



DANNY LENNON: James, welcome back to the podcast my man.

JAMES KRIEGER: Yeah, thanks for having me. It's been a while.

DANNY LENNON: It has indeed, and it's been a long time coming, and I am really excited to talk about some of the stuff we are going to get into today. And I think it's probably good timing this time that we have scheduled because only recently one of the papers that you've been co-author on and been working on for a while has been finally published. So we will start by having a bit of discussion around that. For those of you listening, I will link to this in the show notes to the episode. The title of the paper is Effect of Resistance Training Frequency on Gains in Muscular Strength: A Systematic Review and Meta-Analysis. So James, with this paper, before we get into the kind of conclusions and takeaways what was the main question that you guys hoping to answer with this meta-analysis from the outset and what sort of knowledge gap was it that you hoped this paper might fill?

JAMES KRIEGER: Well, there's been a fair amount of research on training frequency and strength, but when you look across different studies, you get different results, some will show higher frequencies or better, some won't. And so the main purpose of the meta-analysis was to see okay, if we pool all these studies together, what's a general idea of the trends that we see across all this literature. And then we wanted to tease out

certain effects like what's the effects of frequency when you equate volume versus when you don't and maybe also comparing different types of exercises in trained versus untrained subjects, things like that. So that was definitely the intent of the analysis.

DANNY LENNON:

Sure and just to highlight for maybe people that don't look into the literature as such, when we are talking here about training frequency, how are we actually defining that term frequency, should people think of that how many times a week they are training, how many times a week they are training this specific muscle group, how should we define that?

JAMES KRIEGER:

In this particular study, it was related to how many times the tested exercise was trained. So, for example, if a researcher has tested 1 rep max bench press, then the frequency would be okay, how many times per week did the subjects do bench press. So it's specific to whatever exercise is being tested and the frequency with that particular exercise.

DANNY LENNON:

And so if we start getting into some of the things that start to emerge from the paper, where is the best place to start, what's the first big few things that start to get thrown up from the analysis?

JAMES KRIEGER:

Well, I mean, the biggest thing is, which was pretty consistent was that we did see an impact to training frequency and basically the more often you trained a particular exercise, the greater the strength gains, and it was pretty much in a dose-response fashion. When you went from one to two times per week, it went up; and then when you went up from two to three days per week, it went up; and then three to four plus, it went up. But there was a caveat to that, because all the studies we pulled together, some did not equate training volume and some did. And so when I say that, when I say equate training volume, I mean – an example might be, let's say I am doing a study where I am comparing bench press once per week to twice per week. Well, there's two ways you could do that. You could do three sets of bench press once per week, compare that to three sets of bench press done twice per week, so three sets on one day, three sets another day. That's not volume equated, because the higher

frequency group is also doing more volume in the week, they are doing six sets of bench press total.

So there's that and then there's studies that will equate volume. So if we go back to my example, one time per week to twice per week, let's say one group does four sets, once per week; and then the other group does two sets, twice per week, but they are volume equated on the week, they are both doing four weekly sets of bench press, it's just how they split it up. So, what was interesting is we found that as you increase training frequency, it definitely increased your strength gains, but the big caveat to that was that that's only because you are increasing your weekly training volume. So, if I go from three sets of bench press once per week and then I do a second day per week, so I am doing six sets per week, so another three sets on another day, then my strength gains are faster. But if I equate weekly volume, so we did a sub-analysis where we just looked at the volume equated studies, suddenly the effect of training frequency disappeared. So whether you do bench press four sets once per week or two sets twice per week or one set for four days per week, all those are volume equated, they are still four sets a week no matter what, then the strength gains are pretty much the same.

So really what the study points to is that training volume is still really probably your biggest driver of adaptations when it comes to strength. I mean, we know that's true with hypertrophy, but this data showed that was true when it comes to strength as well.

DANNY LENNON:

Yeah, that's a really interesting point to maybe jump off the back of, because like you say, it's being kind of pretty clear for a while, that kind of relationship between volume driving hypertrophy and I am sure it's not the only thing, but it's a very, very strong driver and the primary one, when it comes to strength, there's definitely been more conversation among people about the other kind of factors around that. And I think maybe you can talk about some of the things that were maybe throwing up in this particular analysis, but like you say, the training frequency at least, the benefit of more or higher frequency seems to be driven by the extra-training

volume. But when it does come to strength, does that training volume completely account for that or even if we weren't designed to see that, is there any other thing that you think potentially could be affecting strength or proficiency in a certain movement even based on a higher frequency outside of training volume?

