DANNY LENNON: And we're live Ari. Welcome to the podcast, thanks so much for taking the time to talk to me today my man.

ARI SNAEVARSSON: It's great to be on Danny.

DANNY LENNON: Just like we were saying off air a moment ago, I'm quite excited for this conversation because it's an extremely novel area for this particular podcast to explore. And I don't think we've talked about this even remotely on any of the previous episodes. So I'm excited to learn some stuff that you've picked up throughout your research on this particular topic. And I know plenty of people listening, whether they have dealt with a situation personally, or whether they're a dietitian or a physician that are working with patients. I think there's lots of interesting conversation to have.

So maybe before we get into some of the specifics that I want to ask, maybe just tell listeners a bit about this particular area of research that you became focused on, how you got into that area, and then some of the background in that regard.

ARI SNAEVARSSON: Yeah, absolutely. Right now, just for some background, I am a dietetic technician working at a residential treatment center for patients with eating disorders. And so that's typically seen as the level four out of five levels of care for

eating disorder patients. So it's pretty intense treatment, but not quite hospitalization.

Where I got into the research that I did, and I'm really excited to share this was my senior year in undergraduate. I was doing my Capstone research and I knew I wanted to do it on something related to eating disorders. I wasn't entirely sure what and getting into the field a little bit and looking around at what has been researched, what hasn't, it became apparent that not a lot has been researched, but one thing that stood out to me was that refeeding strategies are just greatly under researched. There's not much on it and the standard of care as it stands is not exactly up to date with what the research would seem to indicate. And that's something that we can get into in a little bit more detail later.

Generally speaking, what that means is that we're not feeding anorexic patients or just chronically malnourished patients as a group in general enough food. And it's kind of based off of a faulty idea of this refeeding syndrome which totally exists, but doesn't affect these patients in a manner that we might think it does.

DANNY LENNON: Sure, like you said before we get into some of that interesting discussion. I suppose a good place to start with this is to get people clear on some of those key things we're talking about, layout some definitions so we're all seeing from the same page. So when it comes to anorexia, of course, everyone will have heard of that, but how should we think about what exactly that condition is? And then secondary to that, how does that relate to this other term you mentioned, refeeding syndrome?

ARI SNAEVARSSON: Great. I actually think that's probably the best question to ask. That's a good way to look at it because a lot of people assume right from the get go that they know what anorexia is. It's seen as well just being chronically or severely underweight and there's a lot more to it. Of course, for these reasons, we're really interested in the weight itself, but there is a lot more to anorexia.

One of the important things that should be considered, especially by any sort of medical practitioner who is dealing

with an anorexic patient is how exactly did they get to the place that they are right now. Of course, there are different means of getting there, and there are therefore different types of anorexia. Generally speaking they are broken up into the restrictive type and then the purging type. And so sometimes that's confusing to people who've also are fully in bulimia nervosa which you will probably have heard of consists of a purging or a compensatory mechanism involved where they either make themselves vomit or use laxatives. That's actually in bulimia, that's really important because of the bingeing that comes first.

When it comes to anorexia, the hallmark trait is restrictive feeding patterns, so we could see purging in anorexia, that's absolutely possible and that could be what got them to where they are, or we could see chronic restriction food intake. It's very common that they have fasted for weeks on end before actually being hospitalized and the people who are already under weight, that can be really, really severe. So hopefully that answers the question on how we can see anorexia especially from a medical standpoint.

And then I believe your second question was about how refeeding syndrome comes into play with especially just eating disorders. And so refeeding syndrome, the research that we have on it now came from initially some prisoners of war in World War II. I don't have the exact research on hand but sort of what we found out was that when you refeed people who have been malnourished or starved for long periods of time, it's not enough to just give them food and then hope they'll be on their way and they'll be healthy and safe. The body actually has some really important compensation mechanisms in place, which means that we need to be mindful of how exactly we feed people back to proper health.

And so in general, especially with eating disorders, one of the thing we want to watch out for is what's called hypophosphatemia or just low blood phosphate levels. The reasoning for this is that when we reintroduce a large load of food that's generally composed of a lot of carbohydrates. And by virtue of that, we see an inappropriate level of insulin

spiking, especially in these patients who have not had any real insulin spikes, we could say maybe in the past weeks, months, even years in some cases. Their bodies are not used to this.

