



Strength Training Q&A with Dr. James Fisher (September 2025)

Editor's note: there was a bit of delay in starting the recording, so the transcript begins a bit abruptly.

Dr. James Fisher: ...Dose would sit at one end of the spectrum. Minimum effective dose would sit at one end of the spectrum and optimal dose would sit at the other end of the spectrum, assuming that's the minimum optimal dose is the way you phrased it. But I don't know if there is such a thing as minimum optimal dose, it's just the optimal dose.

That's okay. And you mentioned sort of myokine release. I just don't think there's the research out there for clarity. I think there's a lot of kind of misnomer around myokines or a lot of kind of... it's banded around a lot, but maybe not so well understood. Myokines are released as a product of muscular contraction.

So many of them are linked to strength training and even certain components of strength training. There are specific myokines linked to the eccentric component of strength training more so than the concentric, but they're primarily linked to muscular contraction. So, we as strength training advocates can absolutely use this in our artillery of the great health benefits of strength training.

But I wouldn't say that people who are advocating traditional cardiovascular exercise can't do the same. There's a lot of myokines that have been identified as a product of sort of CV exercise. When I say cardio...: cycling, running, swimming, so forth; so, traditional cardio.

As far as the minimum effective dose... we've always... we're of a community where we've always pushed bigger movements first: leg press, chest press row was the three movements I talked about in the 2017 paper of kind of minimum effective dose. I think that at that point we're covering a lot of bases, but we just don't know whether myokine release is sufficiently [higher] to warrant 8, 10, 12, 15 exercises or so forth.

I think we could start to fall into the question of, okay, I'm optimizing myokine release by training every day, but I am negatively impacting muscle growth because I don't allow recovery. So, I think we could fall down a bit of a trap if we just chase one variable, like myokine release or one outcome variable. And I know that you're not suggesting we do that, but I just want to clarify that point.

So yeah, so the short answer is there really isn't the research there to support it. Most strength training workouts are either single exercise, multiple sets or multiple exercise, but they still are



only using two to three times per week when they look at things like myokine release. They're not using what I would advocate, or what I would say is traditional high-volume NSCA workouts of kind of three to five sets of 20 exercises five times a week, doing a double-split-routine. The myokine research is typically medical research where they almost don't differentiate between strength training parameters.

Lawrence Neal: Jeremy, feel free to follow up with a question there, my friend.

Jeremy Amin: Yeah. Great. Sorry I don't want to take up too much time, but yeah, sure. Yeah, James, so what I'm thinking about in terms of, first of all, that was a great answer and it does tie into my second question that I have is what areas of research do you think that still need to, that you most want to see happen in terms of the high-intensity or the exercise science space?

But just to follow up with what you said, so myokines as far as we know mostly or only get released during the course of muscular contractions. So, I would presume then that say the true... let's take it all the way back down to one exercise that will deliver the best short-term and long-term myokine benefits: let's just take leg press. You've got the massive muscles in the frontal thigh and the glutes and some low back and some hamstring, right? If a person just did leg press for the rest of their life and built up the size of all those targeted muscles as well as they could, surely that would be a better therapeutic effect compared to someone just doing like wrist extensions.

From the myokine standpoint, what are your thoughts?

Dr. James Fisher: No, I completely agree. And I think the problem is we fall into a trap here of scientist question versus almost logic. Like there's nobody on this call and there's nobody I know of. Even the dumbest strength training professionals I've met – and I've met some pretty dumb ones! – would say that wrist curls are equivalent to leg pressures or squats or deadlifts or any, large compound movement like that, So there's no one that would say that.

So I – and with that in mind, no one's ever really gonna follow through with research to investigate; maybe at some point somebody might have funding for that – but where research funding is so limited in such an area of strength training, I just don't think that's a question to answer – we would go into that knowing the results.

You asked, “where do I see research going?”



And I think that this might be jumping ahead, because it's not directly relates to the question of minimum effective dose of myokines, but I think that we need to have more research around engagement in strength training and motives around strength training rather than strength training outcomes.

I know that we all love to look at the nuances and opine about different equipment, different training routines, or rep durations, and so forth... but the reality is those things probably make such a small difference in the grand scheme of things. But actually what we need to do is just increase the number of people who are engaging in strength training so we can see this health benefit of cardiovascular fitness or cardiac health or cancer prevention, Alzheimer's prevention, cognitive and physiological benefits and things like myokine release, on a much larger scale than we currently do.

Lawrence Neal: Yep. Great. Great questions, Jeremy. Thank you. Anyone else have a question? Please raise your hand or you can put it in the chat pad. If you raise your hand, I'll unmute you. You can ask. And if we make it like one primary question, a follow up question, I think that works well, since we've got quite a lot of people on the call, it's always quite good to ask a follow up question to get more clarity.

