Introduction to Dr. Andy Franklyn-Miller

You. Hello, it's Dr. Jen. Welcome back to the Peptide Summit. Today we're talking to Dr. Andy Franklyn-Miller, who's a board certified, dual board certified physician.

He trained at Imperial College in London. He served for 16 years with the Royal Navy mission, a role at the Defense Medical Rehabilitation Center as the head of clinical research.

He completed a PhD in biometrics and in the next phase successfully built Europe's largest sports medicine practice, treating elite athletes from around the world.

He has over 60 publications, three textbooks and formal management training at Copenhagen Business School at new retailers, and he is responsible for the discovery of new peptides, ingredients from AI origins through to clinical trials and subsequent launches, alongside developing the AI platform magnifier.

Welcome, Andy. We're so excited to have you. And this is cutting edge stuff. I'm so excited to talk to you today. Jen. Absolutely, and thanks for having me on.

Yeah. So we were talking a little bit before. You have such a cool background. in, in sports, in the military. So it kind of makes sense that you stumbled upon peptides, right?

For sure. I know my background is exactly that. I started with Elite Sport with with sweep or through rowing, move through rugby and hockey. and then it's military and looking at everything from performance through to rehabilitation and, and I think, you know, we're always looking for new ingredients.

And if we look at the industry as a whole in terms of everything from vitamins, minerals, supplements all the way through to food, many of those ingredients have really been developed for taste, for texture, for the macaroni shrimps within them.

But there were very few novel ingredients that actually give us a defined health benefits that are new money. Those ingredients are really old in terms of the claims and that sort of changes that taste, texture, very small changes, new molecules of the same function.

And really peptides have the ability to transform that landscape. Yes, absolutely.

How Nuritas Uses AI to Discover Plant Peptides

And when I first found out about the company, Nuritas I, I kind of couldn't grasp it. Exactly. Right. So could you explain exactly what you're doing there?

And how are these peptides that you're finding can be patented for sure. So the company Nuritas was founded by Dr. Nora Khaldi who's a PhD mathematician and computer scientist.

she had a vision for being able to show up to discovery. and so we know that find a new molecule can take 100 years, and success rate is really, really small.

and she wanted to shortcut that. And to do that, we built magnifier, an AI platform, in order to do that. And we hear so much now about AI, about large language models and ChatGPT creating almost, imaginary text.

And that's not what this is about. She spent seven years building a unique data set, and what we did was take well over 500 different plant sources. We dried them, we ground them down.

We ran them through mass spectroscopy after, digesting them with various enzymes. And we cataloged the peptides. And we currently have over 8.5 million peptides from plants, in a library.

And that's proprietary on its own. It's not that interesting. What we want to know is what those peptides do in the human body. So we have 200 million biological assays on cells in order to match all of peptide with function.

And that's basically how magnifier works. So when we want to look at a health need such as muscle health, we can ask magnifier what are the best pathways we can address.

At the same time in terms of protein synthesis, reduction of muscle breakdown, reduction of inflammation, bone density. And then look for the fingerprints back in the peptides.

So if you imagine Monsters, Inc, that fantastic Disney movie where you walk into that room and you see all of the doors that's magnified, we can just reach to a door and find a peptide that that links to a body receptor.

And what it might then do. And unlike pharma, you produce them synthetically. These are biological fat from palms, food grade right from start. Yeah, I love that.

Except with Monsters, Inc they're going to scare people and you're going to help people, which is the awesome thing. And I love that. This is from plants when I grasp this concept.

When I first heard about your company, I was like, this is this is so unique, and it probably scares, pharma a little bit, right? Some of these drug companies.

So I think, you know, it's we with food. Grade and so, we have peptides that are, have already have Gras certification or some of them Gras certification because the source materials have been in the human food chain for many centuries.

And indeed, somebody somewhere would have digested that fava beans or that lentil, that pea, in the same way that we do when we produce the ingredient.

which actually has much more than one single peptide, we often use an array of peptides to approach different mechanisms. So unlike pharma, where they'd be normally a single mechanism, a peptide which is synthetic and heavily modified, these are linear small peptides that we've shown to be stable, to be absorbed by the glass and active in the body.

and also it's a multitude of peptides working on very specific mechanisms for different from pharma. Yes. And you mentioned bioavailability. How do you know that these peptides are bioavailable.

