyday person coming into the office and we're doing this with, it matters a lot less than, say, if we're with an elite level athlete who's training 25-plus hours a week.

Dr. Andy Galpin

Right.

Jordan Sullivan

And I think a lot of the time, a lot of the struggles I see in my practice with just everyday people when it comes to weight loss is they can't wrap their head around this, "Oh, my Apple Watch or this says this, and my Garmin says I'm burning this much, and I'm eating this many calories, and

I'm just not losing weight."

Dr. Andy Galpin

So this is the, "I looked at my watch, it told me I burned 700 calories, but somehow I'm not losing weight."

Jordan Sullivan

Exactly. And the reason I don't love that approach is because I see the mental stress that that causes and how disheartened they get with the whole process. I had a gentleman come in and he said, "Man, I've been doing this. I've got this charity boxing event. I really want to be in good shape for it." He's super motivated. All his friends are behind him. He goes, "Man, I'm like, I can't figure out how to lose weight. I'm only eating 2,800 calories." And this is a big gentleman, fairly inactive. I said, "What are you doing?" He goes, "Oh, I'm in the garden. I'm doing gardening, and then I'm on the pushbike for 30 minutes. My smart device is telling me I need 2,800 calories in a deficit." And I was just kind of had to break it to him and go, "Oh, man, I have professional athletes who want to lose more weight than you, and we don't even go... I wouldn't go into a 2,800 calorie. They've got to go way less than that to lose weight."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"And they're doing five times as much activity as what you're doing." So you need to take that with a grain of salt. And this comes back to this point, like we're saying, you can test all of this, and there's equations where you can go, "Okay, we've got this baseline number. I punched in my body weight times 40. I need to account for the activity that I'm doing. Let's times it by 1.4 or 1.6, whatever." The best way and the safest way to figure out if you're in that deficit, put it to practice, control as many things as you can control in the calories outside, which I'm sure we'll talk about, as well as the calories in the food, and we'll also talk about why it's important to understand truly what you're putting in. And then if you do that consistently and you lose the weight, you're in the deficit.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And then we can monitor from there. And that's by far the most time-efficient and accurate way to do it. And it may not be the sexiest answer because people will go, "Oh, surely Andy Galpin, Jordy Sullivan, give me the test I can do. Give me the equation that gets it bang on every time." And it's like, that's not possible. This is the best way.

Dr. Andy Galpin

If someone was doing this and they were saying, "All right. I calculated my stuff. It's 2,800 calories. I want to be on a 500-calorie deficit. That puts me somewhere in that 10 to 15 range. So that brings me down there."

Dr. Andy Galpin

How do I know if that's working? What am I specifically looking at? Let's say I'm four or five weeks in. Jordy, what should I be paying attention to that'll let me know I'm in too much of a deficit or I'm not in enough deficit?

Jordan Sullivan

Yeah. So if you just look at overall average weekly weight loss, which is what you should be doing.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

So we say when you weigh, make sure you weigh at the same time in the morning, you weigh after you use the bathroom, and in the same or lack thereof clothes that you use every week. So if you can be consistent with your weigh-in-

Dr. Andy Galpin

Get good data.

Jordan Sullivan

Yeah. Very good, right? Get very good consistent data as well, because you want to make sure Tuesday morning is my day that I weigh in. Because what you do on Thursday night will skew what Friday morning is.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And if you want to do daily weights, I'm not the biggest fan because we have these daily fluctuations.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

Sodium, training, hydration status-

Dr. Andy Galpin
Fiber

Jordan Sullivan

... food, fiber. Exactly. And again, it'll play in that mental side and can be very disheartening. Take the weight same day. We like a Tuesday morning, especially if you're training.

Dr. Andy Galpin

Do you like once-a-week weigh-ins?

Jordan Sullivan

Once-a-week weigh-ins, I like it, and then we can take a monthly average and go, okay, if you're four weeks in, how much did you lose? And let's say, Andy, you're on the 500-calorie deficit.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

From your starting weight, I can then work out a percentage from that weight. How much did you lose per week?

Dr. Andy Galpin

I like 500, just as an example here, because if you were in a true 500-calorie daily deficit, you should be on almost exactly a pound a week.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Right? That's what that number should be. Again, it's just a starting place and idea. So what you're saying is you would look at that four-week graph and say, "Okay, we should be down about four pounds total."

Jordan Sullivan

Exactly.

Dr. Andy Galpin

It might be 1.5 one week, then 0.5 the next week. It'll jump even from week to week, but on aggregate, you should be looking at about a pound. It's about a pound per week. I know it changes based on size, but is that a half a kilo per week?

Jordan Sullivan

It's a very safe number. I think if you want to go one step forward and really make it for yourself, I go, what is that as a percentage of your total body weight? Because we know that, say, if you're

losing more than 2% of your body weight per week, very doable. Andy, you and I have done that-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... with many athletes, but it's not sustainable. And we know that because you see this all the time when people go crash dieting and they lose weight too fast. It's easy to get off, but it's not easy to keep off.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And what we like to recommend to our guys is if you can lose 0.5, so half a percent to 1% of your body weight per week- Based on our experience and what we know based on this energy availability model where you're not putting so much stress on your system, you should be able to do that in a way where over this extended period of time, whatever fat comes off your body, you should be able to keep it off.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Because all of the problems that come is when you try to do this too fast. And you and I know this very well working with these fighters when we get, like you said, these short-notice fights, and you can do it.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Someone comes into you, Andy, and says, "Hey, Andy, I've got to lose 25 pounds in four weeks." You'll get that weight off him.

Dr. Andy Galpin

Oh, yeah. That would be very reasonable.

Jordan Sullivan

And then they'll probably put on 30 pounds afterwards.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

But the lesson from that is that that same system does apply to the everyday person. If you try to get this weight off too fast, which a lot of people do, what most likely happens is that you end up putting on more weight.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And then it starts this cycle, and the reason for it is you're losing too much weight too fast. So this 0.5% to 1% per week seems to be a very effective number that you can aim for that will help you keep that weight off.

Dr. Andy Galpin

Awesome. If you're going more than that, you also start bringing up injury risk, things like that. If somebody doesn't care, say, they just have to hit a weight, they're six weeks away, and they just want to hit a certain number on a scale because they got a photo shoot they're going to do or a family vacation. They're not even an athlete, but they just want to get some weight off in the next four to six weeks. Are you that concerned with them going over 2%? There'll be the rebound effect on the back end. We've got to be real about that, but I guess what's the higher number you think would be like, all right, we're not worried about performance, and this is not long-term sustained weight loss, but what's the number you would think is pretty high but still manageable? Is it still that 2%?

Jordan Sullivan

Yeah, about 2%. I feel like you've been reading my inbox, Andy, because I had about three brides message me saying this exact thing for the wedding.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Yeah. Over that 2%, I don't like, but you can do it.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

You can go up to three to four. But then-

Dr. Andy Galpin

Look, you did what, 10 kilos with Volkan in three days or something like that?

Jordan Sullivan

Yeah, something outrageous.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Yeah, I think something close to that. It was outrageous. But the thing is what people need to understand, like what I said at the very, very start, you look at these UFC fighters, and you probably get all these messages as well when-

Dr. Andy Galpin

Yeah. For sure

Jordan Sullivan

... we do these weight cuts, say with Volkan, we lost it was something like 26 pounds in 10 days.

Dr. Andy Galpin

There we go. Yeah.

Jordan Sullivan

The majority of that is water weight, though.

Dr. Andy Galpin

Sure.

Jordan Sullivan

It's not like you're losing the body fat because you just simply don't have the time to be able to do it. That's a long, drawn-out process, and when we say if you worked out that number, oh, you'd work at that's five, 6% per week that Volkan lost.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

You go, no, 90% of that, we dehydrated him, and that was done in a very controlled environment, and it's quite dangerous.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And I probably wouldn't put you, Susie, who's about to walk down the aisle

Dr. Andy Galpin

Yeah

Jordan Sullivan

... to your forever partner, I probably wouldn't put you through that same process. So I'd say upper limit probably about two to three. But yeah, like I said, I prefer to go the sustainability route.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

We do work with a lot of guys, like even actors who have to get ready for roles and-

Dr. Andy Galpin

Oh, yeah

Jordan Sullivan

... whatnot, and then that dehydration you can do. You just need to know how to do it safely and what limits exist for your body because-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... it's very likely that an actor isn't in the same shape and has the same experience as a UFC fighter. So you're probably not going to be able to hit the Volkanovski 26-pound method as well.

Dr. Andy Galpin

Yeah, totally. Okay, so going back to our assessment piece, resting metabolic rate calculated one way or the other. The next part of assessment you talked about was really proof in the pudding. Like what is actually working and some of the stuff that we pay attention to, I'm sure you do the same, is not only the body weight, but then how's your performance, right? Are you at an acceptable loss of performance, right? So when you go on a caloric deficit, you're hoping to still maintain or improve physical performance. You can define performance however you want in whatever realm you're in. But there has to be some range of saying, "Yeah, we're losing the weight, but we're not getting the training adaptations or the volume or whatever metric you're putting on there." And then the injury rate, right? Outside of that, I'm pretty okay with it, right? So as long as you're not getting hurt and our performance isn't getting killed and we are losing weight, then we're okay.

Dr. Andy Galpin

Anything else that you guys really pay attention to?

Jordan Sullivan

The only other thing, and again, I'm banging on the mental side of this a lot just because I know it's important to people, how horrible are you to be around?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Because that's important, right? Because you might be getting good strength gains in the gym.

Dr. Andy Galpin

I like how you phrase that. How horrible are you to be around?

Jordan Sullivan

Because it's a real thing. You might be getting good gains in the gym.

Dr. Andy Galpin

Of course.

Jordan Sullivan

You're getting more shredded. You're whatever else, like you're still sleeping well, your energy levels are good, but if your mood is up and down and crazy, maybe there's some things within the diet we can rearrange to help that. That in itself is not sustainable. And then I think, well, if your goal is to be a terrible human that no one wants to be around, then yeah, for sure, keep on that path.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

But we've probably got to fix that as well. So that's the only other thing that we do monitor because it does happen a lot where people are like, "Man, this is just really tough, and I just can't handle these mood swings."

Dr. Andy Galpin

Outside of that, I'm sure there are a host of questionnaires that you ask and preference and medical history, and there's all that that goes into the equation, what they like, do they have any allergies, so on and so forth. But is there any other additional assessment stuff that you would really like to do, or are we ready to go on to the next part of interpretation?

Jordan Sullivan

I think the only other thing, and this is definitely in your wheelhouse, Andy, is just even a basic blood work panel.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

I really do like getting that only because if people come to us and they go, "Hey, I do want to lose weight," I'll for sure take you through a weight loss protocol. But I want to make sure that you're healthy before we do that.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Because we know if we put you and we get the numbers wrong, which touch wood we don't, but if we put you in too big of a deficit, we can throw out some of these biomarkers, and at the end of the day, you're probably losing that weight because you want to be healthy. So let's do it in a way that's healthy, and we need to have a way to track that. So we aren't too intense with it, but something as simple as a complete blood count.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And just making sure, say, if we've got a young athlete that's coming in, "Hey, is your iron levels all good?" If we've got someone who doesn't get outside a lot, "Is your vitamin D levels good?" Because we want to make sure we've got all those ducks lined up, so it gives you the best chance when you go on this weight loss regime, are you going to have all the chips lined up for you to do well?

Dr. Andy Galpin

Dan will always say that people oftentimes want to lose weight to get healthy. But some folks have to get healthy first to lose weight, right? If you are in a really tough spot for a number of different areas physiologically, and then you go into a deficit on top of that, you can expect to crash and burn real fast. It's not going to play out well. So that's great to hear. And with the blood work, you're probably looking for just kind of major red flags, right? Just are you way off on any metabolic profile? Any endocrinology's way off the boards? You're just looking for kind of screeners.

Jordan Sullivan

Yeah, exactly. And again, it's not really my wheelhouse.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

And if something is really there, we just refer on to an endo or-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... someone like yourself. But just the big ones, complete blood count, where we're just looking at basic things like your blood lipids. Are we looking at your fasting glucose? For guys, are we looking at your testosterone? Are we checking your B vitamins, your vitamin D status, your thyroid status? Mostly because they're things if we do retest, and you've got access to that in, say, eight weeks-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... and we go, "Hey, the weight came off, but hey, look, your blood panel is all over the place. Yeah, you lost-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... the weight, but we're not healthy. That wasn't the goal."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"So we need to figure this out. How can we do this so you are healthy?"

Dr. Andy Galpin

When you get those data back to you, how are you using that to specifically construct these individualized plans?

Jordan Sullivan

Yeah. So again, comes back to the goal. So like let's say, Andy, you want to lose weight, and we go, "Okay, Andy's come in. We've run the numbers. You've gone to a testing center. You got your RMR." Next thing we need to go, "Hey, Andy, how do we make this work for you?"

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And we'll run through this process again. Okay, Andy needs to lose X amount of weight. We've got 2,300 calories. Okay, Andy's goal is that he doesn't want to-

Dr. Andy Galpin

We're right back to your talk about earlier.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Start with protein, you know.

Jordan Sullivan

He doesn't want to lose a lot of muscle mass. He wants to lose the body fat. So to me, I go, "Okay, then we should probably push that protein a lot higher. He's resistance training, 2.5 grams probably is a minimum, I would say, for Andy."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"Okay, let's look at the fat. Hey, Andy, what's your preference with food? Do you like fat?" He'll be like, "Oh yeah, it's all right. I'm not too big on it." "Okay, let's make sure you're getting some natural healthy fats here. We're sitting at about one gram." And then you go, "Okay, Andy, let's see how your intake is. What's your relationship with carbs? Do you like taking in carbs?" And that's how we're setting this up. What I generally get guys to do though, because this is a big part of it as well, is I say, "Hey, Andy, just before we get this started, track two days of food for me."

Dr. Andy Galpin

Hmm.

Jordan Sullivan

"Just track two days of food. One, I want to have an idea of your style of eating. Do you have a preference for when you eat and whatever, and does that align with your goals? I've got no issues with fasting, eating windows, or whatever. You can do whatever works for you, but does that align with your goals? That's what we need to make sure."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"And then when we're working out these numbers, are the foods that you're putting in or the foods you have access to, are they going to align with this? Or do we need to make some shifts? Or is there some education, basic education on the food that you're eating that you need to know to be able to do this?" And that's a big one that we probably don't spend enough time on. And I think just in general, people will go into the weeds of do this fasting protocol, do this specific type of fat, whatever, but just basic education on what is in the food that you're eating. I'd say 8 times out of 10 when we get people to track and we go through this with them, they go, "Oh man, I didn't realize I was having this much fat."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"I didn't realize I was having this much sugar. I didn't realize I was doing this." And they go, "Oh, what type of foods are you having?" You go, "Oh man, did you realize that tiramisu, even though it's a protein, tiramisu has all of these calories?" And they go, "Oh my God, no."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So just starting with that baseline education, really, really important. And I'm definitely not a strict... I was a weight category athlete for many, many years, so I understand when you're strictly tracking your food and you're watching every gram. I understand what that can do to your mind, and I've worked with so many athletes who have problems with that. But in saying that, it is a very important tool to have. Very, very important tool that at your baseline you know what is in the food that you're eating.

Dr. Andy Galpin

Have you noticed frequency of feeding? Personally, I like high frequency. You don't have to have that general population for weight loss, for muscle, like there's data in there. But for your high-performance folks, whether these are your athletes or your just people who are competing and training a lot, have you noticed any tendencies with frequency, or would you say the same is true in general population? Like, hey, these people can eat one meal a day or two meals a day and just be fine. What have you noticed just in your coaching practice?

Jordan Sullivan

I've definitely noticed with the athletes, very, very difficult to achieve the training nutrition goals, which I'm sure we'll get into-

Dr. Andy Galpin
Definitely

Jordan Sullivan

... if we're just doing one meal a day or if we're eating, doing the 16-hour fast every single day. If you're fasting, find it very, very difficult to achieve just these pre, intra, and post-training. Especially most athletes, morning session, afternoon session, if not a midday session in there.

Dr. Andy Galpin
Yep.

Jordan Sullivan

So if you're fasting for two of those sessions, you're probably not putting the fuel in it. And at the end of the day, people will say, "Yeah, but you're getting in at night." And you go, "Yeah, for the most part, you're getting it, but that's maybe like 70% of it. But then let's look at you're an elite athlete. We want to get these adaptations. We want to get every percent that we can get, and we need you to be able to fuel so that you can do the volume of training at the intensity that we need you to do. And if you're going into this session fasted, maybe you can get through the morning session. Maybe that big meal at night gets you through the morning session. But when you get to that midday session, you're going in depleted, and you're not getting the adaptation that we want. And then it's very hard to refuel you in the two, three hours that we have before that evening session." So the frequency for our athletes, way more often, and it's a lot more.

