

Premium Exclusive #8:

"Calories In, Calories Out is Stupid" - Quack Asylum

Danny Lennon: Hello, and welcome to this special bonus episode of the podcast you are listening on Sigma nutrition premium. Thank you so much for supporting. The podcast and I hope you enjoy this bonus quack asylum episode that I have for you today. Today, we're gonna be talking all about the claims related to the idea that calories are a myth.

And this comes in many different forms as we'll discuss and requires a bit of nuance to it. And hopefully this serves as a nice additional component to many discussions that have happened on the podcast before. And I don't think this is something that you guys, as previous subscribers. Need convincing of per se, but rather it's useful to see what types of claims get made and things that you, your friends, your clients people who ask you questions about nutrition will be seeing and how do we actually appropriately respond when some of the claims will discuss, are made. So this concept of calories in calories out is of course, one, one that's passionately debated online and with seemingly a lot of disagreement and for anyone in the general population that started looking for information on this, they're gonna see a whole host of conflicting views now of.

Calories in calories out is just colloquial phrasing for energy balance and how more specifically energy balance relates to bodily energy stores. And then this gets in turn translated as shorthand for indicating how energy balance influences the gain or loss of body mass. And although one may suspect that calories, calories out is something that seems simple.

It is in fact, a concept with a lot of nuance. Buried within it. Unfortunately this nuance is what gets often overlooked, leading to either misunderstandings or misleading characterizations, especially being quite common and at best this results in people talking past one another, when. Quote, unquote, debating this idea and at the very worst as we'll go on to discuss it really serves as a fertile ground for misinformation, or it tends people to think that there's

evidence to support fringe, pseudo, scientific ideas that are centered on the basis of calories being irrelevant in some way.

So when looking at the commentary related to calories in calories out, I think it's important to start here. to state that there are really two opposing positions that I think are both incorrect. And this is something that we've talked about on the podcast before, I think in the episode on body mass regulation and certainly in the episode on long term weight loss maintenance, and I had discussed that there's these two views that are probably both incorrect.

So on one end, which we're gonna focus more on today. We have people claiming that well, calories in calories out is just completely wrong. And that looking at energy balance as the main driver of changes in body mass is just completely misguided. And so that's what we're gonna spend much of our time on today.

Maybe looking at this caricatured representation of that concept, but I do wanna make it clear that there's also. An opposing view, where people go too far in the opposite direction and make the clear error in putting their sole focus on energy balance. So even if you look at many corners of the fitness industry, where they have people just keep talking about a calorie deficit as the answer to every problem, without being able to elaborate and give.

Further context around the pragmatic reality of what drives food intake and energy expenditure, because simply knowing that one requires a calorie deficit, doesn't actually inform what we do first of all, in terms of what intervention to follow. And it certainly doesn't help as useful advice to help make that happen and to be able to sustain that.

So I think both of these positions illustrate a fundamental misunderstanding about. The energy balance equation is how that relates to human metabolism and also on body composition. Or it doesn't really look at the interacting variables within the human diet. But in this episode, I'm gonna focus on the first of these positions specifically, and maybe we can take the opposite claim another time.

So today we're gonna be focusing on this claim, that calories in calories out as a myth or calories don't matter. Or fat loss has nothing to do with calories

incalories out or several other similar statements that we'll look at, maybe one by one in just a bit now. There's obviously a spectrum of how wild these claims are.

Some are just really extreme oh, calorie balance has nothing to do with body mass. Others. Try to insert a few more caveats, maybe saying energy balance does have a relationship here, but actually it's just the result, not the driver of body mass changes, but regardless, I think many of these views, even within that spectrum can still be quite problematic to.

Now in this episode, I'm not going to go and explain all the nuances of energy balance, body mass regulation a adaptations to increasing or decreasing caloric intake. All of which are really important points. That to go to a full understanding of energy balance. And so I think that there, these have been discussed previously, but I think maybe most comprehensively, if you wanna dig into this, the Sigma statement that I wrote on energy balance, which you can go and read on the website.

And I'll obviously link to here in the description box gives the most background on this kind of homeostatic control of body mass, how that impacts calories in calories out. Caloric intake actually influences expenditure and many other concepts that are really useful to understand. But for now, I'm going to presume that most people that are listening here are gonna have that.

Understanding and that they've listened to enough of these podcasts. And again, our Premium subscribers are very well informed on much of these ideas. So I'm gonna presume that there's some degree of that background, and instead I'm gonna make that focus, particularly in, on some of these kind of incorrect strawman narratives.

Mainly push by quacks that look at some of these statements. And really the goal is, like I said, at the outset, to be able to allow you to come away with understanding what types of claims actually do come up and then how maybe we can give some answers to that either directly, if people are asking or when.