So if anyone's got any questions, just raise your hand. Come on guys. Don't be shy. James is a fountain of knowledge. Jeremy, I can't ask you again! Does someone else has a question...? And you can use the chat pad as well.

Alright, I'm gonna take one question then from those that were submitted 'cause they were fantastic – question on... I guess related to intensity and also maybe training psychology for you, James: psychological barrier at muscular fatigue – this particular business owner, trainer has two female clients that struggle when their muscles begin to shake, unable to maintain tension even briefly for one or two seconds. They haven't described this as more of a psychological limitation or a physical one. What's the best way to approach this challenge so that they can push through safely and effectively, James, in your opinion?

Dr. James Fisher: Yeah, I think this is one of the key questions in this field about high-intensity training is how you get people to failure or how you get people to work harder and so forth.

And I laugh about it a lot! I'm gonna give a, a long-winded answer to this, Apologies – I've got a couple of tangents I'm gonna go to...



Lawrence Neal: You're fine.

Dr. James Fisher: ...I laugh about it a lot because if you remember the [Resistance Exercise Professionals](#) group that Pete Cerqua set up on Facebook, he will constantly post pictures of Doug Holland or Doug Holland training clients with a comment: "There's high-intensity training, and then there's Doug Holland" – and I've finally given into my questioning of this now and said if what he's doing is high-intensity training, then does everybody else call themselves moderate-intensity training?

Many people have joked about how hard the workouts at REC are, at the Resistance Exercise Conference that Luke Carlson used to run are and so forth, and I think the question is more akin to, "*How much can you get from a client?*"

Now, if people are going to that conference and working harder than they would do back in their own facility, then that's a big question because I think that's a big differentiator in this field, that the workouts are brief, are infrequent, but are intense to make up for the lack of volume and the lack of frequency. So, if they're now *not intense* or *not intense enough*, and that's the question then then of course we need to... people need to reflect on what they're delivering!

So, the question of how hard people work, from a purely sort of philosophical perspective, myself, and many of you will know James Steele – a good friend of mine and great colleague – have talked about: If I'm at failure and I feel like I'm at failure and I definitely can't do another repetition, and I stop now – because I can't do a concentric and I've held the isometric and I've even slowed down the eccentric as much as I can, I'm at true muscular failure as far as I can perceive it – then afterwards, why do I have a feeling of, "Did I really reach failure? How close to failure did I really get? How soon did my psychology and my neurological processes in my brain shut down muscular contraction?"

The second tangent I'm gonna go on is Tim Noakes allegedly used to have a picture of the second place marathon runner in his office, a big poster, and it used to prompt people to go in there and say, "Oh, who's this guy?"

And this guy finished second in an Olympics, '84 or '88 or something like that... and people would say, "Oh, who's this?" He'll say, "It's the marathon runner that finished second." And they'd say, "Oh, do you know him? Do you work with him?" And he would say, "No, no, no." And they'd say, "Oh, well..." and eventually he was prising for people to get to the point of saying, "Why do you



have a picture of this guy on your wall?" And he would say, "You can see from the picture as he crosses the finish line that he's still alive, which means he could have run faster."

And so, the point is there is something internal in us that tells us to stop so that we can't hurt ourselves, so that we can't do long lasting damage, so that we don't kill ourselves, and so forth – and there is definitely a battle to try to overcome that.

Now, of course, we don't want to battle *too hard*, 'cause I don't want the next workout I do to be my last workout and die during the process. I don't think there's any victory in saying, "I had the highest-intensity workout because I killed myself in the process!" But we do want to get people to the point where they recruit as many muscle fibers as possible.

And so this leads us back to what we're actually trying to achieve: we're trying to achieve a point of maximal muscle fiber recruitment, okay?

So, we know, as the reps continue, that recruitment goes up successively. And in a paper I published a few years back, one of the things that I said was, "we can't dichotomize *not failure* and *failure*."

What we need to do is look at this on a spectrum of research and say there is *failure* or there is *a rep shy of failure*, or *two reps shy of failure* or *three reps shy of failure*, and I don't agree with using methods like *repetitions in reserve*, but I do accept that you can only get what you can from any given client or any given person, including yourself on any given day.

And there will be a natural day-to-day variability, and even, based on the time and/or kind of diurnal variation, our circadian rhythm and so forth caffeine and nutrition might play a role, sleep patterns might play a role... so, all of the things being equal we just give what we've got, and we've gotta move on.

So yes, we want people to work as hard as they can. No, I don't think quivering during exercise is a reason to stop. But if they physiologically or psychologically reach a point where they won't continue at that point, that's what they've given, and I would accept that and move on.

So, it is a really tricky one, and I get the question, but... yeah, it's, it's a difficult one to answer, to say are we constantly striving to get more and more from somebody until we eventually kill someone and go, "oh, we went too far with that one."