JAMES KRIEGER:

I think outside of training volume, I think, there's the possibility that, especially with untrained subjects, you are basically getting an increased practice of a movement, and this is going to be especially true for multi-joint compound movements that are more complicated and complex in nature. We did actually kind of see that trend in the analysis because we did a couple of sub-analyses where we looked at just kind of your compound movements like bench press, squat and then also your isolation movements and we found an effect for the compound movements but not necessarily the isolation movements. So that in and of itself would suggest that just practicing a movement more often, especially if you are an untrained subject improves your skill at performing that movement. So, if you squat more often, you are just going to get better at the squat because technically you are just going to get better at your form, the way your muscles contract together and there's a lot of neural adaptations that can happen that will actually improve your performance that are completely independent of training volume and also independent of any muscular adaptations. So, that was definitely another, I would say, big takeaway from the analysis.

DANNY LENNON:

Sure. I think that makes a lot of sense and I definitely think people listening may have heard some discussions around those lines and even outside of the untrained groups I guess that kind of infamous study at this stage that Norwegian powerlifting team, when they looked at the higher frequency group – and again while there are some limitations there that we probably won't get into, the kind of underlying hypothesis that people tend to go for is that these higher frequencies even in those volume equated scenarios over the course of that week more of those reps are done I suppose in a fresher state and therefore technically you can work on better – you are getting more high quality reps I suppose over the

course of the week as opposed to the same number of reps but some of them you are more fatigued, because you are doing them all in one training session for example, is that we are kind of talking about here?

JAMES KRIEGER:

Yeah, that's definitely some of the thought behind that. And that's certainly relevant from a strength training perspective. From a hypertrophy perspective, it's a little bit different, you are not quite as – you are concerned about increasing your practice on movements and stuff like that, because that's not really important from hypertrophy but yeah definitely from a strength perspective, they are definitely maybe a benefit to more frequent performance and movements. I mean, that has to be balanced with things like recovery and the impacts on joints, especially if you are training in really low rep ranges and with really heavy weights, I mean that has to be taken into consideration as well.

DANNY LENNON:

Yeah, I guess, it's one of those things if we are talking about whether that's training frequency or that we talk about volume or we talk about intensity as much as we try to have a conversation with one of these, you just can't separate it from the other variables because essentially in the real world at least changing these around is going to have implications somewhere else. And so that maybe kind of leads onto something I wanted to ask about is now that we've mentioned, particularly for hypertrophy, volume is a huge driver; you've seen now for strength gains, volume also has a big impact; and we are talking about how maybe someone distributes their training across the week; from a practical sense, probably one question that you probably received quite a lot and many people do, is they say, okay, training volume is important; but there's also this trap of just doing so much volume, you are going to drive yourself into the ground. So how do we go about or what considerations should someone take to try and answer that question of how many sets should I be doing on a particular movement or a particular muscle group etc.? And I suppose we can talk about strength and hypertrophy separately if needed for that.

JAMES KRIEGER:

Yeah, that's a really good question. I think that's really where individualization becomes huge because there's

just no one set number. I mean, there's the meta-analysis I did with Brad on volume and hypertrophy and we found 10 or more sets per week, per muscle group, seen to be a good spot for hypertrophy. But even there, that's – I mean, 10, 15, 20 and there's a pretty broad range you can include in that. And even given that, that doesn't mean, that's what's going to work for everybody, because a lot of these research studies, they are done on mean responses but individual responses can vary quite a bit. And so, you have to consider someone's training history – if someone's been training really low volume for a long time, then yeah, probably going up in volume quite a bit might be a good idea.

But if someone's already been training pretty high volume for a while, and they are not getting anywhere, it doesn't make any sense to keep adding more volume if they are not getting anywhere already. And so those are cases where maybe you have to go in the opposite direction of the literature and maybe the person needs to deload, maybe they just need a prolonged period of very low volume training to perhaps – and this is kind of theoretical, but maybe resensitize the person to training volume. I've been playing around with ideas myself on – I just think of myself personally – I want to train with a lot more volume but the problem is every time I do, I am 44 years old, every time I train with a lot more volume my joints just start suffering quite a bit.