Producing information that is aimed at helping the general public. So maybe as a fun example as this is a quack asylum episode, it's probably useful to

give an example of quackery in this space. Like I said, there's a whole spectrum of different opinions and some would be a bit more nuanced, but the, as a fun one to start, I'm gonna play a short clip from one of the G.O.A.T (Greatest of all time) quacks and charlatans of health information over the past decade or so Dave Asprey. This is a clip I found titled "Dave Asprey explains why calories in calories out is stupid". And it's from an appearance, I believe on the Mark Bell power project podcast. So let's take a little listen to some of Dave's usual for him, bizarre, rambling.

Dave Asprey: "Okay. I used to weigh 300 pounds. Okay. I believed the calorie thing. So I said, I'm gonna lose this weight. It's the most important thing I could ever. I went to the gym an hour and a half a day, six days a week, half weights, half cardio. I'm gonna burn off those potato chips except I wasn't eating potato chips. Cuz I went on a low fat, low calorie, high toxin, high omega six high corn syrup diet, cuz that's what low fat, low calorie diets are. And after 18 months of that, I still had a 46 inch waist. I was still 300 pounds. I could max out all, but two of the machines at the gym and I was doing my treadmill with a weighted backpack at 15 degree incline, walking, not running, cuz I had already had a couple knee surgeries. So the calorie thing, I was hungry all the time. I was cold. I gave myself autoimmune issues doing that because I believed in calorie."

I'm just gonna pause it here for a quick moment, just to really think about what we've just heard so far. The claim is that at 300 pounds, he went on a low calorie, low fat diet, started going to the gym six days a week, lifting weights, and then going on a treadmill up and incline with a backpack on and through all of this, despite being hungry all the time, because he was eating so little calories and what he claims was so little calories that it gave him autoimmune issues, despite that hunger, from eating this low calorie intake. And now adding in six days of training per week, that his weight remained completely unchanged and there was no impact. So that, that is what we are working with so far. Let's continue.

Asprey: "What's going on here is you can hack your metabolism and telling someone that it's about the calories when they are hungry. It's not about the calories. It's about the hunger."

So here is where things start to get a bit strange and will expand on this in a moment. But first of all, the clear red flag of you can hack your metabolism.

Phrases like that are just the exact example of what I gave earlier of the way. People, particularly like Dave Asprey can build this narrative about hacking your metabolism and getting into all these details that seemingly are the answer is by first making people aware that everything you've been told is nonsense that calories have nothing to do with it. And then secondly, this idea that it's not about calories, it's about hunger is an interesting one that let me, let him expand on it because there are a number of thoughts here that are worth getting into.

Asprey: "Instead of tracking calories, track hunger, and my advice would be eat so that you're not hungry within four hours of your last meal, do whatever it takes to do that. And if you do that, you will lose weight more reliably. So track your hunger in your food cravings, remove the foods that cause the cravings right eat until you're full and you stay full for four hours and don't have snacks. But what most people attract calories do unless they're exceptional and you guys are top tier, you're power lifters and all that, but the vast majority of human beings, I was so hungry. I just had one candy."

So again, let me just pause for a moment. This is a weird conflation that's being made of, first of all, it's not about calories, it's about hunger. And so I'm not sure exactly what his claim is. If it's that hunger is something that's going to drive people to consume food. That is absolutely correct. Secondly, if the claim is there's certain ways that we can set up someone's overall diet that attempts to mitigate hunger. That is also useful. And, but again, I don't know any competent nutrition professional who is helping someone with body weight management that even though they know that person needs to be in a caloric deficit would tell. Yeah. As long as you eat a certain number of calories, you can get all from ultra processed foods. People are aware of. Yeah. Let's try and get some, most of the food from minimally processed foods. Let's try and make sure fiber is appropriate and protein, et cetera, et cetera. Many of these things we will come back to, but this idea that it's somehow disconnected that you're either accounting for hunger or calories is bizarre. And then if his claim then that he makes is you don't need to track calories, which I actually agree with. And this is where the big conflation comes in saying that calories in calories out is valid, which is the position I'm making is not the same thing as saying, you need to track calories in order to lose weight. So again, this is the big conflation that I wanna remind you of that he's just made because we're gonna return to it. And then beyond that of saying, just track your hunger. And his literal words were, do whatever it

takes not to be hungry between meals. In that case, you would just eat an appropriate amount that you wouldn't be continually losing weight. That's, it wouldn't make sense that if you ate to normal satiation, your body would continually lose weight forever, everyone would starve to death. So very odd claims being made. But certainly the conflation here that he's just touched on, which is the key one is saying that because. Counting calories is not an appropriate maybe intervention for many people, which I think is valid. Someone could put that forth that conflating that by saying that means calories in calories out as a concept is stupid. And it just, it's a complete myth. That's the conflation.

