POD OF JAKE
#140 - ANDY GALPIN
AI-GENERATED TRANSCRIPT

Jake 00:15
Thank you, Andy, for coming on and taking the time to join me on the podcast today. It's great to have you I heard you first I think on humans podcast and then got into watching a bunch of YouTube videos. And it's just awesome content and very informative educational on nutrition and health and fitness and everything. And you know, the stuff I care about, I think a lot of my audience cares about. So it's great to be happy to have you on the show today. quick bio on you. You are a professor at California State University Fullerton, human performance scientist with a PhD in human bioenergetics and muscle physiology. You're also the co director of the Center for sport performance out there in Fullerton, coach to a bunch of elite athletes across various sports leagues, NFL, NBA, MLB, PGA and an A, probably any others that people can think about. co founded a couple of companies wrote a best selling book, and teach a bunch of classes sort of, in and around this realm. So looking forward to digging in on some of your expertise today. But I guess before we get started, is there anything sort of, I left out about sort of, you know, your background and your story that you'd like to share to kick things off?

Andy Galpin 01:25
No, I think you did a great job, man. That's a nice overview.

Jake 01:29
Awesome. Appreciate it. So with that, I'd like to get started in an area that I think is a bit ignored relative to you know, people think about how they think about nutrition and weightlifting in general exercise and sleep and things like this. One of the most ignored sort of core tenets of health, from my perspective is hydration. And I know, you spend a lot of time you know, teaching in the videos, and generally not sort of hydration. So I'm curious, just from like a fundamental principles perspective, how you think about people, you know, seeking to get the proper amount of hydration and maybe even just for someone who like has never even thought about this as all as being something that's important, they just kind of drink. by happenstance, how should people think about their hydration?

Andy Galpin 02:16

Well, water HDL specifically is the only thing ubiquitous across all living things. Not protein, carbohydrates, no vitamin, no mineral, nothing is required for living across all animals, except for water. Throw right out the gates that should tell you how important it is, it is involved in every process in your body, whether this is thinking, recovery, is making red blood cells making energy, digesting food, anything you think you care about, about how you look, feel or perform. Water is at the center of that. And if you look at what happens when you become excessively hydrated or under hydrated, it starts to become an avalanche of reduced performance quickly. And that can also cascade into death if you take it to the extreme. Now, most people are aware that if you become dehydrated, you die. But you also may not really see if you become over hydrated, you can die. Both of these have to be taken to an extreme, and it's much more likely to die of dehydration than over hydration. But the point is the same. This is really something that is a key performance enhancer, and actually, in our experience, can explain a lot of symptomology. Meaning we've had this happen plenty of times where people have come to us with things like chronic headaches, lack of energy, low testosterone, libido is compromised, can't recover, just tired all day, can't shake it, I've gone and got my labs checked, everything looks fine, etc, etc. And we have seen people have what they would describe as like almost miraculous recoveries in a matter of days. Because it was simply a hydration issue. A lot of times it's something else. But hydration can be a big player. This has happened to us multiple times in our executive coaching program. And we just look at stuff and it's like, you know, I think I have some sort of secret parasite or something going on and, you know, gut bacteria is off or maybe and it's like, well, impossible. And we see that often. When we look cursory view and it's like, well, wait a minute, you are extremely dehydrated, both acutely and chronically or hyper hydrated. And you saw that and then the next day they slipped through the night for the first time in 10 years. They're like what the hell, brain fog is immediately gone. So all these things can happen with basic hydration. Now you don't have to be perfect with hydration to have these things happen, but you just can't be awful. And we see this I would say in now 15% of the people that we work with, so it's not the most important thing, but it is frequent enough to where I'd say Man, this is a really good starting place. And if you're looking across the kind of health sphere you'll

hear people say things about you know on the diet and hydration and you know, sunlight and blah blah and everyone kind of glances over the hydration part In relative to the other things, that's it's probably fair. But again, I just explained to you how important this can be. And the nice part about it is it will change things acutely, GI distress, constipation, diarrhea, things like that are very common when hydration is off, so what do you do about it? In large part, just being somewhat conscious of it is probably good enough. Now, I'll give you some hyper specific numbers, if you want, but in reality of it is you can go a little bit based on what is called the what w u t system, W stands for Wait, U stands for urine, and T stands for thirst. And so if you kind of calibrate all three of those, you know, what's the what is your body weight look like. So in other words, if you go to bed at 200 pounds, and you wake up the next day, at 199.9, then I know you're extremely dehydrated, because you didn't lose anything overnight, you should have had a decent amount of water lost in your breath by breathing all night. And if you're not doing that you're very dehydrated. Conversely, if you wake up five and a half pounds lighter, and you've got up to pee three times, then you're probably over hydrated, and you're ruining your sleep or you have something else going on causing what's called nocturia. So nighttime urination, you should not be waking up more than once to pee and even once is, is correctable, though the answer should be zero there. If it's more than that, then something is happening. That's it's incorrect, we could get into later if you want. But that would be a very big one for weight, urine is the color it shouldn't look, you know, it shouldn't look like it's a gold rush coming out of there unless you just took a bunch of B vitamins or something. And so looking at the color of it should be there. And then thirst is the other one. Again, how thirsty Are you? Are you going to there. So those are all reasonably crude metrics that everyone can take a look at. Now, if you want to go more scientific, you can do things like wear a sweat patch. And there's a whole host of different companies that make different patches, where you can measure the hydration level and the concentration of exactly what's coming out. And those are everything from like $12 to $180. And so they range up and down. And they'll give you a pretty good indication, they won't tell you your hydration status, whether you're hydrated or dehydrated or anything, but they're gonna tell you how much you're sweating. And then someone will tell you what's in your sweat, so you can know what

to drink back. So if you don't want to know any of those things, the rough rough rough number is something like half of your body weight in ounces per day. So if you weigh 200 pounds, half your body weight is 100. So that means drink 100 ounces of water or fluids a day, that gets you pretty close. For most people just wake up in the morning, try to drink a liter of water or something like that, as close as you can get 20 ounces 24 ounces as much as you can. And then a couple of times throughout the day try to just pay more cognizant of your water. And that's going to help a lot of people. Then the last one is there are some performance based numbers that I can tell you, if you want to know like how much to drink during maximal exercise, to maximize your performance, we could get into that, but from a lifestyle perspective for most people, that that's a rough number to be at. So I gave you kind of the the rough thumb kind of give me close, and that gave me an actual number. But then I also gave you the symptoms to pay attention to.