Lawrence Neal: Yeah. I just hope Daniele doesn't mind me following up on his behalf:

I sort of interpreted that question as being that they weren't really that fatigued – like, maybe they're just at that kind of *midpoint*, perhaps. Do you think, given that there perhaps is likely to be significant benefit for them to push slightly harder than that, that there are other ways in which to educate or motivate someone to push harder?

For example, some of our colleagues here might argue, “Well, if the client really understands the objective...” which I know some of our colleagues will educate clients on what they're trying to do – any thoughts on that?

Dr. James Fisher: I think the thing that you gotta remember is that the clients that typically go to high-intensity training facilities, that go to boutique studio, small one-on-one or small group supervised personal training are not typical gym goers – they're not gonna... you probably never have to worry about these clients leaving you and joining a Pure Gym or a Planet Fitness or whatever else it might be. I just don't think that's the kind of clientele that we work to. If they leave you, they'll probably just stop training.

And I think that the question that you have to ask is, “Is it more valuable for them to do a suboptimal workout or to not train at all?”

And the argument of course would be that in this sense where it's completely safe, anything is better than nothing.

If somebody walks in the door and all they give you is a 50% effort on a leg press and they walk back out the door and they do that once a week for the rest of their life, the benefits they're gonna reap from that are so much bigger than doing nothing at all.

So yes, we want to try to optimize every rep, but if their psychology prevents that or their physiology prevents that, or they're just not comfortable or whatever it might be, then we can... yeah, I would love to know that all the tricks of the trade that people use to try and get people to work through an extra rep or try and push that bit harder when they're not comfortable or when they're scared or anything else... but with a client like that, if you get them too far before they're comfortable and they don't come back, you've done harm to your business, but you've done harm to them as well because they were getting a great reward from what they were doing, and what



you were doing with them, and they're not gonna get that anymore – so, we just have to ask that question about intensity.

Lawrence Neal: That's a great point, James. Thank you for that. I think that's so valuable and something that, you know... you don't hear as much in the high-intensity training industry where there is a big focus on *do it my way or don't come at all* in some cases.

So really, I really appreciate you just reinforcing that point.

Jeremy, I think James doesn't agree with reps in reserve – correct me if we're wrong, James – because we're really bad at predicting it, aren't we?

Dr. James Fisher: Yeah, basically we're just not good at estimating how many reps we have in reserve, and even the best trained people are still not good at it.

And we get better at it with heavier loads, but only really because we're only capable of fewer reps. So, my margin of error becomes a lot smaller when I'm using, let's say 95% of my one-rep max, because I can only be one or two reps out. So yeah, I just don't think it's a great tool. But it's a tool nonetheless. So, for the practitioners that do use it at least they're using something. At least they're *trying to gauge* fitness and trying to gauge strength training in some way.

Lawrence Neal: Yeah. And sorry, just to go back to that last point as well – some of you might have listened to [the podcast with Tim Dettman](#) recently on how HIT can help solve the chronic disease problem: One of the big points that Tim made there was just the importance of compliance.

Just... I think the most important variable in all of this is just adhering to strain training over the long-term. And it comes back to what you were saying there, James, but if they do 50% effort on leg press, it's still gonna deliver massive benefit versus nothing at all.

So, let's just keep that in mind guys.

Dr. James Fisher: One of the ways that I always push this is: when somebody comes and trains with you with two weeks, they'll get a certain number of adaptations, but if they train with you for two months, their adaptations will be way better. If they train with you for two years, they'll be



infinitely better still. And if they train with you for two decades, that's the gold standard, right? You've changed their life.

So, it almost doesn't matter what you achieve in that first two weeks; all you need to achieve is that they become a *long-enough-term* client, that they get that two-month and then that two-year, and then that two-decade point, because that's what's really gonna make the difference: the adherence.

Lawrence Neal: I have to pull on that thread now, James – so, can you elaborate on that in terms of... let's give the example of someone who comes and gives a really mediocre effort. Let's talk about those clients that we really struggle to push hard, like 50% on leg press.

How is it that they are getting better adaptations over time, assuming they don't really increase in intensity? Can you maybe elaborate a little bit?

Dr. James Fisher: Arguably, I would say they probably would increase in intensity. And probably the reason that they're not giving a high effort is because they're simply not comfortable with it.

This, to some extent, stems back to people with pain. A lot of people say that you can't really do a true strength test when somebody has, say... let's say, low back pain or knee pain or something like that. And I would argue the opposite – I would say it's exactly a true strength test because it's *as hard as they are willing to push based on their pain*.

But if you remove that pain and their strength goes up, that's a *true* test of their strength. They've got stronger not because their muscle fibers have improved or have got bigger, or because their neurophysiology has improved, but because their psychology has changed. So, any of the limiting factors are *still limiting factors no matter what*.