Asprey: "I remember I interviewed a woman in the UK, in London. And she said, I have no food in my house cause I have such severe cravings and I know calories. I have to keep my calories down. So I won't be fat, even though I'm already fat, I just don't wanna get fatter. So to if I wanna eat, I have to leave my house, go downstairs to the grocery store and buy something. Then I feel ashamed about it. And in the office, I know where every drawer with candy is, and I do my best, but every day I have some candy in the first day she has MCT butter and coffee. She calls me the end of the day, crying to the first day in my adult life I didn't have candy. Okay, this is not a calorie thing. The belief in the calorie myth creates enormous human suffering. And it's not accurate that you've said, and I've said hunger is what matters and telling people that they should not eat because of calories. It's like telling people don't have sex. Like how well has that worked with teenagers"

So withstanding the complete nonsensical comparison at the end there the previous kind of little anecdote, he tries to drill up some emotion with around how his advice had helped change this woman's life. All that is speaking to is that yes, there are situations where certain foods typically ultra processed hyper palatable foods that are easier to over consume and therefore we might not want to have a lot of them in our immediate food environment most of the time, so that we don't want to consume them is completely acceptable. And I think any things we've discussed of, if someone wants to again, try and limit their consumption of these foods, it would probably make sense to not have lots of them continually immediate view of them, because these are palatable foods that we will want to seek out. That again, has nothing to do with calories in calories out. And then his solution of saying she wasn't hungry after she'd had. This coffee with MCT oil and butter. No doubt. This is what he makes a lot of money off, but regardless, this is a

beverage, which he's probably just consumed 500 calories worth in the morning and then is reporting I'm not feeling as hungry. So again this is not. I think anyone listening to this podcast, wouldn't listen to this clip and think any of this has any credence. I'm not thinking that at all, but I do think it's a nice fun example of the type of things that are being pushed online. And there are many places and there are many platforms and podcasts and YouTube channels, et cetera.

Many of which people have credentials like an MD after their name, that promote quackery, where this type of thing would be considered completely normal. He could go on and do an interview with these people, and this would be considered a completely acceptable normal position. And that is very unfortunate at the very least, but hopefully it serves as what we're of up against, but let's talk about this in a bit more specifics, right?

So it's common for us to hear people. The energy balance equation in favor of narratives, like Aspers that forward, right? Hacking your metabolism. We can look at hormones, we can look at things that are gonna impact hunger and so on, which we actually can, but it's this kind of narrative of, oh, it's hormones.

It's not calories, right? It's binary. It's one thing or the other, as opposed to there being some interaction. And many of these claims usually emanate from. Basically the realms of pseudoscience and diet cults, and in dismissing the relevance of energy balance, the way that kinda initial process starts is this caricatured version of calories in calories out as a.

Overly simplistic input output idea that just claims, oh, all all calories are the same. And the only thing that matters with your diet are calories. Of course, this is absolutely absurd. No one is putting that forward. And actually in the Sigma Statement that I wrote, you can actually see a kind of half joking, four step process that I outline that quacks usually follow to try and build their following and make money where they will essentially paint this calories in calories out as the opposition and you've been lied to et cetera. And then from there, they're able to now convince their audience that, oh, now that you see how it's dumb, all this calories things is now. Let me show you that the real solution is all. This stuff to do with this hormone or this type of food, et cetera.

And then based on that, they're now in this position to have built a degree of trust or reputation with this person that's consuming their content and can now go on and benefit from that. Now it would be nice for them if any of that was true, but of course it is not. So let's be clear on what exactly the conflation that people often make is because there are a number of things that people will put up as examples of why calories in calories out must be incorrect, but they are not actually synonymous with energy balance or the concept of energy balance. So let's go through a few examples. First is the advice to eat less and move more, right?

People will say You're just being told to eat less and move more. If you accept that calories in calories out is valid, then what you're accepting is eat less, move more is correct. And this is not at all what those things say. So the advice to eat less and move more, that advice is largely inactionable. It's unhelpful. And as we'll maybe hope, maybe come back to calories in calories out is not that advice. What calories in calories out actually is just a descriptor of energy storage and release. That's all it is. If we say someone is in a calorie deficit, we are describing that they're in a position where their energy expenditure is exceeding their energy intake, right?

That is the descriptor of that state. It's not an intervention, it's not a piece of advice to go and do something, eat less, move more. The intervention that place is some person interpreting it to say, oh, just eat less, move more. But that is not actually what. Energy balance equation or this idea of calories in calories out is that is just a descriptor of this state of energy balance.