And so because of some of the safety mechanisms that their body has, they by and large have normal serum levels of these electrolytes like phosphates and potassium. So it looks like everything is okay, but the intra-cellular levels have been just dangerously depleted. And one of the effects of insulin is that it drives those electrolytes into the cell. And so we've got these somewhat normal serum levels of phosphates in particular, and insulin comes, it has this really large response, and it drives those phosphates into the cell, and then the serum levels are just totally depleted and we see hypophosphatemia in those cases, which down the line, and I should say hypophosphatemia is the hallmark trait of refeeding syndrome. It's generally how refeeding syndrome is tracked.

What we see down the line is things like heart failure because as you can imagine, phosphate is extremely important as a component of ATP, Adenosine Triphosphate. The body needs that for its basic muscular contractions. That's not going to be a surprise to most of your listeners but basically when we are running low on that, we are failing at such a basic level that we see things like heart failure, respiratory failure, or failure to wean off of ventilation. We could see things like seizures or trouble breathing. Just really at every level, there are these really dangerous problems that we're running into. And so as just sort of as the normal story goes, that is what refeeding syndrome looks like.

DANNY LENNON: So with that refeeding syndrome and this hypophosphatemia, what is the typical kind of time course we might see for some of these symptoms? So like you say, with this refeeding and therefore the effects of insulin and driving some of this phosphate back into the cell, and we see this decrease in serum levels. And you mentioned some of those knock on effects, is there a typical time course you would start to see these symptoms emerging or how kind of

soon into that refeeding process would some of this stuff start to show up in practice.

ARI SNAEVARSSON: And that touches on an important area that I should make a point of mentioning. There are different levels of refeeding syndrome and therefore different time courses. And so for the types of practitioners that could be listening to this, or depending on what field you're interested in, we can generally separate them into acute refeeding syndrome and chronic refeeding syndrome. And of course, it's not actually black or white like that, but it's a helpful dichotomy to create here.

What I would say to that is that, first of all, if it's to the level of where the patient is being hospitalized, well, I should say that severe hypophosphatemia is generally seen as anything below 0.4 millimoles per liter of blood phosphate levels, and then normal or mild hypophosphatemia would be anything below 0.8 millimoles per liter. And so generally speaking, when we see those severe levels, if the patient is in anything under the hospital level of care, they really should be referred up to the hospital level of care because that's not something you can deal with at residential or intensive outpatient.

So I should say that on one hand, there's this acute refeeding syndrome, which poses a very real risk of these end stage symptoms, heart failure, and respiratory failure, and that needs to be acted on immediately. And I'll talk about what needs to be done, but mainly we see phosphorus supplementation and improper refeeding strategies.

On the other hand, there's this chronic form of refeeding syndrome, and this is a lot more common in things like, let's say chronic diarrhea, maybe chronic alcoholism or diuretic abuse, things like that where over time we've let these electrolytes become really depleted. And so in terms of the intervention, we're ideally slowly refeeding them. And it's not quite as severe a case as that former case that I just laid out. In terms of time course, I don't have very specific answers as to the differences between the two but those are the two big

distinctions that I think that people should be made aware of.

DANNY LENNON: Totally understandable and so if we start to get into some of this conversation where I think a lot of your work has been really useful, at least for me for seeing some of the nuance to this, some potential ways forward, right on the outset, you mentioned earlier that we have certain current standard of care for hospitalized anorexic patients. And as we'll probably touch on later in the episode, based on some of the work that you've looked at, there may be some alternatives to that. So just as a starting point, what is that current standard of care for anorexic patients?

ARI SNAEVARSSON: So in my research, that was a kind of foggy area at first, although I was able to find that generally speaking, what the standard is, is that we start these patients on about 1,200 calories a day, of course, that is variable based on body weight and of course, the amount of restriction and malnutrition that was present at the time of admission. But by and large, it's around 1,200 calories. It's based off of a calorie per kilogram amount. So it's purposefully very low, and then we see generally speaking an every other day increase of about 200 calories that can be titrated up or down based on the phosphate amounts that are seen in the blood, but they, generally speaking, have that very low level of initial caloric intake meant to again, address the idea of refeeding syndrome and to prevent those really high insulin spikes that could be causing those end stage symptoms. That would be the standard of care.