So, if somebody is nervous in their first two weeks or first two months of training, and they give a minimal effort because they're not comfortable with it, they unfamiliar with it and so forth, then, that's still better than nothing. And if they have to work at a lower intensity to become longer-term clients, well, from a business perspective, that makes sense, right? But from a client wellbeing perspective, that makes perfect sense. You want them through the door.



Lawrence Neal: Yeah, well said. Alright. Question from Matt Nairn. You know Matt, James... They're in Brighton.

Dr. James Fisher: I do know Matt.

Lawrence Neal: Great to see you on the call, Matt. He asks: why are drop sets so hard, so exhausting compared to one set to failure?

...in his opinion.

Dr. James Fisher: Yeah. Okay. So, drop sets or breakdown sets where you get as close to failure as you're willing to do. I've now almost gone away from the term of *failure*, partly because it has somewhat negative connotations with people that aren't in high-intensity training, so I tend to use *volitional fatigue*. But... as hard as somebody is willing to train and then you use a reduced weight and then carry on giving effort for performing repetitions.

So, one of the things, we've talked about this in some papers now, we say actually it probably doesn't improve recruitment; It might re-recruit muscle fibers if you reach true failure on that single set, that first set, then, actually. all you are doing is re-recruiting muscle fibers that were fatigued, that can have recovered quick enough, which is probably only the slow twitch, low-threshold aerobic or oxidative muscle fibers, which is probably why you have to reduce the weight so substantially if you do it quick enough to be able to continue training.

So, what you are actually doing is adding volume. You're not actually adding... recruitment, you're just simply adding more volume. And of course, this is why high-volume people love it as well because they're saying, "Hey, I can get more reps in and more sets in, but I can do it in the form of a drop set."

So, I always think breakdown sets are kind of this really nice crossover between high-intensity training and high-volume training.

But why are they so much harder?

Your muscle is under tension for so much longer, and the longer you are under tension for, the harder it gets, the higher your heart rate probably gets during those sets.



If I do a set on a leg press and stop, my heart rate might max out [at] 160, 170-ish. If I do drop sets and I really do drop sets using some of the like pop pins then... and I carry on and I really carry that on, I can probably get to 185, 188, I can probably get my heart rate out to max, which is probably what it would be after a sprint.

So, we are really getting our heart rate to the highest level. So, all our energy systems are working at the highest level. Our muscle is under tension for that much longer. We're re-recruiting muscle fibers we've already recruited. They're a fantastic tool. I love drop sets.

Lawrence Neal: That's interesting.

So, a great tool, especially with those clients who don't seem to be that exhausted after a workout. If you want to get more, give them more of that effect that they're looking for maybe? I hadn't thought about it in that way for, in terms of recruiting the slow twitch again for that purpose. Interesting. Thank you, Matt, for that.

Okay. So, guys, any questions? Please raise a hand. It can be any question. You've got one of the leading resistance exercise researchers on the planet on the call, so please use the time. That could be any question. I've got an easy one in the meantime for James, which I think everyone will like.

This is from Emily Fairbanks, whose husband is also on the call: "I would be curious about current daily recommendations for protein, creatine, and water." I would assume this is in the context of optimizing adaptations, right? We don't like that word.

Dr. James Fisher: Recommendations for protein, to my knowledge, still stand or should still be closer to probably 2, 2.2 grams per kilo or a gram per pound of body mass or of *ideal* body mass is a fair approach.

So, if somebody is very overweight, as in very fat, let's be fair, then there's no point in them having 350 grams of protein. They're probably better to look at their ideal body weight being maybe 200 grams now, 200 grams of protein, especially if they're on a calorie deficit, so forth.

Creatine is 3 to 5 grams per person per day. The whole concept of a loading phase has been massively debunked. Most of the research is on creatine monohydrate but other types of creatine exist. But since most of the research is on creatine monohydrate, I think that's probably



a fair tool to use, unless of course it doesn't agree with you. There are some examples of a GI side effect of creatine use and so forth.

And then water... did you say water? That's a very interesting question.

Yeah. I don't know, I don't know that are there recommendations based on water? I guess there probably always have been historic recommendations of two or two and a half liters per day or something like that.

We should probably all drink more water than we do.

I did some research decades back and we tried to create two conditions for testing a state of normal hydration and a state of hyperhydration. And in fact, all we successfully did was managed to hydrate athletes that were *actually dehydrated*.

So, in their normally "hydrated" state, they were actually in a state of dehydration!

And when we asked them to drink loads and loads of ex... the day we asked 'em to drink loads and loads of extra water, they did. But they actually came in and they *still weren't hyper-hydrated*.

And Matt Bryzcki talked years back at a conference about somebody running the Boston Marathon who effectively drowned themselves because they drank so much water at every kind of rest stop. But that's like almost impossible to do it.

It is certainly not a reason to say, "Oh, I shouldn't drink too much water in case I flush out all my electrolytes." But we should probably all drink more water than we do. They say for every cup of coffee, you should have a cup of water as well.