Jordan Sullivan

And when we go through it, you'll see it. It's before every training. You're clustering these little strategies around training. When we look at everyday people, especially when we look at weight loss goals, in my practice, I find there's two types of people, the ones that really love fasting-

Dr. Andy Galpin
Hmm

Jordan Sullivan

... and the ones that don't. And so the guys that like fasting, it does work, and I think it's a great way for them to control their overall calories and say they have more flexibility if they're doing, say, a 30-minute gym session after work. That works great for their mornings.

Dr. Andy Galpin
Yeah.

Jordan Sullivan

But for the other person, that may not work, especially we work, and I'm sure you do as well, lots of CEOs, busy professionals, where their morning is their most, by far, the productive time. And

for most people, I feel when you wake up from 9:00 to about midday, your most productive hours, and you're doing the meetings, you're doing creative work. We find that if you're fueling that properly with these more frequent meals, you're just better in those areas.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Because we're getting glucose to the brain, you're doing all these other things. So there's two types of people, the ones that love fasting and the ones that don't. I find the people who like fasting, it's a easier way to control calories. More often than not, it also, and I think this is a big psychological side of it, "Oh man, I just survived till 2:00 PM. Pat on the back. Well done. I just won the first battle. Okay, now I can go do this." It's almost like this self-fulfilling, okay, we've got this type thing.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And that's a big part of it. And if that's you and that works for you and that allows you to, again, be sustainable with this weight loss and your overall dietary habits and you can get that 90%, go for it.

Dr. Andy Galpin

Today's episode is sponsored by AG1. AG1 is a vitamin mineral drink with probiotics, prebiotics, and adaptogens. Initially, I was extremely skeptical of AG1, as I am with all supplement companies, but after months of discussions with their lead nutrition scientist and the general team at AG1, I've been impressed by AG1's commitment to sourcing the highest quality ingredients and constantly updating their formulas to have the right ingredients in the optimal amounts. By now, it is abundantly clear that the gut microbiome plays a critical role in everything from body composition to bone health to mental health. And the probiotics and prebiotics in AG1 help to promote a healthy gut microbiome, improve digestion, reduce food cravings, and increase short-chain fatty acids, which play a critical role in regulating metabolism and immune responses. It's for these reasons, and many others, that I personally take AG1 almost every day.

Dr. Andy Galpin

Now, it's of course not a replacement for eating whole, healthy foods, but it is a great way to make sure that you're plugging in any gaps in your nutrition to improve your energy, bolster your immune system, and just generally help promote a healthy gut microbiome and more. If you'd like to try AG1, you can go to drinkag1.com/perform to receive five free travel packs plus a year's supply of vitamin D3 plus K2. Again, that's drinkag1.com/perform to receive five free travel

packs plus a year's supply of vitamin D3 plus K2. Let's jump into, I actually want to go through your fueling strategy because we went through that. You wrote on there that the goal was somewhere between six to eight grams per kilogram of body weight for carbohydrates. Does that sound about right of-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... where you want? And then you wanted about 60 to 90 grams of carbohydrate, again, in the three to four hours before, and then an additional 30 grams 30 to 60 minutes before. I know it's individual. I'm sure you have athletes that do better on less carbohydrates, some that do better on more, but why those numbers? Is that pretty common where you like to start? Or are you just kind of personally a little bit of a weirdo with carbohydrates? Or how did you come up with these numbers?

Jordan Sullivan

I think I am definitely a little bit of a weirdo, but there is some-

Dr. Andy Galpin

Well, that's helpful

Jordan Sullivan

... some logic behind this. Easiest way, I guess, just quick recap on exercise, metabolism, how our body uses fuel because it's important to understand why do you choose these numbers, why do you hit this. So when we're exercising, our body has three options. So we've got three options. Think of it like buckets. So we've got this big bucket of fat around our body. So we all have fat around, and we have a lot of it. So our body has about, depending on your size and body composition, about 100,000 calories of fat there that we can use as a fuel source. Then we also have another bucket, which we call our glycogen levels, and all glycogen is stored carbohydrate. So we store it in our muscles, and we store it in our liver. So in our muscles, we've got about 400 grams, depending on size, so that's about 1,600 calories. In your liver, you've got about 100 grams or so, so 400 calories, and that's of your glycogen.

Jordan Sullivan

And then all through our body, I like to call it the highway of the body, is our cardiovascular system, our circulatory system, which is our blood, and we have a little bit of glucose in there. But we don't have much. We've only got a few grams, so let's say about-

Dr. Andy Galpin

Tablespoon, yeah

Jordan Sullivan

... yeah, 16 calories or so. So the goal is when we're exercising, and if we think about, okay, what happens when we exercise? So at rest, we're burning mostly fat. At lower intensity exercise, we're burning mostly fat. And then as the intensity of that exercise comes up, our body starts to rely more on carbohydrates. And there's a crossing point, and it changes for each person, but we call it the crossover point. At about 60% to 65% of your VO2 max, you're predominantly going to be burning carbohydrates. So that's going to change for everyone, but about that point. And I think it's important to explain to people before we get into why you choose these numbers. When you actually sit down and do the maths of, okay, well, 60% to 65% of my VO2 max, maybe not everyone has access to testing to go get their VO2 max. If you can just do some simple equations, again, you just do a simple equation, say 220 minus your age, you get to this number.

Jordan Sullivan

If you work out what that range is, and then you find out where that 60% is-

Dr. Andy Galpin

Yeah, you're talking about heart rate.

Jordan Sullivan

Yeah, you're talking about heart rate.

Dr. Andy Galpin

So if you're 40 years old, 220 minus 40 put you at 180. So in theory, your maximum heart rate should be in the neighborhood of 180 beats per minute. So what is 60% of that?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

That's what you're talking about.

Jordan Sullivan

From your resting, and say your resting-

Dr. Andy Galpin

Ish

Jordan Sullivan

... is like 60 to 180, whatever. For most people, that 60, 65% sits around 145 to 150. And I only say that because I think when we talk about, "Okay, I'm going to go into a fat burning exercise," they think that, "Okay, my heart rate has to be resting."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And you go, "No, no, that is only a bit more than resting." By the time, and I'm sure you're pretty fit, too, Andy. My zone two, and I've spent years as an ultra-marathoner. I've got a pretty good aerobic base. In my zone two, if I'm at 145, that's my zone two technically, but then I look at that and I do the maths and I go, "Oh man, I'm getting very close to that 60% of my VO2 max."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So even on my low and slow runs, I'm still using quite a lot of carbohydrates to fuel that activity.

Dr. Andy Galpin

There was data actually, but do you know what the caloric or the carbohydrate expenditure is on an Olympic marathon? In other words, what percentage of their energy is coming from carbohydrates during a two and hour and 10-minute marathon-ish?

Jordan Sullivan

No. Do you have the number?

Dr. Andy Galpin

It's well over 80%.

Jordan Sullivan

I know that when you look at Kipchoge and these guys-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... they're operating anywhere between 90 to 93% of their VO2 max.

Dr. Andy Galpin

Which means they're burning almost exclusively carbohydrate for the entire marathon.

Jordan Sullivan

Yeah. And the reason-

Dr. Andy Galpin

This is certainly not a fat-burning exercise.

Jordan Sullivan

Yeah. And the reason I say that, I think it's important to preface it, because some people look at what you just read out and they go, "Man, that's a lot of carbs." But then we go, "Hey, let's look at these buckets of fuel that we're using when we're exercising." And so for that example, so that's a Hyrox session. Like I said at the start, you do one kilometer run, and I'm a pretty all right runner, so I'm running at a pretty good pace, and then my partner is very good at the machine, so I'm trying to keep up with him as well. So we're going quite hard. Your heart rate is getting up there. I know for a fact that, okay, I only have a finite amount of the bucket that has glycogen and even finite amount in the blood glucose, and I've got lots of fats.

Dr. Andy Galpin

Basically negligible blood glucose. Yeah.

Jordan Sullivan

Yeah, exactly. But then you go, okay, I've got all these calories from fats, but if we look at the intensity that you're working at, I'm going to be using them, but not that much. So now I'm stuck with this smaller bucket of glycogen in here. And what happens then is that, and I think this is important for the everyday person, when you work out these numbers, just say you're doing moderate intensity exercise, your liver glycogen can probably last you about 100 minutes or so, moderate exercise. And then your muscle glycogen, moderate exercise, maybe if you're lucky, two hours. Maybe if you're lucky. And then your body's never going to let you get all the way down.

Dr. Andy Galpin

No.

Jordan Sullivan

And if anyone's ever run a marathon or done a half marathon, and they've heard the word hitting the wall, I don't know, Andy, have you ever experienced this?

Dr. Andy Galpin

No, personally not. But we have seen people within probably 300 to 200 yards of the finish line of a marathon, and they can't take a step.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So I've seen the wall hit. And-

Jordan Sullivan

It's horrible. I remember very distinctly the first time this happened to me, and I completely

stuffed up my fueling, hence why I have plans like this now.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Completely stuffed it up. The only way I can explain it is it's horrendous.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And it's horrendous for a way that you know you can keep going, but for whatever reason, your body just does not want you to. And you probably know a lot more about-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... central fatigue and the systems of fatigue. The reason why it's important that you fuel properly is because when this bucket, this glycogen bucket, gets low, and for reasons that we don't completely understand yet either, when that gets to a certain level, you fatigue really, really hard, and mentally, exercise gets very challenging. And anyone running a marathon, and you usually see this, we call it the 30-kilometer mark of doom-

Dr. Andy Galpin

Mm-hmm

Jordan Sullivan

... at a marathon. If you haven't fueled properly, by the time you've burned through that liver glycogen, that muscle glycogen, usually about 30Ks, any marathon in the world, people are just falling like flies.

Dr. Andy Galpin

Yep.

Jordan Sullivan

It's because this muscle glycogen gets down.

Dr. Andy Galpin

Yep.

Jordan Sullivan

So then bringing all that back and we go, okay, for this event that we're doing, what's the goal?

So I look at this and I go, okay, in this event, I could probably run this, and I'm probably going to be operating for just over an hour.

Dr. Andy Galpin

Okay. Got about an hour.

Jordan Sullivan

Got about an hour. But then I go, okay, I'm not doing this as a walk in the park. I'm a pretty competitive guy. And there was two sets from my team, and we had a wager, whoever wins gets the Christmas bonus.

Dr. Andy Galpin

Mm.

Jordan Sullivan

So I had some pretty big motivation to get in there, and so we were going. So well up to that 85% of your VO2 max we're working at.

Dr. Andy Galpin

Mm.

Jordan Sullivan

So at that point, you're just ripping through this bucket of glycogen. So you're ripping through. So then you go, okay, how do I best fuel that? How do I best fuel that activity when I go in? I go, well, it makes perfect sense if that's the intensity that I'm working at, there's the volume of about an hour, which we said at moderate intensity, I've got about two hours, but if we're really going hard, we're going to be churning through that glycogen. And we know that when that hits a point, not empty, we don't completely... Let's just say even 20% from empty, I'm going to be done. I'm going to have to wind it back.

Dr. Andy Galpin

Oh, yeah.

Jordan Sullivan

So let's do our best to avoid that from happening. And that's essentially what performance nutrition is, and that's what that plan is, is I go, okay, the day before, because I know that when I eat all this carbohydrate, it takes about 24 hours for it to get in my muscle, to get in my liver, so that when I sit at that start line, I've got that fuel ready. And so that's what that plan was. The day before, six to eight grams per kilogram was all about, okay, for this just over an hour that I'm absolutely going crazy on this event, too crazy because I wanted that Christmas bonus.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

And then what can I do to put my body in the best position? So that's the day before eating. That's where we get-

Dr. Andy Galpin

That's the six to-

Jordan Sullivan

... the six to eight grams per kilogram.

Dr. Andy Galpin

Perfect. Okay. Before we go on to the three to four hours before, a quick question on that regarding your food choices.

Dr. Andy Galpin

Tiramisu, oats, lobster rolls, a sports drink. Why not have higher quality foods? Why are we having so much candy and sugar and crap and garbage in there?

Jordan Sullivan

Very-

Dr. Andy Galpin

Where do these food choices come from?

Jordan Sullivan

Very difficult to get that amount of carbohydrates if I was just to eat, say, quinoa-

Dr. Andy Galpin

Rice

Jordan Sullivan

... and brown rice.

Dr. Andy Galpin

That's really tough.

Jordan Sullivan

Really tough. And to be fair, I feel like with even that type of approach, I'd say still an 80%. I actually bought one of the dieticians from my team, and he's a phenomenal chef, and I made him cook for us

Dr. Andy Galpin

Oh, sure

Jordan Sullivan

... which was great. And he makes all of those yogurt bowls. The tiramisu are all made from natural Greek yogurts and all these great things.

Dr. Andy Galpin

I was saying that as pejoratively as possible.

Jordan Sullivan

Yeah. And the thing is, but even when I'm doing that, you need to get the sports drinks. You need to have a little bit of candy, because at the end of the day, when I go And I go to bed, I go, "Did I get the right amount of carbs in so that when I go to that start line, I've got it in?" And Andy, the other part too is that this has got to go through my-

Dr. Andy Galpin

Mm-hmm

Jordan Sullivan

... 30 feet of digestive system, and then I've got to run an event where the toilet's over here, and there's cameras everywhere. I don't want to have to be running off or knock wood that something bad digestive happens. So then your choices as well, if I'm having these quinoa bowls, these brown rice, lots of fiber, that's going to have a digestive issue.

Dr. Andy Galpin

Well, let's do some quick math here. What are you in the neighborhood of, what, 60 kilos in body weight?

Jordan Sullivan

About 70.

Dr. Andy Galpin

70. Okay, so 70 times seven, we'll make it that easy, and we'll split the difference between six and eight. So 7 times 7, you're looking in the neighborhood of, how many grams of carbohydrates are you hitting? 500 grams?

Jordan Sullivan

About 500, yeah.

Dr. Andy Galpin

You're going for 500 grams of carbohydrate. If you bring along for the ride with 500 grams of carbohydrates of rice and potatoes, you're probably going to be looking at 60 grams of fiber

more maybe.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

That's going to be doubling your normal input, right? So you're going to have a real fiber issue, to your point. So this is not what you'd be eating to work. You probably didn't eat six to eight grams per kilogram today-

Jordan Sullivan

No

Dr. Andy Galpin

... for our conversation, but this is fueling for the 24 hours for a purpose. It's always about context, right? So I think one of the things that sets the work that you do with performance nutrition apart from day-to-day nutrition, it's understanding that there's not just bad foods. It is what's the pro, what's the con of the food, and then how do we use these things, not just the calorie count, not just the macronutrient. What's the fiber content? What are the other constituents of it, and how do they land in my stomach versus fuel my performance? And all those other factors. So these distinctions are critically important. So you hit easily 500 grams of carbohydrates on that day.

Dr. Andy Galpin

One point that has actually come to my attention here, I don't want people to get too bogged down in these numbers. These are your numbers for your body. It's the concepts that I want to get me to, right? If you're fueling for a similar type of event or expenditure, this is the type of strategy you would go to, right? So I know these exact numbers won't apply to many people. Not many of you are doing this competition, but it doesn't necessarily matter, right? It's the strategy here of a, "I've got an all-day weekend tournament I'm going to go do." It would be the same answer, right?

Jordan Sullivan

Yes, sir.

Dr. Andy Galpin

So 500 grams of carbohydrates for you. What do you think your protein was on a 24-hour period, do you know?

Jordan Sullivan

Probably ended up about two grams, two and a half grams, I think I hit. So probably about 140.

Dr. Andy Galpin

So pretty high still.

Jordan Sullivan

Yeah, pretty good amount.

Dr. Andy Galpin

Pretty high, and then you fill in the rest with fat-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... which is sort of reasonably low. Whole Foods for the most part, but a couple of other little bonuses and stuff in there. You still got, again, rice and lamb and bananas and honey and all the stuff's in there. Okay, so that's the day strategy. As we reiterated, that's not your normal eating strategy. That was your fueling for performance.

Jordan Sullivan

Pretty glad if you're eating that every day.

Dr. Andy Galpin

When you're, yeah, motivated to get there.

Dr. Andy Galpin

We're going to come back to the gut. Training the gut is very important, and I'd love to hear more about that. And we're going to contrast this, by the way, in one second, against another example that I have of fueling a very different way. But why the 60 to 90 grams three to four hours before?

