DANNY LENNON: Carl, thank you so much for joining me on the podcast today. It's a pleasure to have you here my man.

CARL JUNEAU: I am thrilled Danny. Just before we got on I was telling you – going really fan-boy on you and telling you how much I like your podcast, so it's a true pleasure and privilege.

DANNY LENNON: Yeah. Very kind words and they are certainly appreciated at my end and I am excited for this conversation too, because it brings up a lot of interesting ideas and I think theories to think over and definitely has some practical implementation for people that will probably touch on later in the podcast. But before we get into the real meat of today's content maybe give people an introduction to yourself and your background and some stuff that will lay some foundation for the rest of this conversation.

CARL JUNEAU: Absolutely. My name is Carl and I'll start at the beginning. It all started with the movie Robin Hood when I was 6 years old. I saw the movie and I thought this guy was pretty cool getting the villain, the princess distributing money. So, I thought I would do archery and I did archery as an athlete between ages 6 and 17 that was my introduction to sports and I think many people in our field have this kind of experience where they're introduced to the exercise sciences by being an athlete. At 16 I started lifting weights, so that

I could pull heavier bows, bows with more tension to shoot arrows straighter and at 17 I changed coach got a new coach and I was really on track to be a national level and international athlete. That was my goal to go to the Olympics. I think a lot of kids are like that, and my new coach basically sat down with me and said, "Well, look you've already started to do less school and more archery. Do you really want to do this, because you're going to train full-time for 10, 15, 20 years. The highest Canada has ever placed in archery is 17th. So, you'll probably not win and at the end you'll have no education, no career, and no glory." Basically this is what he said. And I am grateful for him saying that, because I thought about it and I said, "Well, no thanks."

So, I stopped archery at that point, but I kept training in lifting. I went to the counselor and he said, "There is a career you can make out of that training athletes," and that's called kinesiology here in Montreal. I enrolled I did a Bachelor in kinesiology with a goal to train athletes, but during my Bachelor I found out that few people actually do the minimum exercise that they're required for health or maybe not required but that gives tremendous benefits. So, I felt that there was a greater need to promote physical activity and I continued studying in public health. I did a Masters and a Ph.D., I studied exercise epidemiology and by day I would do my Ph.D. and by evening and nights I was a coach. I have been a trainer for Canadian Forces. I train people, general population clients and I also built a website where I gave tips for guys who wanted to build muscle that became a big passion for me. As a kid I was kind of small and like a lot of us I think lifting weights helped me boost my confidence. So, I slowly built what became the biggest website on building muscle in French. We have 116,000 fans on Facebook as we speak and that put me in touch with a lot of guys who like to build muscle. I had this passion for me as well, so by day I would do my Ph.D. and by night I would keep up with the research and read about all of the science and interesting publications on building muscle. So, I've been really interested in what are the best ways to build muscle and how can I train better to build muscle faster and this is what brings me I guess to your podcast today Danny. A few weeks ago I published a theory on effective reps saying that reps closer to failure probably build more

muscle. At least this is what I hypothesized and I look forward to discussing it with you.

DANNY LENNON: Yes, and that's definitely where I want to jump in because there's a lot of good conversation to be had on this topic. I think that a lot of our listeners, given that they're quite kind of savvy in this area, will have of course be aware of things like for muscle hypertrophy generally we talk about training volume being that kind of main driver of hypertrophy, but I think while that's a kind of general rule-of-thumb we could think about when you start thinking of specific comparisons between different types of training we know that there's a few interesting questions to get through. So for example, just doing a ton of training volume but loads of very light and you're getting nowhere near failure is it's hard for people to grasp is that still going to have the same benefit, and so I think that leads into some of this discussion around effective reps. So, before we get into some of the real interesting questions around this maybe what is a good way to maybe define this term effective reps that we're going to discuss. What is the kind of very basic few things you want people to bear in mind when we're using this term?