And I'm fortunate, I typically have a sports bottle somewhere around me. Yeah, I don't know. Volumes of water. I don't know. It would, a lot of it would depend on the stature of the person, the size of them.

Lawrence Neal: James, I'd never leave the bathroom if I was drinking a cup of water for every cup of coffee!

Dr. James Fisher: I hear you!



Lawrence Neal: Right, Okay. Some great questions in the chat guys – another one from Matt here: “Are planks and side planks worth it, James?”

Dr. James Fisher: I think planks and side planks can be a good way to recruit our transverse abdominis or our deeper abdominal muscles. And I think they're a big part of spinal health, low back health. So, I rate them. I think they're good exercises. I think that we probably undervalue the way we train the core, and plank and side plank can be good.

I don't agree with doing two minutes under tension. Most people, once they get... reasonable at a plank can do, like a minute or a minute and a half.

I read somewhere that somebody did a plank for like hours recently...

Lawrence Neal: Cheaters!

Dr. James Fisher: Yeah, and we do! We find a way to cheat. We find a way to recruit our glutes. We can lean on our shoulders and things like that. Actually... I really like the idea of doing a plank in the same way that we do, like, a normal set of exercise.

So, I tend to go for probably around 30 seconds as a maximum, but I tend to ask the client to really focus on the recruitment or even do like a maximal recruitment of their abdominal muscles, of their transverse abdominis. So, they effectively get in that position and squeeze as hard as they can, and I use the coaching of, “Brace,” and “Breathe”.

And you'll find that once they get in that position, they're not trying to... Bill DeSimone once talked about this as the difference between a *holding* or a *pushing* isometric – and this very much moves into a pushing isometric: you are actively trying to contract the muscle; you are not just letting it be recruited enough to hold that position.

So, I think that's a nice way to, to do a plank.

...Bill Simone doesn't rate planks, apparently...? There you go! He's got a great rationale for why he doesn't like different exercises. I'd be interested to hear them, I'm sure they're mentioned in his book.



Lawrence Neal: Yeah, [Joint Friendly Fitness](#) – great book, guys. If you're looking for a book, I think it's just a great kind of reference for exercises and well-categorized for your clients. It's a great resource.

Who would win in a one-on-one, James? I think know, given that you busted your knee, I think, you wouldn't be able to change directions as well these days. I feel like I'd have an edge... or are you back to full health now? Are you playing again?

Dr. James Fisher: I'm back. I'm back. Yeah. I've been playing again a while. I don't know. It'd be good fun!

Lawrence Neal: One of these days. One of these days, we'll definitely do it! We'll definitely do it. Okay, so let's see.

Dr. James Fisher: So, there's one recent study on creatine, up to 20 grams for brain health.

I don't know who's done those studies. I've not seen them with such high doses. There is certainly some evidence linked to creatine use and brain health, but as far as I'm aware, the jury's still out on that a little bit. I think any creatine company is gonna try and tell you to use more. Therefore, you get through it quicker.

Lawrence Neal: Yeah, like all those creatine gummies are bogus, a lot of them aren't they? They just... the dosage is so small in those gummies and they taste too good to be legit. So...

Dr. James Fisher: There you go. Yeah, I don't know about that, about 20 grams a day.

Matt asked about, "cardio warmup, yes or no...?" Warmups are really personal.

So, on a cold day I train in my garage. I've been in there some days, it's been like minus-two. And I want to do a warmup! There's no way the first exercise set I do is, like, a hard set.

So, I might do a set of sub maximal deadlifts or a set of submaximal leg presses, or even get on our stationary bike for a few minutes just to get warmed up first. So, I'm not against the idea of doing a warmup.



In the summer. I go in there and it's 30-something degrees. And I definitely don't do a warmup because I'm already sweating.

So I think a warmup is really subjective and if people want to do it or if you include it as part of the workout, that's your kind of opportunity to go through the normal, "How are you feeling? Any aches and pains? Are you well hydrated? Are you ready to train?" All that preparedness to train. Then, absolutely use it. I don't have any problem with it at all.

Lawrence Neal: Cool. James, you're welcome to, if you want to just go through the chat pad, or if you prefer, I can point questions out, but there's a there's one in there from Tom that's just been tucked in, if you want to read that one – you see that one?

Dr. James Fisher: Okay. So, I think it's a great question.

I think one of the problems is that historically, high-intensity training was always promoted through athletic performance – e.g., what was it...? Like, the '79 Miami Dolphins or something like that... and/or bodybuilders.

And I think that where a genre of the population are attracted to that element, they want to be an athlete or they want to be a bodybuilder, they probably have been drawn in by CrossFit. And high-intensity training, it's not the sexy side of exercise, let's be clear about it: it's the scientific side of exercise.

I would bet if you did an IQ test on clients, if you walked into a high-intensity training studio, the average IQ of a high-intensity training client is probably way higher than the average IQ of probably most other exercise facilities and I think that's a great thing. I love it.