And do you have you run into some misses where you thought something was going to work well in humans, and then it kind of just puttered out. So we've been fortunate enough that magnified the risks, a lot of that process.

So a lot of the biological work we did early on was looking at the various parameters of the peptides in terms of the sequences that we know will survive the simulated gut and can be built into the model.

So with, let's say, muscle health or glucose metabolism, we might initially start with 10,000 potential peptides that can affect, upregulate or down regulate the actual pathways we're interested in.

But a proportion of those aren't bioavailable. They're either hydrophobic or they won't cross the gut. and so therefore those are automatically discarded.

They're not useless because we can use them as a single peptide in the future somewhere else, because magnifier can work in different platforms. But for now, we're very much focused on food grade.

And so they're discarded. We go to something where we've demonstrated with AI that the gut survivability and

human effect is there, and we've been fortunate.

The success rate of the trial so far is 80%, which is very on some.

Peptide Bioavailability and the Magnifier Platform

Yes, 80% is amazing. So for those listening out there, basically the magnifier is it's taking all these, you know, you said thousands of broken down plant material and kind of plugging it in into the algorithm to see what would even work, what wouldn't.

And then you plug something in, like you want to focus on muscle growth or like you said, inflammation. And it will give you which ones are the best match.

Absolutely right. And we won't remember peptides are just small strings of protein. They're very small proteins. we don't look into really small one or 2 or 3 di peptides.

They're small molecules, very different mechanism and very much more, drug discovery. We tend to look in the mid range of peptides around the sort of 5 to 30 amino acids long.

And these are proteins that have a very specific receptor. And therefore we can match and therefore create a clinical effect. And so that's the way it works.

Yeah that makes a lot of sense. So you're not focusing on the little like more bioregulators. You're focusing on the bigger peptides for a more focused result.

Absolutely. And we know that they're breaking down quite quickly. We know that, the they survive that digestion process, but they're not then further broken down.

so we can measure the action in terms of human clinical trials. And what we've been able to do is remove the animal modeling that. Otherwise we would need to do in that process because of the AI.

So it's a good use of AI. unlike, the models that now are present, it obviously evolves. And so from the start of some semi-supervised AI supervised modeling, now, very much of the generative modeling where we can look for the receptor, the docking site, and the peptide sequences themselves to make that linkage.

Yeah. Now, you mentioned clinical trials and clinical trials are a big deal. They're they're hard sometimes, especially when you look at the peptide world.

So how are you running clinical trials. Aren't they expensive. So so let me talk you through peptides. Strong. So happy. Strong is really our flagship ingredient.

And it's focused very much around muscle health. We've done three human clinical trials. So the first human tackle was in 30 subjects young males and we immobilized their legs in plaster cast to simulate sarcopenia.

And we gave half of the group milk protein concentrates, very typical ingredient within hospital nutrition, particularly for the soft, and then the other half, we gained pretty strong, after the one week the mobilization, we took the cast off and then allowed the subjects to walk around for two weeks.

And then we brought them back and had a little the muscle biopsy demonstrated four times an increase in protein synthesis in the strong group compared to milk protein.

So we had four times protein synthesis. Muscle mass remained the same between the two groups. So milk protein and the peptide strong group. But interestingly strength the peptides strong were 10 to 103% of baseline strength after only two weeks of walking around, whereas milk protein concentrate concentrate, we still on 60%.

So that was the first clinical trial and mainly it was run by family. The the parameters really were getting enough subjects in order to be immobilized and positive or weak.

rather than anything else. We stuck with males, and then muscle biopsy. So it's a pretty detailed study published already. Second clinical trial I ran before joining the company.

And and here we took a 30 to 50 year old, these were trained athletes. And then we put them in Cybex and, like, extension, to exhaustion, pretty strong versus placebo at 2.4g.

and we looked at, 48 hours and 72 hours after the study, what we found here was 148% of baseline strength, 72 hours post, recovery, which was remarkable.

And that's what actually convinced me to join neuroscience on my my direction was elsewhere. and what we also found in terms of repeated measures around the curve, number of, of reps in the first set versus number of reps in the last set, and a muscular endurance or an energy test was a 54% difference between the two groups.

So second trial very much looking at energy muscular endurance recovery. And we've just finished a third temple with 52 subjects, men and women. looking at the effects of a two month strength program four times a week.