Jordan Sullivan

Yeah, so let's go back to this bucket analogy, right? So we've got the bucket, big bucket of fat, but we're operating this intensity. We're going to use some, but not all of it. We're going to use mostly this glycogen bucket. But like I said before, cardiovascular system, that's your circulatory system. Your blood is just passing oxygen and nutrients to every cell in your body, even when you're exercising. And one of those nutrients that it's passing is glucose-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... and it can pass it to the working muscle. Now, we know this, that in your muscle, so this bucket over here of the glycogen, that's inside your muscle, and that's going to start working as soon as you get going. And like we said before, when that gets down to a certain level, that's not

a good time. When you hit the wall, not a good time.

Dr. Andy Galpin

No.

Jordan Sullivan

One of the strategies that you can use to delay or spare that glycogen depletion is you can top up your blood sugar.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Even though it's not a lot, like we said, it's only about four grams or so. Not very much going around in there, but if I can put in 60 to 90 grams, and then I'll explain why we choose that amount, too. The theory is, is by the time that breaks down, we get that extra glucose in our blood that can go to our working muscle, and our muscle can help use that, and that takes the burden off using this glycogen bucket. That takes the burden off. So now I've got two types of fire in the furnace because I'm operating this high intensity. It's coming down, and I'm playing the game of, as soon as it gets down here, we're not going to have a good time. So I need to slow down the rate of which it gets down here. The reason we say 60 to 90 grams is that when you eat food, it doesn't just go straight into your blood. We have to put it in our mouth, we have to chew it, it has to go down our esophagus, it goes into our stomach, and then it has to pass into our small intestine.

Jordan Sullivan

The first little part of our small intestine is where it will cross over into our blood. Now, the way that our body crosses that over, we have one type of receptor that'll take one type of carbohydrate, which is called glucose, and then we have another type of receptor which will take fructose, so fruit sugar over. And the way I describe it is imagine having a driveway, and you've got one car parked, and it's a one-door driveway. Very hard to get a second car in there, right? You have a two-door one-

Dr. Andy Galpin

Yep

Jordan Sullivan

... you can get two in. So that's the theory is that if we can do about 60 grams through one driveway, we know we can get about 30 grams through the next driveway. And so we're not backing up that one driveway, which means less GI distress, more efficiency that we can get that in, peaks our blood sugars, spares that glycogen. Happy days, let's race for a Christmas bonus.

Dr. Andy Galpin

Why does it cause GI distress if it doesn't get out of there?

Jordan Sullivan

It's backing up, right, and what we call glucose is what we call osmotically active, and it's just a fancy word for saying it attracts water.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So if it's in our intestine there and it's pulling water in That's not a good idea when we're running, sloshing around. The idea with these carbohydrates is we want to get them through our body, into the blood, to the working muscle as fast as possible.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

If they're hanging around, it's not a good time.

Dr. Andy Galpin

The average number that we'll throw out in exercise physiology is that rate of getting glucose out of the stomach and into the circulation is about 60 grams. That's sort of the max for glucose.

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

But because fructose has independent receptors, and their rate is about half of that, about 30, what you're saying then is if you add, and you did, say, 90 grams total, but you did it all from glucose, you wouldn't be able to get all that through. That's the one-car analogy, right?

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

You would get backed up. So 60 of that would get out, but those remaining 30 would stay in, and they would continue in the GI tract, which would then pull water into it, and now you've got diarrhea. That's what's going to cause it. So by switching that type of the glucose out to fructose, it'll be able to cross over through those independent receptors, therefore not leaving a bunch of sugar in your stomach, pulling fluid in and causing the GI distress. So, wonderful example, actually, there, of taking direct science stuff and putting it right into practice-

Jordan Sullivan

Mm-hmm

Dr. Andy Galpin

... and resolving problems there.

Dr. Andy Galpin

On that note, then you go 30 grams, 30 to 60 minutes before. You've already just smashed 450 calories, or grams rather, calories, grams throughout the day. You put another 60, 90 in. Why the 30-minute top off?

Jordan Sullivan

Because I really wanted to win this Christmas bonus. But again, if we think about it, okay, the driveway, like you said, we've put it through the receptors.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Hopefully, that's going around in the blood by then. What I can do then, right before, and we tell this to a lot of our endurance guys, right before you go to the start line, grab a gel, put it in, because what you can do then is you can start trickling in some more-

Dr. Andy Galpin

Yep

Jordan Sullivan

... blood sugars to go and spike it up, and then that's available as well. So, we know that we've got enough time for that one that was 90 minutes to pass through our stomach, get into our gut, hopefully be in the blood supply. It's going around. Hey, they're clear now. Those receptors are clear. Let's get a little bit more in. And then the idea behind that is the more I can get in there, the less I have to use from my storage over here. Because once this storage goes down, kaput. It's a hard time to keep that intensity of work. So we can just make the most of that science, knowing we can get that receptors working, and we can get that food through, and then we can just sneak a little top off in before we start.

Dr. Andy Galpin

Okay, amazing there. Two questions, one regarding the gut, and how do we get people to this level if they even need to be. But before that, really quickly, what were those actual food sources for the three to four-hour prior, as well as the 30, 60 minute? What were you eating exactly?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Do you remember? Examples.

Jordan Sullivan

Yes. Do you guys have pikelet here? I always say this to Americans, and they're like-

Dr. Andy Galpin

No. What is that?

Jordan Sullivan

Okay, they're mini pancakes.

Dr. Andy Galpin

Oh, okay.

Jordan Sullivan

It must be an Australian word. Yeah. So mini pancakes, essentially, which is predominantly our glucose source.

Dr. Andy Galpin

Yep.

Jordan Sullivan

Cut that up, and then we just have a banana on top, and then we've got-

Dr. Andy Galpin

So whole food here.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

This is your three to four-hour deal.

Jordan Sullivan

Yeah, exactly, beforehand. Then we've got a little bit of honey on top.

Dr. Andy Galpin

Okay.

Jordan Sullivan

Very, very easy. And then we-

Dr. Andy Galpin

Super easy to digest, yeah.

Jordan Sullivan

Super easy. And there's a lot of carbohydrate. We're getting about 90 gram in there. It's very light. It digests very fast.

Dr. Andy Galpin

Probably five grams of fiber in there?

Jordan Sullivan

Yeah, not much at all. Very, very low fiber.

Dr. Andy Galpin

Yep.

Jordan Sullivan

And it's quite tasty, too. So it's like you can put it down, and because I've done this for years, right? I've done it for years, training early in the morning. It's hard to eat in the morning. I don't care how often you do it. You can train it, but it is tough. And doing things like that, where it's a low volume, it's low fiber, and it's quite tasty, makes it so much easier just to put it down. Especially when you come down. "Oh, God, I've got to do this. I've got to stretch. I've got to do everything else." Very, very hard if you've got a big, dense meal you've got to put back. So if you can keep it light, something like that's so, so easy. And it ticks those two boxes. So it's super simple.

Dr. Andy Galpin

Yep. And then what did you have for that last 30 minutes?

Jordan Sullivan

Sports drink. Sports drink, just for two reasons. Make sure that you're well-hydrated before you start, and it gets those extra carbs in. We don't need to be pushing that receptor where we're going to the upper limit, where we're going to the 60. That's just 30. So we can just sneak him on in there.

Dr. Andy Galpin

And any sports drink, certainly not the non-zero ones or the zero calorie. We definitely want the calories at this point.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

This is the entire idea, right?

Jordan Sullivan

At that point, you want to be looking at just 30 grams. 30 grams of glucose. Not going to depend as much if it's glucose, fructose. If you can just get 30 grams there. Avoid the non-sugar ones because that's exactly what you want. You want the sugar.

Dr. Andy Galpin

When you start getting past, in an example of an hour, you're not really going to be running out of body fat. You have no chance, right? This is can you handle the suffering? Can you fuel? When you get past a couple of hours, when you get past many hours, now you have an entirely different challenge on your hand. So someone like Ned, who I'd love for you to share what he did, challenges start to come. And now training the gut starts to really matter, right? Because we've got a handle there. So if none of that made sense, friends, Jordie's going to explain it to us here, and I'll make sure those questions do clarify. But who is Ned Brockman, and what in the world did you do with him? And oh my gosh, that's one of the craziest things I've ever seen in my life.

Jordan Sullivan

Yeah, Ned's one of the craziest guys I've ever met in my life.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And he's 25. That's the craziest thing.

Dr. Andy Galpin

That probably explains it. Okay.

Jordan Sullivan

Yeah. So Ned Brockman is a Australian ultra-runner. And what he did two years ago is basically ran from Cottesloe Beach, which is in Western Australia, right across Australia to Bondi Beach, which is on the other side.

Dr. Andy Galpin

So he ran, what, left to right across Australia?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Through the middle of it.

Jordan Sullivan

Through the middle. And if you know Australia, if you've ever been, 99% of us live on the coastline, and in the middle there's-

Dr. Andy Galpin

Of course

Jordan Sullivan

... a whole lot of nothing. And he ran through a whole lot of nothing. And it took him about 43 days. And I guess-

Dr. Andy Galpin

43 days?

Jordan Sullivan

43 days.

Dr. Andy Galpin

How many kilometers was he running a day?

Jordan Sullivan

I think he averaged about, he was aiming for 100 by the end of it. It was probably just shy of that, around 90 or so.

Dr. Andy Galpin

Unbelievable.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

A day.

Jordan Sullivan

And that's what his first challenge. That kind of made Ned Brockman become the guy he was. And he goes, "You know what? How am I going to top this?" And there was an old record set by a very, very famous- Greek ultramarathoner, where he ran 1,000 miles in 10 days.

Dr. Andy Galpin

1,000 miles in 10 days.

Jordan Sullivan

Yeah. So, yeah. 100 miles a day for 10 days. Crazy feat. Crazy feat. Ned took it upon himself and said, "You know what? I'm going to give this a crack. I'm going to train for this, and I'm going

to give it a crack." So what Ned did in October this year is, there's a big event down at Sydney Olympic Park just doing laps, Sydney Olympic Park. And we ended up going, we didn't hit the record, but it was one of the craziest things I've ever been a part of, ended up going for about 12 and a half days, running around in a circle around Sydney Olympic Park.

Dr. Andy Galpin

So he ran, in case you're half asleep, he ran 1,000 miles in 12 and a half days on a track. Okay, so I got a bunch of questions on this. What ultimately what we're going to get back to is how the fueling strategies change for these, but I think it's important to talk just a little bit more about what Ned actually did here, because I'm just genuinely curious. So you answered one of my questions, like how much was he sleeping, and it's about eight hours a day. Was he sleeping right there on the track, or was he going home, or what happened?

Jordan Sullivan

I don't think there would be one night he got close to eight hours, to be honest. It would probably be close anywhere from two to maybe five. If we needed it halfway through, we needed to call it a bit early.

Dr. Andy Galpin

Uh-huh.

Jordan Sullivan

But again, like anyone who's ever done any... It doesn't have to be an ultra-endurance effort, just a tough workout, pretty hard to sleep afterwards. Everything's going.

Dr. Andy Galpin

Yeah. No way. Yeah.

Jordan Sullivan

So yeah, probably averaging between two to five at a good night's sleep, and let's be honest, it's not going to be deep-

Dr. Andy Galpin

No

Jordan Sullivan

... REM restful sleep. So he's doing that. But then running wise, the goal was 100 miles a day, which is 160 kilometers. What it ended up being more realistic once it all played out, ended up being about 120 kilometers per day, and you're just out there for 16 hours. There's toilets set up at the venue, two toilets, so if he needs to veer off. We've got a tent set up where his sports medicine team, so myself, his physio, his other crew, are all in there, and we're constantly making food. He's getting physio attention. We're changing shoes. We're addressing issues.

We're doing strapping, whatever else, and we're inside the Olympic stadium. So for a couple hours each day, all the public's allowed in to come watch him, and then we've got access to change rooms, which at the end of each day, Ned comes off the track, he gets on a wheelchair, we wheel him back in under the stadium into the change room.

Jordan Sullivan

He eats his food. He has a shower. He gets wheelchaired to bed. He sleeps for however many hours we've got, wakes up at 5:00 a.m., back on the wheelchair, wheelchaired back out to the track, gets on, starts going, 6:00 a.m.

Dr. Andy Galpin

Doesn't want to take a step that doesn't count towards the 100 miles.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

Or the 1,000 miles, right?

Jordan Sullivan

Exactly.

Dr. Andy Galpin

Can't blame him.

Jordan Sullivan

100 miles is a long way to run. If you think you just run a 10K, which is like 6 miles, for the average person, you're pretty sore after that. So imagine running 10 times that and then doing it for 12 and a half days. So even after the first one, you're feeling it. And even after that, and I say this to everyone who gets into ultra-marathon, the pain never goes away. You just get better at dealing with it. So even if I'm running a 100-mile race, it still hurts after 20 kilometers.

Dr. Andy Galpin

Mm.

Jordan Sullivan

Your knees and everything still... Your body is just probably a bit stronger, and you're just better equipped to deal with that. So Ned would've been hurting from day one, even halfway through day one, even a quarter way through day one. It starts hurting, and the body starts breaking down. The other thing that we always say with ultra-endurance events especially, not just the fueling, but particularly from a fueling perspective, is that everyone loses in ultra-endurance.

Dr. Andy Galpin

Oh, yeah.

Jordan Sullivan

You just have to slow down the rate at which you lose so we can get to the finish point in whatever time you need to get there. And that's what the game was with Ned.

Dr. Andy Galpin

How much time did you have to prepare him? Did you guys do anything, or from your perspective, was it just show up race day and then just try to keep him going?

Jordan Sullivan

No. God, no. I would've said no if they called me in last minute. We probably had, it was a good amount of time, I'd say well over six months of dedicated training just for this.

Dr. Andy Galpin

Okay, you had a long time then.

Jordan Sullivan

Long time. And we needed a long time, to be honest, because Ned's young. He's 25. So there was a lot of things we needed to do just from basic nutrition, like I spoke about with the tracking and going through and understanding food. I had to go through all of that with him. So I needed him to understand what it is that was in the food that he liked eating, and if this is your goal to do this, this is the type of foods that you need to eat, and this is the way you need to eat to be able to achieve that. Ned also, young guy, like 25-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... he had all these preconceptions about food as well and then looking a certain way, and we basically had to sit down and go, "Man, this is about performance. This is an insane thing you're going to put your body through. Ditch that. We've got to just think about optimal fueling and getting you through that." So he was really good though. Ned, I think is one of those guys, is that he's elite in a lot of areas, but he's very elite in how he takes on information and then how he applies it. And that's not just his nutrition, but that's with his physio, his strength and conditioning, his run coach, everyone, and he's really good. And over that six months, we were able to, one, establish a really good daily eating plan, which was important if we come back to that first point-

Dr. Andy Galpin

Mm-hmm

Jordan Sullivan

... that energy availability, making sure that he's not in a point where he's in what we call low energy availability, which then causes something we call RED-S, Relative Energy Deficiency Syndrome, which can cause all sorts of problems, bone fractures, illness, gut problems. Don't want that.

Dr. Andy Galpin

Hormones go into zeroes.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So last thing you want when you're getting ready to run 1,000 miles.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So that was first. How can we get these calories up here? And then it's, okay, dietary control. Like you said, we want to get good quality diet because the stress you're putting on your body through this training period is through the roof. And he also had to get used to this very bizarre sleep schedule where every so often he would do a training session where you'd wake up, bang 20Ks out, go back home, bang 20Ks out four hours later, go back home six hours later, bang 20... And it was through the night, because we would be running through the night. So he had to get used to that as well. So all of a sudden- There's all these additional stresses that we need to take into account. And so it was getting his day-to-day diet right. He wasn't that big of a carb guy beforehand, and that was one of the big things we worked on was, "Man, if you want to get through this event, and we'll talk about why they were so important and use this bucket analogy, but you've got to get very, very comfortable with consistently eating these carbohydrates."

Jordan Sullivan

And that was a big challenge that we had to do. The reason we did that is because we needed to train his gut to be able to handle that. And I think we'll go into training the gut because I think it's very, very important, and it's this concept that it comes from competitive eating, and I'm sure a lot of people are familiar with the hot dogs, chicken wings, you know when they just-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... and they just smack it back, right? And you look at that and you go, "How does that happen?" And us as ultra-endurance athletes look at that and go, "Yeah, that seems really important," because that's essentially what we do in these races. An ultra-endurance race is essentially a moving picnic. You need to be able to just keep eating because there's no way you're putting in the amount of fuel that you're burning. So with Ned, we're going, "Okay, man, this strategy that we've come up for you involves you pretty much every between 15 and 30 minutes putting something in your mouth, and you're going to have to do that for 16 hours, every day, for 12 and a half days." So that's a lot of pressure and stress going through your gut. Your gut can handle it, but if you and me, Andy, right now, we go, "Hey, let's go down to the running track down the road. We'll grab some Chipotle and grab some burritos," you and me would be throwing up on the side because-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... our guts just can't handle it. It's not trained for it. So that was a big focus. "Okay, Ned, doesn't matter if you're going for a 5K run or if you're going for a 50K training run, every opportunity you're moving is an opportunity for us to train this gut. So I need you taking on certain fuels. I need you taking on carbohydrates." An event that long, that goes for 16 hours a day for 12 and a half days, is a bit more than just simple carbohydrate gels every 15 minutes.