But I think that... it just doesn't appeal to certain people.

One of the questions there is the general population: exercise doesn't appeal to general population. Like, 20% of the world admit to doing some kind of muscle-strengthening exercise, which includes heavy gardening, yoga, things like that.

So, that's 80% of the world [who] don't do any strength training exercise or don't identify that they do any kind of strength training exercise. They don't do CrossFit, they don't go to a gym, they don't do a Pilates or a yoga or a high-intensity training or anything else.



Why doesn't it appeal to more lifters?

Then, of course, you move into a genre of people who *enjoy* being in a gym, who *like* lifting weights, and you tell them, "Don't do it so often! Only do it twice a week. Only do it for 30 minutes at a time, or 45 minutes if you, you really want to do it, but don't do too much."

Well, they love it! They want to be in the gym. They want to do multiple sets. I've known so many people who get it, who get great results, but they're like, "I want to be in the gym for two hours. I like hanging out there!" It just doesn't appeal to these population groups. I think that's okay.

I think high-intensity training is the medical side of strength training. It's the minimum effective dose. It's safe, it is efficient, it's effective. It's not there for games. It's not there for fun. It's not there for social. It's, "This is the dose you should take to improve your health span."

Lawrence Neal: Well said.

Do you want to tackle so Jeremy's last one?

"Would you be interested in collaborating with-slash-consulting with Jeff Nippard? He has [a new research facility and gym](#) – Have you seen this on YouTube, James? It's pretty impressive – and there is massive potential. Educate him and have his seven plus million subscribers on YouTube become better educated and bring about big changes in society."

What do you think?

Dr. James Fisher: I wouldn't be averse to collaborating with Jeff Nippard.

He's done some work with Brad Schoenfeld and two of my PhD students Pat and Maya LeWolf. Also, our visiting fellows out of the same university in New York. So, they work with Brad on a lot of his recent work.

To be honest, this is a group of people who, again, are interested in the higher-volume approach and so forth.



And I think when somebody has – and they would accuse me of the same thing, and they'd probably be right to when somebody's already got a dog in the fight, there's – some degree of bias – “Am I somehow manipulating a training study to support my own beliefs...?” so forth.

We have a volume study ongoing right now with Discover Strength, and that's a really interesting study, because it's a great chance to really put our money where our mouth is and say, “Okay, is higher volume better?” And it's a really large sample. Huge kudos to Luke and David Gschneider at Discover strength.

So, I would be interested to collaborate with Jeff, but I don't know where his biases lie or... what he's interested in doing... \$300,000 of data analysis equipment, £500,000 DEXA scanner – that's a lot for a DEXA. I don't know if you need to spend that much half a million. It might be the latest DEXA.

Jeff, I think do you know, at the end of the day I... one of your comments there is to “educate him”. Jeff is a science-based guy. He reads a lot of research and he falls prey to a lot of the same kind of small sample sizes and things that a lot of practitioners do. But ultimately he's trying to spread the good word about strength training and strength training science.

And it's interesting, 'cause I think in the long term, he'll probably be one of those guys that people look at in 10 years and say, “What have you changed your opinion on?” He'll go, “Oh for a long time, I really pushed training at long muscle lengths, and now I know that's a load of rubbish.”

So he is another one of these guys who's looking for the magic bullet. “Oh, wow, I found the secret!” – the hyperbole of YouTube and that kind of social media. If you're not training along muscle length, you're leaving 30% of muscle growth behind or something.

Lawrence Neal: We've had some great questions... Jeremy, I don't mean to laugh at your migraine, you just made me laugh. I know migraines are horrible.

One here from Daniël – so we definitely gotta make sure we cover these two here – Daniël Niks: “Doug McGuff mentioned in an interview...” – we actually talked about this, me and Doug... I don't know if you're talking about my interview with Doug, Daniel, that was a long time ago now – “...how rep count may be an important factor...” – I think he's, in my view, he's talking about muscle contractions, right? – “...an important factor in muscle hypertrophy. I've noticed that I



grow harder, grow larger, using lighter weights and doing longer sets. I feel it may be something to do with being slow-twitch dominant. Can you say something to these two points?"

Dr. James Fisher: This is the old adage of heavyweight/lightweights, and the scientific research doesn't suggest that there's a difference between heavyweight and lightweights. I don't think we can go too heavy. So, I think this is more about time under load than it is reps. And I think that's where we've probably been a bit blinkered over how this has been analyzed.

But let's assume that with the research, looking at heavyweight lightweight has incorporated time with the load – it doesn't seem to make a huge difference.

I think, personally, if time under load is under 30 seconds, you're probably missing recruitment. I think if your time under load is over two minutes, then people don't reach true failure, they just get to a point where it's too painful to carry on. So, I think you have to find a middle ground somewhere between somewhere 60 to 90 seconds seems optimal, whether that's done in 3 reps or 10 reps, I don't know.