PeptiStrong Clinical Trials and Muscle Recovery

Static weights, Pepsi strong, 2.4g versus placebo. And we looked at strength again, not muscular endurance, but also bone density as well. Be significant.

The bone density change was remarkable because 1% change in two month in men and women, which is very much equivalent to the vitamin D supplementation that we might see.

But muscular endurance we saw doubling. So the number of reps being able to perform to exhaustion, before and after. With Pepsi strong compared to placebo and a 20% increase in strength overall.

So I think we're very careful with clinical trials about what we're actually asking the trial to do to make sure what powers for the primary outcome measure, we use CRO, so we're not doing the research in-house.

It's very important to us that it's external. and, and we have two clinical trials actually running at the moment in both glucose management and in sleep.

We might touch a little a little while. Yeah. That's amazing. And for those watching out there the 1% increase in bone density is so big. And I am I'm shocked by that.

I'm floored by that. And also the first study where you were talking about the immobilization. So we see this a lot in, gosh, people that tear their ACL that are recovering post hip surgery.

So the fact that this peptide can help with strength. So when they get out of that cast that they're not losing that muscle strength is if you've ever seen anyone come out of a fresh cast, I have in medicine a lot.

They're atrophied from not using that and even the stretch of the muscle, because you need the stretch in the muscle to maintain, muscle. Muscle mass and strength.

So this is this is amazing. And it's really cool. Now in each of these three studies, were there any side effects or do you anticipate any negative side effects of taking Pepsi Pepsi strong long term.

Not not five. It's I and Pepsi strong comes from the family as a 2.4g dose. And it's a it's a hydrolysis and so obviously the the if you were taking significant amounts of fiber being raw, the raw material with patients with glucose six phosphate dehydrogenase, there's a risk of autism.

but with the with Pepsi strong it's the equivalent of about four five beans ingestion. So it's a very small dose. So in terms of tolerability absolutely fine.

But it's interesting what you say about the sarcopenia or the muscle wasting. I think it's very easy to forget that muscle is actually the largest organ in the body.

Too often skin gets the the credit because each of the skeletal muscles are all to be separate. And so we don't often lock them all together. But British Journal of Medicine sorry, traditional sports medicine, published a really interesting analysis that looked at muscle strength related to all cause mortality.

And we see a 17% reduction in all cause mortality with very small increase in strength. And that's having good strength. It's not whole body strength.

And so I think it's so easy to overlook, we focus on very small molecules in potential their role in longevity. We look at rodent studies looking at longevity.

But we've got great clinical data already showing that muscle strength is probably the biggest reversible tool that we have in terms of longevity. And we're using all cause mortality.

And it's easy to forget that. It's easy to forget about all cause cancer or cause cardiovascular disease, metabolic disease, dementia. They all decrease with muscle strength.

and it's really exciting. So I think, you know, healthy, strong. Although there's that soccer peanut audience, there's a sport and exercise audience that the recreation world is menopausal is also just living.

It's it's got an effect on your muscle strength and therefore your longevity, which I think is one of the really most exciting things about. Yeah, and talking about muscle.

I love talking about muscle because when I hit my 40s, I was obsessed, you know, with with muscle I'm like, okay, you know, sarcopenia, you start losing muscle.

Women, women in their mid 30s, you have to start lifting and paying attention. So, it's helpful though, because my four year old is almost 50 pounds. So it's good to have, you know, that muscle strength.

We're on vacation and he was on my back. Or I was carrying him a lot and I'm like, it's it's good for me. But the other thing with with Pepsi, Pepsi Strong that I really think is cool is it effects its effects on myostatin.

I would love for you to talk about that because, oh, my husband's one of them. I, he, he gets tore up when I, when he lifts with me because I just like push him hard and I'm like and then he's too sore and he can't like even sit on the toilet.

You know what I mean? So, I've, I had him take some 50 strong and it really, really helped with that post exertional soreness for sure. I mean, the second study, we looked at a number of my clients, to see with garlic, those with subjective measures such as soreness and the like.

and we know that peptide strong contains multiple lead peptides. They the main anabolic peptide is very much upregulation of mTOR via the As six phosphatase pathway.

But we also see through the antigen one pass pathway, as you say, myostatin suppression. And we measured that with, with serum, 48 hours and 72 hours Post-Exercise, as well as a medium post-exercise, between the placebo and the strong group.