Jake 08:21
Yeah, that's the perfect overview. So I appreciate it, I think we probably share a perspective, just based on all the content I've consumed from you that, you know, it's the first 80 or 90% of the sort of success and whatever the dimension of health is, is like reasonable to attain and then the last 10 or 20% is like kind of extremely hard and very complicated and sometimes very expensive. And if you just kind of focus on the 80 or 90%, you're gonna be like in such a better position than, you know, 80 or 90% of people basically. So it's, I like sort of sticking to the fundamentals, but then also you sort of offered some sort of paths for people to go down if they want to sort of get more into it and invest some money in some various technologies. And I think sort of that balance is really interesting. And I like how you brought up you know, like 15% I think of people who said, who you see who you work with, end up having some kind of like hydration issue and to your point, like, you know, fairly maybe it's set aside for in favor of like nutrition and an exercise because those are more common things that people could use some work on hydration, people kind of tend to be maybe roughly in the right range. But if there's like 15% of people who aren't and it's just like such an easy fix versus the other categories that I feel like it's just so underrated and like you said people with like these core issues that

they've kind of done everything in nutrition and fitness and tried to like, figure it out and can't it's like so worthwhile to address hydration. Almost as like the first thing just to make sure like okay, we're in range here. This isn't like a big part of our problem. And we can move on onto the other things. So I'm curious when you, you mentioned that 15% of people or whatever. My intuition is that many more people tend to be dehydrated than over hydrated. Is that roughly right? And what are the risks at the extreme ends? Like, do people actually have to worry? About overhydration? I know I had a friend who was like doing an Iron Man. And I think he had some of like the I think it's called hyponatremia, where you don't have enough salt or something. And he like actually was in like, a pretty bad situation from drinking too much, I guess. Water? So I'm curious, like, where do people actually practically have to worry about the extremes on either side? And how often do you see people on either side of the spectrum dehydrated versus over hydrated? Am I right to assume it's usually dehydrated?

Andy Galpin 10:47
Yeah, you're right there, I'd probably say it's, you know, eight to one or nine to one in terms of dehydrated versus over hydrated. So in general, I'd rather you head on over hydrated than under hydrated, it's probably the appropriate one. So yeah, you're correct there. That's the bigger issue. Yeah. hyponatremia is exactly what you mentioned, it is excessive water intake. So hypo is low or below the Treme, Ian's science word for sodium. That's why if you look at my periodic table, it's Na is sodium. And so it's because we're torturing me. So hyponatremia is the word itself means low sodium. But it's not actually caused by reducing sodium intake like that. It's caused by excessive fluid intake of pure water. And so what can happen during long endurance events is people drink so much pure water, and they sweat out the salt, that their blood becomes really dilute. And that is important, because sodium has a positive charge, and all of your cells, including your heart, and your muscle tissue, but in this case, mostly your heart, they contract because of a change in electrical gradient between the outside of the inside. And so if you could become dilute, and you don't have any sodium there, and you don't use all those positive charges, there's no difference in charge between the inside and outside, so nothing happens. And so your heart just stops,

because we have no gradient to cause contraction. And so that that, obviously, it's a very big problem, you'll you'll tend to see a lot of signs and symptoms, you'll you'll feel poor, you'll get, you know, huge headaches and stuff like that. But it happens every year, plenty of people die during endurance events. And it's not because of the heat or anything like that. It's it's, you know, in this case, because they drank too much pure water. So that can happen. Now, that's, again, pretty extreme and pretty rare. No, it's more common than you would think. Zooming all the way down, though, to the everyday person. This can happen on a smaller scale with people who just drink too much pure water all day. It's crazy. It's again, it's probably you know, 10% of the time rather than 90% of time dehydrated. But those 10% of people, they're compulsive about it, or they either have other things going on. It's we have seen this plenty of times people drink more than 200 ounces of water a day and they aren't even exercising. That's like oh my gosh, what are you doing, they're just sitting there smashing 16 ounce water bottles all day long. And this can result in the first stages of hyponatremia. Now I'm not aware of anybody ever dying at their office deaths from hyponatremia. Outside of there have been plenty of people who have died from things like initiation rites, or paternity. Hayes's if you will want to say okay, like you're going to drink a gallon of water. There has been plenty of cases of, of parents killing children by an accident by you know, as a punishment, making them drink all this water or something and they don't die. So that has happened routinely. But more likely than not what's going to happen to the average everyday person who's just drinking too much water is you're going to see the signs and symptoms I talked about earlier. So you're either going to have but just have issues, headaches, brain fog, fatigue, libido, concerns like that, and you just can't get it figured out. And that can just be the result of not quite hyponatremia. But you're among enough far enough along the path where physiologies just starts becoming a little bit dysfunctional.

Jake 14:02
Make sense? And when you talk about like the overdrinking concerns or overhydration concerns of like someone just kind of sitting at their desk, does drinking electrolytes or even for people who are like working out a decent amount they might not be running an Ironman, but they're on like a pretty solid fitness routine. How do you feel about

electrolytes and where it's sort of worthwhile for sure for most people in this position, and I want to do like over generalistic speaking but where it's just kind of generally sensible versus where you're doing like too many electrolytes just because you heard it's a good thing. But really, you kind of don't really need them.

Andy Galpin 14:40
Yeah, it's a hard one to answer quickly because it can be both sides of the equation. Salt is very important. What typically happens is this. If you are following a if you're not exercising a bunch, and you're in I should say by exercising if you're out sweating Lunch mostly, and you're eating a diet of either processed or externally prepared meals. So you're buying it from a restaurant or things like that. And these things are coming highly salted, especially processed, right, incredibly high salt intake. So you're combining non lot of salt output with a lot of salt intake, this can, then you definitely in this case should stay away from electrolytes in your fluids. Because your problem is probably excessive salt intake. And this is when you look at folks that are have cardiovascular disease or things like that, there's a real risk of having too much salt in your diet. And this can absolutely be detrimental to your health in a big, big, big way. Now you take somebody on the other end of the spectrum, I'm flagging both extremes here. Because in the middle, it gets complicated. The other end of the spectrum is the person who exercises constantly, they train really, really hard, they're sweating all the time, they want to eat super healthy and super clean. So they're eating only real Whole Foods, nothing, you know, no processed foods, things like that. And they're not consuming any salt. Well, in that case, you're burning a bunch of it, you're not bringing in any in, in kind of a subconscious way. And so you need to go out of your way to salt your food go anyway to probably have electrolytes in your system, drinking them, even on days, you're not exercising or not during exercise, things like that. And that will make you probably feel a bunch better. The tricky part is the person in the middle? Well, I have a little bit of processed food, but not that much. But you know, like maybe one meal a day or something like that I'll buy from a restaurant or something like that. And I exercise like pretty hard, like three days a week, something like that, you know, not super exhausting, sometimes four days a week sometimes to kind of depending