However, one of the things that I ran into was that there was this one survey of about, I believe 51 different medical practitioners specifically who worked in the intensive care unit, and they asked them about what sort of standard they were using for their refeeding strategies and they came across, I believe about 28 or so different answers, and we're just looking at 51 practitioners here. And so these were small differences, but they were important differences. So the fact that we don't have a very strict standard of care, especially with such dire cases of malnourished patients, that was concerning, right from the outset. But that would be to

answer your question, that would be probably what we would see as the standard treatment for malnourished patients, for severely underweight patients, so on and so forth.

DANNY LENNON: Before we get to some of maybe the potential alternatives or how we could potentially approach this in a better manner, one thing that I do want to touch on is the differences in different types of food provision for these people. So I know in some of the research that you've brought unto me, you discuss differences between, say refeeds with whole foods versus feed tubes versus intravenous and so on. Can you maybe just outline some of the basic fundamental things people should know about those differences and how that might relate to the rest of this conversation?

ARI SNAEVARSSON: Yeah, definitely, that's a good place to start because this is where we start to see where things could break down in the system. So the first treatment, our first line of defense here is giving them whole foods, that would be preferential to I'd say almost every practitioner. You want to start with whole foods if possible, and just see what the patient can accept. And now of course, you can imagine, especially with anorexic patients that is the chance for a refusal of food, especially if they're at the hospital level of care. Chances are they've been refusing food. Very often, they've been refusing food even at a high level of inpatient care and so that is one possibility.

On the other end of the spectrum, we could see a lack of gastric capacity. For example, if they haven't been eating much food at all recently, we could see down regulation of those important gastric enzymes which obviously are very important for digesting the food.

But the thing is we have that second line of defense here, which is what you just mentioned, the feed tube. It is also referred to as enteral nutrition, and this can be administered in a variety of ways. The first, I would say the first preference they would have is probably an oral feed tube, although that's not always possible. We can also do a nasal gastric feed tube. So basically just down the nose to the stomach but then of course, that runs into the whole issue I just brought up of gastric capacity, so that's more if they're refusing food, if the

issue is that they're not able to process it at the stomach level, then they can actually bring that to all the way down to the intestine at the level of the duodenum. I believe it's usually at the duodenum, that's where they cap it.

We can go even further in that and actually press the tube through the body directly into the organ that needs to be refed. But through my research, and I didn't even mention or didn't even bother to include this in the research itself, that's just very rare that they do that.

And then finally, the third line of defense would be the central intravenous line, which known as a total parental nutrition or TPN. And this is definitely a last resort. So first of all, if they're not able to process this food, they're not able to digest it, they're refusing it, we would see the last option would be this TPN. And so they'll put the intravenous line into some vein where the patient can accept it. And as you can imagine, having this complete nutritious feed show up so quickly in the blood can raise the risk of things like reactive hyperglycemia. We can see infections, those are a really big problem. And so things like that kind of disallowed this from being a first or primary option.

Initially in my research, I had come to the conclusion that this could be a great way to refeed them, and I kind of ignored some of the risk of infection because what I was seeing was that there's this really quick uptake of food, and I was thinking right from the get go, well, the problem is that they're not getting this food fast enough, but the risk of infection is actually a lot greater than you'd imagine. So that's why this is rarely resorted to.

So it goes in that order. We start with whole foods, and actually often we do whole foods in combination with liquid supplementation, things like ensure or boost, and then if that's not working, we might add a feed tube. And then if that's not working, we do solely a feed tube. And then if that's not working, then we have TPN and those are probably the extent of the feeding protocols we see here.

DANNY LENNON: Okay, perfect. So I think we're at a place now it's maybe start exploring some either alternatives or at least potential ways

where we can have a more effective practice, which is I think really a lot of the work that you sent me centers around. So maybe the best place to tackle this is what are maybe some of the things with the current standard of care that could either be done better or maybe are ineffective right now, or are maybe potentially causing issues that there are other alternatives to, and in those cases, what are these alternative practices that you think may have potential to benefit people?

ARI SNAEVARSSON: Right, so the first thing that set off the alarms in my brain when I was reading through this was that it should be pretty obvious to really anyone, going into this, I didn't have advanced knowledge of eating disorders. I had interned at an eating disorder facility, but didn't really have anything beyond just my general undergraduate knowledge of food intake.