And we see that suppression throughout those two days. and, and we also see, as you expect, a dampening down of aisle 12 and other, inflammatory cytokines associated with muscle damage.

And that correlates well with some of the subjective questionnaires about how people feel. And often people will say, I feel like I got energy, I got the ability to go again.

I got less soreness. and, and that bears out with our ability to potentiate because that peptides probably are getting stronger even two days after or 48 hours after exercise.

Yeah, that part's really exciting. So with this specific peptide, some of the studies that were more short term, have you found if someone's using this to someone's out there, they're listening.

They're like, I want to try peptide strong. so say they're like 60 years old. They broke a hip. They want to start taking it for recovery. And to reduce that loss also for, bone density.

Now do they just keep taking it. Do they have to take breaks. You know sometimes we cycle peptides. So are these different than other peptides. Do you use it continuously.

Do you take breaks. do you lose the effect if you don't take it. Away from us? For perspective, we study the effect. There's a cumulative effect up to seven days.

So when we look at, mitochondrial action, when we look at energy force production, that effect is quite small, up to about seven days. And so you're absolutely right.

The longest trial that we've run to date is two months. we certainly see no side effects across that profile. and these, natural linear peptides that are short and broken down very quickly.

So we wouldn't expect that to be these on synthetic and heavily designed in terms of improving half life or anything along those lines in terms of drying the body.

So no reason why patients can't take these daily. 2.4g is the study dose. and that's the I generated optimum dose. we certainly seen patients divide this up, in across the day and split their dose.

and it's available in multiple formats and also around the world, there are multiple end use applications that have a strong already being from bars that are focused on longevity.

through two capsules with pure peptide strong or capsules that are blended in longevity supplements with others as well as whey protein, ready to drink shakes.

So it's beginning to, to penetrate. And our, our user base is is in the tens of thousands already in terms of strong users.

Muscle Health, Longevity, and Daily Use

So it's something there where we've got a large number of people using on a daily basis. Yeah, that's really exciting. It's I it's a great product. I really enjoy it.

I'm glad I, I have gotten to use it before talking with you. What's next in the innovation pipeline? What else are you guys working on? Absolutely. It's it's it's very exciting.

We've got we've got two clinical trials currently underway. We talked the first one peptides sleep. we know that sleep is a problem. and from a longevity perspective, it's a piece of our sleep.

Latency is over an hour. The time we go to go to sleep, we know that that's 5% to all cause mortality. So if we can improve sleep latency, we can improve deep sleep, we can change rhythm.

And that's that's something that we ought to do. And so we've taken a different approach. We focused on the erection pathway and lowering cortisol. So we have a peptide network that both lowers cortisol by the large anti-

inflammatory perspective as well as an empty and sorry, an isolated pathway.

and that network of peptides, we have in clinical trial and, in Australia right now. And one of the interesting things that is we were using, earnings, in order to translate, I think it's important that we start to incorporate wearable technology within our technical trials because that's our end customer and our end consumer.

We know that 36% of Americans alone wear some form of sleep tracking. And when whether we use it or not, I don't know, but we wear it and and so therefore, being able to demonstrate that ingredient has a direct impact, we can see that I think is very important.

So that that clinical trial underway at the moment, we, pretty excited about the effects that's had, so far. So, coming in Q3 and then we've got a spring trial.

So are you looking at sorry, are you looking at for like, I'm like, sign me up with my wearing. so are you looking at REM sleep and non-REM sort of deep sleep, all of that?

Because that's what you look like. You're gonna have all the data. It's amazing. We've got an eight week trial. looking at the library, cortisol, range of blood, zero images, three questionnaires, focus and attention in the back score, as well as all of the data that are provided and of course, or of, of blinded the participants.

So they have a they don't have the retina school, they don't have the sleep data. that's only for us. And so we have of course, latency. We've got the phases of REM sleep, we've got duration, we've got movements, we've got body temperature, we've got risk rights.

All of the, the great parameters that are can give us. And of course, that means that in order to sleep, they're in their own home. They're in the same sleep environment.

and Professor Rhonda Rao in Queensland, very experienced running sleep trials. and so we chose that unit to run it all their expertise. so very small dose.