on how busy I get. Should I have that pack of elements every day? And that's when it's like, Man, I actually don't know, I don't know the answer, because I don't know how much you're really sweating, I don't know your physiology enough, we would really have to test it and see where you're at. And some cases, I would say it's fine. Some cases, I'd say it actually may help things. In some cases, I can see it actually making things worse for your health. So it's really hard to give recommendations in that middle ground. So my general rule is, you should be eating mostly Whole Foods anyways. So if that's the case, you should be salting your food in a good amount, then you should be exercising a decent amount. If you're doing those things, you probably don't need to be having a bunch of external electrolytes in your system. Maybe if you have a particularly long or hot or heavy sweat day, then maybe add him in that day. But you probably don't need to be having, you know, a couple of grams of salt added in your drink, if all your food is nicely salted, and things like that so hard to actually give you numbers, but that, you know, in this context in this format, that's kind of the best I could give you.

Jake 17:41
Yeah, no, I appreciate the nuanced response. And I'd like to transition sort of, as you alluded to, towards the nutrition side of things. But I think that was a great overview on hydration. And obviously people can go deeper. But that's a great sort of like 8020 on it. And one last thing on the hydration actually isn't an advertisement or anything. I've never spoken with anyone from the company. But I was definitely on the dehydration side of the spectrum. You know, up until a couple years ago or so. And I basically I just like throughout the day, don't think about drinking, like I'll drink water after I run or something. But I just sure I can go the whole day without drinking any water, I just don't think about it at all. And so I got this water bottle from a company called hydrate, hai Drat. And it actually like syncs with your phone or your Apple Watch or whatever. And it just all you basically have to do is put it down before you drink and, or like after you finish the bottle. And then before you fill it or after you fill it or whatever, you'll sort of figure it out when you got it. But it's like very, very easy, very passive, and it measures your water intake. And so I just kind of, like you said, you know, a very rough estimate is like half of your

body weight. In ounces, I think it was and so you know, I go for like 100 ounces or something like that I'm a little under 200 pounds. And just like sort of makes me more aware of and it's been very helpful tool where I think I spent like the majority of my life pretty dehydrated. And since then, I'm probably roughly correct dehydrated, maybe a little bit over maybe a little bit under I don't know, but probably like not my number one issue, sort of, as you alluded to. So that's a cool product. It's called hydrate for people who are interested. Again, it's not advertisement or anything, but just a very helpful product that I've enjoyed. So moving over to the nutrition side of things. Maybe we can start kind of like with a similar way I know it's like an absurdly, you know, wide ranging question or whatever, but kind of covering like the 80 to 90% of what's kind of easy to remember, like it's just a few principles that you can kind of keep in your head and that's sort of like most important without getting into the, you know, 10 or 10 or 20% That's like significantly more personalized, significantly more complex and you have to do like so many different things to like get that You know, a plus in school versus like the a minus or something, right. And so I guess we can maybe just start there with like fundamental principles, or I saw, like, you know, you have a great video on most common nutrition mistakes, however you want to sort of attack it, I think, just to set the stage on nutrition, and we'll get into some specifics.

Andy Galpin 20:19
Okay, sure, what I can give you is what I call my nine at 90. So this is the nine principles, I get you 90% of the way there, perfect, if that works, and I'll just rip through them. And if you want, and we can go back and dive into each one of them a little bit more. But this is exactly what you said, this is not high precision stuff like we do with our professional athletes, our executives, it's not based on your unique physiology, like we do with all of our books, this is again, what's probably going to be working pretty well for 90% of people 90% of the time. So number one is eat mostly real Whole Foods. Number two, caloric balance, this needs to be within probably 10 to 15% of your goal. So this means if you're trying to gain weight, you want to be 10 to 15%, hydrochloric, if you want to lose weight, about 10 to 15%, hypo floor, number three is have sufficient protein, I like folks to be at about a gram per pound of body weight. Number four, have a

reasonable balance between carbohydrates and fat. And this can swing in any direction you'd like to be, could be very low carbohydrate, very high fat could be the inverse could be anything in between. So again, I just asked these to be somewhat reasonable that but they can be adjusted. Number five, a big percentage of your plate, every time you're eating is occupied by vegetables for most of your meals, not all of them. But you want a big huge serving of vegetables every day, and you want a variety of them. Number six, eat some foods raw and eat some foods cooked. There are very unique profiles for that and reasons why you want to be in both ends of the spectrum. And we're seven, you want to maximize variety, and color. So lots of different foods, lots of different colors, things like that, number eight, be conscious of your liquid calories. So this doesn't mean have zero, or have a bunch, but you want to be aware of the calories you're getting that are not from food. And then number nine, adjust here for individualization. So this could be you know, lots of different ways. Now notice, none of those are specific eating strategies. So it doesn't matter what type of diet you're following, or techniques or timing and all that stuff. Those are not irrelevant. They are irrelevant. But as long as you hit these, these general nine concepts, then the methods you choose to actually implement your eating strategy. They're infinite different methods for almost every successful nutrition plan, whether you're talking about for longevity, sport performance, for fat loss, or muscle gain, or high energy or concentration, or any of the things you want a pleasure, enjoy cooking foods, you know, you're a foodie, you like to eat different foods, any of those things, if you can hit these 990s Most of the time, then you're gonna be in a really good spot.