CARL JUNEAU: Absolutely, and I like that you mentioned volume and I'll have interesting things to say about that. Well, effective reps this term came up for the first time, at least according to Google, in a comment on a blog post that Borge Fagerli made in 2012. So, the idea is not new and I don't claim that it's my idea, but what I've done is formalize it into a theory. A theory is just a set of interrelated propositions and my theory of effective reps has three propositions. The first one is that failure is a point during a set when muscles can no longer produce necessary force to concentrically lift a given load and I've taken that from Schoenfeld, 2010, his article on the Mechanisms of Muscle Hypertrophy. So, I think most people will agree with that that failure is what I've just said some people would call it concentric failure. Second proposition is that effective reps are reps closer to failure. And the third is that the close a rep is to failure the more effective it is at building muscle. So, this is how I would define effective reps.

DANNY LENNON: Perfect. So, if we start to try to think about – so these effective reps are essentially those reps that come closer to that failure point within a set?

CARL JUNEAU: Exactly.

DANNY LENNON: And so if they were going to be – we're talking about them being able to drive a better adaptation what is the underlying mechanism why those reps in particular you want to focus on? What are they doing that we're not getting earlier on in the set that is going to lead to these adaptations?

CARL JUNEAU: Great questions. So, the mechanism for effective reps I believe is metabolic stress. Now Schoenfeld in 2010 proposed three mechanisms; metabolic stress, damage and tension. Using more effective reps you're training closer to failure and you're increasing metabolic stress in two ways. The number 1 is you're producing more metabolites of anaerobic glycolysis and the second way is you're restricting blood flow to your muscles for longer so that's hypoxia and that's also a potential mechanism through metabolic stress.

I wanted to discuss another study by Schoenfeld that show that actually longer rests lead to more hypertrophy. My plan was to keep for the end, but if you want we can jump right in it?

DANNY LENNON: Yeah, for sure. Wherever you think is going to be most illustrative.

CARL JUNEAU: Let's do it. So, the first time I talked about this theory was in Alan Aragon's research review about a month ago. Since then I've had fair bit of a feedback and I have discussed the idea with James Krieger. James is a researcher in exercise sciences publishes a lot with Brad Schoenfeld and he emailed me and we started chatting on Facebook and really hit it off. I knew James from his work and he really delivered. So, we started discussing the, let's say, discrepancy between rest between sets because on the one hand there is this theory and there's quite a bit of data that supports it that we can get into if you want. So, there's data in the theory saying that basically zero rest is better, you know, a rest-pause set where you do a few reps you wait say 20 seconds and you do a few more reps

always to failure. This is basically doing two sets with no rest in-between, so on the one hand you have data showing that no rest builds more muscle and on the other hand you have a study by Schoenfeld that showed that 3 minutes was better than 1 minute between sets to build muscle. So, how do we reconcile this and how come zero can be better, and 3 can be better than 1? Is it no rest or is it a lot of rest that works best? And these ties back to the mechanisms we've started to discuss Danny. There are three metabolic stress, damage and tension. When you do not rest between your sets like when you're doing a rest-pause set or that's a very short rest, a drop set is really zero rest. So, you're not resting. The weight will go down in a drop set, so the tension will be lower but the metabolic stress will be higher. So you're really putting the emphasis on this mechanism and this could explain why they're seeing more hypertrophy for the same volume in some studies with techniques such as rest-pause and drop sets. At the other end of the spectrum you have the 3-minute rest that's better than a 1 minute rest. Well, why is it better? Probably because when you rest 3 minutes you have more time to recover, and so you can use more weight on your subsequent sets. So, you emphasize the tension mechanism and this is why the 3-minute rest is superior to the 1 minute. What about the 1 minute? Well, 1 minute seems to be the worse in-between zero and 3, you get the worse of both worlds. You dissipate metabolic stress, but you don't recover enough to increase tension. So, what James Krieger and I are coming up with is this U-shape relationship between rest and hypertrophy where zero rest or a very short rest leads to more hypertrophy because of increased metabolic stress. Where 1 minute leads to lower hypertrophy because there's lower metabolic stress and not enough recovery for tension and where 3 minutes or more leads to more hypertrophy because there's more tension. So, you have this U-shape relationship with stress at the beginning and tension at the end, and I'll simplify and say nothing in the middle.