Obviously we we're keen to display some of the potential harms or side effects that melatonin would have and be a direct competitor to that. but also have a wider portfolio because there's anti-anxiety effects here as well as an anti-inflammatory effect of peptides within the ingredients.

So we've got that, that dual function again, which is characteristic of new soft peptides so that we can replace more than one ingredient in A in A. And then formulation making that three in a label.

and because sources almost always come with an organic, and a vegan option. So, so we can satisfy that clean up, environmental impact that, that our ingredients need to have.

That's exciting. Sleep is one of those things that if everyone could, you know, it's one of the pillars of health. So you could be doing all the things.

But if you're not getting good, restorative sleep, it will not. Your body will not do okay in the long run. it would be interesting to see how this, this new peptide sleep you called it, how it would help shift workers.

I always tell my shift workers to just get off night shift, but, you know, maybe if it would help with that, then that would be amazing. For those. Yeah.

I think one of the things that we see with both pharma medications and also in some, some, some circumstances with melatonin, we see a hangover in the morning.

We see that grogginess that lack of focus, a particularly with manual workers or those doing repetitive tasks is actually very difficult to stay focused.

And so that's why the vet school is very integrated within this. And we got an attention, task to look at, our effects in morning morning wakening, to see whether or not we can actually, induce sleep without, disrupting that morning routine.

Yes. That's exciting. And you said there is another clinical trial underway. So. So it would be remiss not to enter the, the, metabolic space. and so we have peptide control, again, an interesting array of peptides.

And here we're focused on DPP four on glute four and GLP one. So we have three mechanisms of action. group four of the glucose uptake into muscle cells.

and what we see in the muscle cell is actually an increasing glycolysis. So it's not that these cells are taking up, the glucose and sitting and allowing them to turn to fat.

The glycolysis is, stimulated at the same time, which gives, the subject energy or that feeling of energy.

Peptide Sleep and Wearable-Driven Trials

but also has GLP one agonist activity to improve satiety alongside the DPP four inhibition, which is sort of more, established in terms of glucose management.

with this, where again, we're using wearable technology. So 24 hour, glucose monitoring, we start with a glucose tolerance test. so we can see the immediate effect.

And certainly some of our n equals one data is pretty dramatic. in terms of flattening the curve, not seeing that or overshoot, and improving postprandial concentration so that we're focused, after eating and so that's giving us some real excitement in terms of the options for where this might sit, both in terms of weight management, in terms of satiety, but also in terms of reducing the inflammation that we see with high circulating, difficulties, but also the chance for people to get more choice.

You know, we can see people moving towards a more restrictive diet for all the right reasons. but by incorporating this and that, it's the ability to lessen the impact of carbohydrate.

If you were to deviate from that, those choices. And so I think it's a really good space, for us to be in, particularly with the immediate effect, looking at the, the continuous glucose monitoring, and that trial is underway to.

Now, when, when will these be out. So we can also both report Q3 so launches Q4 this year. So both of those ingredients will be will be, hitting the market then.

That's exciting. Now the glucose one, do you think that have you heard anything about the subjects. Is it similar to like semaglutide or dessert petite or what kind of like how are these people feeling about.

So it works in a different way. So, so obviously the semaglutide GLP one, agonist is very specific, receptor. And in that pharma space, they're very heavily modified for a variety of properties.

these, unmodified, that plant based, and that three different pathways. So DPP four before and Vlp one. So we have a broader effect. So it's not just about feeding forward.

It's not just about adapting insulin. and limiting that spike. It's about reducing inflammation, feeling full, getting more energy from what you eat. but then, in reducing the impact of that sugar.

So different focus, much broader, in terms of age. and then we have done some early work for this in terms of HBA won't see any human clinical trial, very broad age ranges, which demonstrates a 0.1% reduction in HB.

One thing. and that's a clinically significant change. It's interesting in terms of longevity. That's important in terms of a diabetic population. It's not very important.

but in terms of a healthy normal population, which is where these things are, target is it's significant. So, it's it's it's acute action is what we're looking at now because I think that's where it really sits.

being able to help. Okay. Yeah. That's great. That makes a lot of sense. So this would be more for someone maybe has some insulin resistance that could be reversed.

or maybe someone that just wants to have a week of more carbs and want to flatten that curve. Is that more what we're looking for? I think I think it fits in everything from maybe a drink that you could have with your main meal, to reduce the impact of any carb within it.