Jake 23:12
Right? Yeah, no, that's perfect. And I actually didn't know that you had that list. But that was like the perfect response. So digging into a few of those different things, starting with sort of an unusual one, I guess, is the variety of something that maybe people don't talk about, quite as often as, you know, caloric intake or macros, and whatnot. And they're sort of like a paradox with a variety that I'm curious to hear your perspective on, which is that it's like a lot easier to sort of pick, you know, a handful of different foods or a couple of handfuls like, you know, 10 different ingredients that you kind of circle around as kind of your main diet and just like kind of

eat the same thing, maybe for your first meal of the day. I like to fast so I kind of like eat my first meal around noon, and then have dinner later. And I kind of like my, my first meal of the day is generally pretty, you know, one of like two or three different types of meals. And then dinner is more variety. Like maybe I'll have the same thing week over week, but each day is kind of different different type of meat, different type of veggie, whatever it is. And I'm curious, like, there's the variety, you know, does the benefit, sort of go away, like at a certain point not go away? But is it diminishing returns to have like, an exceeding amount of variety, like, can I get away with kind of varying throughout the day, for example, but day to day having like a lot of ingredients in common? I guess what's your thoughts on the extent of variety that's sort of really helpful versus where it's like, Hey, you can kind of afford to stick to these like, these are great foods, just stick to them and you should be good.

Andy Galpin 24:54
Sure, great. So like I said, all of these nine points have tremendous amount of depth behind them. We could do an entire plot cast on any one of them, we couldn't do entire lecture series or course on any one of them. So all of them have nuanced, you picked variety. So great, let's talk about it. Now, variety can be represented, as you alluded to, in multiple ways, this can be variety within each meal. This could be variety within each day. And this can be variety, from day to day. So kind of what you're asking is, Hey, as long as I have variety, within each meal, is it okay if I kind of have the same meals every day, or for the most part, and so the way you want to think about this is two ways I actually recommend people to do this. If you need a hyper specific adaptation, and you have a timeline, I actually think you should minimize variety. And what I mean by that is, one of the first things we do with people, especially if you're thinking basic fat loss, is to limit options. And we we put them if we can into what we call a robot mode. And so you want to be very, very simple with your approach and your you want to eliminate decision making. And you want to get a construct a nice meal, and then it's like, you're gonna have that same meal at the same time every single day. And you want to quiet the system. There's actually research on this showing that people that are the exact exact same calorie, and macronutrient meal plans, those that have the most variety in their stuff are going to,

oftentimes fare worse. And so pattern is a huge thing your body's looking for. So the more that you can really call quiet the system, and just take noise out of it and get very, very simple and routine, this is the fastest way for us to establish a baseline, and your body will respond to that. So if you have to be at a certain weight, like our our UFC fighters do on a certain day, we tend to drop variety really quickly, like they want high precision, like eat exactly this and have this every single day, or you know, every Tuesday, this is your lunch period, everyone's day, this is your dinner, whatever, whatever. Now, having said that, well, in the short term, I guess what I'm saying is oftentimes you're better off minimizing variety, and going, you know, really, really, really redundant and repetitive. But over the long term, you want to actually scale back the opposite direction. And the reason is, unless that specific plan for those each individual meals, day to day, and then week to week, unless those are really, really well constructed, almost surely you're not going to have sufficient intake of some mineral, vitamin or biochemical. Now, if you have the technologies and the skill that some of our team has in the background to do that you can get away with it. But even that is assuming we know all things about nutrition, and we don't. And so you're much better off on the long term, saying, Okay, we're going to have a lot of variety, a lot of colors, a lot of preparations, a lot of methodologies behind these foods to make sure that we're not landing ourselves in any particular vitamin or mineral or nutrient deficiency. And because we test those things in people, we see it all the time. And it's very common for us to look at somebody's diet. And even if they're eating, you know, quote unquote, a super healthy diet, we look we say, okay, for example, you're not having a lot of selenium intake, or your you know, your vitamin A intake is not actually that correct, or whatever that thing is, could be a phytochemical is central. And then we look at your actual resulting bloodwork. And we don't see it there either. And when it's like well, you're not bringing it in. And so it's not actually that present. And then we're seeing symptomology that is associated with not a clinical deficiency, because you're probably not going to see somebody who's clinically deficient, this is subclinical, but it's enough to impact performance. And those data are strong enough that we can say, Okay, this is why you're potentially starting to see this reduction in focus, or attention, or whatever the whatever actual physiological outcome is

associated with that micronutrient. And so for those reasons, when people don't have access to that kind of extensive testing, like we do, then I would generally say, hey, just have a lot of variety, and you're going to hedge your bets, you're going to be sure you're not just missing a huge nutrient group. And so the folks that tend to kind of eat the same thing every day, they're they're putting themselves in a big risk of just missing something entirely, or having big holes in their system. And so that's why I would generally recommend a lot of variety over the long term.

Jake 29:17
Makes a lot of sense. I want to go to the protein item that you mentioned as well, you mentioned roughly like a gram per pound. Some people like have guidance, like you know, slightly less than that, but the prevailing wisdom seems to be between like three quarters and a pound or three quarters and one gram per pound of body weight. And I'm curious your thoughts on like on the on the downside of that the risks of not having enough protein in your diet versus on the upside Haven't you know the possibility of having too much sort of like Have we talked about with hydration? My sort of, you know, feeling on this and understanding as of now is that like, you'd rather go similar to hydration and actually like you'd rather go over than under? Is that roughly right for most people who are active and things like that, or what's your thoughts on sort of the balance of protein?

Andy Galpin 30:09
Yeah, but it's even less risky than overhydration. So the problems with excessive hydration kick in way faster than excessive protein intake, it's really, really hard to run into problems with eating too much protein, it's really hard, it's not that hard to run have problems with drinking too much water. Again, you can drink an extra half a gallon of water today and start seeing negative symptoms, you cannot really have a problem by eating an extra 40 grams of protein a day, like just nothing will happen, you can eat a couple of 100 extra grams in a day and just nothing will happen. Just

Jake 30:45
a quick a quick aside on the hydration thing. So just because I want to clarify one thing, if I'm you know, just to use easy numbers, let's

say I'm 200 pounds, so I'm targeting like 100 ounces of water, roughly. And I'm working out like three or four days a week, whatever, like decent, but not like a ton. So I'm targeting that 100 ounces. At what point would you expect to maybe see some of this stuff occur in terms of the overhydration issues? And are there symptoms that people can look out for? You mentioned, like getting up and going to the bathroom multiple times in the night, one might be okay, but multiple times sort of problematic? Are there other things people can look out for to see, like, you know, I might be over hydrated, and then we'll come back to the protein?