So, with me, I am just like, okay, well, what can I do to at least get some volume stimulus without hurting myself or just make it – because that's the other thing, we have to think about training consistency. You could do all the volume in the world but then if you get an injury or some overuse injury that now you can't train for a number of weeks, well, that kind of defeats the purpose. So, I've been experimenting with ways and kind of hypothesis of what if you train with more moderate volume but you actually spread your frequency out more so that you remain more sensitized to the training stimulus and also incorporating things like light days and easy days, things like that, because when you think of other sports – I am thinking in terms of bodybuilding right now but seems like every sport, even powerlifting,

Olympic lifting, they all have somewhat easy days programmed, incorporated into the programming.

But bodybuilding is the one activity where it seems like people are just going all out every training session and that's always made me think like, well, maybe there's a benefit to doing light days in terms of bodybuilding as well. It's something I've been experimenting with myself and some theoretical reasons why I think having a number of light days and maybe spreading your heavy and intense days out more may keep you sensitized better and maybe you don't need to train with quite as much volume and still get the same benefit, but that's all speculative on my part.

But to get back to your original question, yeah, I think it's really variable. You got to consider what type of volume the person has been using in the past, what type of intensity they've been using, how they've been responding to those and then I think you got to make adjustments from there. I wish I could have just some set number and say, okay, start here and you can go from there, and unfortunately there's just not enough data to – there's some data on hypertrophy but as far as strength there's no set volume number to say, okay, this is a good set volume to start with if you are trying to really improve strength.

DANNY LENNON:

Yeah. That's a perfect roundup and I think it's really interesting when we get these discussions around volume and you kind of see the pendulum swing back and forth and I think maybe the trap that a lot of people can fall into, and I think it's a very easy one to fall into when we are hearing about how important it is for hypertrophy and also the big role it can have in strength as well, that to think, well, then, to be getting better I must always be adding volume. And really not understanding I suppose that, while in a general sense that's true, it's probably in a longer timeframe that people guess that, that on the average for typical mesocycles over the course of a career, you probably needing to put more volume, but that's not to say from week to week or from mesocycle to mesocycle you always need to be adding more and more. It can be that more periodized fashion I suppose and over

the course of the career, in general, it's probably going to be a trend upwards for training volume.

JAMES KRIEGER:

Oh yeah, definitely. And I think also too, I think people need to remember, when it comes research studies, a lot of these studies are only 8 to 12 weeks long, they are fairly short. And so yeah, you might have some studies that show, hey volume is better but that's only done over a 6, 8, 10-week period, and we don't know what would happen over a 24 weeks or anything like that. And so there are so many other factors that have to be considered including just the stress on someone's body and things like that. Eventually, you got to periodize your training in some way. You just can't keep doing more and more, especially over short timeframes.

DANNY LENNON:

Let's maybe talk about a couple of maybe practical scenarios just to give people a feel for maybe how you might go about programming someone's training based on some of the things we've said. So like I said, there tends to be a lot of confusion around how many sets should I program for this exercise or this muscle group, etc. So if we have a case of, let's say someone is benching three times a week in some sort of daily undulation pattern over the course of that time, and they have some different intensities for each of those, how should they or what things should be going through their mind when they are assigning sets towards those? So say they do have a fairly good idea of for this individual, this is a total workload for the week we might want to handle, how should they – I think maybe there's a tendency for people to over-think but how should they go about thinking about assigning a number of sets for each of those days, say for that movement?

JAMES KRIEGER:

I would say, it's an undulating periodization scheme. So maybe let's say some kind of like heavy moderate light scheme, for example. So let's say, their heavy day, they are training pretty heavy, let's say 90-95% 1 RM or something like that; a moderate day might be more in the 80s; and let's say a light day is in the 70s. So I am just kind of using numbers here. Well, it probably depends on how close you are training to failure and stuff like that, but I would say on your heaviest day, you probably don't want to be doing too

many sets just because – I mean, it's going to take a beating on your joints and stuff like that. So, I am kind of the guy, I kind of like to evenly split the volume as far as at least in terms of set volume. So I am just going to make up numbers. Let's say it's 5 sets each day. I mean, I might split up volume that way or I might be more inclined to – because the thing is we can't just think in terms of volume, in terms of sets, we also got to think this in terms of the total repetitions and stuff.