It sits within meal replacement help you feel fuller? reduced the sugars. The minutes. In terms of their impact, it sits in, foods themselves in terms of bread based or baked goods.

Again, to reduce the impact of, of that carbohydrate. but also, as you say, in that, in that pre metabolic syndrome, preexisting patient, who's struggling, struggling to, to do all the right things.

It's a help to help along the way, helping to feel fuller, helping to to mitigate against some poor choices or allow more choice. But we've got to be practical.

Like we know that although the world is moving towards more whole foods, towards less carbohydrates, the reality is a very small subset of the population that can make those choices.

A lot of the population, well, you can, you can afford and and we're presented with those options, being able to try to improve the health harms, within those foods is something that we're very passionate about in the past.

And being able to provide these small ingredients that sit within foods or can be taken with foods, that can actually impart true health benefits, is something that we really are very much focused on.

Yeah, that would be great. I'm thinking here, sitting here thinking it would be great to have all three of these peptides for patients in hospitals, right.

You have someone there for surgery. You're protecting their muscle, their bone density. You're helping them sleep. Because when I was working ICU and inpatient in the hospital on trauma surgery or whatever, you know, patients, they're in there, they're not getting good sleep and they're not sleeping well, and you're trying to get them to heal, and then they're not sleeping well.

And then the hospital food is junk and a lot of carbs, so they just need to put all of these in the hospital. We know that won't happen, but we find, you know.

Peptide Control for Glucose and Metabolic Health

We're looking at that in the UK at the moment in terms of whether these strong could be added to see in the normal diet, because the inclusion costs are much smaller than the medical fees.

And so a hospital or a nursing home care home and really think about saving money by using these small doses that will blend within, there is a sprinkle on a meal that's already being prepared, to add some health benefits, or indeed within a blended, shape or within soup.

But because the medical food costs are very specific and very expensive, particularly the prescription versions. and so we're looking about actively at the moment as to whether we can include them.

But you absolutely. You know, we we times are already small. These are small ingredients that can work together and synergistically become very much a personalized addiction from an ingredient.

And being able to pick and choose, I think, is very important. Yeah, absolutely. Well the UK, I probably might

happen, right? I don't know about the, the US like I just I don't know I don't see it happening.

But maybe, maybe if you guys started over there and get the good results, I would think maybe some high end nursing homes here would maybe incorporate that in with with an integrative medical director.

but I think once, once people start learning about these peptides and their just in the science behind it, it's going to be the standard of care. I mean, it has to be, I would think I would hope that in ten years from now that everyone would know about, you know, peppy, strong for sure.

And because there's been three clinical investigations already, three clinical studies. And we're lucky that others are now taking peptide strong and starting to do all the work.

We're midway through an NIH grant application to look at using peptide strong in malnourished children. to reduce the size, the and the impact of soya protein to see whether or not because the the FSR the protein synthesis rate is four times greater, would that be strong?

And we remove three quarters of the soy protein to get the same effect. So can we reduce the burden of shipping and flying this feed around the world.

But then also to look at the effects of that too strong with GLP one. Can we preserve muscle mass, on those patients who are prescribed GLP one? and does it work synergistically?

as a, as a, in a food solution, to try to balance the, the two. So, so certainly I think we really see our ingredients as through all sectors. and actually being able to the first time to really import very quickly, as you say, clinically proven human benefits.

in very small doses. yeah. That's amazing for sure. Now, where can people get the nutritious, peptides? where can we find these? So multiple areas already in the US and within Europe, of course.

already broadly across Europe, in both Switzerland and France, in many, direct to consumer products. Yeah, that's really exciting. And yeah, I take the health journey one and I, I really enjoy it's just four capsules and and you're done.

Now how do you recommend taking the specific peptides, the products. Do you have people take them with food without food? Because I know a lot of it is mixed with way.

What's the best way to take these peptides. So so it's really interesting. So so often people would ask, do you need protein with peptides from in order to get it to work?

And we've done some really interesting work with leucine. and obviously leucine constituent part amino acid within within whey protein but also in branched amino acids.

And we found that actually if you take the if you put leucine in with peptide strong we double the effect of leucine. So we double the effect of leucine.