Andy Galpin 31:29
Sure, yeah. So if you're 100. Now, what you have to account for is how much you lose in your exercise. So if you're exercising three or four days a week, but you're not really sweating that much. So whether you're lifting weights with a lot of rest intervals, or you're in a place that's cold, or you're just not a person who sweats at time, then you don't need to worry that much about how much fluid you're replenishing postexercise, because you probably do it met naturally based on thirst. So you'll probably find that now, what point would you actually get one a Tremec, it's really hard to say, if you went to 150, you're probably still fine. Maybe I don't know, like, you might start seeing some things, you'd have to get pretty high before you would actually, you know, die, probably well over 200, something like that. So you have, again, the precision doesn't matter. I think the thing with hydration, to think about is this, like, if you're reasonably close, reasonably close, you're good, you don't need a candidate, you don't need a super high level of precision with hydration, you just don't. But you just don't want to be awful. You want to be away from the end of the bell curve. So I would think about a traditional bell curve. And I would smash the top down and expand that out where I would basically say, hey, look, just don't be in the bottom 20th percentile or top 20 percentile, and anything else in the middle is probably good. And that's kind of the easiest way to think about it. Where other factors may be that middle ground is a lot tighter. And you don't want to deviate sort of outside of that like like pH or like respiratory rate, or things like that are like hey, man, you don't want to be outside these numbers. And those numbers are fairly tight, we're hydration is like, just be pretty good. And pretty

good. It's almost as good as perfect. In fact, I'm gonna say for most people, I'd say like pretty good is basically perfect. As much as we can tell. That's what I would recommend there and good signs and symptoms to look out for would be just things like that, there could be many different reasons why you're waking up to pee more than once at night, one of them could be hydration, if you're drinking a lot of water within three hours prior to bed. Well just don't just stop doing that. So you want to hedge most of your hydration to the morning. There's one way about it. If you're not doing that, and you're still waking up to pee, and it's actually I know I'm getting off track here. But it's not a hydration issue. Most likely it could be it could be the fact that you're still not consuming enough salt. But that's more than likely that's not the case, it's generally going to be you either have some sort of sleep apnea, which is by the way Sleep apnea is occur and like 50 to 70 million Americans, it is an unbelievably common thing that people have no idea about. So that that's a very common thing. It could be blood glucose regulation. Another one that's very, very common that people dysregulated glucose from Wakey wakey makeup and pee a whole bunch. So it could be that could be the fact that your mouth breathing at night could be a number of different things going on could could be a environmental issue in your bedroom that's happening. So there's a lot of things we can triage to figure out why you're paying that much. But if it is because hydration, it's like you just don't drink a bunch of water the next day and see what happens. And if you're not drinking as much water, you're still waking up multiple times to pee, then you know you have some dysfunction and that dysfunction is not based for the record. It's not because you're getting old. That's not a thing. Really it can be but it's very, very uncommon. It's still not a natural thing to happen. We do this all the time in our sleep company. We have plenty of people in the 50s 60s 70s like Oh, I'm just I do the old man P thing and we're like no, you have the dysfunctional physiology P and we correct that and all sudden they start singing tonight like what the hell? Yeah, it's it's not normal. It's common. It's fun. Normally, that's supposed to be working that way. And it's fairly correctable once you figure out why it's happening. So a little bit of a tangent there. But when you asked about the overnight, pay that that would be. So that's generally how to answer that.

Jake 35:13
Right? So coming back to the protein you were mentioning, basically, on the upside, far less risky than for example, with Yeah, hydration. So basically, people should feel free to like go for a gram of protein per pound, and not worry at all about being much above that just kind of the more protein, the merrier to some extent and be sure, you know, depending on your diet, obviously, but maybe balance, fats and carbs outside of that.

Andy Galpin 35:38
And for the record, you're also fine go a little bit low. You know, you kind of said the prevailing wisdom is something like between three quarters of a pound to one, and that's fine. So if you're a little bit low, cool, I don't think people should worry about that much, I would just make sure that you eat kind of a protein centric diet, and then it'll probably take care of itself. What's that mean? Generally, you should have a decent bolus of protein every time you eat. So I generally, outside of like post exercise, or for like sport performance reasons, and there are many more for the average person, there's just not any advantage to having a low protein in any of your meals, you should have a moderate to high protein intake on all of your meals. Does that mean that has to be meat can be just fine. Other ways can be liquid can be shakes can be, you know, any any number of sources, but you want to have a decent amount of protein. I mean, what is a decent amount? Well, it depends on how big you're after, if you think about it this way. So let's say you're 200 pounds, and you're trying to get something between, let's say 150 to 225 grams of protein per day, right? That gives you a pretty big range. And if you're like, Yeah, I eat three meals a day, well, then you need to have 50 grams of protein per meal was like, oh, man, I never thought about Yeah, I guess. So that means you're gonna, now you're eating two meals a day. All right, now you need to be getting in 75 to 100 grams of protein per meal. And so that changes your perspective a little bit. And so you can see how like, You got to really make sure you have big servings of protein and all of your meals, or you're not going to get anywhere near that if you're on a meal restricted in terms of number feeding program. So that can be challenging. This is why way back, you know, starting in the 70s, rather the 80s 90s and still is prevailing for bodybuilders to eat, you know, five to six meals a day. Now we

know you don't have to do that at all, there's nothing special about it, it just is practically a little bit easier to get in that much protein when you can spread it out rather than trying to have 100 grams per meal. But either one, it's actually fine. Effectively, they work. They're both as efficient for a number of outcomes. It's just a matter of practicality for some people. So these are some people some problem. So either way, whatever fits. And again, to reiterate, you don't have to necessarily be all at a gram per pound. Totally fine. If you're a little bit low, you should be in a good spot.

Jake 37:57
Right? So quick clarification on that five to six meals to spread out the protein thing and basically the concept I think that's related is this sort of the thing that I've heard that I don't know if it's a myth or not, and we'd love to hear your perspective on it is like you can only process so much protein per meal. If you if you have no problem like that's just not true at all.