At that time. The second thing that we've just seen in this clip that we that get gets conflated is thinking that calories in calories out as a concept is synonymous with tracking our counting calories. So again, Calories in calories out or energy balance is just a descriptive concept. It's not a strategy. It's not an intervention. You can track calories if you want, or you can use an intervention that doesn't track calories, right? Both of those things can still put someone in a state of. A caloric deficit or a caloric surplus, or being at energy balance, but either way the intervention in that case would be like either tracking calories or another intervention that doesn't track calories.

So no matter what the intervention you choose to use, whether that's someone using fasting or a low carb diet or whatever other method that they think that they're not relying on calories. Over time, fat mass is continuing to

be lost with that intervention. The mechanism of action is because they are in calorie deficit. If they were in a caloric surplus, they wouldn't be losing that fat mass. And so whether they want to think they are it has any root in energy balance or not. It has to, they are in a caloric deficit, no matter if they're tracking or not. So tracking county calories is not the same thing as this concept of calories in calories.

Another one that gets put forward is basing diet decisions solely on the calorie values of food. Again, this is another quite weak straw man argument that is utilized by this kind of, it's not calories crew and. They tend to try to ridicule this notion of basing diet decisions solely on calories.

And that is absolutely something I would agree with such a notion should be ridiculed. It's absolutely absurd to think that the only dietary factor of importance and the only thing to focus on is overall caloric intake is ridiculous. And. The problem with this this position that they have though or the way that it's being used by the "it's not calories" crowd is no one is saying the only factor that one should consider is calories. Where are these people who say only calories matter I've yet to see, even in the most extreme circumstances, I've yet to see someone saying the only thing that matters is overall caloric intake. It doesn't matter what macronutrients you consume it doesn't matter what foods you choose to do that. It doesn't matter about a whole host of other variables related to overall lifestyle. No one is making this position, so it's completely absurd to say. The only thing people care about, or the only thing that's important is the overall calorie value of food foods.

Of course, that have the same calorie value are not equal in their metabolic effects. They're not equal in their health impact. None of they're not equal in the satiety response we may get from them, but this is all known everyone who is a competent even anyone who's in a position as a nutrition professional, who accept the energy balance as a concept is not just saying to people, the only thing that matters is calories. So this is an absurd position to hold the another great one is they'll always come back to the calorie is a calorie type of meme for lack of a better word. So similar to the previous point, I just made one of the pushbacks against the concept of calories and calories is that it dismisses the impact of different foods and macronutrient profiles on a diet. And as I just said, it is absolutely correct to say that different foods and different NA macronutrients have different metabolic

effects. So that is absolutely accurate. But saying that this is not the case. Is not what the concept of calories in calories out is claiming.

It's just another argument versus a caricatured version of this concept. So we can hold two things simultaneously that are both true, that the concept of energy balance is valid whilst also saying that the different macronutrients have different metabolic effects in the body, different foods are gonna have different impacts on metabolism and therefore different responses and different effects on satiety, et cetera. All of these things we can hold valid as true. Whilst also just admitting that energy balance is a valid concept. And so other arguments are gonna hear in the same vein as these examples I just gave there's a whole list of them, they'll say, oh eating less just means you expend less calories and you adapt to it.

That's something we can discuss. They'll talk about your metabolism just slows down when you eat less calories calories in calories out, it doesn't account for the role of hormones. They're actually the real determinant of body fat storage or body fat release your body isn't a bomb calorimeter and all these measurements of calories are based on that.

Or we can't actually measure calories appropriately, so this can't be true. But again, I would think that none of these points actually illustrate that the energy balance equation doesn't hold true. So let's maybe walk through some of the most. Common claims that people give that disprove calories in calories out.

These are justifications that people will give as to why this whole energy balance concept is nonsense. Now, most of these are of course built around personal anecdotes that they give. And after they have had a certain experience, maybe they look into this and they find an interpretation from someone who is giving them an explanation of why.

It was never calories in the first place. And then that kind of goes to reinforce this belief based on maybe a personal anecdote. And I'm sure you've had many people say something like this, or you've seen someone say something like I'm eating more right now. And my body composition has never been.

So therefore calories in calories out is nonsense. We'll look at that in a moment. They could say something like I reduced my intake, but I then

stopped losing weight. So of course it can't be calories. Calories in calories out is nonsense. They might say tracking calories never worked for me, but then one day I went low carb and weight just started dropping off.

So of course it's carbs. It's nothing to do with calories, and calories that was nonsense. Or they might say I developed hypothyroidism and off the back of that, I started gaining some weight, even though the diet was consuming was the same as I was eating before. And so clearly that must mean it's down to hormones, so it's not calories, right?