Dr. Andy Galpin

Ugh, that would feel terrible.

Jordan Sullivan

We need to be getting in whole meals, and we need to be getting in protein. We need to be getting in fat as well. So we were making sure that Ned was stopping and getting pies and meals and chocolate milk and things that he could just get used to. "Okay, I just ran 30 kilometers. I need to stop, eat a full meal, and now I need to keep going."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And then we'd review, "How'd it go? What worked? What didn't work?" "Oh, the liquid carbs don't sit too well." "Okay, let's change this up." "Okay, these electrolytes weren't too great. We need to really dial this in." And the thing is, when it comes to the big day, you do all this prep, and anyone who does an ultra-marathon will appreciate this, is that you can have the best plan in the world, and then what's that saying from Mike Tyson?

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

"Everyone has a plan till you get punched in the face." And when you're in an ultra-marathon, everyone gets punched in the face.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

But as his performance nutritionist, I can be confident that we can still pull it off if we've nailed the principles. So even if this great plan that I spent all these hours-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... conducting, going up, I go to offer him the food, he looks at it and goes, "Nah." And I go, "Oh, great." That's okay, so long as his gut can handle the food that I want to put in it and I've got options to give him, which is essentially what ended up happening. So we spent all this time, one, making sure that he had enough calories throughout a day, get through relatively injury-free. I say relatively because no one's getting through that training block completely injury-free. Not being sick was a big one, and then being able to recover from the training. And we talk about a lot, recovery is, I would argue, more important than the training. That's where the adaptation occurs. If we're trying to get this guy's body ready to be able to run 1,000 miles, he needs to be able to do the training. For him to be able to do the training, he needs to recover properly. For him to recover properly, he needs to eat properly.

Jordan Sullivan

So huge, huge effort just to get him there. It was almost like an ultra-marathon before we even started.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

But it was an experience.

Dr. Andy Galpin

As a doctoral student, I had a friend who was-- Now, we were in a lab that had a long history of exercise physiology and sports nutrition. So Dave Costill, who did a lot of the preeminent work in the 1970s and '80s on what carbohydrates are and fats-

Jordan Sullivan

Mm

Dr. Andy Galpin

... for fueling and a lot of the initial work with Frank Shorter and Steve Prefontaine and some of these endurance people. So I kind of came through one of these hallmarks of legendary sports nutrition. Despite that, as doctoral students, not even grad students, as doctoral students, my friend was running his first marathon, I think. And I remember us sitting kind of in these carrels and a bunch of us were talking about fueling and when and what and how much before and exactly the types and things like that, and he had this whole plan. And I want to say we were three weeks out from his race, and I remember just asking him, "Man," just curiously, "Well, what have you been doing in your training that worked really well?" And he just went dead silent. And he looked right at me and he's just like, "I haven't tried any of it yet."

Jordan Sullivan

Oh, no.

Dr. Andy Galpin

And I was like, "So you're about to go do your first marathon having not tried any of the strategies that we have now been designing?" It wasn't a part of our lab, it was just like a side thing. And that was another reminder to me, and I was coaching athletes already at the time, so I was just like, "How in the world would you come up with an idea and then try to go put it into practice without ever trying?" So when you're talking about how the strategy you had come up with, it means nothing until you get out there. Geez, six months of trial and error with him, and then you still had to change it mid-race, which is anyone who's done anything like this would say, "Yeah." If you told me otherwise, I'd say you've never done it.

Jordan Sullivan

Mm.

Dr. Andy Galpin

Because you'll have that pretty consistently. So I think what I probably should've done is taken your Hyrox, taken Ned, and then put something more in the middle. Because these are both very extreme, which is fun. I actually like this a lot. You have an hour competition, you have a 12-day competition. If you were to take somebody doing more of a classic, say, three to five-hour thing. This is the amateur person doing a marathon or an Olympic triathlon, something like that, in that mid-range. The concepts are still going to be the same here, but it will be slightly different, right? In your case of your hour competition, you didn't have to worry really about training your gut in terms of in-competition, right? Do you remember what you had in terms of fueling in that race, or were you just taking drinks of water and getting through it?

Jordan Sullivan

No, didn't have anything.

Dr. Andy Galpin

Right. You-

Jordan Sullivan

Purely because I knew, you know what, and probably overdone it to be fair, and I think I was just doing it proof of concept.

Dr. Andy Galpin

Whatever.

Jordan Sullivan

But I had all the fuel. I knew the buckets were full.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And the thing is, I felt great. And there were guys in there who definitely did not feel great. But I think it's an important thing as well, Andy, and I always try to make this point as well when we talk about fueling for performance and everything, and so say if you and I went for a run and went for a 10K run and... Are you a runner, Andy? I don't know.

Dr. Andy Galpin

No.

Jordan Sullivan

Okay, good. This makes this example a lot better. So I've been running for years, and I've done a lot of it. So I'm pretty conditioned for running, right? So if we go for a 10K or a six-mile run, and we say, "Hey, Andy, let's have a race. I'm putting my Christmas bonus up for this. Let's have a race," okay? So we're both-

Dr. Andy Galpin

I see your point. Yeah

Jordan Sullivan

... it's coming into a competition, right? And then we go, "Okay, let's go." And I'll go. We go for the run, and let's say, okay, I win, and then we go, "Okay, no, let's make this more fair then." And we go, "Okay, Andy, I'll fast so I've got none of these buckets full. Nothing's full. I've got no fuel on board, and then, Andy, you can eat the TFD Geordie Sullivan best fueling diet, the Ned Brockman strategy going-

Dr. Andy Galpin

I'm going 750 grams

Jordan Sullivan

... Yeah, you're going the Hyrax-

Dr. Andy Galpin

All the way

Jordan Sullivan

... eating strategy. We rock up the next morning to that race. Who wins?

Dr. Andy Galpin

Yeah, you're still going to crush me.

Jordan Sullivan

I'm still going to win, right?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Only because I've been conditioned over years, my muscle fiber type, my energy systems, my better aerobic base, my anaerobic threshold, all of these things are just more conditioned. And I think this is an important conversation to have, especially when we start talking not so much about the elite athletes, but more when we go, okay, for the everyday person who wants to do this, because at the end of the day, you can eat the best diet in the world, but it doesn't necessarily make you good at the sport.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

What makes you good at the sport is training, and I think that's where you've got to put your thought process, and you've got to go, okay, if training is what makes me very good at this sport, and my goal is to beat Geordie in a 10K and take his Christmas bonus, then I need to focus my training on doing that. And nutrition comes into play by helping me train more intelligently and helping me recover and rock up and train consistently. That's where nutrition comes into it.

Dr. Andy Galpin

We're going to finish this conversation on that exact point, which is daily nutrition versus training nutrition, right? Because that's a really excellent thing. I love how you brought that up. I actually wish I would've started this entire conversation off with that concept and concepts like this

because, on the same point, this was competition day for you. This was not a training day. So my assumption is you probably did not eat this every single day you worked out, right? So there's also a difference between if you and I said, "Hey, let's go run this 10K, and let's just go here. We're hanging out together. Let's just go have some fun. Let's go run a 10K." That's not how you would strategize.

Jordan Sullivan

Mm.

Dr. Andy Galpin

Right? Now, if you said, "Let's run this for a Christmas bonus," this is how you strategize, right?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So there's a difference in fueling for an activity and fueling for the best possible score you can get in that activity, right? So that is a very important distinction because I'm sure at some point in this conversation, people are going to be potentially triggered or something to say, like, "You couldn't do this every day." No, this is not intended to be done every day. This is fueling for performance to get the best out of there. We will definitely, again, talk about how does this fold into a day. You brought up one little point earlier, and I want to circle to that. And you actually said it really cleverly, but you might even want to change when you're eating your calories throughout the day to still be in something like a caloric balance, but have a pseudo program like you developed for your Hyrax, right? So can you jam a bunch of calories in around your training, then getting some of the performance benefits, but then still having your calories low to lose weight.

Dr. Andy Galpin

So we're going to get into all that stuff. I got a bunch more Ned Brockman questions for you to get to there. So that's really great. With the six months of training, all right, now this is actually nice because this is a little bit more like a daily rather than a race day, right? So I want to chat about the race day stuff, but for that six months of training, do you remember roughly what the calories were per day and as well as the macros, and then how long did it take you to figure out those numbers?

Jordan Sullivan

So we obviously periodized it, I think just general.

Dr. Andy Galpin

Within the week, on holidays and-

Jordan Sullivan

Yeah, so every day, we want to be aiming to have about 4,000 calories.

Dr. Andy Galpin

And what's he weigh? Probably closer to 60 kilos.

Jordan Sullivan

Oh, he's a bit heavier. He's a tall guy.

Dr. Andy Galpin

Oh, really?

Jordan Sullivan

He's deceptively tall. He looks really skinny, but he's just deci-

Dr. Andy Galpin

I just assume if you run an ultra, you're under 120 pounds.

Jordan Sullivan

Exactly. I tell myself that 5'7" is the perfect marathon running champion height because I'm that, and-

Dr. Andy Galpin

Of course

Jordan Sullivan

... but it's not. Yeah.

Dr. Andy Galpin

Absolutely.

Jordan Sullivan

I'm not a good runner, though.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

But Ned's quite tall. Ned's about 6'2", so he fluctuates anywhere between 79, about 82 kilos.

Yeah, big guy.

Dr. Andy Galpin

Wow. Okay, so he's reasonably big, so about 4,000 calories-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... roughly on the days, and then how many grams of carbohydrates?

Jordan Sullivan

He's averaging, he was, depending on the training days, say, on the higher end, would be about that 500 grams of carbs.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

He would be doing roughly 160 grams of protein, and then fat, he would've been doing, yeah.

Dr. Andy Galpin

Whatever the fill in there is.

Jordan Sullivan

Yeah, whatever the fill in. And I guess that comes back to your point with the clustering because if you look at that like we were saying, "Oh, you can't eat that every day in your training," you got to understand, though, when you're doing the volume that Ned was doing to get ready for that, you can.

Dr. Andy Galpin

Do you remember what his weekly volume was?

Jordan Sullivan

Some weeks he was doing up to 200 kilometers.

Dr. Andy Galpin

Gah.

Jordan Sullivan

Crazy, right? Yeah, crazy amount of volume. And this is the thing, though, is that obviously when the volume goes up and/or the intensity goes up, you have to increase your intake. And so when you're doing something like that, even the 500 grams of carbs, we still had to titrate that in because he wasn't used to it. And a lot of those carbohydrates, not like he's sitting down every single meal and having huge amounts of carbs, a lot of those carbs were clustered around these workouts. And if he's going for a two, three-hour run, we're using these principles of the 60 to 90 grams to get his gut and those transporters used to taking in different types of carbohydrates. So a lot of that 500 is coming in around that training, whether it be that immediately before training,

so we can spike those blood sugars, or during training, so we can just keep them consistent to help spare that glycogen. So a lot of that intake is clustered around his training.

Dr. Andy Galpin

How much of it are you trying to get in before those heavy training sessions versus afterwards? In other words, are you like, "Hey, you got this big mileage today, let's get you way ahead of the game," or are you more post-actively saying, "Okay, you ran these numbers, we got to backfill that stuff in"?

Jordan Sullivan

Yeah, I think a combination of both, right, depending on the day. But generally say if you're doing two, three, you're going to get pretty close to winding that down. So your overall intake for the day needs to be quite high. But we like starting pretty heavy, just front-loading pretty heavy for the exact reason that you said that we've got two training sessions here.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

We're going to burn through a lot. Even though I know you don't need it for that first one, I know for sure-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... you can get through it.

Dr. Andy Galpin

Right.

Jordan Sullivan

But we're not thinking about just this first training session. We've got session number two, and we've got session number three. And the thing is, and you know this just as well as I do, Andy, and all your athletes would say it, it's hard to eat after training. Just-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... all the hormones going, you're tired, you're hot, whatever, it's tough. So if you can front-load it and get on top of it early, I found it's a lot higher chance that you'll actually hit those numbers, because 500 grams is still a lot to be eating.

Dr. Andy Galpin

Yeah. That's a ton. Okay, we got those basic numbers. I'm sure they change day to day. We get the gist of it. When did you start the race preparation from the food perspective? Was this seven days out? Was it just the 24 days out? When did, I guess, the food start changing?

Jordan Sullivan

When you carb load, which is the process of trying to fill up this glycogen bucket-

Dr. Andy Galpin

Yep

Jordan Sullivan

... so it's maxed out, so when you start, we've got maximal stores here, you have to practice that a lot to be okay with it come race day. So what we would do with Ned is that if he had a long run on a Saturday, every run for him was a long run, but-

Dr. Andy Galpin

Of course

Jordan Sullivan

... a longer run, say, on the Friday, we'd practice his carb-loading strategy so his gut was used to it. That was basically the only thing that we changed was beforehand. We did it for two days, actually, so a 48-hour carb load, and we're hitting, so I was hitting numbers of six to eight grams. He was hitting between 10 to 12 grams-

Dr. Andy Galpin

Yep

Jordan Sullivan

... per kilo.

Dr. Andy Galpin

Yep.

Jordan Sullivan

So much higher because the whole question is like, "Is that too much to max out the glycogen?" I sit back and go, "I don't really care because we're about to do this for 12 and a half. I'd rather overdo it than underdo it."

Dr. Andy Galpin

Well, what's the worst thing that will happen if you overdo it?

Jordan Sullivan

Yeah. Might sit on the toilet.

Dr. Andy Galpin

Bingo. Right? And in practice, this is the time to learn, because if you were to look in the scientific literature, you will see six to 10 is the number we say for crazy events like this. But that's just a guess. He might be 12. He might be 14. He might be five. You actually don't know what his upper limit would be until you've run that experiment, right? So you have a starting place, which is what every good scientist does. The literature tells me to start somewhere between six to eight. Right? That's what you did. That's what you did with him. But the literature doesn't tell you this is the only number you have to ever be at. It doesn't say this is what's going to work the best. It just says, on average, most people will probably do pretty well at this number. But I think that was really smart of you two. Obviously, I'm not stunned at all you did that, because he might be fine at 12. He might be fine at 14.

Dr. Andy Galpin

I definitely know we've had people well over 10, and they're absolutely fine from a gut perspective. And I know certainly some people will be just destroyed at that number. So very smart on you two to try that and see where you could get to. What was the kind of highest you got, 12 or so?

Jordan Sullivan

About 12 for two days before. We got about 12 grams per kilo. And I guess that's a good point, too, Andy. I mean-

Dr. Andy Galpin

And that, guys, that is a kilo-

Jordan Sullivan

Oh, huge

Dr. Andy Galpin

... of carbohydrates.

Jordan Sullivan

Oh, huge amounts.

Dr. Andy Galpin

He's 80 kilograms.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

10 would be 800 grams, right? If he's close to 12, he's getting close to 1,000 grams or a kilogram of carbohydrate.

Jordan Sullivan

Yeah. And this is the thing-

Dr. Andy Galpin

That's outrageous

Jordan Sullivan

... back to your point about the literature as well, you can look at that, and we can dive into this a bit more when it comes to, okay, what do you actually do during an ultra-endurance race? A lot of this endurance literature that you're reading, for the most part, is done on elite male marathon runners-

Dr. Andy Galpin

Yep

Jordan Sullivan

... who are running between two hours and 2:30 marathons, which is very, very different to running 1,000 miles over 12 and a half days.

Dr. Andy Galpin

It's not the same thing, yeah.

Jordan Sullivan

So a lot of these principles, even when you're going intrafueling, like your electrolyte and hydration strategy, how you're carb loading, a lot of it, like you said, is up to your interpretation. And that's a big part of why we said we need six months here.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Because, yeah, we've got some guiding lights here, but this is a pretty crazy event, and-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... I'm looking at the physio going, "Have you ever done anything like this?" He's going, "Nah." And it's like, "The coach, have you ever done it?" He's like, "Nah." And we're all going, "Okay, well, what do we use as our guiding lights?" And you're doing this, but really, we need him to put it into practice. We need to get some feedback, and then we need to adjust and then keep going. And that's why we needed so long in the prep.

Dr. Andy Galpin

Yeah. The data on marathon running would be almost useless-

Jordan Sullivan

Mm-hmm

Dr. Andy Galpin

... at this point. You need to look at cycling.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Right? That's probably the closest thing where you could get is Tour de France being the more prominent one. There's other races, but those databases, what those coaches do throughout that fueling strategy is probably much closer to what you did here.