If you take leucine away, we still get that amplification of the full pathway without the leucine. So so that destroys not a protein loss. So you don't need to have a blending with where you can just take capsules as you are on your own, without any other supplementation.

but it was also it's blended into capsules into sticklebacks, into chewables, with way but also now into food. There are, there are longevity bars in the heinen's supermarket with, cooler pet bar, with peptides from within, as a chewable, if you have a bottle.

So, so you can pretty much take it as you went and, and certainly in know studies have been about morning and then an hour and a half before exercise dosing seems to work both ways equally.

Yeah. That's great to know because sometimes it's it's hard to time out all these supplements and patients get stressed out. So you can just take it any time and you're going to do well.

So yeah I think we all have a supplement regime. We like to take them on in the morning with food or before breakfast or, or in the evening. So I think that routine just fits very comfortably with.

That's awesome. So and what's the the future like would after you guys hit the the glucose the sleep you hit the muscle.

Future Pipeline and New Applications

What what's next. What are some ideas. Absolutely. So so broadly current innovation pipeline looks very much like we have five discovery projects a year of which to make three different trials.

So women's health is high on the agenda, along with got information coming up. so they're really two of our next targets. We also have some topical skin peptides that have already gone up to youth and have projects that work via different mechanisms on the skin, and we'll continue to expand that topical, personal care range.

alongside our oral ingestible range. That's great. What what are the skin ones? Are those commercially available? Did you do trials with those also. They have to use has to yeah.

Human chemical trials, works via collagen. it's, it was originally found in PE, and is a single peptide. and that peptide, works incredibly well with retinol and, also along with vitamin C, and that's where really it lies at a very low inclusion rate, 35 DBM.

So a very small dosage, and is being formulated already, in the clinical trials looking at wrinkle depth and, skin smoothness, and skin hydration. but also those synergistic effects.

The really the really latest to market is Pepsi protects. And this is the peptides that we originally found in microalgae. and is really remarkable. So it works via the connection.

And one receptor connects and one receptors. Really interesting. when ATP binds to it it triggers all of the inflammatory, cytokine response to sunlight.

So UVA UVB so UVA hits the skin, triggers the connection, release of ATP and this peptide to protect blocks that ATP release. So it's very much focused on protecting against sun damage, reduction in dark spots and obviously wrinkles and skin smoothness as well.

At the same time. and that has one clinical trial. so, so really moving forward, we'll have this personal care where we're discovering new innovative mechanisms, alongside our, whole body, ingestible.

Human health. Yeah. That's awesome. And especially with longevity, you know, inside out a skin, of course, but you still want to take care of, take care of the skin with all the the creams and all the things that you can so can wear the skin stuff.

Can you pair it with like GCC copper peptides and for like a double whammy effect. Yeah. So as you well know the former like to see all the experts in in creating formulations that that really work.

And certainly we've seen some pretty exciting, formulations for launches this year and next year that I really can't, I can't detail into in too much detail, but some really exciting formulations are putting pen to use synergistically with other ingredients.

And then also now at Pepsi Projects. Yeah. That's great. So what is the best way to kind of find out where the peptides that the company discover, where they're going to just go to the website or.

Go to the website Nero task.com, where we'll take you to where you can buy where, where, our customers are working and, and where they buy the say longevity.

is is follows already formulated and refined very well. And longevity supplement with peptides from. Yeah. And it's super exciting. I love that you said five per year and then three clinical trials per year.

So that's you're probably going to be putting out what, 2 or 3 new peptides a year. Yeah, absolutely. I think that's that's that's a right we're comfortable with.

And and magnifier allows us to do that. So that's that all that early investment and early work into the platform has given us the ability to to pre-select.

That doesn't stop us in the future looking at individual peptides and taking those further. But for now, we have this huge resource. There's this largest database of plant based peptides that are there, and we'll tap those, but for the benefit of everybody.

Yeah, definitely the future of medicine. Now, do you think you're going to continue the clinical trials for those the, the three that you are already trialing and the peptides strong, or will you just kind of stop where you're at?

Not at all. One of our commitments as a ingredient supplier is to continue to produce physical evidence for, for furthering our customers so that they can use those are kind of cool.

Sorry about the clinical trials of, strains. but also that we understand more and more about the ingredients in different age groups and different target audiences.