DANNY LENNON: Brilliant. There's so much in here and I really like this, so I'm going to recap on a small amount of that because that was a great breakdown and actually leads into a lot of questions and ideas I wanted to get into.

CARL JUNEAU: I got to say this is the first time I ever mentioned this anywhere, so I'm breaking news on your podcast and your listeners you know you heard it first here.

DANNY LENNON: I appreciate and I love that so much, and this actually gives a platform for some really interesting conversation. So, just to kind of recap on some of that just to make sure we're all clear on this. When we're discussing this you talked about those kind of three drivers that can affect hypertrophy, so we have mechanical tension but we also have muscle damage and metabolic stress. Now, with typical maybe program that people are thinking about why those longer rest periods are better is that you can essentially accumulate more training volume or be able to drive more mechanical tension because you're resting long enough to be able to continue to get more reps in subsequent sets, at least at the same weight. Now, with the rest-pause which – and maybe we can talk about that in a moment to give people some practical examples, but really anything with these super short rest intervals where you're just resting enough to be able to get another few reps, even though the training volume at least in that typical session maybe smaller we can get similar changes in hypertrophy because it's affecting some of those other things outside of the mechanical tension namely metabolic stress. Would that be accurate kind of summary of where we're at so far?

CARL JUNEAU: Yes, absolutely.

DANNY LENNON: Great! So maybe we can just jump in here and give people some practical examples to think about just in case they're unsure. So, to try and use strategies that make you serve effective reps. You've mentioned one rest-pause which I'm sure people would be familiar with and earlier you mentioned Borge Fagerli who of course has talked about Myo-reps and his use of that strategy to work and try and implement some training with more effective reps. Can you maybe give some examples just so people can have it clear in the head of a typical kind of set up or a strategy that would make use of using effective reps over typical straight sets?

CARL JUNEAU: Yes, absolutely I'd love to do that. Here's what I can do. I'll present the studies briefly the one on rest-pause sets and the one on drop sets that provided support for the theory and what I can do afterwards is tell people how I do rest-pause sets with my clients and finally I wanted to tie everything together using the short rest and the long rest and how I think what would be the best way to apply all of this into training to build muscle faster. Would that work?

DANNY LENNON: Brilliant. Let's go for it.

CARL JUNEAU: Okay, let's do it. So, the first one on rest-pause sets is a study published in 2017 by Prestes et al, so a rest-pause set is a series of reps that you do to failure, followed by short rest, followed by more reps to failure. There are many ways to do it. In this study what the subjects did is weighted an initial set with 80% of 1RM. Now this is usually a weight that you can do 8 reps with before you reach failure. So, they did a set at 80% until failure, and then they did more sets with only 20 seconds and the researcher called this an 'Inter-set Rest Interval' so a short rest inside the set, until they did a total of 18 repetitions. So, that's for the guys in the rest-pause set group. The control group did 3 normal sets of 6 reps at 80%, so these sets were probably not to failure. I just said 80% you can usually do 8 reps to failure. So, if you do 6 reps you're probably 2 reps in reserve that would be a RPE of 8 for you guys that are familiar with the Mike Zourdos scale of reps in reserve based RPE.

So, anyway the group 2 did 3 normal sets of 6 reps at 80% with 2 to 3 minutes between sets, so both groups actually did a total of 18 reps at 80% 1RM. So, the volume was similar between groups. They trained for 6 weeks like that and after 6 weeks lifters in the rest-pause group gained more muscle fitness in the thigh and the difference was 11% rest-pause and just 1% for the normal sets group and this difference was statistically significant. However, I should mention that other differences between groups in muscle fitness namely in the arm and in the chest were not significant. We only have significant results for the thigh here in muscle fitness in favor of rest-pause sets and that's with the same volume and that is what is

leading me to say that this study supports the theory of effective reps.