Andy Galpin 38:17
No, not sure at all. You process all of it, I promise Yeah, you consume protein you will you will digest it. Now there is some reality of saying, hey, there is a maximal level of multi muscle protein synthesis that can occur. And that is the ability of your muscle to go through the protein growing process that is there is a protein intake that can saturate that signal. That's true. That doesn't mean all the protein that you eat somehow magically just like goes to nothing or you pee it all out or something like that. That's not true you will produce you will digest and absorb every gram of protein that you eat. That's totally absurd. Another thing to think about is you know, I work with a lot of athletes and so you really think that our our 370 pound defensive tackle in the NFL, you really think he can only absorb 14 grams of protein in his stomach like 14 grams of protein is like stuck between his teeth. Like like that's that's an absurd number. So whenever when someone throws out absolute numbers like that, ah, it generally tells me it's like are you haven't thought this right? Well, and secondly, you definitely don't work with big athletes. You probably work with 130 to 190 pound athletes. And okay, sure great, but like you're getting an NFL and you get to somebody that was pro sports. We you got folks that are very athletic and they're not just

250 pounds or 350 plus pounds they're almost 400 to think those numbers are the same for them is pretty silly.

Jake 39:43
Awesome. Well, that's my favorite response thus far because I have no problem like taking down you know, a pound of meat or something and is sitting but I don't like eating like all day every day like I want to. I like the intermittent fasting. I like not eating till the afternoon like stopping eating after dinner. So just a pound of meat for one Have those meals and then you know, 5060 grams through some means for the other meal is like way better for me and I sort of in the back of my head had this like thing of like, hey, is this you know, maybe not the best way to get my protein and you can ignore that from now on, because it sounds like, it's just not going to do me any favors to think about that sort of stuff. So appreciate it, you

Andy Galpin 40:20
should be fine. You should get there. So no worries.

Jake 40:23
So let's go into, you know, I would love to talk about some of the stuff like, you know, actually in the gym, practically how to go about things based on your goals, but we've only got so much time and I think maybe there's a couple of like higher level questions we can get to and I want to talk a little bit about sort of like tools and technologies that you're using or interested in or excited about maybe that don't exist yet. So first, like a very high level question. thing that a lot of people are interested in, myself included, is sort of this concept of, you know, you want to lose some fat, but you also want to like gain some muscle and, you know, you understand, like, maybe you sort of do one at a time, lose the fat and then build the muscle. But can you do them both at the same time? I guess it's like sort of the generic question. And then, you know, deeper into that, like, what are some principles to keep in mind, if that's sort of your goal, you're overweight, but you'd like to build some muscle, just sort of like the general, you know, objective that a lot of people have just like, kind of look and feel better. Is that a reasonable thing? Or should you focus on one at a time and sort of shift between seasons?

Andy Galpin 41:30
Yeah, it is definitely possible to grow muscle and lose fat, but generally, that only happen with people who are untrained, or sedentary, or very lowly trained. So that can happen. Now, it is typically easier, a specificity wins. So it's generally easier to say, Okay, I'm gonna go through a period when I'm trying to gain some muscle first. And then I'm gonna go through a period where I'm gonna lose a bunch of fat. But if you're saying, Look, I need to gain muscle, I need to lose fat, I barely work out at all, I could pay attention a little bit to my diet, but not that much, then I wouldn't do that, I would go straight into both. And you will absolutely see that goal, you will get leaner, you can add muscle and lose fat. And probably, if you keep your protein high enough, like what we talked about, maybe even higher, if you strength train appropriately. And then you still try to be in a quote unquote, hyper caloric diet. And nutritionally, then for a lot of people, you will see, yeah, I added some muscle, and I lost some fat. More importantly, you will look like you did that. So even if you like biologically didn't actually do that, you will lose fat, you will look leaner, because your muscles gonna show up more, you're gonna develop more size of redistributor protein. Now a big mistake with that is that protein is not high enough, you will do what is called redistributed. So let's say you're going to the gym, and or your cardio you're running, or cycling or something, and then you're doing all kind of upper body lifting, and you're not eating that much protein, you're not paying attention to it, your muscles and your upper body may start getting bigger, and you'll start losing fat. And you're like, Man, this is totally working, I'm gaining muscle and losing fat, well, what you're not saying is you're probably taking a lot of protein from your lower body, putting in your system and using that to go to your upper body. And so that's redistributing the current protein in your in your system. So you're losing muscle in a place that you probably don't want to lose it from legs are incredibly important for longevity, and overall health. So that's why it's like, you can look like you're making progress on a lower protein diet, but you don't want that you actually want to be in the higher one to make sure that you're not losing it from anywhere and getting a progress you want. So overall, can it happen? Yes. Secondarily, best approaches are getting say

higher protein, managing your calories through your carbohydrates and your fat, and then getting in some solid strength training and being consistent. And that should take you pretty far.

Jake 43:51
What are the core differences between like, so you do go for the seasonal approach you've been, you noticed that you sort of like got over the hump of being someone who wasn't working out that much and you know, with eating poorly, or whatever, and you're trying to just sort of do like, Okay, this summer, I'm going to focus on fat loss, and then that's when time to focus on muscle gain. And you sort of align it with the seasons a bit. But you're gonna be both seasons, you're gonna be you know, focused on sufficient protein. Both seasons, obviously, all your nutrition, tenants sort of apply Whole Foods, everything like that. And then on the caloric side, obviously, difference between the two, you're going for trying to be at a caloric deficit versus, you know, eating more calories than you necessarily needed in the muscle gain season. Are there other things when you do like the comparison between seasons because there is a lot sort of similar between just general tenants of good health, but there's a few sort of knobs that you're twisting one of them being just caloric intake. Other Other things that are sort of the the key differentiators between those seasons from your perspective, whether it's like you know, the types of workouts that you're doing in the gym or, you know, running versus sprinting or like distance running versus sprinting versus weightlifting. What Ever might be,