And our customers come to us with questions, and can we answer these in these populations? And we're lucky enough to have a little taking on Pepsi strong and running trials themselves.

and we're very keen to be able to do that, you know, to, to take it all and see what your population, and how you, how we work with the ingredients and obviously it's an Olympic year, an Olympic year.

There's a huge amount of interest in both, national governing bodies and professional teams, in taking penalties, probably into the Olympics. So, hopefully we're like some, some pretty strong announcements soon about what PeptiStrong is working, with professional athletes.

Yes. That's really exciting. Now, you brought up an important point. Do you think these will ever get banned or. I mean, we're so where does it live? And so while the water is very clear.

Skin Peptides and Personal Care Innovations

So synthetic peptides, and synthetic peptide hormones are absolutely off the cards that they're, they're banned under S1 through S1 through S4 past. These are linear peptides in the food chain a lot of plant based that aren't hormones.

so we're very, very different from that water class. So and we don't make any, any, any link directly to them. So we're very comfortable in terms of NCAA in terms of water certification.

And indeed many of, customers have gone on to get informed, sport tested, to demonstrate their safety and efficacy within that space. That's really exciting.

And you also mentioned for PeptiStrong that that they were talking about using in children. Right. So because it's plant based you can give these to to children if needed.

Yeah, absolutely. And so we we with our GRAS certification we can go about it 2 yes. What the we're we're currently looking at clinical trial in children, as young as six months, mainly to focus on the, the malnutrition space,

which sadly is prevalent even within our inner cities, not just in, in developing countries.

so space where really PeptiStrong can do good, across multiple generations, really from cradle all the way through, to the elderly. Yeah. And a lot of kids, especially in the US, they're on ADHD medication and all of that, and they're losing muscle mass because they're not eating as well.

So this could be like sprinkled into their food or, or like a protein shake or, you know, autistic kids pans pandas, stuff like that. I see the future of this looking so good for that.

So that is really exciting. Now, would you just use more of a Clark's rule for dosing for kids? Because adults, it's the 2.5g people program. Yeah, absolutely.

So yeah, we would and that's certainly when we've been working with. And then the half dosing down to, to children seems to be where we, we landed on, for our safety trial within children.

So something that would make sense. Yeah. Yeah. Well I don't know. I don't know if you guys listening are super pumped about this, but when I first heard about PeptiStrong it is kind of a new thing out.

And I I'm super pumped especially talking with you more. And it it's just, you know, if you're if you're competing you can use it. Which is nice because a lot of the, the peptides out there, the growth hormone releasing peptides and such, you can't, can't really take those.

So this is something that's going to help you in the gym, you know, along with your your creatine and whey and all of that. So it's I think it's really exciting for those that are obsessed with muscle like like I am.

Absolutely I think I think it's, it's it has a home. whichever sect you're in, you know, if you're less active and struggling to get motivated, that muscular energy effect is significant.

And being able to get out the door to get up, to go do your shopping, to go out to the park, in that, in that training population in terms of recovery, but also the anabolic effects and then the sudden suppression.

but then also in perimenopausal, in the menopausal women, when we find that women, we're in the trial in a third trial. so really demonstrate the difference.

And actually, one of the really interesting things about the women's subgroup was that we found an almost 10% increase in the first month and a 10% increase in the second month with women, whereas the men were a little bit quicker in terms of the first month, but then plateaued. So, women very specific effects that I think we need to look at more in the future.

But but really exciting. Yeah. That's great. Especially you mentioned postmenopausal women. And I have, you know, patients that are breast cancer survivors.

So you know, I can't I can't put them on estradiol or not right away. You know. So this I think is a great application for them with bone density. It's the big I think it is.

And I think it fits in these very, very clear signals strength, muscle energy and muscle recovery and then bone density and three areas where, an ingredient, because it has multiple peptides that can take very specific mechanisms of action, but give us very clear health benefits at the end.

Yes, absolutely. Well, Andy, thank you so much for your time. I know you're in Ireland, so it's late there, and this blue light is probably not really good for your surgery dinner at them.

So we really appreciate you being here. Can you tell if anyone tell everyone if they want to reach out, how to reach out to you? Absolutely. So nuritas.com is the website.

and reach out on LinkedIn. A Franklyn-Miller (Andrew Franklyn-Miller) and be delighted to connect. Okay, great. Well, thank you so much for your passion and everything you do.

Absolutely. Thanks for really nice talk to you.