I think the idea that when we do slow reps, we're more in control of the weight and it's a more deliberate contraction. If we have that kind of mindfulness, then that works. There may be inter-individual differences if we're slow-twitch or fast-twitch-dominant.

The problem is we look at populations and we say, "Hey, here's what happens." But... there is noise around that signal. So, maybe all the slow twitch people did do better with a lighter weight and all the fast switch people did do better with the heavy weight and so forth. But there just isn't the data out there to really, really comment.

Again, this is an educated group of practitioners as well as clients, and probably everybody in this call treats themselves as an n=1 on this exercise. "I think I do better with heavyweights on this exercise." "I think I do better with lightweights," so on and so forth.

I like to use a variety of kind of loading methods. So, some exercises will be 6, 8 reps. Other exercises will be 15, 20 reps and so forth.

Lawrence Neal: Great. Okay. Good answer, James. Thank you for that. Go ahead.



Dr. James Fisher: He had, he added a follow up of, “20 reps or 3 minutes time under load?” I'd say that's a long time under load! Yeah. Jeremy's even written, “That's torture. ” I'd say that's horrible! But if you could handle it then do it! If you handle it and it works for you, then you're a braver man than I am!

Lawrence Neal: So, this was a good question that Dr. Bryce Lee submitted to the post...: “Voluntary activation deficit – brackets – unilateral versus bilateral exercises – is it easy to get higher recruitment in unilateral variance?”

Dr. James Fisher: Yeah, so this is a real... this is a really interesting phenomenon and I don't know how much time we have – I don't want to get too far into this.

There's a construct called *Bilateral Force Deficit*, and it's the idea that, if I do, don't know... 200 pounds with my right leg on a leg press and I do 200 pounds with my left leg on a leg, press logic suggests that I should be able to lift 400 pounds on a leg press. But Bilateral Force Deficit, as a scientific phenomenon, goes that I can probably *only* lift 380 pounds.

So, what it's basically saying is that there's... in psychology, it's called *social loafing*. There's an optimal group size. You get two people together and productivity improves, but when you get five people together, one of those people is gonna sit in the back and do nothing.

So, it's almost some part of our muscle fibers or some part of our neural recruitment just switches off a little bit, or we have a maximal amount of recruitment, that we can achieve unilateral levels 'cause I'm only producing 200 pounds of force on each leg, but I can't produce all 400 pounds.

And it's interesting because it doesn't seem to... it seems to be pretty constant, but with varying degrees. Some people have a huge Bilateral Force Deficit. Some people have a very small one. I tried to look at it a few years back with some athletes where I felt like there was a unilateral difference.

If you're a skateboarder, you typically will skateboard with one leg. So, is there a difference in your leg strength? Basketball players typically jump off one leg, but not always. Football players typically kick a ball with one leg, but not always, so forth. I think swimming is one of the only truly bilateral sports, like, *front crawl* or *freestyle* or *breaststroke* or *butterfly*... so, in fact, *backstroke* as well. So, there you go.



So, this idea of training limbs individually to increase recruitment – yeah, I like the idea, and I think that there are often unilateral imbalances, so single leg imbalances because we have a dominant side of our body. So, whether it's muscular or whether it's neuromuscular. So, I think there's something to be said for unilateral training.

But... the question there was, "Is it easier to get high recruitment?" Probably not.

So, if you've got somebody that will come in the gym and they'll work hard and they'll go through a workout and they love it and they're great, doing a unilateral exercise probably doesn't mean much.

The girl that we talked about earlier who shakes during a leg press, she might get more from doing a left leg and a right leg, and you might find that actually she can lift more than 50% on each leg. There might be scope to do that.

I think there's probably certain movements we feel more comfortable with: knee extensions, leg curls, bicep curls, tricep extensions, we'll probably like unilaterally. Things like pulldown, row, chest, press, pec fly – we'll probably move more comfortably bilaterally. Leg presses, we could probably move in between. But I think it's interesting and I think it's something to play with clients to see how they respond.

Because you might try it with the client and they go, "Oh my God, I love doing it that way." Does it matter whether you get more recruitment or not? If they love it, you're appeasing their needs.

Lawrence Neal: Yeah. Great answer. Thank you for that. Yeah, Jeremy says there's a case there for pistol squats.

There's some great stuff in the chat guys. Great banter. Okay, so I think we've already got time for maybe one or two more. I've got a couple other questions here. Here we go.

This is a muscle growth question – this is one James Brown submitted. "What is your interpretation...?" – I'm gonna actually copy and paste in the chat, James, so you can see it as I say it – "What is your interpretation of the research for optimizing muscle growth for trained people? How do the following compare for expected results?"