Andy Galpin 45:01
yeah, you have a lot of options is the point when you're trying to gain muscle, as long as you're staying in that hypertrophy range for your training. And this is anything from five reps percent only up to, you know, 30 plus reps per set, as long as you're continuing to work and continue to challenge it, it could be heavy, it could be like, it can be short rest intervals can be long rest intervals, any of that stuff is potentially going to work if you're training hard enough and your calories are in the appropriate spot. When it comes to fat loss, you just have to work. And so this could be you know, all steady state low intensity stuff could be all lifting weights could be circuits could be intervals could be a combination. One day you lift heavy, one

day, you you run, or swim or cycle at a moderate low intensity for a long time, one day you do intervals or a circuit training class, or hit the heavy bag, or Sprint's something like that, another day you lift, but you're going to do super high repetition, muscular endurance, and other day you do Pilates, you could really do it because fat loss is really just about caloric expenditure. And that requires adherence. And so what you want to do is get yourself in a system up where you're not bored, you're engaged, you're interested, you like it, and you're seeing progress. And so the methods are not as specific for fat loss, they're a little more specific for hypertrophy, you just gonna have to work that muscle out the specific one you want to grow, you're gonna want to get a certain amount of work done there in that classic strength training style of of there, you're not going to get it from anything else. But you also want to make sure you stay balanced and injury free there. So that would be the general concept between both the methods you pick are just infinite. And so I would say select them based on your personal aptitude. Meaning, if you like this stuff, and you really want to come up with a complicated system, maybe you want to hire a coach, maybe you want to read a thing, maybe you want to buy a training program, there's tons and tons of apps and companies that sell training programs for fairly cheap, maybe you want to get a little more expensive, and hire a coach, maybe want it a little more expensive and do an in person personal training or something like that. Or maybe all that stuff makes you want to vomit. And you're like, oh my god, I did not have time to be thinking about all this shit. Oh, my God, I'm just not, then go. Then keep it simple and do something that you're like, Yo, look, I want to lose fat. And I'll just I'll just run for 20 minutes every morning. Okay, that could work fine, too. So it can it can match the thing but the match your personality and your desire and your interest and your bandwidth. The biggest thing is making sure you stay injury free, so that you can maintain progress over time. By far, the biggest predictor of success is consistently adhering over time. Like that's it. So put yourself in position where you don't get hurt, and you don't hate it. And you're not super, super bored. Look, exercise is always good, there's always going to be part of it, you're like, oh, man, I don't want to do this today. There's no impossible routine, you never just like wake up every single day wanting to work out. But you just don't want it to be like a situation where you just like hate every second of it. And

you're dreading it because life will win. And your willpower will work for the first two weeks or two months. But eventually, you're gonna lose that life will win. So you don't want to put yourself in a position where you're making life over exercise. You want to make it an absolute slam dunk no brainer.

Jake 48:24
Makes total sense. I think that's just a super practical way to go about it. I want to ask one final question on sort of metrics and measurements and tools for collecting them. So I know you're really into the technologies. I am as well and you know, have, like my left arm is like filled with wearables and whatnot, got the ring, got the watch, got the patch, etc. Maybe too much, though, even. But I'm curious, your thoughts on sort of the most important things. And I know again, this is sort of a general question. And I guess a caveat in the entire podcast here is that health is extremely personal. And like all these answers aren't going to be totally widely applicable or whatever. But like for the 8020, the 90% of what's important for 90% of people, like you said, I'm curious, your thoughts on the main sort of if you're going to measure a few specific things, what to measure and what tools you might use to measure those things. So just a few examples could be, you know, body fat percentage, and there's like at home scales versus like DEXA scans, there's metabolic health using continuous glucose monitors, all the things that your Apple Watch might measure. What are the most important ones from your perspective for most people to be focused on and sort of the best tools you're aware of for, for doing those things?

Andy Galpin 49:40
Yeah, sure. So I spend a lot of time in this area. I mentioned earlier, I have, by far and away the most comprehensive and advanced sleep company in the world. And I could talk to you more about that we can do some really insane things on the side of sleep. from a biological perspective. We have a cup little things. So we work with these high profile athletes, we work with opponent time people in our company called Rapid health and performance. This is like the executive version of this stuff. And then I spent a ton of time, behind the scenes with a lot of companies, major sports franchises, huge companies seems like that's and in fact, actually countries,

trying to build out what this human performance thing can look like, especially if we want to get to Mars and stuff like that. So really what I'm saying that is, look, here's the reality. Right now, the way that the world is working, is we have these short chunks of technology. And they come in and they're, they're trying to solve problems, but they're very, very limited. And the most part because, at best, very few technologies give you any information about why something's happening in your body, they tend to be pretty good at telling you what's happening. And the technology is only getting better there. But it's not telling you why it's happening. So because of that they don't, they can't get to the next part, which is okay, then how do I solve it. And this is where almost all these technologies are limited. Here's the reality, where this thing is going is the following. Number one, you have some sort of assessment, and this is going to get the spotlight or what we call the human sensor. So everything's going to be sense on your body continuously. That's just where it's going to be. And it's getting closer and closer, you can imagine things like this right now. If you want to understand how strong you are, you have to go to the gym and do like a maximum strength test. But the reality of it is there are ForcePlates that are now built into soles. So you can put this in the soul, the insole of your shoe, I have a full time real time continuous force plate in your shoe, there are wireless motion capture systems and these are being built into I was just at the San Antonio Spurs facility, this is being built in there. And there are wireless cameras that can just be set up that can give you real again, full kinematics and awareness of how you're moving. And now we can do things like early detection of Parkinson's, and you don't do anything, these are all passive, right. So they're just cameras and sensors that are in your shoes or in your room or things like that. If you want to look at this from a biological perspective, there are now in development, there are things for stool analysis and urine analysis that just are built in your toilet. So you don't have to go catch your poop anymore and go to hospital, get all these things done pee into a cup, you do your normal thing. And a portion of that is already pre allocated and measured and assessed there. So now you have instead of getting like a one time urine sample, you're getting a urinalysis done on every single thing that you're paying out. There are sensors that are now available to be built into your teeth that have early detection, of

course of tooth decay, and cavities and stuff. But more importantly, can measure and assess and identify anything that you're eating. So I know exactly what you're eating, when you're eating, where it's coming from, I can see what's in the air and the environment that you're around, I can tell the water quality and all that stuff is being done. There, we have another technology from one of my other ventures called solve x that's based on digital phenotyping. So these are digital signatures of extreme emotional distress. And so we can identify this as a project, we're doing the military right now for suicide prevention, just based on a bunch of stuff that's happening from your cell phone. And I don't even mean like what websites you're visiting and what you're looking at. There's different geo tags, that can give us very strong predictors of again, extreme emotional distress. And so suicide prevention is there. The point is we can go on and on and on and on. But the reality of it is sensors aren't here, there's a lot of them, most people have no idea about, and they're only going to continue to get better. All of that stuff can then be taken. And you can build out what's called a digital twin. So a digital twin is happens all the time in manufacturing. So any car you've ever been in any building you've ever been in, was built off of a digital twin. So they made this building digitally, ran a whole bunch of experiments on it digitally found out where it's gonna break and crack and all that stuff. And then they fix those problems before they ever ever nailed a single hammer, or hammer nail nail, single nail and with a hammer or anything like that, right. So this is on board right now for the brain. There are a couple of companies working on this, the digital twin for the heart is very good and very close to working on the lung, the kidneys are coming along things like that. Now they're not integrated across the system. They're not for high performance. These are for extreme medical issues. So we can go and run a digital twin of your heart, figure out what surgery you would respond best to by running simulations. So the next step then is once we have a digital twin, we can run infinite simulations on that. And so you can imagine the digital twin and medicine and health and immunology, I can now take your digital twin. I can run millions of experiments on you to figure out what specific supplementation protocol what specific pharmaceutical, what specific intervention is going to work best for you. I don't have to go well take this for six weeks and come back and let me know how did you feel? Did you have any more headaches? Did you