So one thing that should be obvious to everyone is that they need to be refed. They need to be brought back to a healthy body weight. And so my thinking when I was seeing these really low calorie refeeds of 1,200 calories a day, and oftentimes a lot less, we were talking, they surveyed some practitioners who were saying that they would be inclined to use things like 500 to 900 calorie refeeds, which are just extraordinarily low. My thinking when I saw this was if they're using refeeds that low, there has to be a really good reason because we're risking an important stage.

I should mention that my research was specifically on adolescents with anorexia nervosa, and we're missing a really important window in their life where things like bone stature growth, things like cognition. We can't afford to have those be permanently damaged by under nutrition. So again, so there needs to be a really good reason why we're not giving them enough food and as I looked into it, there really isn't a great reason. Because the thing is that the incidences of refeeding syndrome, well firstly, the incidences of fatal refeeding syndrome are virtually nonexistent in anorexic patients, or really in any starved patients, unless we're looking at super extreme examples such as the prisoners of war that I mentioned earlier.

Other than that, we don't really see fatal refeeding syndrome. We see it bring up some really bad problems like edema, what I was mentioning with heart failure, respiratory failure, but we don't see the fatal occurrences. And so then what comes after that is, all right, well, do we see severe hypophosphatemia showing up? Do we see those symptoms? Is it bad enough that we actually merit this really low calorie feeding protocol? And there doesn't seem to be much of a correlation between the amount of calories that are given to them and the incidences of hypophosphatemia, which of course set my alarms off initially.

I started looking into some, what's known as rapid refeeds and different studies that had used those interventions and what they found was that even in adolescence, these patients were really accepting of caloric refeeds of 3,000 up to even 5,000 calories. And we were seeing no incidences of severe or hypophosphatemia at all. And we were seeing much better hospital state times were a lot lower, the patient level of care just on a qualitative subjective level, they were having a better time and treatment, and all of that was really important.

And so my thinking then is all right, well, the problem doesn't seem to be that getting too many calories is causing this hypophosphatemia. So what could it be? And that brings me to what I mentioned earlier about the role of insulin. Well, what's really going on here at the most basic level is that we're seeing this insulin spike, which the starved body is not used to, it's not accepting of. And we've got somewhat normal levels of these serum electrolytes, but we have really depleted levels in the cell. And so this insulin driving them into the cell and it's flushing out the serum levels, as I mentioned earlier. And so what that leads me to or that led me to start thinking was what's the role of insulin here? How is insulin playing a separate role from this just general, we're having too many calories story.

So there actually have been a few studies, not many at all, but there have been a few where they look at high fat refeeds rather than just high calorie. And what they found was that, first of all, and this is always the most important thing to

look at. Patients were accepting of it, even when it was a whole food strategy, they were accepting a high fat refeeds. And second of all, we weren't seeing these cases of hypophosphatemia really showing up, which you would imagine on a basic level makes a lot of sense that when we're replacing the carbohydrates in the diet with the fat, we don't see as large of an insulin increase, that makes a lot of sense, but it's just not something I think that practitioners have updated themselves on. They haven't really looked too much into. I should mention that this isn't a wide spread series of studies that we're looking at, these are a few isolated studies that found this, and I found it pretty interesting and I decided to look into the mechanisms at play, and it definitely seems like this is a potential strategy.

The next thing I would say then, this is really important to mention is that we're talking specifically about the hospital level of care here, more so than we are just general eating disorder care. And the reason I mention that is that when we talk about what kind of diets we're doing, this is risky territory to get into, when you're dealing with anything other than very severe cases of anorexia, because we don't like to tell these patients what type of diet they're following or what foods are better for them or going to get them to different weights. So this is really something that's kind of isolated to the final level five hospitalization stage.

And so hopefully that answers your question. I'm kind of just pointing out the fact that what's really the culprit here is the insulin increase more so than having too many calories or being fed too quickly. And so the intervention then that we would use would be a high fat refeed, more so than worrying about the calorie levels indiscriminately.