So calories in calories, out as nonsense, they could say tracking calories, isn't psychologically healthy. It isn't a sustainable way to live. It doesn't make sense that we should have to trap calories for our whole lives. Therefore, calories and calories are always nonsense. They may say. There's more to diet and body composition than calories.

So this concept is nonsense. And of course, with all these examples that I just gave, the initial observations that people are making could be correct, but it's the interpretation at the end. That calories in calories out as nonsense, which is incorrect, right? So they've made an observation that could absolutely be true and I'm not denying any of those things.

So for example, if someone in, in one of the cases did reduce their intake, but their body weight stopped decreasing after a period of time, then that, that could absolutely be correct. That is something that would reliably happen, but it's the interpretation that, that means calories in calories is nonsense. That is the part that's incorrect. So let's maybe take each of those observations as examples that you may come across in people reporting this to you and think about how we might be able to explain this in a way that is congruent with what we know about energy balance. So let's take the first example I gave there.

I'm eating more now and my body composition is better. So there are absolutely cases where someone can be eating more and see their body composition improve. And there's maybe two variations of this that are common to see. So first would be, let's say we have a person that's when they say the term more, what they're referring to as more food is actually in terms of the mass or the volume of food they're consuming but they're not actually talking about caloric intake, right? Maybe they've made changes in

their food choices. They're now consuming an overall healthy dietary pattern. Maybe they're consuming more fruit and vegetables and legumes and lots of foods that have a relatively low calorie density. In other words, they have quite a large volume for the amount of calories that they are providing.

And so as a result of that, They are now consuming a greater volume of food than they were previously, but their caloric intake is actually reduced. And so therefore the reason why they are now seeing change in body composition, or now they've started to see say less a loss of adipose tissue or body fat is because they are in a calorie deficit at this time, that they've reduced their overall calorie intake. Despite the volume of. Being markedly different. A second example might be an alternative case where let's say someone has increased their calorie intake, but at the same time has also started resistance training. And so their lean body mass increases.

And so over time they see an improved body composition as they are subjectively describing it. And this is actually quite common, right? People who first get into fitness or first join the gym and they may be in a situation before where. Out of fear or body image issues or a number of other things have been maybe quite restrictive on their diet and have been afraid about eating more.

And then they start in the gym and they start training and hopefully they get some good information about, okay, we need to make sure we're adequately fueled and they start now eating more protein across the day. In this case, they, again are eating more food maybe in terms of volume, but also in this case, maybe calories as well.

They increased their calorie intake, but because they have started this new resistance training program and they're building muscle mass with that. And particularly if they're new to training, they're gonna be able to build lean mass. Quite quickly then over time they subjectively see my body composition much better and I'm eating more.

But again, this is completely congruent with what we know about changes in muscle mass. It doesn't violate anything that we've said about energy balance as a concept. So whether. We have a subjective or an objective case as we've just outlined where someone eats more food and experiences,

either a decrease in fat mass or increase in lean mass, all of this can be explained without violating anything we've said around the concept of energy balance.

Let's take the second example that I outlined. This was someone stating I reduced my intake, but I stopped losing. So one can reduce their calorie intake, but eventually stop losing weight. And this is something that is completely described by everything we know related to the metabolic adaptations that occur to dieting or also we have the converse where we get metabolic adaptations to over consumption as well.

But particularly in this specific case, the situation where someone reduces their, there are gonna be metabolic adaptations that lead to a decrease in energy expenditure. And as we would've discussed on the long term weight loss maintenance episode, that we see these adaptations and we see decreases in energy expenditure and we have then also drives to consume more food as well, which is another layer to add in.

So in addition to someone that is going through a dieting phase where they've reduced their calories. in this situation, they, number one have a lower body mass. So there's literally less mass there, which can contribute to their energy expenditure. So that means less expenditure in and above itself, but more so is that the more time that someone is in a deficit and the more that their body weight is reducing, the, their energy expenditure is gonna.

Coming down and down due to these metabolic adaptations. And so the actual net caloric deficit they're in is shrinking. And so even if someone stays eating that lowered amount of calories at a certain point, white loss is going to plateau out, and this is a normal adaptive process. You wouldn't just decrease your calories by, let's say 300 calories per day, and then continue to decrease body weight indefinitely.

Doesn't happen. It would happen even in a theoretical sense. If you were to maintain that lower level of calories, at certain point, you would no longer be in a deficit. So that's, that is nothing to say that calories in calories out was violated. It's just to say that at the point that person stopped reducing body mass.