So, that was rest-pause sets it's one way to get more effective reps you go your set to failure, you wait in this study it was 20 seconds and then you do more reps to failure that's one way. Another way is drop sets and we have a study by Fink et al in 2017. In that study two groups again, lifters in group 1 did a single drop set of triceps push down. They started with a 12RM weight and when they hit failure their load was decreased by 20% 3 times. Lifters in the other group performed 3 normal sets at 12RM with 90 seconds between sets. So, you have two conditions here. A condition with no rest where you lower the weight so you have more stress but lower tension and a condition with 3 normal sets where you have 90 seconds of rest so you can keep more tension but you have less metabolic stress. Now the paper says that there were no differences between groups in volume. Their measure of volume was not standard, so emailed the lead and corresponding author – I emailed Fink and based on our correspondence I estimated that the total volume was actually lower for the drop set group by about 1,700 pounds for the 6 weeks of the study. But since I couldn't get the whole dataset I was not able to test for statistical differences between groups, so I'm actually not sure if the volume was really lower. The author said it was similar. I didn't like the way they measured volume and calculating it myself it seems to be lower but I cannot tell for sure. So, we're not really sure about this. It's either the same or maybe it's lower for the drop set group. What happened? Oh, another point even if the volume was the same we need to talk about efficiency. Training was much faster for the drop set group, because they didn't rest, so that was measured in the study. Drop sets took less than half the time to perform. It was 145 seconds for drop sets and normal sets were at 315 seconds on average for all of the subjects in both groups. So, we're not sure about volume but we do know that training was twice faster basically. The difference in training time was significant. Both groups trained for 6 weeks. After 6 weeks lifters in both groups gained triceps cross-sectional area. This is what's measured. They're doing cable pushdowns. The drop set group gained 10%. The

normal set group gained 5%. However, the differences were not statistically significant. The authors also looked at effect size and the effect size is as well about two times higher for the drop set group, but unfortunately they did not test for statistical differences between effect sizes so we cannot tell for sure. Overall from this study we can conclude that for a similar or lower volume you get similar or higher hypertrophy and you get it with workouts that are twice shorter. So, that's pretty interesting. And to recap drop sets they way they did it in that study you take a 12RM weight, you do as many reps as you can, you drop the weight 20%, you keep on doing as many reps as you can and you'll drop the weight 20% up until you've dropped the weight 3 times 20% and you've done as many reps as you can each time. So, that's the way to do drop sets. That's how it's done in this study. Just like rest-pause sets there are many ways to do it. That one seemed to have worked well in that study.

DANNY LENNON: Great! So, there is actually a lot to continue with here when we talk about the kind of practical implementation and again I'm keen to hear more about how you implement some of these strategies with people. And again you can get into kind of overarching ways you may program that, but one of the things I was interested in is when it comes to choosing exercises or your exercise selection related to when you're using rest-pause or you're using drop sets or you're using Myo-reps is there anything to bear in mind for people with exercise selection that you would push people more towards or away from in terms of the types of exercises that would likely work best in one of these types of method?

CARL JUNEAU: Yes, absolutely. I'm glad you bring it up. So, when you're training to failure I believe you need to use exercises that are safe and that you can fail safely on like the worse example is probably the Olympic lifts you know and I think that the cross-fit people learn that the hard way. If you're doing snatches to failure while you're bound to make a technical mistake and I think you're more likely to get injured. What I recommend is the opposite. I think you should use these methods primarily with exercises that you can fail safely on and what I have in mind are machines.

Machines are the safest. The classic example would be a biceps curl. If you're doing biceps on a machine and you fail well you're just going to lower the weight and earlier I defined failure as concentric failure. The point at which you cannot lift the weight higher, well at that point even if you fail on the way up you can most of the time lower the weight under control and just drop the weight there and finish your set. So, that's very safe, but if you fail during a snatch and the bar is in mid air no that's not very safe.

DANNY LENNON: Right. One other thing I was thinking about from a practical perspective is the recovery cost of using some of these methods. Does the recovery differ or the fatigue that can build up differ when someone is using some of these strategies versus typical straight sets that maybe used to and if so how do you account for that or is there a certain amount of these types of methods that you'd plan using over the course of a week for example, and how do people think about how much of this to actually implement at any one micro-cycle for example?