DANNY LENNON: Right. Yeah. No, it makes a lot of intuitive sense and so just to make sure I have it clear and again, we're on the same page, this typical conventional idea of going more slow and steady with the amount of refeeding in these hospitalized patients was on the premise that refeeding too quickly, or at least a thought would go, could create hypophosphatemia because of that movement into the cell of phosphate. So we

see the serum levels drop and get these negative downsides. And so the way around that was, we'll just refeed slower.

Now based on what you've discussed and we look at these mechanisms that it doesn't seem to be really the calories that were responsible, it's the effect of the insulin from the carbohydrate in the diet, driving up insulin that's affecting this movement of phosphate and therefore hypophosphatemia and the negative downsides there can potentially be mitigated if we don't have these big insulin spikes, which these types of patients are not used to. And therefore that leads us to maybe a way around that, is to have a lower carbohydrate, higher fat refeed so we can get more of these calories back and start refeeding them. Is that fairly accurate of what you said to this point?

ARI SNAEVARSSON: Yeah, I think that's a great summarization of it. I would also point out that because people might be wondering, what is the carbohydrate amount that they are getting, because that would kind of explain whether this is what the culprit is. When I looked into it, especially the feeds that they're getting tend to be around 40% to 45% carbohydrate compared to the other macronutrients of course so it is pretty high. And what we're talking about when we say carbohydrates, we're talking about generally a high sugar amount, because we're talking about feed tubes, where we can't stuff complex carbohydrates in there. Of course, there's the worry of complex carbohydrates so we're slowing down gastric emptying and making this process a lot longer than need be.

DANNY LENNON: So if we now go along with that line of there's potentially now a way where we can refeed at a much higher level of calorie intake, probably one question and people will come with is, well, are we, or is there an upper limit of what we should target in practice when we're looking to try and refeed these people? So if we go to the presumption that we can get away with not causing these knock on detrimental effects, we know that these are bodies that are in badly need off to be an increase in body weight. What is the kind of target of calorie surplus that we might be looking at? Or is it more useful to think about how much weight gain at a certain rate would we like to see? Is there anything that tells us quantitatively of

typical target weight gain rates in such patients and what type of caloric intake we need for that perhaps?

ARI SNAEVARSSON: Right, so definitely and very unfortunately, we don't have very sufficient knowledge of the numbers behind that. However, what I would say is that, first of all, the bodies of these chronically malnourished patients function very differently than most other people's bodies. The first way that this shows itself is that the standard 3,500 calories in a pound of fat rule doesn't exactly play out to the same extent. It doesn't mean that their pounds of fat have less calories, but it means that when you give them that much of a weekly caloric surplus, it doesn't actually end up netting you the pound a fat that you'd expect. So this works on just the most basic level of, well, nutrient absorption is not occurring at maximal capacity in these patients.

And so because of that, we aren't really able to predict weight gain with the same formulas that we would in the other patient. So that would be the first thing I would say. And then after that, I would say before anything else, we should focus on making sure we're not in a deficit. And I mention that because there are actually quite a few cases where patients being refed showed weight loss from the initial stages, and it was days before that was actually corrected, which is, in my opinion, that's a malpractice.

So I would say that the first thing that we should think about is generally speaking practitioners use the Harris and Benedict formula for estimating caloric equation or estimating the total daily energy expenditure for these patients. And so I would say to anyone in that capacity that using that we should first exaggerate such things as the exercise intensifier. We should assume that these patients are exercising a whole bunch. We should assume that they need to get the maximum amount of what is their maintenance level, and then we should start it there. And the major modification I would make to the standard of care is we need to be checking in on the more regularly. That every other day, scaling up of calories just doesn't cut it.

We should, at least by the second day that they have been admitted to the hospital, we should at least by then have checked in to see very closely, how is weight moving? And not only how is way moving, especially for these patients who, again are adolescents and they're at risk of a lot of permanent damage, we need to see this on a three or four compartment model of the body. Let's not just look at how weight's moving. Let's see what components of that are moving. So is this fat that we're seeing, are we seeing an initial increase in water retention because edema is definitely something that on either end of the spectrum could be the results of an exaggerated physiological response to caloric intake. Edema is definitely something we could see.

So is this a rapid increase in water? Is this an increase in fat? And then like I mentioned earlier, we're seeing issues with bone mass accrual. Let's also look while we're at it at what composition of that is bone weight.