Jordan Sullivan

And even if we're looking at cycling, because we didn't, but-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... just overall power wattage for, say, someone in the Tour de France, greatly different to someone who's plodding along for 1,000 miles. So when we look at that and you go, "Okay, how much per hour carb do we need?" These guys in the Tour de France in the Peloton are pushing 120 gram plus. You got guys in 100-mile races breaking world records-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... doing 120 gram plus. Does that apply when we're doing-

Dr. Andy Galpin

You're referring to 120 grams per hour

Jordan Sullivan

... per hour of carbs, yeah, during the race.

Dr. Andy Galpin

In the race, yeah.

Jordan Sullivan

In the race, yeah. And that's what a lot of that literature-

Dr. Andy Galpin

Which is really high.

Jordan Sullivan

Oh, it's incredible. But then we go, does that apply over here for Ned? And so that was almost the other part that was really exciting about this whole thing is we get to find out.

Dr. Andy Galpin

Okay. Actually, so that's really interesting. I'm trying to guess here. I might be wrong, but let me know. So then was the strategy hyper fueling his carbohydrates before the race, but then maybe not even having a huge amount during the race?

Jordan Sullivan

Basically. I guess-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... to the everyday person, like for me and you, if we ate what he ate, we'd go, "Oh, that's a lot." If we compare what he did, and we can go through his numbers, to, say, what someone in the Peloton or these really, really elite Zach Miller breaking world record-

Dr. Andy Galpin

Yep

Jordan Sullivan

... ultra-endurance guys do, basically half-

Dr. Andy Galpin

Huh

Jordan Sullivan

... in terms of carbohydrates per hour.

Dr. Andy Galpin

So he was 50, 60 grams per hour.

Jordan Sullivan

Yeah. I think we averaged about 68 grams per hour.

Dr. Andy Galpin

Which is still pretty good-

Jordan Sullivan

Mm

Dr. Andy Galpin

... for people who have played basketball-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... or football, or they've never done any real endurance work. You would be like, "Wow, 60 grams in an hour, that's quite a lot." But it's really not if you contrast it to the cycling and other long-duration sports where you're going to be over 100, theoretically-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... grams per hour. Okay. Super interesting. So going back to it, you tried out multiple times the 48-hour window, and you're getting 800-plus grams of carbohydrates in in those days. Is that what you also then eventually did prior to the race?

Jordan Sullivan

Yeah. Before the race, yeah. And it worked well. One way, very unscientific way, which is still scientific, is when you eat a lot of carbohydrates, you put a lot of glycogen in here, and we abuse-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... this with our fighters. All that glycogen holds water as well.

Dr. Andy Galpin

Of course.

Jordan Sullivan

Your weight goes right up.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So your weight will go skyrocketing. So then I knew if his weight went up to a certain amount, to about 83, 84 kilos, I knew that, okay, we're pretty good here.

Dr. Andy Galpin

So in the 48 hours before competition, you were trying to get a 3-kilo bump in body weight.

Jordan Sullivan

Thereabout, yeah.

Dr. Andy Galpin

Something in that neighborhood, maybe a little more, 3, 3.5 kilo, which I don't think people would think about that, right?

Jordan Sullivan

That weight gain that you get in the load is exceptionally important, especially when you're digging through the literature as well and you're looking at, say, these marathon guys.

Dr. Andy Galpin

Oh, yeah, the numbers. Yeah.

Jordan Sullivan

And a lot of it, right, when we're talking about, okay... And we'll talk about this. Essentially, like I said at the start, when you're doing an ultra-marathon, everyone loses. Our job is to slow down the rate that you lose. And Ned was in one of those very interesting scenarios that not a lot of people put themselves in, where these buckets are going to get pretty close to empty. Even if we just let Ned run around the laps and keep going, yeah, these glycogen buckets and the glucose bucket go down, he would start drastically going into the fat bucket. If we didn't fuel him, he'd just ran. That's why if you go out for five days, have a little bit of water, you're going to eventually drop. You're going to just deplete all your stores-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... as well. That's a real possibility. The thing is, our goal then is how do we keep these stores high enough, and how do we keep his system in a spot where he can just keep going?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And a big part of that, which we'll get into, is the hydration piece, but what a lot of the research...

And there is some good research that does account for this now, is that, and you would've heard, oh, the 2%, if we-

Dr. Andy Galpin

Yep

Jordan Sullivan

... lose 2%. But they're looking at marathon runners, say, that they don't account for this carbohydrate load, and then they weigh them at the end of it. And an elite marathon runner running 2:20, if you've ever run at that pace, even on the treadmill for two minutes, I can probably do it for a minute, you're not stopping and drinking a lot. You can maybe swig and go, and you see that with the elite guys as well.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So they're losing quite a lot. So that's a factor we had to think about as well, because then we're going, okay, the literature's saying that a lot of these marathon guys can... There's the study of Haile Gebrselassie, I think it was in the 2004 Dubai Marathon-

Dr. Andy Galpin

Mm

Jordan Sullivan

... where he lost 10% of his-

Dr. Andy Galpin

Yep

Jordan Sullivan

... body weight, and he broke the world record. And people go-

Dr. Andy Galpin

Oh, there's stories going back to the Frank Shorters and stuff of five liters per hour getting dumped in fluid, just huge fluid losses.

Jordan Sullivan

Yeah. And you look at that and you go, "Okay, well, 10%, we've got heaps." And you go, well, that's probably a lot of that is the pre-fueling. So like-

Dr. Andy Galpin

Mm-hmm

Jordan Sullivan

... in an event that goes this long, what are actually the boundaries that we're working within to keep him going? Because again, that's the game, right? The game here isn't we're trying to... We were trying to break a world record, but ultimately, we're trying to just keep him going. And then there's not really... I couldn't find any literature that told me how to fuel Ned Brockman for this, but you're trying to interpret all of these things-

Dr. Andy Galpin

Mm

Jordan Sullivan

... from this research that does apply but kind of doesn't. And then we're all sitting here as the sports med team going, "Okay, how do we do this? How do we do it? What are we tracking? What are we looking for?" His weight goes up here. I know for a fact that when he comes around, and we were doing weight checks as he was coming round, if I want to make sure that he's not depleting and he's not becoming too dehydrated, what weight do I go from then? But knowing what his regular weight was in that six-month prep and getting a good average gave me a good number, so when he came into the tent and we're tracking, I can go, "Okay, we're on track here."

Dr. Andy Galpin

Okay. So just to make numbers up here, what you're saying is you knew for six months that he's going to weigh roughly 80 kilos. All right, I'm going to make that number up. And then you knew when he started the race, he was 83.4 or something, but you were not going to base your 2% loss on that 83.4. You based that 2% loss on the 80 kilograms, right?

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

So the 2% loss, to clarify, is the marker of hydration, right? So once you get below 2%, and we're not saying 2% dehydrated, it is you've lost 2% of your body mass, right? And we're assuming most of that comes from water. Below that 2%, performance decrements are going to start going down, right? So with our competitive athletes, we'll certainly get well past 2%, but we're not competing right then, right? We're going to go away. We've got 24 to 36 hours to rehydrate. So the 2% number ... is based on that 80%. Did I have that-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... that right?

Jordan Sullivan

Exactly right. Yeah.

Dr. Andy Galpin

Okay. So as you're watching him and you start noticing he's down to whatever that math works out to be, but he's down, in this example, say if you had a weight check and he was 76 kilos, you'd be like, "Whoa. Okay, now we know we're in a dangerous spot because we've lost way too much fluid at this point."

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So you were giving him enough fluids on top of the food to keep him plus or minus that 80 kilograms. So you knew he was going to lose three or four. What did he end up being about on-- I would imagine after two or three days, it did kind of stabilize from probably till the end or so.

Jordan Sullivan

This is the craziest thing, and this is why I give Ned so much credit. He did stabilize, and I've got the numbers. He basically stayed around 78, 79, and he never dropped below 2%. And the reason-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... for that, he had a fantastic hydration strategy. And that's not me saying I put it into place. That was him executing it.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And he-

Dr. Andy Galpin

No doubt

Jordan Sullivan

... executed it perfectly.

Dr. Andy Galpin

Theory and practice for like-- that is an execution.

Jordan Sullivan

100%. So his weight never went down.

Dr. Andy Galpin

Do you know offhand how much total fluid he was consuming per day?

Jordan Sullivan

It ranged between 500 mls and about 1.2 liters, depending on the weather.

Dr. Andy Galpin

Total throughout the day?

Jordan Sullivan

Oh, per hour. Sorry.

Dr. Andy Galpin

Okay.

Jordan Sullivan

Yeah

Dr. Andy Galpin

There we go.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

All right. So between a half and a little over a liter per hour while he's running.

Jordan Sullivan

While he's running, yeah.

Dr. Andy Galpin

For the most part. Okay. And that was enough where he could not feel like he's sloshing around in his stomach, but then also getting the fluid in that he needed to get in.

Jordan Sullivan

Yeah. And again, that was part of the assessment that we do. And I have this philosophy, and I'd love to hear your thoughts on it too, Andy, is that if there's one marker that you can use to tell how well an ultra-endurance runner will go, it's their sweat rate.

Dr. Andy Galpin

Oh, yeah.

Jordan Sullivan

And I think if you've got a low sweat rate, everyone would know those guys in races that rock up to aid stations, and they just, "Oh, bit of watermelon, great. Ooh, shish kebab, I'll have some of that. Chocolate, orange juice." And then they run on their merry way because what they're losing is very easy to replace.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And they're never going in past these 2.2 to 3 to 4% dehydrated. So they're never getting to the point where, "This is getting really stressful on my system, and we're getting all these cardiovascular problems. The plasma volume's going down. We're not perfusing to the gut," all these problems. They're not getting there because it's so easy for them to replace it. When you get these really big sweaters, completely different. These are the guys that are dragging their feet into the aid stations. They're overheating because they're dehydrated. Even if they're drinking a liter of fluid per hour, they're still not even-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... meeting 50% of their needs. Big problem. That was the first thing I looked at with Ned. And he, fortunately, was a very low sweater. He'd only lose between 4 and 700. 700 mls an hour if it was really hot.

Dr. Andy Galpin

Oh.

Jordan Sullivan

If it got really hot while he was running, he'd get up to about that 1, 1.2.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And he's within that limit. You can basically use that drink to thirst to an extent.

Dr. Andy Galpin

Yep.

Jordan Sullivan

To an extent-

Dr. Andy Galpin

Sure. Yep

Jordan Sullivan

... you can use that drink to thirst, which Ned did use. I'll say he did use it, but then again, it was very educated because we spoke-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... about it and being like, if I left him to his own devices, he just wouldn't drink.

Dr. Andy Galpin

Of course.

Jordan Sullivan

So he was aware he had to do it. But once you get past those areas where it gets really, really big losses, it's very hard to drink to thirst, for one, and it's very hard to just meet your fluid demand and that rate of losing just rockets down. It's a really big challenge. That was the first thing I assessed with Ned. When we did that, I went, "Okay, this is going to make this whole thing so much easier."

Dr. Andy Galpin

Yep. And did you just do that assessment via take your body weight, go run for your hour, come back in, check your body weight again. "Okay, you're down a kilo. We know you've lost a liter."

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Or something like that.

Jordan Sullivan

The way we do it is that, and you would know this for sure with weight cutting. I think weight cutting with these athletes, and for the guys that don't know who are listening, weight cutting is when we put the UFC fighters in the sauna or the bathtub-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... and they sweat a lot. I've spent years doing that with hundreds and hundreds of athletes, and I feel like I've got a very interesting perspective on sweating and heat-

Dr. Andy Galpin

Mm-hmm

Jordan Sullivan

... tolerance and everything. That is hugely helpful for these events. But what you know and I know, Andy, is that the first hour that you exercise, you lose quite a lot.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

The second hour, you lose a bit more, not as much, and then it goes down. And there's-

Dr. Andy Galpin

It cuts in half about every hour.

Jordan Sullivan

Yeah. And there's osmotic reasonings for all of that.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

It's interesting in ultra-endurance because unlike weight cutting, where you're nil by mouth, not putting anything in, you are over here.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So you're influencing those osmotic gradients that are affecting that. So what we do with our ultra-endurance athletes, "Hey, Ned, give me one hour at your normal running pace that we're going to be doing this race at. Okay, that's what you lose in your first hour. Give me one after your two-hour run, and then go out for a four, five, six-hour run. Record everything you're putting in-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... and let's see how this changes."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Because that's important as well. If we just do the hydration strategy for that first hour, we're probably going to overshoot your hydration as we get past the six, seven, eight-hour mark. That's going to create issues in and of itself.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So we need to understand what does your sweat rate do during the duration of the event, but then also what happens when the sun comes out and you're in exposed Sydney Olympic Park, and it's 32 degrees. How does that change your sweat rate? Compared to-

Dr. Andy Galpin

Totally

Jordan Sullivan

... there was one night we were there, and it got down to nine degrees, and you're getting extremely cold. You're not sweating at all.

Dr. Andy Galpin

Yep.

Jordan Sullivan

So you have to understand, okay, what's the fluid and electrolyte strategy for all of those situations?

Dr. Andy Galpin

Yeah. We don't play around with that, as in we measure it directly in real-time at all times. So especially fight week or competition week, during the Olympics and things like that. We will wear at all times a NIX and a AX sweat sensor. I don't have any affiliation to that company. We just buy them like everybody else. But you can put that on, and you can see in real-time exactly the sweat rate, total sweat amount, and the sweat content. So I know at all times when our fighters are doing weight cuts stuff. I don't have to have them step back on a scale. I literally know exactly what they weigh the entire time through. And so there's no guessing at all there. And that sensor is really cheap. It's like \$100 or something over here. So you can do a bunch of different things like that to not mess around. We do it a bunch in camp as well because you're right, it will change. When you change the scenario, the sweat rate, the sweat content will all change.

Dr. Andy Galpin

As they've sweated more, that sweat rate will go down, and that decay is pretty easy to actually plot. We'll actually do that, like almost always, is we'll plot that decay ahead of time.

Jordan Sullivan

Right.

Dr. Andy Galpin

So I'll know where we're going to be at. You know all the numbers on your guys, too. There's no guessing anymore at this point. But, do you happen to have any idea of how much sodium you were putting in per day, or any close to that? Because you can put back a liter of water per hour, but if you're not putting in some sort of electrolyte, you're going to be in problems, especially after 12 days.

Jordan Sullivan

Worked out to be about 550 milligrams, which was pretty good.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Pretty low, though, for-

Dr. Andy Galpin

Per hour.

Jordan Sullivan

Per hour.

Dr. Andy Galpin

Yeah, okay.

Jordan Sullivan

Well, per, I guess, liter of fluid that we were putting in, probably a better way to put it.

Dr. Andy Galpin

Yeah. Okay. That's not a crazy number-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... at all. That's going to be a crazy number multiplied by 10 hours.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

But really, at five grams, that's not that much.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So he is a pretty low sweater and a low sodium sweater.

Jordan Sullivan

And this is the thing that I've found with pretty much all our elite endurance athletes. They all fit that mark.

Dr. Andy Galpin

Really?

Jordan Sullivan

Is that they're a low sweater and they're a low salty sweater, but every single one of them will tell you that they're a really big sweater.

Dr. Andy Galpin

Oh, I know. Oh, I know.

Jordan Sullivan

Every single. And it's funny, though, and this is segueing a little bit, and this is a sentiment we both share, is that it's not that you're sweating a lot, you just feel really hot, and you're just associating feeling really hot with losing a lot of fluid. But they're not the same thing.

Dr. Andy Galpin

So I got a really good sense of what he was drinking and his electrolyte on there. What did his fueling look like throughout the actual race event here?

Jordan Sullivan

Oh, man. It's very eclectic.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So I'll give you-

Dr. Andy Galpin

Palate fatigue, right?

Jordan Sullivan

Yeah. I'll give you the daily rundown, and it's a bit odd, and people are going to listen to the first meal and be like, "What the heck?" And I'll give you the reasoning for it, so don't shoot me down

straight away. So first meal, my job when he came in, I'd wake up about 4:30, so we'd get home about midnight, and then I'd wake up 4:00, 4:30, and I had to be back at the track at 5:00. He'd start at 6:00 a.m. And, crazy enough, this is a little segue, the first two laps that he did, he would describe that he had to slam his feet into the ground. He wouldn't run. He would slam them into the ground so that his feet went numb, so he didn't feel them, so he could run normally. So we'd rock up to the track, and I'd have his breakfast with me, and I'd just hear this, "Dun-dun-dun, dun-dun-dun-dun." And I'd look at him, and it's just this guy, head down, just banging this. And then afterwards, I kind of said-

Dr. Andy Galpin

Some people are like, "That's the first 15 minutes of my day."