So let's say if you are moderate, if you are undulating the load, you might also be varying your repetition. For example, you might be training 3 reps per set on Monday and 8 reps per set on Wednesday and I don't know, 12 reps per set on Friday – I am just again coming up with numbers. So even there you have to think about, okay, what's the total number of repetitions that you are training, and things like that. So, it's a really tough question to answer because there's so many variables that can be involved there, and I am kind of a – my background is a little bit more of the hypertrophy side versus like the powerlifting and strength training side, so I'd have an idea of what I would do from a hypertrophy standpoint but I'd probably say some of the more experienced powerlifting guys like Eric Helms, guys like that, would probably have a better idea of how to kind of break up a powerlifting cycle. There's a lot of different ways you could do it. I don't know if I could – I don't even really know if I've answered your question.

DANNY LENNON:

No, to be honest, I appreciate there's no answer and I think I was probably teeing you up for that in some ways in that to really demonstrate all these different variables that can come into play and how it's not just an easy prescription, this is how you assign sets to a movement of you need to be able to look at this bigger picture of all these things that are moving and you are going to use that and your experience and this individual over time to change those. And so, as we kind of mentioned earlier, that it's this intricate interplay of all these different variables and not just this is the way you manipulate this one variable. So I appreciate there's no answer to that and I think you did a good job of showing people just all the different list of things you can consider.

JAMES KRIEGER: I should say yeah, there are just so many permutations of various training strategies that it's interesting. I think that's also why you get so many arguments between people because you have people that are in the high frequency camp, people that are in the low frequency camp, it's just kind of interesting and I would just say there probably is no one best way, there's like, it really has to be highly individualized.

DANNY LENNON: Sure. I mean, we've had recent work showing just even people's preference for a certain type of setup and approach and exercise selection can play a role in the results, so again, that's no surprise that we get these debates when someone says, I did this and it worked great for me, and people doing the opposite and saying the same. But maybe they were just set up because they prefer doing that type of work. So, yeah, it's super, highly individualized with all these different interplaying variables.

One thing I am very keen to get onto James that I want to talk about is generally energy balance and how that might play a role in people considering these phases of either a hypertrophy phase or even a strength phase which we will come to later. But if we start with hypertrophy and someone's going through a number of training mesocycles or a certain period of time that they've got ahead of them where they are looking at hypertrophy, if we consider energy balance and where they should be setting up their calorie allotment, I think most people listening are going to be pretty much on the same page and will have heard countless times before that an energy surplus is going to be superior to an energy deficit for the purposes of trying to build muscles, that's going to be putting them in a better environment. But I am just wondering, when we look at kind of the literature that's out there or certainly what you've been aware of and what you've seen anecdotally with clients as well, just how large of an effect does the surplus have especially say compared to a maintenance condition for someone? Do we have any way at all to be able to quantify the difference that a surplus over say maintenance could have for muscle gain? And if so, what sort of surplus should we be thinking of in a

practical sense if there's any way , the best way to start approaching that question?

JAMES KRIEGER:

That's actually a great question. It's a question that Eric Helms and I and Brad are trying to answer right now. We actually have a study going through IRB right now that we are going to actually go into look at that question. We've designed a study that we are going to look at, have three different groups, one with a small surplus, one with a larger surplus and then one in maintenance and we are going to see how it affects muscle gains, because really that question's never been answered, at least I would say adequately. I will say this, we do know that large surpluses don't really seem to help unless you are an untrained individual. So, if you are a total newbie, and you are coming and you start weight training and stuff, you can actually handle a fairly large surplus fairly well. And because newbies tend to gain muscle pretty quickly and so you can actually handle that surplus and – I mean, there was one study where the people were in a 2000-calorie per day surplus, it was some ridiculous surplus and they still gained mostly lean mass, but those were newbies.