Some of this might seem to be overkill, but especially in adolescent patients, we don't have a large margin of error to play with here. And so I think it is pretty important that we use those as our first line of defense. And then on top of that, I would just kind of clarify that there are no, unfortunately, there are no hard and fast rules about what caloric intake they should be getting and where exactly these starved or malnourished patients are differentiating from other patients where they have different nutrient needs. It's hard to quantify. Well, they have different nutrient needs to this extent. Of course, it all depends on the amount of restriction they've been exposed to. It depends on how long they've been underweight, so on and so forth.

DANNY LENNON: Yes, some great points in there, and I think particularly hammering in on the fact that we are talking about adolescent patients here in light of this and being, I suppose really tipped on at least the higher end of that maintains, level to start, pushing forward from there is probably potentially at least maybe more important in these types of individuals where you have a requirement for growth and the rates that they are at least supposed to be growing at and

various other caloric demands that we typically see in that type of population.

So before we start of wrapping some of this stuff up, Ari, where is the next few things that you would like to see kind answered within research or what kind of holes did you see in the literature when you were trying to piece this stuff together that you think future research would be really well served to try and explore.

ARI SNAEVARSSON: Great, definitely. The first thing I would say, I mentioned this earlier, but refeeding syndrome, as is the case with any sort of syndrome is a constellation of symptoms. It's not a single symptom. And although we use hypophosphatemia as the hallmark trait and our measure of choice, that's not the only thing that's going on.

And so the first thing I'd like to see is, I'd like to see us agree upon an exact means of measuring refeeding syndrome so that in future studies, we can say refeeding syndrome did or did not occur. Because as I said earlier, we'd like to use that 0.4 millimoles per liter rule for the severe hypophosphatemia. And that is somewhat frequently used. But in a lot of the studies that I ran into, that wasn't what they use. In fact, it was really hard to even attempt to convert that rule into what they were using because often times they weren't using blood phosphate levels, it would be. Sometimes I even ran into them using subjective experiences of the patient, which on a tad is kind of odd ended itself, that you'd use a subjective experience to measure something so serious, but just as a whole, we don't really have a great way of tracking refeeding syndrome. That's the first thing I would say.

The second is that I would like to see more studies where they start manipulating the macronutrient intakes. The thing I mentioned about fat intake is only one piece of the equation. We can look as well at protein intake. We can look at changing what exactly is in that feed tube. One thing I thought of while I was doing this was, well, how about we play around with the phosphorous supplementation because while that is kind of a standard of care that they're given

phosphorous supplementation upon admission to a refeeding protocol, that isn't titrated too well. It's kind of just given at the standard amount. In fact, the standard amount was the wording I've heard often but I wasn't able to see what the standard amount was, but they're often giving the phosphorous supplementation and then the refeeding strategy begins, but it would be helpful to see if we could combine the two and see how the caloric intake and the macronutrient intake kind of plays off that phosphorus level.

And then the final thing I would say is that I'd like to see exactly some studies on rapid refeeds beyond what we've seen already. What we've seen already tends to range anywhere from 3,000 to 5,000 calories in these refeeds. I don't think it's smart to move too far up from there because we're playing with people's lives here and we can't really afford to look at what more than that does. However, what is often used are rats known as ABA rats, or I believe it's Activity Based Anorexia. I could be wrong about the exact acronym there, but basically the rats who have been starved or put into a purpose for anorexic state, and we can use those to study this and to see what happens with really, really high caloric intakes to test where, as you were asking earlier, where that upper limit exactly is, I'd like to see that.

And just in general, I would like to see, maybe it's a hard sell, but I would like to see a little bit more care given to this field. I think that eating disorders as a whole have sort of been cast out and not given the proper treatment that they deserve, they're sort of seen as these outliers and these odd cases that aren't explained well, but these are people just like us and they're unfortunately not being given the standard of care that they deserve.

And so on top of all this, I would just like to see a better standard of care, which leads me to one point I maybe should have mentioned but there's troublingly high rates of these practitioners not giving patients the care that they need, because they view eating disorders in a weird light. That sounds like an odd comment to make, but actually there are studies showing that. There's something called counter transference, I believe, where it just basically has to do with

the practitioners view of the client or of the patient affecting the level of care they receive. And it's just inappropriate that we see that in these cases. So as a whole, I would like to see some of those things improved and just see what comes out of that.