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Like-

Jordan Sullivan

And then he ran, and then he had to do another 15 hours of that. But he said, "If I didn't do that, my feet were in so much pain, I couldn't run." But anyway, I digress. I would rock up. The first thing I had to do, and the only thing he wanted to eat after about day five or six was, I guess, McDonald's. He wanted a McDonald's. But he would wake up... That's not the first thing. He'd wake up, and he'd have an oat bowl. So he'd have this big oat bowl, and we'd aim to get about 120 grams of carbs in it. He'd have oats, he'd have milk, he'd have brown sugar, banana, berries, maple syrup. We'd add to it a bit of protein powder. He'd have that, and he'd have his electrolytes so he could get back up and be hydrated.

Dr. Andy Galpin

Another 500 milligrams of electrolytes.

Jordan Sullivan

Yeah, thereabouts.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Yeah, thereabouts, and try to aim for about-

Dr. Andy Galpin

Using TrainAid, I assume.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Your product, yeah.

Jordan Sullivan

Yeah. So he'd drink that, and then he'd get back up. Well, he wouldn't get back up. He would be wheeled. He would wheel out to the track, and then we'd start going. And then after he did, I think it was eight laps, I'd have to be there with his first meal. And the thing is, that would sustain him for a little while, but all of these ultra-endurance events, you just get onto it before it's a problem.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

You have to do it.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And the only thing he could stomach was the McDonald's McMuffins. That, as well as hotcakes drenched in syrup, which got a lot of carbs. And he even said to me, he's like, "Man, I'm never eating this food again." And I get it, because he doesn't eat that in his day to day. And his mum looked at him at one point and said, "Look, honey, it's serving a purpose, and it's working, so let's keep at it." And then a lot of people will say, "Oh, why didn't you just give him these whole foods and do this?"

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And don't get me wrong, we trialed them. We did. We absolutely did. In an ideal world, I would give it. It's just not realistic. Not when you've been going for that long. Your brain is just so fried, and-

Dr. Andy Galpin

You're 600 miles in.

Jordan Sullivan

And the other thing, Andy, that people don't appreciate with this, is that there's a lot of sodium in

those foods.

Dr. Andy Galpin

No doubt.

Jordan Sullivan

A lot of sodium, and people will go-

Dr. Andy Galpin

Savory

Jordan Sullivan

... and it's like-

Dr. Andy Galpin

Everything else in his life was sweet at that point.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So it's like we're ticking two boxes, where I don't have to give him something sweet on the palate-

Dr. Andy Galpin

Definitely

Jordan Sullivan

... and then I don't have to rely on giving him salt tablets, which when you're taking salt tablets as well, they can have that osmotic effect as well.

Dr. Andy Galpin

Dehydrates person.

Jordan Sullivan

If you can get it in the food, it digests better. So a lot of the sodium we were giving him, I was trying to get in the food. And people look at it and go, "Oh, what? You can't. That's unhealthy." And you go, "For that point in time, that was the best thing he needed."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And the thing is, it got him through, and he doesn't eat like that for-

Dr. Andy Galpin

Of course

Jordan Sullivan

... 99% of the other time. But that's why his gut can get away with it, because he's trained his gut very, very, very healthy all the time. But yeah, big oat bowl, and then we'd start with McDonald's, and then we'd just rotate between... We had so many different options. We'd go from custard bowls, yogurt bowls. We'd have shepherd's pie. We'd have, oh, man, all sorts of food. You think of it, we made it, and it was just like we were getting fresh food brought in, like meat pies, baked goods, veggie slice, all types of different things. We had pretty much the goal of, okay, every 40 minutes or so, if we're aiming for about 70 grams, we're getting in like 30 to 40 grams of carbs every time he takes something in and he eats.

Dr. Andy Galpin

Yep.

Jordan Sullivan

So whatever we were making and concocting, we had to run the numbers. And we had his mum and then a couple of the crew members there, and we had a big run sheet. So every time they would write it down, I'd go past and be like, "Okay, let's work this out. Where are we at?"

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"Did he get it in? Okay, we didn't get it in that round. This next one, let's add some, say, whipped cream or something light or maple syrup, honey to the banana bread, just so we can get these numbers back up."

Dr. Andy Galpin

Yep.

Jordan Sullivan

Because like I said- This is probably one of those situations where these buckets over here, we're very much depleting them.

Dr. Andy Galpin

So he was eating about every 40 minutes.

Jordan Sullivan

About every 40 minutes. So the way it worked is that every two laps, he'd take on hydration, and he'd swap between water and electrolytes, and then every eight laps or so, which worked out to be about 40 minutes, we'd give him a little something to eat. And then after 32 laps, he would come in and sit down for a meal.

Dr. Andy Galpin

Proper meal. Makes sense. So what were his total numbers at on those days in terms of how many total grams, carbohydrates, and calories, and things like that?

Jordan Sullivan

It's on my phone. Can I pull it out?

Dr. Andy Galpin

Yeah, of course.

Jordan Sullivan

Yeah. Let's-

Dr. Andy Galpin

Yeah

Jordan Sullivan

I wrote these down. All right. So Ned's daily nutrition. So we were aiming for about 8,000 calories a day. What we got in-

Dr. Andy Galpin

Okay, so even, you about doubled his normal daily stuff.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

That was the target, the idea-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... the strategy.

Jordan Sullivan

And just on that note, 8,000, do the maths, I'm running for 16 hours a day, 100 miles. You're burning way more than that. Yeah, we are. Absolutely, we are. And this is why this is important

that we have a strategy to make sure these buckets are full, because in the background, where we're making up the difference is this bucket of fat.

Dr. Andy Galpin

Yep.

Jordan Sullivan

That's where it's coming from. And what we need to do, and why we're putting so much emphasis on the carbs, is because this is what's keeping him going, because yes, we're burning this fat almost in double time while he's running, and just to make up the energy difference.

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

So it's literally like I keep saying, everyone loses, we're just trying to slow down the rate at which you lose so you can get to the finish line. Carbs, we were averaging just shy of 1,100 grams.

Dr. Andy Galpin

1,100 grams.

Jordan Sullivan

1,100 grams. Which worked out per day to be 13 grams per kilo per day.

Dr. Andy Galpin

That was the strategy.

Jordan Sullivan

Yeah, so pretty close.

Dr. Andy Galpin

That was what you actually executed.

Jordan Sullivan

That's what we executed, yeah.

Dr. Andy Galpin

Wow, that's pretty good then.

Jordan Sullivan

Yeah, insanely good. Like I said, hugely impressive from him. Protein, 307 was the average, which was 3.8 grams per kilogram per day.

Dr. Andy Galpin

Why so high on protein?

Jordan Sullivan

We had to make up the calories

Dr. Andy Galpin

Mm.

Jordan Sullivan

To be fair, because otherwise it would be, one, I think the lean muscle degradation was a big problem he had in his last race.

Dr. Andy Galpin

Mm.

Jordan Sullivan

And so a big focus in his block was putting on a lot of muscle.

Dr. Andy Galpin

Yep.

Jordan Sullivan

And then I was very aware that we're going to still, and I'm talking about these buckets, muscle is a bucket as well that you don't usually tap into. I was very aware that he would start tapping into it.

Dr. Andy Galpin

Oh, yeah. Again, this is where you'll differ from even an Ironman, right? Where you're not concerned about protein intake from a muscle preservation perspective at an Ironman.

Jordan Sullivan

Oh, absolutely.

Dr. Andy Galpin

Because who cares?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Right? Doesn't matter.

Jordan Sullivan

8 to 10 hours, breeze.

Dr. Andy Galpin

Not a big deal.

Jordan Sullivan

Me and you can do it-

Dr. Andy Galpin

You had to do that for 10 straight days.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

12 straight days.

Jordan Sullivan

Yeah, exactly. It's just a different ballpark.

Dr. Andy Galpin

So that's actually interesting. I never thought about that, because at that point you absolutely have to be worried about it, right?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

When you do, just on this protein point, when you yourself or have coached other folks doing a more traditional Ironman or maybe even a, honestly a 50 or 60 mile ultra, what do you normally like to have them at for protein intake?

Jordan Sullivan

We don't particularly look at it too far in depth unless it's above 100 kilometers.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So 100 kilometers, you're getting anywhere down between 12 and 16, 18 hours. If you're doing like 100 miler and you're going into the 24 to 36 hour-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... that's when we look into it.

Dr. Andy Galpin

So sub 10 hours, you don't even care about protein intake.

Jordan Sullivan

Yeah, we're not really looking into it. And again, I guess the other part to that, and we won't go into it, is like the frequency of racing, which comes into-

Dr. Andy Galpin

Right

Jordan Sullivan

... you're doing these big training blocks, which are going to be very muscle atrophying.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So it's like we need to look into it. But we're still not aiming for crazy big numbers-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... if I'm being perfectly honest.

Dr. Andy Galpin

Well, honestly, generally people do pretty low protein-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... at this point, right? Because you're trying to get in fuel, you're concerned about getting calories, so fat will bring in, you really care about carbohydrates, and protein is usually there just to settle the stomach.

Jordan Sullivan

Mm.

Dr. Andy Galpin

Because it comes along for the ride in some foods, it's there a part of other stuff. So if you're doing a paddleboard race or a walk or something like that, and you're sub 10 hours, then focus on fat, calories, digestive comfort, and not worrying really about protein at all. What do you like to see past that 10-hour mark for protein? Is it closer to that one gram per pound?

Jordan Sullivan

Yeah, I'd say one gram or so.

Dr. Andy Galpin

Ish.

Jordan Sullivan

1.5-ish or so.

Dr. Andy Galpin

Yeah, okay.

Jordan Sullivan

But yeah.

Dr. Andy Galpin

But in this case, you want to go way higher than that because-

Jordan Sullivan

Way higher

Dr. Andy Galpin

... you had a very unique challenge.

Jordan Sullivan

Yeah, and I knew that that was an issue after his last challenge that he had. And then you've got to put that muscle back on afterwards, right? Which is very difficult-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... so let's just not lose as much during it.

Dr. Andy Galpin

This entire conversation, we've leaned heavily on carbohydrates. So with this event, with maybe the 10-hour plus events and the sub-10-hour events, was there any thought to going really high on fat? Particularly for this one, given the fact that it's lower intensity, it's blah, blah, blah. Have you guys experimented with that? Did you try that with Ned? What are your general feelings on the endurance people going really high on fat given the-

Jordan Sullivan

Yeah. I've got mixed feelings about this. I think if you look at the literature, I think Louise Burke's done some really good stuff here. Her Supernova studies, I think are just the-

Dr. Andy Galpin

Yeah, they're great

Jordan Sullivan

... the greatest things ever written.

Dr. Andy Galpin

Out of Australia.

Jordan Sullivan

Yeah, out of Australia, yeah. Louise is probably the GOAT of all sports nutrition, and-

Dr. Andy Galpin

Yeah, she's phenomenal

Jordan Sullivan

... and she's studied this a lot, right? And she even says it herself, it's not that she's anti-keto or pro-carb or... When you're working for the Australian Institute of Sport, you're trying to find out what works best for the athlete to get gold medals.

Dr. Andy Galpin

You are incentivized to win.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

You're not paid, incentivized to promote a diet. Like, you want your athletes, I promise you right now, if I knew how to fuel my athletes better than the rest of you, I would do that. I would probably not tell you, but I would 1,000% be doing that, not be protecting a brand or like, because who cares?

Jordan Sullivan

Right.

Dr. Andy Galpin

Behind the curtain, if you're not telling anybody, you would be doing what works the best, right?

Jordan Sullivan

Yeah. Exactly right.

Dr. Andy Galpin

So yeah, her incentives are to show that, or well, is to find the thing that works the best.

Jordan Sullivan

Yeah. And you would've seen this when you were coming up through university doing your doctorate. There was this whole thinking, right, out of this whole system I just explained, where,

okay, we've got this big bucket of fat. We've got these finite resources of glycogen. There's the bucket of protein over we're not really going to touch, but if there's a finite resource of glycogen, why don't we just focus on the huge reservoir of fat and get better at using that, and use that throughout the Training or the competition

Dr. Andy Galpin

Let me add a couple of other pieces to that actually, to make the case for fat. The other strong arguments I hear are it breaks up having to have such sweet stuff all the time, like you're getting carbohydrates, so the palate fatigue is one. Another one is you've gotten over double the amount of calories per gram. Right? And so if you're looking to try to get 6 to 8 to 10,000 calories in on a day, fat is a way easier source. So those are probably the strongest arguments for going a moderate to even really high fat there.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So that's the argument, but in theory-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... how does it work?

Jordan Sullivan

So in theory, you can go, okay, if I eat a higher fat diet, lower carbohydrates, I should be able to metabolize and oxidize that fat better, and then therefore, at these intensities that are lower to the higher intensities, if I'm using more fat because I'm fat adapted, I should be going into this fat reservoir and using more fat, sparing the muscle glycogen. I should be able to go further for longer, and I should perform better. And it's a very valid theory. And what Louise did in those supernova studies is she took those elite race walkers, and she fed them. And to be fair, it's three weeks, but she's repeated the supernova studies-

Dr. Andy Galpin

Oh, she's done a different-

Jordan Sullivan

... almost eight times, I think.

Dr. Andy Galpin

Oh, yeah. Yeah. A ton of different protocols. The different lengths, in terms of short duration, longer duration. Yeah.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

She's done it a bunch.

Jordan Sullivan

So she took these two groups of elite race walkers, fed one of them a high-carb diet, which was about 8.6 grams per kilo, don't quote me on the exact number-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... per day, so quite high. So high rocks high. And then keto, very low, so 50 grams per day.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And then when it came-- These are elite guys that did this in a race to perform as well. So when she measured them, she said, yes, in fact, when you eat a higher fat diet and you have less carbohydrates, you do indeed burn more fat, and you burn more fat way more efficiently. And then when you eat more carbohydrates, you burn more carbohydrates. So then you go, okay, well, let's put these guys in a race together and let's see what happens. And every single time she's repeated this study, the high-carb guys win. And you go, "Well, why is that?" And you do in fact see when you track this, yes, these guys do oxidize more fat, almost double to triple the fat gram per minute than what the high-carb group is. But when you get up to these higher intensities, they, one, just don't have the reservoir of fuel in the glycogen, so their body's looking to get this glycogen that's just not there, and two, they don't have the enzymatic processes-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... to rapidly break down that carbohydrate. So these race walkers, much like Olympic marathoners, anyone that's really going hard in a race who's getting 85, 90, 93% of their VO2 max, you're looking to burn and break down this carbohydrate. These guys are very efficient at the fat, but when it came to those higher levels, the high-carb guys won out, and you go, "Well, can't you just burn the fat in the same way?" And the thing is, people think you can't burn fat at high intense. You can. You absolutely can. And the difference between it is just 5.6%. And all that is, is just the chemistry, the stoichiometry.

Dr. Andy Galpin

For sure.

Jordan Sullivan

And if these guys-- If you remember doing your organic chemistry, no one loved it at undergrad. But if you work out the amount of ATP, which is the energy molecule, that you get per molecule of oxygen, you get about 5.6% more ATP per molecule of oxygen for burning carbohydrate compared to fat.

Dr. Andy Galpin

Yeah. So this is a really good biochemistry point that gets lost in people that know just a touch of exercise physiology. If you were to take a gram of carbohydrate and a gram of fat, you would get an order of magnitude more total ATP from that same gram of fat. Right? You would get far more. There are way more carbon bonds. You'll run way more rounds of Krebs cycle, tricarboxylic acid cycle, and you get way more total ATP.

Dr. Andy Galpin

But it's literally the opposite when it comes to oxygen efficiency. That's the story that you just outlined. Carbohydrate is more efficient, right, per molecule of oxygen by that exact amount. This is the difference, right? It's total amount of capacity for ATP versus efficiency per molecule of oxygen. Sometimes you care about the total number. Sometimes you care about the efficiency. In this particular case, this is going to be a problem even though you have-- Because fundamentally, you're not out of fat ever anyways. That's not the rate-limiting part of burning, of performing, is not how much fat you have. Because as you shared earlier, it's not outrageous to have 100,000 calories on your body of potential fuel in fat.

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

But you're going to have 2,000 calories of carbohydrate on your body, you're going to be limited by that.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

That's going to be your... So it's faster, it's directly in the exercising muscle tissue itself, and your stores are limited. So it may or may not be better, but it's certainly going to be the limiting factor. It's going to run out much faster, right? The supernova studies are not perfect. The high-fat ketogenic folks love to criticize them. No study is perfect, right? But I think based on all the available evidence, and in this, at least your philosophy with your experience, it seems to be the

carbohydrates for these kind of events are the one. Is that the same for sedentary people? No, those are totally different conversations, right? We're talking about performance, fueling long-duration endurance events, your personal experience with your individual clients, and at this point, I think you've made a pretty compelling case that you're not no fat. That's not, like three grams per kilogram is not low in fat.