For trained individuals, you are just going to gain a bunch of fat and actually there's actually two different studies now that have demonstrated that. They had people on large surpluses, and it actually did not enhance muscle gains. All it did was just caused a bunch of extra fat gain. One of them specifically that I remember, they compared a group that just kind of ate ad libitum, so they just kind of ate what they want; and then another group, they actually enforced like I think a 500-calorie per day surplus at least. And the group that was on the 500-calorie per day surplus gained the same amount of lean mass as the group that ate ad libitum and gained just a bunch of more fat.

So based on that current data that we have and then there's another study that's out, I think they put the people on a 1000-calorie per day surplus and in that sense too, the people just gained a bunch of fat. So given that my best guess as far as an appropriate surplus for a trained individual, it's probably around 100-to-200-calorie per day surplus. So fairly small. It

doesn't need to be very large at all. Right now, I am actually myself, I am on about 200-calorie per day surplus right now, still trying to add some size at my age of 44. Don't know how successful I am going to be but I am on a real small surplus because I know anything probably bigger than that is just going to add fat gain.

Now, theoretically, I would still say there probably is a small benefit to being in a surplus but it just – yeah, it takes energy to build muscle, but it's not like it takes such an enormous amount of energy that you need to have this large surplus to do it. So, I would say, yeah, you probably don't need anything more than a 200-calorie surplus or so. So I definitely favor the very slow bulk approach for trained individuals. That will minimize fat gain and then certainly you are not going to gain any less muscle than if you were on a 400 or 500 or 600-calorie per day surplus. Now, how much more you are going to gain on that surplus compared to maintenance – I really can't say. That's why we are going to be doing the study this year to try to answer that question, how much more beneficial is it going to be. Unfortunately, I can't put a number on that. I would hypothesize that it is going to be more beneficial but I just can't say like in terms of how much more muscle you would add over a particular timeframe.

DANNY LENNON:

Sure. That's going to be a super addition I think to literature. So very much looking forward to hearing more about that. Just when you mentioned that we are kind of leaning towards this very slight surplus should be largely enough for people who are trained, does that translate into any typical rates of weight gain, those types of individuals should be looking at or what you typically advise in terms of potential rates of gain for your clients for example?

JAMES KRIEGER:

Yeah. So a 200-calorie per surplus, the rate of gain is going to vary from one person to the next based on their body size or whatever, but if I just were to give a rough approximation of what a 200-calorie surplus might lead to. That should lead to about 1 pound gain per month approximately, maybe 1 to 2 pounds per month probably I would say. I would say, definitely no faster than that. So you are talking a quarter a pound

to a half pound a week – I would say half pound a week will probably be the fastest you would want to go and even that might be probably a little bit too much. So, yeah, I would say 1 to 2 pounds a month is probably the max you probably want to see. I think anything faster than that and you are trying to put it on too fast.

DANNY LENNON:

Perfect. So for people trying to make progress and their goal is to gain muscle over whatever period of time, however many months we are talking about here, how would you recommend them to estimate their increase in muscle mass over those type of timeframes? Do you kind of let them rely solely on as long as the scale is going up very gradually or is there any other ways that someone can at least get some estimate of how much of that weight gain has been for muscle, given how incredibly slow we know muscle tissue comes on. Is there any way people can try and give themselves a better idea of seeing number one, that they are actually building muscle in the first place to see that things are working and then how much of that gain has been for muscle?

JAMES KRIEGER:

That's a really good question because I just wrote an article for my research review on that topic. And that's actually something I've been having discussions with Brad Schoenfeld and Andrew Vigotsky about that very topic, because this is very hard to know, especially if you are a trained individual whether you are really putting on muscle especially over a shorter period of time, because it's not really measurable over a very short period of time. And when you think of body techniques like DEXA, things like that, those are fairly insensitive and they can have pretty high error rates in individuals. So, those techniques aren't really reliable over a short period of time. They are relatively okay over longer periods of time, let's say, over a period of six months, something like that. But let's say over a period of eight weeks, you want to know if you are gaining muscle or not; really, the best proxy we have is your gym performance.