At that point, they had got back to energy balance. They were no longer in a deficit due to these adaptations. And that explains why there was no further reduction in body mass. The third example, someone states tracking calories, never worked for me, but when I went low, carb weight just dropped off. So again, this is a common anecdote and.

As I think I've mentioned earlier in, in this episode, many people don't find tracking calories, a useful strategy, but not succeeding and losing weight with such a strategy. Isn't an indication that energy balance is a flawed concept. Or that it's wrong, but rather that tracking calories is a strategy that the individual finds difficult to adhere to, or maybe is tracking incorrectly, or hasn't accounted for reductions in energy expenditure over time.

All of these things could explain why that it's not a useful intervention. And so energy balance and tracking calories are not synonymous. They are not the same thing seeing calories in calories out is a valid concept is not the same thing. As saying, you should track calories to lose weight or that tracking calories as an intervention that will guarantee everyone is successful at losing weight.

None of those things are correct. And it's not the same thing as saying the concept is true. For some people then going on a low carbohydrate diet will lead to a spontaneous reduction in chloro intake due to a combination of factors. So they now have reduced food options. They will typically have reduced processed food intake. Because if we think of most ultra processed foods they largely can't be consumed on a low carb diet. They will tend to have an increased protein intake based on the food choices. They're now making, they're gonna maybe have greater satiety because they're relying more on whole foods and maybe some greater protein, et cetera.

And all these combinations together allows that person to reduce their body mass. And especially in the early weeks or so of embarking on a low carbohydrate diet, there's also gonna be some losses of water and glycogen, which contribute to again, a lower body weight measurement, but these things together in combination with the fact that we know that someone could reduce their caloric intake without tracking it is able to explain this.

So that original statement someone made is completely explained by those. The next example I gave speaks to the kind of hormone point more

specifically, and it could be a case study example where someone says, I developed hypothyroidism and gained weight on the exact same diet I was eating and the exact same number of calories I was eating.

So therefore calories has to be nonsense, right? It has to be down to this hormone and. Indeed again, their initial observation could be very valid. Hypothyroidism can lead to weight gain, but this is due to a decrease in metabolic rate and therefore a decrease in energy expenditure. So yes, a hormonal change is resulting in weight gain, but the mechanism is still via the creation of a caloric surplus. So it still fits in with the energy balance model. And in these cases an appropriate drug intervention can offset this decreased energy expenditure. So that, that can be accounted for. So if someone is getting treated appropriately, this offsets that, that change.

But what has happened here is just because of the hypothyroidism, they've had a reduction in their energy expenditure. So if they're continuing to eat the same number of calories they were eating before when they were at energy balance now, because their expenditure is decreased, they're now in a surplus, hence why there is a gain of body mass.

So again, this fits in with the energy balance model. This is not a counter. then the next example I gave was well tracking calories. Isn't psychologically healthy. It's not a sustainable way to live. And this is something that is correct in my view. Yeah. I think for many people tracking calories isn't necessarily psychologically healthy. I think a very strong case can be made that in the long. People should aim to move away from it or at the very least be able to move away from it without there being any trouble. So that it becomes completely optional and is completely by preference. But if they wanted to move away from tracking, they could do that and still have an overall healthy diet.

I think that should be really the goal for everyone. In the vast majority of cases, unless someone has a very specific body composition goal. But for the average person, yeah. Tracking calories, For your lifetime. Isn't certainly something I don't think anyone is necessarily promoting, but again, as you said earlier, tracking calories and calories in calories out are not synonymous calories in calories out, or the energy balance model is simply a recognition.

That energy imbalance can cause alteration to body tissue stores. It says nothing about having to use any specific intervention or strategy, whether that's tracking, counting tracking calories tracking macronutrients or counting calories or anything else. So again, calories in calories out is not an intervention. It is not a strategy. It is an explanation of energy balance and how that relates to overall body mass. And then finally the last example I'd given was when someone states well, there's more to diet and body composition than calories. And this is something we've already covered. Of course, there's more to diet and body composition than calories.

No one is saying otherwise, this is definitely the weakest argument that someone can give because literally no one says that it's only down to calories. So with that, I think one more thing that I did want to cover in this episode relates to claims that again, try and disprove calories in calories out in some way, or try and highlight why energy balance is flawed or why calories are a myth.

And it's people that and this goes all the way from just the run of the mill quackery we see all the way to people who sometimes people presume are credible, because they're either. Academic institutions or have actual qualifications in health science or nutrition science and should know better.

But it's based on the idea that there are problems, calculating calories, whether that's caloric intake or energy expenditure and on that basis. This whole calories thing is nonsense. We should just forget about her and there's numerous examples that have happened. And there's been some an a funny example recently on social media as well.