Jordan Sullivan

Mm.

Dr. Andy Galpin

That's a high amount. But you're certainly going to be emphasizing carbohydrates a lot. Is that a fair-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... summary of your point?

Jordan Sullivan

And I think if we go back to that point that we made right at the start where we worked out the zone two heart rate.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So if we go back to that point, and even someone would say, "Oh, Ned's not running at 85, 90% VO2 max." And I say-

Dr. Andy Galpin

Sure

Jordan Sullivan

... "I absolutely agree." But considering everything that's going on with his body, cardiovascular drift, the stress, and everything else, the way that his metabolism does work is he probably is sitting in that high zone two Which we know is still predominantly using carbs. So we can say, okay, well, if he's going to predominantly be using carbs as an energy source anyway, yes, the fat is really important and being fat adapted is really important.

Dr. Andy Galpin

Definitely.

Jordan Sullivan

But we need the carbs because it's a finite resource. And I always say to people, one, if your goal is to get fat adapted, the best way to get fat adapted is just to train. You become really fat adapted just by training. It's the best and most powerful training response you get. And then I say, okay, two, coming back to that point, these ultra-endurance races are really tough, and that relationship between glycogen levels and central fatigue, even though we don't completely understand it, it's a real thing. When you've got someone running for 12 and a half days and we're getting low on glycogen and he's absolutely mentally losing it, if I can give him more carbohydrates and that gets us back on track, and that gets us back going towards the goal, we're going to go with more carbohydrates. And that's something we notice every time that Ned would mentally slip, run through the numbers. "Oh, man."

Jordan Sullivan

We missed a feeding opportunity. We didn't get this in."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

"We didn't do this. Blood sugar must have dropped." And then he really struggled. He started burning into that glycogen. So, and I do appreciate it, and like you said, for the everyday person, for sure-

Dr. Andy Galpin

Totally

Jordan Sullivan

... we can talk about the fat adaptation, but when it comes, we see it clear as day. The fastest marathon runners burn more carbohydrates. The fastest ultra-endurance athletes who are running 100 miles at these 85, 90% their VO2 max are burning more carbohydrates. You can do an ultramarathon just on fat, absolutely. You're just probably not going to be up there. And when we say 5.6% more efficient, every single marathon world record in the last 10 years, or five, six years, let's say, has been broken wearing super shoes.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Which add how much percent to it?

Dr. Andy Galpin

Probably a couple of percent.

Jordan Sullivan

A couple percent, and then you think, okay-

Dr. Andy Galpin

It's a good difference, right?

Jordan Sullivan

And then you think, and 100-meter sprint isn't the best example for energy system-wise, but you think the difference between first place and second place-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... is 1%. So if we're seeing that, okay, you can be 5.6% more efficient, and then these studies are saying that the high-carb athletes are performing 8% better just by the way that they eat, maybe for the everyday person, if you're just trying to complete it, for sure, we can try some fat. But if you're at the top level and you're trying to do something insane and you're trying to compete, we're taking that 5.6%.

Dr. Andy Galpin

Yeah. All day, right? There's a difference between completing and completing at your fastest.

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

Okay, fantastic. I want to touch really quickly, and we'll have to do a whole show on this, but I opened up the chat today. I gave the example of your Hyrox fueling, and then I gave the example of Kai Kara-France doing this, and it was still jelly beans, Parmesan chicken, coconut cookies and chocolate, grilled salmon.

Dr. Andy Galpin

You get the idea here, right? This was for somebody trying to lose, I don't know what it was, five kilos in five days, or probably something like that. He's a little bit more. What I want to know is about this five-day process of weight cut. I realize many of you listening will never do something like this, but some of you will. We have a ton of weightlifters and powerlifters and wrestlers and jujitsu folks and things that are going to be... And those that are also just interested in physiology. Like, how do these pro athletes do it? I think if I would've had a poll of people who listen to the show, and I asked them, "What do you think a fighter eats?" I don't think for this weight cut, none of these things would've landed on that list. 1,900 calories for a guy, again, it doesn't matter if these are exact numbers, but probably Monday of fight week was 135 pounds

and had to get down to 125.

Dr. Andy Galpin

It's probably in the stratosphere. If not, it's reasonable numbers, right? So 10 pounds in five days. He ate 1,900 calories a day, 60 grams of carbs, 140 grams of protein, and 125 grams of fat. How on earth does that equal 10 pounds of loss over five days?

Jordan Sullivan

So, to understand this, let's break it down into two distinct sections. So we've got the fight camp, so when these guys sign a contract, say, "Andy, you made the UFC. Congrats." You call Jordy up and you go, "We got to make weight."

Dr. Andy Galpin

About time.

Jordan Sullivan

Yeah. And you go, "Hey, Jordy, I've got eight weeks."

Dr. Andy Galpin

Okay, I'll give you numbers on me right now. Probably walking 175, and I competed at 145.

Jordan Sullivan

Yeah, okay. So we get these numbers, 145, and we go, okay, we need to figure out how to get Andy on weight. There's going to be two distinct-

Dr. Andy Galpin

I got 10 weeks

Jordan Sullivan

... 10 weeks. Okay. Two distinct parts of this process. We're going to have our fight camp process, which we're going to focus on body fat loss. So through that process, we're going to-

Dr. Andy Galpin

I have none.

Jordan Sullivan

Yeah. I can tell. You're looking good.

Dr. Andy Galpin

Thanks. Appreciate it.

Jordan Sullivan

But we're going to lose that body fat. The way we're going to do that is a sustained controlled calorie deficit.

Dr. Andy Galpin

That's all the stuff we talked about earlier.

Jordan Sullivan

All we talked about. We're going to put all these principles of periodizing the nutrition so you can fuel.

Dr. Andy Galpin

1% per week.

Jordan Sullivan

Exactly. So we're going to use that. So let's just say 1% per week, and then we go, okay. Then we transfer over to nine weeks of training. You arrive to the hotel, which is in the city you're fighting in. We've got one week here.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Then the strategy changes to what we call the acute weight cut.

Dr. Andy Galpin

Okay. So let's just say, as an example, I'm 170 right now. I did that. I had nine weeks. I lost 9%. I don't know what the exact math works out there, but I've done this 145-pound thing many times. So I can tell right now, that's going to be 158.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Probably in the ballpark, right? So if I'm Monday of fight week, 158, I got 13 more pounds to go. I'm very happy with that number.

Jordan Sullivan

Yeah, exactly.

Dr. Andy Galpin

That also then meant I lost 12 pounds in nine weeks.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Very reasonable.

Jordan Sullivan

Yeah, and it's within those limits, right?

Dr. Andy Galpin

Yep.

Jordan Sullivan

Where we go, okay, that's about 0.5 to one, maybe 1.5% is okay, but we're happy with that. I feel like we can remove water in that acute weight loss phase very safely.

Dr. Andy Galpin

In those five days.

Jordan Sullivan

In those five days. But some guys, for whatever reasons, genetics, certain characteristics, we might be able to push that up to 12%. After that, I'm not very comfortable with it, I think, with the return.

Dr. Andy Galpin

So for me If I'm 160, 10% would be 16 pounds.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So you'd be comfortable with me going 16 pounds of water over those five days, which would be 144.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So some people, 8% is probably their limit, which means they need to be 157 or so. Some people, maybe 12% would be that 162, 163. So these numbers are lining up pretty much perfectly.

Jordan Sullivan

Yeah, exactly right.

Dr. Andy Galpin

Okay. So let's just say I'm at that 160, I'm a moderate weight cutter-ish, I'm sort of average, and that 10% would probably... I don't even have to do that, like nine-point something, but let's say 10%.

Jordan Sullivan

Yeah. So we got 10% here, and then we go, "Okay, we need to completely change your dietary strategy."

Dr. Andy Galpin

Everything changes at this point.

Jordan Sullivan

So everything changes. So for that change to work, though, in your fight camp, you need to follow a couple principles. You need to be eating a good amount of carbohydrates, you need to be replacing the salt that you're losing in your training, and you need to be having a good amount of fiber. And the reason we need you doing that all through fight camp is because these are the three nutrients that we're going to manipulate in these five days to get this water out. And what we're doing in these five days is we're strategically, scientifically, but very slowly taking water out of different compartments. Now, the first big change that a lot of people will be familiar with is we're reducing carbohydrate intake. Now, if we're reducing carbohydrate intake, if we go back to this bucket, what we're going to do is slowly remove all that glycogen. So if we're removing all that muscle glycogen, we're removing some of the liver glycogen, we're not only just removing the physical weight of that stored glycogen, but every piece of glycogen, and this number's up for debate, but I always go with-

Dr. Andy Galpin

Mm

Jordan Sullivan

... it holds 2.7 grams of water. So let's just say one gram of glycogen with three grams of water. So by using this strategy, you've got four grams here, thereabout-

Dr. Andy Galpin

Total weight

Jordan Sullivan

... of total weight, of your total glycogen that we can rip out. So that can translate up to two, three, four kilos, which is-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... what? Five, six pounds.

Dr. Andy Galpin

Well, and let's do easy math, right? Let's see, if I dumped 100 grams of carbohydrate and then

an additional 300 grams of water, I just lost a half a kilo.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

-ish, right? Like, I'm over a pound in that made-up scenario, right? So I'm there.

Jordan Sullivan

Yeah. And to do that, all we need to do is reduce your carbohydrate intake. So we're removing all of our grains, our breads, our pastas, things like that, and we're replacing them with high-fat, high-protein foods. Thing is, though, Andy, you're coming in, you'll go to UFC fight in five days' time. Your coach is going to want you to train every day. And I go, "Okay, well, I know that from doing mixed martial arts, it's a very tough sport to do when you don't have carbohydrates on board."

Dr. Andy Galpin

Mm-hmm.

Jordan Sullivan

And we can't rely on your bucket of glycogen because we're depleting that every day. So that 60 grams that you're seeing that I'm giving Kai every single day, we're strategically using one of those receptors that we spoke about earlier to get him 60 grams of carbohydrates right before his training, so when he goes in and trains, one, he can actually train to a decent level, and two, mentally, he feels better. So that's where that 60 grams comes in.

Dr. Andy Galpin

And that is almost entirely coming from those jelly beans.

Jordan Sullivan

Yeah. Well, it's personal preference, right?

Dr. Andy Galpin

Right.

Jordan Sullivan

Because some guys like, they love having blueberries and strawberries or fresh fruit. A lot of these guys, you've got to remember, they've come off... So Andy, you've just come off nine weeks dieting.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And now you're coming into this pretty intense weight cut phase where you're depleting your body. That glucose hit is a real thing, and anyone who's done endurance sport and has done a carbohydrate mouth rinse will appreciate this. Even you swishing carbohydrates in your mouth-

Dr. Andy Galpin

Sure

Jordan Sullivan

... and spitting out sends a signal to your brain, and you go, "Wow, I feel good." That's essentially what we're trying to do by hitting this 60 grams of carbs right before training.

Dr. Andy Galpin

Yeah, and you're, depending on the size of the person, probably looking for 30 to 50 grams in that pre-workout-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... sort of thing. Okay. So they're going to do that, and they're going to continue that. We don't need to walk through all the details of the exact fight week stuff, but why not just take calories way down? Why not just go to 1,000 calories? My assumption is I got 10 pounds to go. I should start pulling calories way down for this whole week, right?

Jordan Sullivan

Yeah, because this is the thing. In that first block, that's what we were focused on, right? We were focusing on-

Dr. Andy Galpin

Nine weeks. Yeah

Jordan Sullivan

... nine weeks of losing body fat. To do that, we need a controlled calorie deficit. When we are manipulating this water in these different compartments, and this is going to sound crazy to a lot of people, but you can do that independent of being in a calorie deficit.

Dr. Andy Galpin

Completely independent.

Jordan Sullivan

Completely independent, which means you don't need to be in a deficit to lose that weight. And we're not saying you're losing body fat here. All we're doing is shifting fluid out of different

compartments. For example, reducing the carbohydrates, that's an intramuscular compartment that you're taking the glycogen out and all of the associated water with it. That happens whether you're on 3,000 calories, 1,500 calories. As long as your carbohydrate intake is limited and you're removing that glycogen, that will happen.

Dr. Andy Galpin

Yeah. Water's in three places, for the most part, right? So you're saying these different compartments of intracellular, interstitial, and then plasma, right?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So we have it in there. We don't want to be taking it out of blood.

Jordan Sullivan

Yeah, exactly right.

Dr. Andy Galpin

That's a problem, right?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So take it out of the cells first, take it out of the space, and then ideally don't go to the-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... vessels at all. All right, so we're going to do that. I don't know if you do this or not, but I do almost every single time for years now, our highest calorie intake will be fight week.

Jordan Sullivan

Yeah, for sure.

Dr. Andy Galpin

We're way up-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... in calories.

Jordan Sullivan

Because you don't need to do it right. And the thing is, these guys have just trained, and what do you do every other sporting event before you compete?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

You do some type of taper and a load. But for fighting, we don't do that.

Dr. Andy Galpin

You can't.

Jordan Sullivan

You reduce the training, but it's to cut weight. So by increasing the calories, you're giving their body a bit more of a chance to recover. They feel better. It's more of an intake. They're not going to put on weight. You're not going to put on body fat because they're eating at their maintenance calories anyway. They're just going to feel so much better, and it's such a better experience because the thing is, you can reduce the calories as well-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... and do all of this. It's just a way worse experience.

Dr. Andy Galpin

Yeah . For sure

Jordan Sullivan

What we're doing for our second step is stripping all that fiber back as well. So we're taking that out of the meals, and because of doing that, we're going to remove all of the digestible, not waste product, but we call it dead weight that's in your gut, that if you just had an amazing big salad and veggie bowl two nights ago, Andy, you're probably still pushing it through, but it's just sitting there in your gut bacteria just eating it and loving it. It's a great thing, just not for this particular environment.

Dr. Andy Galpin

This very specific scenario.

Jordan Sullivan

Very, very. And I always make this because people will always-

Dr. Andy Galpin

I know

Jordan Sullivan

... come at me and go, "You say not to eat fiber. I love fiber." That's one of the things that-

Dr. Andy Galpin

We talk about it a bunch on here

Jordan Sullivan

... I love fiber. So don't take this as don't eat fiber-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... it's the best. This very specific situation, we can lose a decent amount of weight by just taking it out, especially if they've habitually been eating a pretty high-fiber diet, which most of our athletes do. It's just easy weight loss, again, that will happen independent of the calories you're eating.

Dr. Andy Galpin

What would my fluid intake roughly be for, say, Monday, Tuesday, Wednesday?

Jordan Sullivan

Yeah. So there's a couple different approaches you can take with this. You can do what's called a water load, which is what a lot of fighters do-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... which is basically where they'll increase their fluid intake. The theory and philosophy behind it, and the proposed science is that if I drink a lot of water, even right now, we drink this water, we'll probably be in the bathroom pretty quick because our body will sense, "Hey, there's a bit more fluid in here. We've diluted a bit of the salt. I need to get rid of it. Let's get everything back into balance."

Dr. Andy Galpin

Plasma volume got too high too fast.

Jordan Sullivan

Yeah. "Let's go to the bathroom." So essentially, if you do that with increased fluid uptake, so if you water load, what the theory is, is that your kidneys then go, "Oh, there's a lot of fluid here."

I'm going to..." If you think about that garage door analogy that I used for the receptors, use that for the exact same of getting water out of your kidneys, and you go, "Okay, let's create more garage doors, so we can get more fluid out." And then if I strategically, 24 hours before, reduce that fluid intake, in theory, those garage doors should stay open, and I should let more fluid out in that final 24 hours before your body goes, "Oh, wait, actually, there's not that much water coming in. Let's close these and go back to normal." So these fighters do increase their water. The literature will tell you 100 mls per kilogram of body weight. I think that's okay if you're a smaller guy. If you get up to the-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... middleweight, it's light heavyweight, it's heavyweight, that's a lot. What I tend to think is I go, "Hey, Andy, through your fight camp, you are having three liters. Let's just increase it as a percentage of that." So then if that theory works out, and that's the science, all we need to do to get that response is have an above normal-

Dr. Andy Galpin

Right

Jordan Sullivan

... response for you.

Dr. Andy Galpin

It's better to-

Jordan Sullivan

So we don't need to go crazy because we can have a risk of hyponatremia, which is a real risk, and this has happened, where people drink too much fluid too soon, and it can dilute the salt in their body, and they can end up having a seizure, going in a coma.

Dr. Andy Galpin

Especially if they've cut salt out already.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So what we do is say only one liter max per hour, space it out throughout the day, about 50%

more than what you've habitually been drinking during fight camp.

Dr. Andy Galpin

50% increase.

Jordan Sullivan

Yeah, 50% increase.

Dr. Andy Galpin

Okay. And Monday, Tuesday, Wednesday, I'm still consuming normal amounts of salt-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... for the most part.