And so I wrote an article for my research review just recently. Basically, I looked at all the research that tried to relate strength gains and endurance gains to muscle and how closely they were correlated and

unfortunately there's a lot of limitations to the existing research because a lot of it is based on between group correlations or I would say between individual correlations which doesn't really answer the question. What you really want to see is how well does the strength gain within a person correlate with muscle gain over time. But to do that, you need repeated measurements of muscle gain in the same person over time along with repeated measurements of strength and workout performance and things like that. And really there's only one study that's done that so far, and unfortunately it was in untrained subjects.

So my speculation on that is that the best way to know if you are gaining muscle is – and this is partly speculative on my part and it's just my best guess based on the data that exists so far, because some people will say, oh hey, if you are getting stronger, you are getting bigger but the data shows it's not necessarily true. Even in trained individuals, you can have neural adaptations and other changes in the muscle that have nothing to do with muscle size that will actually get you quite a bit stronger. So, then the question is, okay, well, how do I know if I am really getting bigger based on my gym performance. And so my best guess would be your performance over multiple sets of an exercise. So if you are doing, let's say, three sets of 10 on the bench press, you should be seeing improvements across all those three sets, and not just let's say your first set when you are fresh. You should be seeing improvements on a week to week basis across all the sets so that overall you are kind of seeing a gradual increase in your load volume because of it. That is probably going to be your best proxy whether you are actually gaining muscle or not.

There's some research I can't really talk about that much right now by seeing some preliminary data, so I am not going to give any details, but basically what was interesting is that the strength gains alone necessarily didn't seem to be predictive of muscle size, but the strength gains across multiple sets seemed to be at least in this particular study that's still ongoing right now. So, that's just very, very preliminary data, so it's going to be a while before I get the final data on that. So my guess would be, over the very short term, you want to see improvements across multiple sets in

the exercises you are doing and especially I would say in any single joint isolation movements.

There's one study out, and like I said, unfortunately it's on untrained subjects, but they found that your improvement – what was interesting is they looked at leg extensions, leg curls and leg press and they wanted to see how that correlated with hypertrophy and they found that the leg extensions and leg curl performance correlated much better with hypertrophy than leg press performance, which intuitively would make sense, because when you have a single joint movement, you are getting rid of all these other muscle groups that maybe playing a role in performance and some of the neural factors and you are really isolating, okay, is this muscle really getting bigger. And so I would say, you want to see performance in some of your isolation movements. If you are getting better on the bench press, but none of your isolation movements are improving, then I would say you are probably getting stronger for other reasons other than just increases in muscle size.

So, I would say, over the short term, improvements across multiple sets of an exercise and especially on isolation, single joint movements, I think are going to be your best correlates of muscle size over a short term. And then, finally when you start getting out three months, things like that, then you can probably start looking at things like circumference, measurements and using some of the body composition assessment techniques and things like that to kind of look at and track your longer term gains. But other than that, I would say, you still have to go on gym performance really over the short term. We don't have the sensitivity – the techniques you have at your disposal – unless you have an ultrasound at home or an MRI or something like that, you are really not going to know if you are gaining muscle. So you have to go with your gym performance approximately.

DANNY LENNON:

One last thing I want to get to before we start to turn around some of this up, and it kind of relates back to my earlier question around energy balance and hypertrophy and kind of speculating on just how much surplus is going to be of benefit there. If we

were to apply that same question and thinking to strength gains – again, I am presuming there's not really all that much answers out there – again, would your stance kind of change if we switch from hypertrophy to strength as the focus in terms of just how much of an effect being in a calorie surplus would play there? And obviously there's tons of different variables at play, the type of training program and the volume or pushing, etc., but is there anything for us to even think about or where does your intuition lead you on the effect of maintenance versus a slight surplus which is a larger surplus for strength gain specifically outside of say hypertrophy and body composition?

JAMES KRIEGER:

I would say my thinking is quite on the same – I still think that a small surplus is probably going to be best. And one of the reasons I say that is because in trained individuals, even though changes in strength and size are not perfectly correlated – and like I said, we need within subject study designs which we don't have on trained subjects – if you look at the between subject designs which is not really the best way to answer the question, but it's the best data we have, there still seems to be a pretty good relationship between strength gains and lean mass gains. And if you want to gain lean mass, you want to be in a slight surplus. So, I would say, even from a strength gain perspective, it's probably best to be in a small surplus. Even if I just say anecdotally, I mean I've heard so many people just say they feel stronger and they perform way better, when they are in a surplus and I can even say that with myself, it seems like my strength gains – I mean, I think of all the times where I've been strongest in my life, whereas actually when I was carrying a little bit more body fat and when I was eating enough surplus. So I would say, it's probably not that much different. I would say, probably a small surplus is going to be best.