“Number one, to train the failure, hit less than five sets for muscle group per week, versus number two, 20 sets for muscle group versus number 3, eccentric-only training.” Don’t know what he means by, “...and best practice.”

So, the answer format might be, “X muscle gained by number one; “Number two...” you can see the rest of that. You've just given an example there at the bottom. Yeah, any thoughts on that? That one, it's a bit of a complicated question, I suppose.

Dr. James Fisher: Yeah, so the first part is a volume approach is that 5 sets per muscle group per week compared to 20 sets per muscle group per week.

I think 20 sets per muscle group per week is probably a lot but I would also say that 5 sets is probably the lower end, 5 sets is more towards the minimum effective dose.

And I'm not adverse to that, because with some clients, that's exactly what they can manage from a time point of view, and that's exactly what they need. And maybe that's your business model, so that's great.

For optimizing muscle growth...? Arguably, the research suggests that closer to 20 sets is probably better. There is, to some extent, still a volume bias in the research that higher volumes produce better results. But again, the research is only limited in duration. It's, what...? Probably the longest studies are maybe 20 weeks?

So, if you extrapolate that to a year, are they gonna still see greater gains after a year or have they achieved them all in the first 20 weeks? And then the lower volume approach catches up? The eccentric-only training or the or even eccentric-accentuated training is interesting because and this leads back to something Jeremy said earlier, that slow twitch muscle fibers, hypertrophy as well... they absolutely do, but a large amount of our hypertrophy comes from fast twitch.

So, our fast twitch, our type-II glycolytic muscle fibers are the best to... or the *easiest* to stimulate growth within. Eccentric training is linked to, to some degree, preferential recruitment of fast twitch muscle fibers, and hence probably why eccentric training is linked to greater muscle growth than just concentric training.

So, I would say if you were doing five sets per week, that's fine, but if you're doing five sets per week and you are adding some sort of eccentric overload... whether that's... so one of my



favorites is negative accentuation: lift the weight with both legs under an knee extension, lift the weight with both legs, lower it with one. Leg curl... you lift the weight with both legs, lower it with one. You know, things like that.

Then, I think that you can hit that eccentric component as well, and I think that's going to get you more muscle hypertrophy than just traditional training.

Lawrence Neal: Great answer James. And this is impossible for you to answer.

So, if you were a betting man, what per... he says there about... okay: if you gain X muscle mass from number one – so you know, hitting failure less than 5 sets per muscle group and then you're doing more sets, e.g., 20 sets – what's the additional muscle mass you might get? I mean we're talking probably minimal...

Dr. James Fisher: Yeah, I would say we're talking single figures. He's put x plus 10%, I would say it's less than that. And then, x plus 15% you might, with eccentrics you might be pushing towards 10% but in most people, my guess is the x, the higher volume...: two, three, 4% maybe...? It's really for people that are chasing hypertrophy.

Lawrence Neal: Awesome. So, we're at time...

Dr. James Fisher: So, Matt: do you do two tricep exercises? Push down and overhead extension? I don't know where he's heard this, this is interesting. I actually do *do* two tricep exercises. I do a push down... Matt's got a camera in my gym, I think, I don't know what's going on here!

So, I do, I've been trialing an overhead choice of extension. I don't do it every workout. I like the movement. I actually like it because I feel like it's a stretch kind of in my lats and it feels nice in my shoulder mobility. As well. And I feel like while I can do it, I want to do it. Sometimes I do it seated with a cable like, directly behind me, and I lean forward into it, do it there. And sometimes I stand and do it overhead.

I've always liked the kind of skull-crusher movement... where my elbow is not directly in line with my body, so it's in some way elevated. But I always find, a tricep press down, like an easy go-to exercise, I would [use] a dual column pulley.



So, adjust it away you go. It's, it's shaft-free. But do I think there's a benefit to doing both? I think it's a belt and braces approach.

Lawrence Neal: Good questions, Matt. Thanks James. Look great. Great. By the way, James, look in great shape looking younger every time I see you.

Dr. James Fisher: I appreciate it. Thank you.

Lawrence Neal: Again, we're at time here, guys. So, James, thank you so much for doing this. Everyone on the call, just note that we will get the October masterclass scheduled soon. It'll be focused on business. Not sure what the topic is yet, but it'll be one that you will love, of course.

James, where are we sending people if they want to connect with you, learn more about you?

Dr. James Fisher: Yeah, so my email is james.fisher.phd@outlook.com.

And if people email me, I'm more than happy to chat through things or, set a call or something. I don't have a huge amount of time. As you know, Skyler chased me for months trying to get a call. But I'm always interested in kind of disseminating information or engaging people in the research as best I can. Yeah. Happy for people to email.

Lawrence Neal: Awesome. Thank you. Thank you, James, so much for your time – we're really grateful, and thanks to everyone on the call for your great questions and participation.

This has been a lot of fun and I'll see you in all [inside the community](#) and have a great rest of your day – take care!