But nevertheless, this is something that's worth covering because it is quite prevalent. And there is some. As always, there are half truths inserted into it to make it seem reasonable. So let's think about assessing calorie intake and energy expenditure. Unless we live in a metabolic ward, it is absolutely correct that we can assess these things with real precision.

So for calorie intake, we can maybe get relatively close or at least I would say a decent approximation that works for practical purposes. Let's take the most extreme form of tracking that we could use. Let's say someone weighs all of their food, really accurately. They log all of that into an app that tracks their calories and then there is a calculation of total energy intake for the day.

So this is doable and might be relatively close, but. As someone could quite correctly outline at this point, this is based on estimates and it's based on averages of the calories and the foods that we're measuring and logging into this. So there may be some inconsistencies with the precise amounts of ingredients used. And then for things like processed foods, food labels come with some margin of error, right? There's some allowable margin of error. That's always the case. So yes, even in cases where you have the most meticulous tracker of calorie intake, someone who weighs every single piece of food they consume, they track it in an app to the exact gram.

The actual number at the end of the day, they're getting in terms of calorie intake is probably not going to be the exact number of kilo calories that they have actually consumed. That is fair. But the more important question that is, how much does this actually matter? Even if the calorie estimates are a bit off, comparisons can still be made between the calculated and the average habitual intake for that person. And it's these comparisons that tell us if someone is likely in a calorie deficit or not. So it doesn't really matter if someone's calculated 350 calorie deficit is really 327 calories or 386 calories. It doesn't matter. The precise number is of less relevance because what they're doing is they're tracking in the same way. Every single. . And so what we're doing is based on this typical tracking that they do and the foods that you're usually consuming, you can look at, okay. Habitually when I'm maintaining normal body weight, normal times where I'm not trying to reduce overall mass, what is that caloric intake. And then in times where someone is aiming to reduce, let's say body fat stores, they would reduce that average number downwards. And so in both those cases, it's the intake that they're consuming in this fat loss phase, let's say is lower relative to their normal intake. And so that's all that really matters.

The exact precise number of calories is of less importance. And so saying that you just can't precisely track calories as somehow being a reason why calories are unimportant to think about just doesn't make any sense for energy expenditure. Any estimation we make in real world settings is just gonna be a really rough approximation.

And that is completely acceptable. It's gonna be very difficult to measure energy expenditure to any real precise degree. But again, it's the same thing, how much this is actually matter. What any estimation of energy expenditure

is doing is just giving a mere starting point to help determine what an appropriate calorie intake for this individual may be.

Not exactly what it should be. Just based on your typical reported activity levels. Let's say we're gonna estimate this person is expending this approximate amount of calories. And so this is a starting point of what an appropriate calorie intake for that person may. but in cases where the estimated calorie intake is calculated with the goal of fat loss, let's say, but no body composition change occurs, then we're gonna go with that real world data, it doesn't invalidate energy balance model, rather. It just simply tells us. That the initial calculation that was made was probably a bit inaccurate and that, because there's been no change in mass for, let's say a number of weeks with this person, they're just not in a calorie deficit for a number of the reasons we could have described earlier.

And for them, if they do wish to reduce fat mass, just a further reduction of intake or maybe an increase in expenditure is required. And so it's all just relative to that, you're changing relative to these average intakes that you're calculating not saying based on this formula, I've gotten an exact amount that is exactly how many calories I'm expending. None of these things invalidate the concept of energy balance. They're completely something we can accept. Let me finish with a few conclusions and these are similar to the way I try to conclude my thoughts within the Sigma statement that I mentioned a bit earlier.

And so the main things to take away from this, first of all, the energy balance equation, simply states that the difference between energy coming into the body and energy, leaving the body is equal to the energy stored in. Or lost from the body. That's all it's stating it's not an intervention. It's nothing else. It's just stating that the energy balance equation describes differences in energy, not about specific amounts of tissue change. So in other words, just knowing the state of energy balance. So the do, let's say the degree. A calorie surplus. Someone is in, that's not telling us exactly the amount of fat tissue or lean tissue, et cetera, that someone is going to gain.

We would need to know more information to make a better guess at that. So for example, in situations where someone goes in a calorie deficit and we could say, Comparison case that we're gonna, that we're gonna show the calorie deficit could be the same in both cases. In one situation, we have

someone on a high protein intake and the other situation, we put someone on zero grams of protein a day, and in the person consuming the high protein intake, we also get them to do resistance training in those situations, the differences in actual tissue change between those two people is gonna be different.

But the energy balance is really just used as a kind of proxy for what is likely to happen. Given a number of other factors that we know about. So whether this comes in then for change in body, mass would be a calorie deficit is both necessary and sufficient for a decrease in fat mass, meaning.