were you nauseous? If not, I can run all of these experiments for you electronically, and come back and give me an exact diagnostic and prognosis and tell you exactly what to do best in your body. Now, this is what we're doing at a small scale already for people. But this is where it's going to be. Now the fourth step then is, so step number one to recap was complete human sensor analysis. Step number two, make a digital twin of you step number three run experiments and simulations on that. And then four, is you then go actually execute the intervention. So we found out this is the thing you need to go do this is the exact amount of reps you need to go do this is the exact amount of breath work you need to do. This is exactly how much water to do. Now you go execute that system. That is what is happening with human performance. And we're not there yet. But we're not that far off. And so the reality of it is, right now, we're in a position. And the problem with that approach I just laid out is, that's still only telling you what is happening, they're not telling you why it's happening. And so the huge limitation with any of the technologies that you have on your system, is they're based on extremely bad data. And what I mean by that is this, if you want to see a watch that flags you for your risk of having a heart attack, and those are available, that's pretty cool. But if you want to say something that says, hey, how do I optimize my performance, I'm feeling a little bit sluggish, my brain power is six out of 10, I want to feel better, there's none of those things can fly for that. Because every one of those are based on databases that are based on sick individuals. And I know this, because we were able to run through these databases, whether it's the Ann Haynes database in America, UK Biobank, etc, etc. Those are full of just extremely sick people. They're not healthy people. So we don't have a fundamental understanding of what health should look like. So our ability to then come back and say, Hey, run this simulation, you can't even do that. Because you don't know you don't know what to tell it to look for. Remember, as good as AI is, you still have to give it a prompt to do something, right? I want the result to be X when we we don't know what the result should be. You have to give it some term, like healthy, and it's gonna say, Well, what's healthy? And you have to say, okay, um, you should have this level at this. Well, we don't know what that level should be. And we don't we don't know what it should look like for health. And we don't know what it should look like for optimum performance. All we know is, don't have it look like

this, because then people die. And so that is a huge leap that needs to be made forward. And the same thing, really tangible example, you're asleep. So almost everything in the sleep space is based on the gold standard of science, which is called PSG polysomnography, it's the best, it's like that, if you're to go to a sleep study, they put the wires all over your brain Great. Well, all they can do is tell you whether you have severe insomnia, extremely severe and just tragic sleep disorders, etc. Everything else. So all the tech and all the wearables are based on those same standards, none of them are based on Well, what is actually unique for your brain? How does your brain operate? So there's a very different way to analyze these things. And the easy exam thing way to think about this is look at what any wearable will tell you for their score. They're using it based on inference, which is they're assuming a certain amount of deep sleep, and assuming a certain amount of REM sleep. And those sensors were very bad initially, but they're getting better. The problem is, you don't actually know how much deep sleep is accurate. Those are based on like 40 year old standards, those nurses have almost 40 years ago. And so it's like, wait a minute, how do I know this is actually appropriate for me, number one, and then number two, why do I even care about this, the reality of it is your brain will auto regulate how much of each stage of sleep you're in based on what it needs. And setting a rough standard for that, again, if you want to like a super crew, look, it's fine. But the entire notion of just having X amount of deep sleep is it's just extremely outdated. And it's not functional. So all those things combined. That's kind of what I mean when like that there's just a lot better solutions for human performance. And I could go on and on about optimizing blood chemistry. So getting your labs done in a way where you are analyzed for, again, optimal performance. And not just disease risk management, which is all super, super, super awesome, just not what we do. So there's just a lot of space that can be made up on the ground of human performance from this side of equation. So that would be my opening giant response

Jake 59:30
from bola. I know, we're up on time, and I want to respect yours. But I think that's a very exciting place to end. I'm just very much looking forward to the future of all this and the technologies that

come about. But you know, one of the things I've had some other guests on the podcast to talk about is sort of this idea of radical life, extension and extension of human health span and how long can we live? How healthy can we be? And I think these technologies such as like the digital twin that you mentioned, are just an all these sensors Isn't everything, it's just a very exciting future to think about. So I'm sure you're sort of at the cutting edge of all of it and excited to see sort of, I think what you see today probably will be more available to the mainstream in some number of years. And then you'll be even further along at the cutting edge and just excited to see how it plays out. And for now, doing what we can with what we have, and I'll probably go hit the gym after this conversation is a lot of fun. So thank you, Andy, for coming on. Again. I really appreciate it. It's awesome talking with you. Where can people go to, you know, follow you and learn more about you and everything that you're doing?

Andy Galpin 1:00:36
Yeah, sure. I mean, Instagram and Twitter, are the easiest places. Dr. Andy Galpin. I'm pretty much science communication exclusively. So if you'd like to kind of hear about these things, and follow along in the world of human performance, that's what I use those platforms for. You can check out my website, though, candidly, I build and manage that, and updated about once every three years. So there's not a lot going on there. And so if you're, you're more interested in one of those specific companies like absolute rest or sleep company, you just put absolute rest.com, our executive programs, rapid health, optimization, performance, some of that you can google that'll wrap it up. report.com is the website, and then our software, our automated software for blood interpretation. So if you want to get full blood work done from a game perspective, and high performance, this is an automated software that will analyze your stuff and then provide super specific supplementation protocols, not just like blanket recommendations, hyper specific, actual full protocols, a micronutrient based nutrition plan and even training programs based on your unique physiology. You can check that out as well and you'll be able to see that so those would be the three kind of forward facing customer things that people can do.

Jake 1:01:54

Awesome, thank you again, and really great talk with you and look forward to keeping in touch.

Andy Galpin 1:01:59
All right, appreciate it, man.