DANNY LENNON: Probably lots to think about there. So before I get to the final question or two, how would you like people to come away from this conversation more like the few, the key take home points that we've talked about throughout this particular episode that you want people to be clear on and take away. What are the big things to remember?

ARI SNAEVARSSON: Definitely right before we got on, we were starting to talk a little bit about who is going to be listening to this. And so my thought initially is that this is applicable to many, many people beyond just those who are, let's say, registered dietitians who are in charge of the exact refeeding protocols that these patients are going to use. This goes much beyond that.

So this goes to first of all, anyone with any sort of interest in clinical dietetics. It's just important to know how bodies in such severe states of starvation, or just this exaggerated stress response, how it responds to different nutrient protocols basically, just different feeding protocols, that's always important to know.

But then I would say in direct application, first of all, I made the distinction earlier between this ongoing refeeding versus this acute, maybe I could say chronic versus acute in terms of, let's say, the hospital level of care, where this is really important and it's really dire that they are refed immediately versus something like residential treatment centers where I work, and in those cases, it's more of an ongoing thing. And we do check in on them, they have weekly labs. We need to check for phosphate levels, but it's not quite as severe.

So I would say in that light that any registered dietitians who are working, especially in the intensive care unit who are directly overlooking these patients who are at risk of refeeding syndrome, I would like that maybe they take away from this, not necessarily that I'm 100% correct about my

findings that well, you should immediately switch to a high fat intake in your refeeding. That's definitely not what I'd like them to take away as much as maybe pay this a little bit more mind, look closely at your patients and how they're responding to your intake, to the intake protocol that they have. And don't just assume that this refeeding syndrome is always going to be something to watch out for. That was something that I saw in my internship a while back, that this is just kind of assumed that refeeding syndrome is probably going to happen so we just should always start them on low calories. Rather, I think they should be given a very personalized approach and this should just be kept in the back of their minds.

DANNY LENNON: To move from there, if people listening are interested in maybe getting in contact with you or finding you somewhere on the internet , where is the best place for them to go and do that?

ARI SNAEVARSSON: Sure, they can reach me at just my email, which would be my full name, no periods, so underscores or anything @gmail.com. Maybe, if possibly you could put that in the show notes or something like that. That would be the best way because as of now, I don't have any site dedicated to this or anything like that. And I also, just for privacy reasons, wouldn't want to disclose the treatment center I work at. But yeah, I would just say if they'd like to reach me then by email would be best. And I'd love to have this discussion with anyone. I was very fortunately able to talk to some eating disorder professionals while I was doing this research and got to hear their input and I always love to hear that even in cases where they totally disagreed with me because it's just an important conversation to have.

DANNY LENNON: So for everyone listening, I will, of course put Ari's email in the show notes this episode. So if you do have any feedback or questions, you can shoot them in the email over at that address. So with that brings us to the final question that we always end the podcast on and it's simply, if you could advise people to do one thing each day that will have a positive

impact on any area of their life, what would that one thing be?

ARI SNAEVARSSON: Actually, I love this question and love this segment in your podcast. So I would say, first and foremost, if people have not read the book *Mini Habits* by Stephen Guise, it's an incredible book. I'm really big into behavior psychology and habit psychology. I would say the one thing you can do is the smallest level of the most important thing to you right now. For example, for me, it's mindfulness practice. I've always found that to be just a really important aspect of my life. It doesn't necessarily have to be what other people choose, but I can take that and can make it into something really small, which is just like maybe meditating one to two minutes a day. And you set that as your minimum and you do that every day and doing so just totally drops down what your expectations are so that even on the worst days, you're always doing something to further that goal. I think that's really important.

DANNY LENNON: Brilliant. I love that one man. This has been a great conversation; I have thoroughly enjoyed it myself. This has been an area that I'm certainly nowhere near an expert in and I've really enjoyed learning from the work that you've passed me on and our conversation today. And like I've mentioned to you before, I think this is an extremely valuable area for people to be aware of whether they are working with patients or not. I just think this is so important. And so thank you so much for the information you've given us and for bringing such an important topic to light. It's being a great to chat today.

ARI SNAEVARSSON: Thanks so much for having me. It’s been awesome to bounce this off of some of your questions and have some of this even possibly challenged. So I'm just really glad to have this opportunity so thanks Danny.