Jordan Sullivan

Yeah, for the most part. And then we're going to reduce our sodium because, again, everyone has an innate sense of this. If you have a really salty meal, like you go out for Asian food or whatever, you come back, you look at the scale, you go, "Oh my God."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Andy texts me and goes, "Dude, I'm so heavy." And you go, "Don't worry, you just had some," I don't know, "red curry and it was way too salty."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

That's going to draw water into your body. The opposite is true. If we reduce our sodium intake-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... then we're going to flush more water out.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So now you've got these three situations where we're reducing carbohydrates, reducing fiber, and we're reducing our salt. We're slowly moving fluid out, and the best part is that we're moving fluid out from these different parts of our body as well. So it's not so drastic on the system.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So for about three, four days, say Monday, Tuesday, Wednesday, Thursday, Andy, you've been losing between 1% to 2% of your body weight. We're coming down. Let's say you've lost 5% of the 10% that we need to lose.

Dr. Andy Galpin

So I was 158 Monday. I wake up Thursday, I'm 153.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

Pretty much maybe 152, hopefully, but something like that.

Jordan Sullivan

Exactly.

Dr. Andy Galpin

Okay. And now final day, this is when I'm going to do a true water cut, right? This is when I'll do the get in some calories when I can, low weight, right? Weight is the only thing that matters at this point, right? So I want really high calorie, really light foods. Fluids are what they are. And we'll do some sort of water cutting strategy, which ultimately is not a huge deal. If you want a sauna, if you want a bath, it doesn't really particularly matter, because you'll get that water weight off after that, right?

Jordan Sullivan

Yeah.

Dr. Andy Galpin

At this point, the only danger we really have is one thing, right? That's the only thing we really have to pay attention to at this point.

Jordan Sullivan

Well, at this point, this is the most traditional thing when people go, "Oh, weight cutting," this is what they think of, is this point right here.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Andy coming into a sauna with Jordy or a bath, and you're pretty dehydrated.

Dr. Andy Galpin

Got a sweatsuit on.

Jordan Sullivan

You've got a sweat-

Dr. Andy Galpin

I'm all taped up. Yeah.

Jordan Sullivan

Exactly. And you would've seen him running on the treadmill or whatever. And say we've got eight pounds. So where that eight pounds comes from is not an entirely different part, but this is what you and I would classify as the dangerous part of the dehydration.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And the reason why we use those three strategies before is because we can slowly move fluid out and give your body time to rebalance back through. And by the time you get here, you go, "Okay, we've got a lot of weight to move out. This is going to get me pretty dehydrated, but we're going to do this in a very smart way." So Andy, you've come in, we've got eight pounds to go. What I now need to do is for you to sweat it out. We need to sweat it out. And then we go, "Okay, how does that happen?" Like you said, there's a few options here. We've got sauna, we've got a bathtub, or you can exercise. And then I guess this is my entire job for the last six years is figuring out, okay, well, what's the safest way to do this with these guys? And to do this, you need to understand, okay, what's the goal? The goal here is that if we want to sweat, we've got to raise core body temperature, we've got to get it to a point, and we need to keep a consistent sweat rate so that over X amount of time, ideally the shortest amount of time possible, we're losing these eight pounds, no more, no less.

Jordan Sullivan

I can take Andy down to the scales, we can weigh in, and then I can strategically do the reverse of everything, start putting the fluid back in, the carbs, and everything. But that is a very, very dangerous part. This is the part that I would say is by far the most dangerous of all the weight cutting.

Dr. Andy Galpin

No doubt.

Jordan Sullivan

Because when you're dehydrated, you've already reduced what we call the plasma volume, where I spoke about it earlier, your cardiovascular system, that's all your blood networks, that's delivering oxygen, nutrients, everything to your cells. You've now reduced fluid out of there, and in order to sweat, in order to do this, we've got to take more fluid from there, and we're taking eight pounds, which is quite a lot. And the crazy thing about this, Andy, and you and I both share this philosophy, is that the human body is extremely resilient to dehydration.

Dr. Andy Galpin

So before you go on, you just said eight pounds is a lot. It sounds like a lot to the normal person. In our world, that's like I'm pretty happy.

Jordan Sullivan

You're very happy because the alternative to that, Andy, is that you didn't go in with-

Dr. Andy Galpin

That's right

Jordan Sullivan

... any strategy, and instead of having to do eight pounds, you've had to do 15 pounds-

Dr. Andy Galpin

That's right

Jordan Sullivan

... or 12 pounds, whatever it was-

Dr. Andy Galpin

Which are numbers we've both seen-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... many times and done. So-

Jordan Sullivan

And if I'm saying eight pounds is quite dangerous, then 15 pounds is extremely dangerous.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So this is why-

Dr. Andy Galpin

But really common

Jordan Sullivan

... and a lot of where that fluid comes from is the plasma volume, which is the fluid in our blood. So it will start coming out of that space. And what's even worse in this area is that for our body to cool, if this core body temperature's going up, the goal of sweating is for this sweat to evaporate into this environment, and that causes a mass cooling effect, so my core body temperature comes down. The problem is when you're in a sauna and that sauna gets past a very low number, give it, I think it's 45 degrees-

Dr. Andy Galpin

Yep

Jordan Sullivan

... that evaporative process does not occur. And this is where you see what we call the drip.

Dr. Andy Galpin

Yep.

Jordan Sullivan

And you see a lot of fighters with credit cards, and they're going, "This is great. This is great. Look at it." And it's like, it's not great because what you're now doing is you're heating the body up, but there's no process for cooling. So you're serving the purpose of getting this eight pounds of fluid off, but now you're entering this arena where my core body temperature's getting very hot, and we're entering into this heat stroke and potentially heat exhaustion arena.

Dr. Andy Galpin

Yep.

Jordan Sullivan

And this is the biggest problem we see with weight cutting. Very, very routine to see these guys getting heatstroke in a sauna, laying on the ground, convulsing, throwing up, and then their team's dragging them out, being like, "You okay?" And they'll be like, "Oh, we've got two pounds to go. Get him back in there." And you go, "Oh my God." And the reality is people have died.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

People have died doing it, and that's the thing is it's not necessarily the dehydration that's killing them. It's the complications that have come from being so dehydrated in that hot environment.

Dr. Andy Galpin

It's not getting hot.

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

That is your ultimate key. You will keep sweating for a really long time because in reality, how hot do you have to get to start sweating?

Jordan Sullivan

Just above. So if your-

Dr. Andy Galpin

Just above your resting temperature, right?

Jordan Sullivan

... if your core body temperature, I don't know what's in Fahrenheit, but 37 degrees Celsius.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

You go 37.1, your body goes, "Oh, it's hot. Let's figure this out."

Dr. Andy Galpin

Dumps it out, right? Last kind of question on this. Is there a number in terms of heat, because we test this, I know you do as well. I've seen you post about this. We are measuring temperature at all times. This is all I care about. Is there a number on average that you're like, "Okay, this is where we got too hot," even if the person goes, "Oh, no, I feel good. I'm good." You're like, "No, no, pull him down because we don't want to cross this temperature threshold."

Jordan Sullivan

Mm-hmm.

Dr. Andy Galpin

Is there a number you look for where you start to get concerned maybe?

Jordan Sullivan

Yeah. The literature says 40. If you're getting internal heat of 40, then you're-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... getting in the danger zone. Whether or not the equipment we're using, and we're using the same equipment-

Dr. Andy Galpin

That's sensitive enough. Yeah

Jordan Sullivan

... yeah, that the UFC Performance Institute's using as well, whether or not it's accurate, at least it's consistently inaccurate-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... with the same athletes. That number, that seems to be the zone where even if this guy's extremely tough, they've done heaps of weight cuts-

Dr. Andy Galpin

Yep

Jordan Sullivan

... if it goes above 38.5 on this particular machine, in reality maybe it is 40.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

But let's just say if it's at this point and the principle stays the same, everything gets really tough.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And my theory is that you can be the toughest guy in the world-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... but as soon as your body hits that, you go into emergency get me out of here zone.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

And I guess this is where the conversation, you see this a lot in endurance sports too, when they're running in hot, humid environments, what do they do? They heat acclimate. And what the theory is, and we do this with our UFC fighters and Charles Stultte at the UFCPI does this as well. I'm sure you do it as well, Andy.

Dr. Andy Galpin

Of course, yeah.

Jordan Sullivan

You heat acclimate to slow the rate at which you hit this point. Whether it's-

Dr. Andy Galpin

This is prior to weight cutting.

Jordan Sullivan

Prior. You're doing this for four weeks minimum beforehand.

Dr. Andy Galpin

Yeah. You're getting used to heat.

Jordan Sullivan

Yeah, exactly.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

So you're trying to instead of going directly like this and hitting that 38.5 or 40, whatever number that is really fast, you're slowing that curve and you're slowing the rate at which you hit that by heat acclimating, which is exposing yourself to the heat. What you're doing is you're bringing your-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... sweat on faster and you're changing the composition of your sweat. Both of those things, what they're doing is making you more efficient and it's slowing the rate at which you reach that critical get me the hell out of here point.

Dr. Andy Galpin

Yeah, fully agree. We're going to leave this and finish this thing up. But before we do that, I probably should've started this portion of the conversation with it, and I want to make it really crystal clear my feelings and allow you to do the same thing, but I don't like the weight cut. I don't want I'm not promoting it. I don't want anyone to do this. If I was in charge of all combat sports, I would either ban it or change the rules I don't know anyone that actually does this work that feels differently. Am I correct in assuming you feel the same way?

Jordan Sullivan

Oh, it's the worst. It's the worst part about the sport

Dr. Andy Galpin

I don't want to do this at all.

Jordan Sullivan

Yeah.

Dr. Andy Galpin

So I hope that wasn't that tone that we had, of the sort of the positivity wasn't interpreted that way. Unfortunately, this is a necessary evil that you and I deal with-

Jordan Sullivan

Yeah

Dr. Andy Galpin

... across multiple sports, right? The last thing I want to ask you about before we get on out of here is kind of going a very different direction, and that is really if somebody is not one of these extreme weight cut examples, which is most people and other things, and they listen to all this fueling for performance and they say, "Okay, great. I want to do better on my workouts, but I also need to be lower in calories. I need to lose some body fat." Can you give us some guidance on how we would structure, because you said these things about kind of putting stuff around, but can you give me more detail about how I can maybe manage my calories in and around my workouts while still then being at a caloric deficit so I can feel good, train well, but then also lose my weight over time?

Jordan Sullivan

Yeah. Two big things to understand here is that your training nutrition gets more important as the volume and intensity goes up. And when I say that, and I'm not saying that if you do work out, say, 30 minutes a day, five days a week, that it's not important. It's incredibly important for your health and your longevity that you do do that.

Dr. Andy Galpin

Yeah.

Jordan Sullivan

It's just that it's not the same as if you were training for three hours a day, five days a week.

Dr. Andy Galpin

No doubt.

Jordan Sullivan

Where, say, with Ned or these UFC guys, we really have to dial that back in.

Dr. Andy Galpin

Probably not super important for the average person doing a 30-minute elliptical workout to have to get 100 grams of carbohydrate in during that.

Jordan Sullivan

Exactly right.

Dr. Andy Galpin

In fact, the answer would be zero.

Jordan Sullivan

So if you're coming to me and you're saying, "Hey, I want to lose some weight. I want to do it for these reasons. These are my goals. I am able to work out, say, 30 minutes a day, five days a week," the first thing I'm looking at then is I'm going, "The biggest gains that you're going to get is from your overall day-to-day quality of diet."

Dr. Andy Galpin

Yeah.

Jordan Sullivan

Let's have a look at that. Let's have a look at that first and foremost. And again, Andy, I know it's boring, and I'm saying it over and over again, but it's going through that checklist. And the first and foremost, first thing you need to do is understand how many calories you need. And if we're saying, okay, that equation that we had, body weight times 40, what we can safely say is if you just do that body weight times 30 is a good starting point. But like we spoke about, try it, really truly understand what you're putting in, and then see how much you lose. Because that's the biggest mistake people make. By far and wide, it's not, "Do I need to cut carbohydrates? Do I need more protein? Do I need fat? Do I need to fast?" It's simply you don't understand how many calories you're truly getting in. Because at the end of the day, as much as there's all of this confusion about calories in, calories out, what constitutes it, all these different philosophies, calories in, calories out is a real thing.

Dr. Andy Galpin

Yep.

Jordan Sullivan

You can't change thermodynamics. What you can change is your behaviors, your relationship with food, the food you're actually eating. They're all the things that are going to influence this calories in way more. So what you need to understand is, one, how many calories do I need to be in a true deficit?

Dr. Andy Galpin

Yeah.

Jordan Sullivan

I'll say that again. True deficit. And two, do I have a system to accurately track that?

Dr. Andy Galpin

So for the, I hate this word, average person, though, what should I dial in first? My pre-, mid-, post-workout fueling or my daily nutrition strategy?

Jordan Sullivan

Yeah. I would say daily, for sure. I would say figure out what those calories are and go through this process. And like I said, the most important thing you're going to need is protein. So I would say if you're going to lose fat, protein is phenomenal for it. Out of all these buckets, yeah, we can store it in muscle to an extent, but you can't largely store it. And the way that protein works is that it takes a lot of energy to burn it-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... and to metabolize it. So if you have a higher protein diet, you're going to burn more calories by going through that energy source. So if you can have a high protein diet under a really well calorie-controlled diet, that's setting you up for success. And then it just comes down to personal preference. Do you like the fats? Do you like carbs? And then you say, "Okay, I am training. And you know what? I'm finding these 30-minute sessions quite difficult. I find it a lot easier if I have a bit of carbs beforehand." I'll go, "Okay, that's fine. Let's work out what your daily carbs are. Let's use those same principles to work out, are you getting the amount of fiber?" More likely than not, even if you're going 1,600 calories, we can find 120 calories, which is 30 grams of carbs, in that diet, which is also a medium banana-

Dr. Andy Galpin

Mm

Jordan Sullivan

... for you to have before your training. Whether or not that's going to give you the big, huge training adaptation that we're trying to get with a UFC champion or ultra-endurance world champion, probably not relevant. But if that makes you feel good, and if that makes that 30-minute training session a really high-quality session, and you burn an extra 100 calories-

Dr. Andy Galpin

Yeah

Jordan Sullivan

... because you're super motivated on the elliptical, let's do it. Is it completely necessary? Probably not. But if that's what you need to feel good in that training session, by all means, let's do it. But it all comes down to personal preference. And I know people don't like it, because they want you to be able to say, "Do this exact keto diet, eat this exact eating window, and hit this exact macro split, and you'll lose weight." But the reality is, it's just way more boring than that. It's way more individual, and you need to find what works. And the thing is, you need to find what works consistently.

Dr. Andy Galpin

Yeah. Can't thank you enough, man, coming all the way up here. I know it was a long flight. You've shared so many things. I took a lot away from this. I actually learned a ton about the fueling stuff. I follow everything you do, and we're in the same sport, and I've learned a ton over the years of the weight cut stuff. But more importantly than that is the actual numbers and the fueling strategies transferring over from science to application, and how do we cross that barrier? So it's been a really informative conversation. I know a ton of people will take a lot out of this, so man, I can't appreciate and thank you enough for being here today, as well as all the other stuff you've done over the years. So, it was such a pleasure.

Jordan Sullivan

Yeah. Thanks so much for having us, Andy.

Dr. Andy Galpin

I hope you learned from and enjoyed that conversation as much as I did. If you want to learn more about Jordy, his services, books, and working with him directly, and following along with the free education that he provides, I would encourage you to check out the links that are provided directly in our show notes to all of those and more. Thank you for joining for today's episode. My goal, as always, is to share exciting scientific insights that help you perform at your best. If the show resonates with you and you want to help ensure this information remains free and accessible to anyone in the world, there are a few ways that you can support. First, you can subscribe to the show on YouTube, Spotify, and Apple. And on Apple and Spotify, you can leave us up to a five-star review. Subscribing and leaving a review really does help us a lot. Also,

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Dr. Andy Galpin

Finally, you can share today's episode with a friend who you think would enjoy it. If you have any content questions or suggestions, please put those in the comments section on YouTube. I really do try my best to read them all and to see what you have to say. I use my Instagram and X profiles also exclusively for scientific communication, so those are great places to follow along for more learning. My handle is @drandygalpin on both platforms. We also have an email newsletter that distills all of our episodes into the most actionable takeaways. We have newsletters on how to improve fitness and VO2 max, how to build muscle and strength, and much more. To subscribe to the newsletter, just go to performpodcast.com and click Newsletter. It's completely free, and we do not share your email with anybody. Thank you for listening, and never forget, in the famous words of Bill Bowerman, "If you have a body, you are an athlete."