If someone wants to decrease fat mass over time, whether they track calories or not, no matter what intervention that they're gonna use, if fat mass does result, there's going to be a need for a caloric surplus to have been established. And again, whether they track calories or not is irrelevant, they will have to have a caloric surplus of some kind for that fat mass to.

It's also sufficient that if you just put someone in a calorie deficit and don't pay attention to really anything else, it might not be optimal. It might not be healthy. It might have negative impacts on things like lean body mass or hunger and so on, but it would lead to decrease in fat mass. If the caloric deficit is appropriately large, on the flip side, a calorie surplus would provide the best environment for optimal muscle growth, let's say, but a surplus is not actually necessary nor sufficient for muscle growth to occur. And this is something I talked about more in that statement. If you want to go and read it, but very briefly, again, it's neither necessary nor sufficient because you can gain muscle theoretically without being in a surplus.

And again, how like that is, will depend on a number of factors, but similarly, It is not sufficient in and of itself. If you just consume a surplus of energy, that doesn't guarantee you're actually gonna grow muscle, right? You actually need the primary stimulus in this case, being resistance, training or appropriate amount of tension applied to the muscle and in a certain amount of volume intensity, et cetera, et cetera.

Now, what we've focused on today has been this idea that calories in calories out is not synonymous with a number of things. People claim it to be. It's not the same thing as saying, eat less, move more. It is not the same thing as

tracking or counting calories. It is not the same thing as basing diet decisions solely on the caloric value of foods.

And it's not the same thing as saying the kind of "calorie is a calorie" type deal where the, that all foods are equal. It's not stating that again. It's just a descriptor of energy balance at that, we know there are homeostatic and non homeostatic drivers of energy intake and expenditure.

So both hormonal regulation, as well as environmental and behavioral regulation of how much we eat and expend. These are really important. And this is why we don't just say eat less, move more, and why that's really ineffectual advice. And what dictates whether someone is gaining or losing fat mass is going to be the net balance between fat storage and fat.

Therefore fat oxidation over an extended period of time, right? That is what's driving it. calories in calories out are not independent things. And this is something explored in much more detail. In the mentioned statement, calorie intake influences expenditure. Again, this is down to those metabolic adaptations.

If you reduce caloric intake, that will tend to lead to some degree of a downward shift in energy expenditure because of certain adaptations that take. And even between isocaloric diets, we know the impact on body composition is gonna differ based on things like the macronutrient profile, as one example.

And I gave a, an extreme case example earlier with like high protein and training versus no protein. There are other factors that influence body composition outside of calories and even diet, right? So resistance training. Sleep the hormones that we mentioned, this hormonal milieu, they all exert and influence on body composition, but none of this undermines the fundamental influence of energy balance on body mass.

None of that is a counterpoint. And then finally, like I said, was it, wasn't the focus of this particular episode? I do wanna make sure I flagged that this idea of eat less, move more. Unhelpful advice. It's gonna be ineffective, just focusing on calorie deficits and nothing else is ineffective.

And we don't wanna go through those positions because they're equally absurd. So in order to achieve change in body mass advice around the drivers of intake and expenditure in our food environment and behaviors, all these other types of things that are. Multifaceted and complex, those need to be appreciated as opposed to just being calories.

So that is as much, I think, as I'm going to say on these particular ideas and these particular claims and myths around this area, hopefully are served as a nice recap of some of those things and why they are unlikely to be useful. Maybe this might go to serve as some ways that you can explain these concepts to people who maybe follow your work, or maybe you work within nutrition practice, or maybe just come to you privately for some advice, or maybe directly for you, maybe some of these things you were unsure of.

I hope it has been useful. That is it for me. If you wanna get more on some of these details, like I said, some of these concept and a whole lot more was covered in that Sigma statement, which is of quite comprehensive. So it's much more detailed, but it does contain a number of these concepts I've walked through today as well. And if you want to prefer to listen to some previous podcast episodes, then maybe the one on weight loss maintenance might be a good start there as well. Also the episodes around body models of body mass regulation. So those two episodes I will link to in the show notes as well.

So you can check those out and I hope you've enjoyed. Episode of the quack asylum as a Sigma nutrition premium subscriber. Thank you so much. Not only for listening in, but for the continued support, it really does help me. It's a big deal to me and I'm very appreciative. So thank you for that.

Remember, you can always submit questions for either topics that you won't covered or questions to be answered in AMA episodes over on the members area. So just when you're on sigmanutrition.com, click "members area". And you guys as Premium subscribers, so can submit questions. That is it for this episode. I hope you've enjoyed and I'll be back with another episode next week. And until then, thank you for listening. Stay safe and take care.