DANNY LENNON:

Yeah. Thanks for that. I think that intuitively at least kind of will make sense to most trainees like you say that that extra energy that typically accompanies slightly more calories is obviously useful going into the gym, even psychologically I think you need to have that small bit around extra for recovery and like you say, if you are adding a bit more size over the long

term, that is at least giving you more potential to make that a strong muscle in turn. So, I think it definitely makes some intuitive sense to trainees. Before we kind of start wrapping up on the last couple of things, I just want to mention you are going to be in UK this summer, maybe that people better know about that seminar a bit, what you are going to be covering, what's going on there and then other details you want to mention.

JAMES KRIEGER:

Yeah. So I am going to be in UK on June 2 and I am presenting in association with Mac-Nutrition, so Martin MacDonald's group, the Mac-Nutrition Mentoring Lab. That will be in Nottingham, UK and it's going to be a full-day of lectures. I am going to be presenting on topics ranging from hormonal optimization for fat loss, dietary adherence and how that affects results and how we can improve it. I will be talking about inflammation and how that, what is it and what do we need to know about it. I will also be talking about all the foods that people like to demonize like dairy, gluten, antioxidants, things like that. So those all will be topics, like I said, it's going to be a full day of lectures. You can go to the Mac-Nutrition website, check out details there or you can also go to my website and click on Speaking and it gives all my speaking dates and that particular date will be in there. So that's on June 2, really looking forward to that one.

DANNY LENNON:

Sweet. For everyone listening, if that's something you are interested in, I will put a link in the show notes this episode for you to go and click through and check that out and get ticket details and all the other good stuff will be in the show notes. So, James, just while we are there, where can people find you on social media? Tell them about your website, a bit about the research, etc., etc. as well.

JAMES KRIEGER:

Yeah. You can go to my website weightology.net and all my social media accounts you can find them on there, Facebook, Instagram, Twitter, things like that. I have a research review where I cover all the latest research in terms of any research related to increasing muscle or losing fat basically. I do fairly extensive research reviews on a monthly basis, actually on a weekly basis there. And then I've also got plenty of

free articles that people can read on my site and also online coaching, things like that. So yeah, weightology.net, that's where people can find me.

DANNY LENNON:

Perfect. As per my last answer guys if you want to check any of that stuff out , it will again be linked up in the show notes , so please go and do that . I thoroughly recommend it . So with that James, that brings us to the final question we always end the show on, which can be to do with anything even completely outside of today's topic . Big broad question for you , and it's simply – if you could advise people to do one thing each day that would have some positive impact on any area of their life, what would that one thing be?

JAMES KRIEGER:

I'd just say and probably I think it's the same one I said probably the last time I was on your show , but you just have to put in the work , there's just – I would say , everything I've been successful , I would just say , I had to work really hard and put in the effort to do it and be persistent I would say . Something I say with my clients is , I like to emphasize the terms being persistent and consistent. And I think that's really true for any area of life . If you want to be successful in something , you ought to be persistent at it , but you also got to be consistent with your efforts as well. And that's true when it comes to weight loss or whether building a business or anything along those lines . Those type of things, they are not going to guarantee success , there's never any guarantee of success , but they certainly improve your probability of success. So yeah, just persist and consistent maybe , I will leave you with those two terms.

DANNY LENNON:

For sure . A brilliant way and I completely agree with that. Like you say, while nothing is a guarantee , there are definitely I think at least prerequisites to that and if you are relying on that one weird trick to try to do anything in life , I think you are going to be disappointed . A great way to finish this off James. Really enjoyed talking to you again today. Lots of information for people to take away . I really appreciate your time and thanks for coming on and giving such share of great information and I am looking forward to more of it in the future.

James Krieger 2

JAMES KRIEGER: Yeah, thanks for having me on the show again. I really appreciate it Danny.

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