CARL JUNEAU: Great question Danny and I am still wondering about that. What I can do is to give you I think the established position of most researchers and coaches, and then tell you where I am at on that subject. What most researchers, and I would say perhaps the consensus at this point or getting towards a consensus is that you should be careful with failure. You should not train to failure all the time and if you go you're more likely to over train and over training over time will hamper your progression, you'll get lower performance and you might even get injured. So, for those reasons people say that you should avoid training to failure all the time. I'm simplifying but I'm generally speaking I think that's correct.

Here's a small point I'd like to bring up and I think that is worth discussing. Over training is the result of the interplay of all training variables and not just intensity of effort or training to failure. Brad Schoenfeld calls training to failure intensity of effort. Efforts that are more intense are closer to failure and I argue that these reps are more effective. That's one variable, but when you think about training and over training all the variables come into play. Now, of

course for a given volume if you bring more reps to failure then yes the total training load will be higher and I think that you could increase your risk of over training. If this is what people are worried about I would propose that you can do fewer reps, but bring these reps closer to failure, be more effective in your training and still avoid over training. You don't need to keep your same volume and do all your reps. If your reps are more effective you can do fewer of them and still get great results.

This brings up another point which I think is important is me as a trainer I am sure yourself as well Danny and a lot of coaches were really concerned about how do we optimize training and how can we do everything to build more muscle in this case. But a lot of people that's not their number 1 priority in life and a lot of clients if you can tell them, "Well, look we're going to do more sets to failure, but we're going to do fewer sets total and your training time will be only 50% of a normal training session just like we saw in the Fink study." A lot of people like business people, busy people, moms and dads people who don't have time to train maybe as much as we do they will be excited to hear that. So, for the same volume training to failure all the time, yes higher risks of over training. But why not reduce volume and do more sets to failure.

DANNY LENNON: Yeah. One other thing off the back of that I wanted to ask is when it comes to working with people of different experience levels and different abilities, of course, we try and take the individual into account and you account for that whether overall total training volume and the strategy you're going to use when it comes down to then the implementation of any of the strategies we've talked about here to work with more effective reps is there anything that differs widely between say beginners versus more advanced lifters in how you might implement some of the stuff outside of just how much they're actually going to be doing?

CARL JUNEAU: Yes, absolutely. When I wrote about effective reps I was thinking more about advanced lifters and athletes. Now, the closer you get to a beginner and especially with complete newbies the more you have to change your approach. Actually with a complete

newbie I don't have them train to failure. I want to be sure that they master the technique first. I have them do sets of 5 with very light weights until they can do the exercise properly, and then I start loading and even from the point where I start loading I think their muscles are not really getting a very strong stimuli. At that point it's more of a neurological adaptations you're basically learning to contract your muscles and once you can contract them properly you can start lifting heavier loads and then your muscles get a good workout. So, it wouldn't make sense to train a beginner to failure and I mean you would probably injure the guy or for sure give him a lot of soreness, so the next day your client cannot get out of bed and he is mad at you. So, I wouldn't recommend it.

DANNY LENNON: Yeah, totally agree. One other thing that I wanted to go back to earlier when we were discussing mechanical tension, muscle damage and metabolic stress as they relate to hypertrophy like you say these kind of three things have been pointed as potential drivers of that and I've heard Brad Schoenfeld talk on that issue before, but there are others who will maybe push against that to some degree or to play devil's advocate may say that some of these strategies that you use and you see improvements in hypertrophy are still going to be down to mechanical tension for on example I know Menno Henselmans has discussed this before and so how do we consolidate that with some of the literature that you discussed showing rest-pause training having these essentially lower volumes for the same impact on hypertrophy or should I phrase it as how would you respond to maybe people who will say really what's happening is it's just still down to mechanical tension and something like metabolic stress is just a byproduct of that, and so it's not actually that thing in a training protocol that that's driving it. Is there anything that would account that or how would you respond to that?

CARL JUNEAU: Yes. Thank you for that question. It's a good one and I'm grateful for the – what's his name? A grad math student emailed me 2 weeks ago and asked the same question, so I'm grateful for that student because I have a pretty good I think answer to that and I would direct people to the body of literature on occlusion training. Occlusion training lets you make similar

gains as regular lifting with very light weights, so people who think that it's all about tension will have a pretty good indication with this body of literature that it's wrong – they're wrong, you can build muscle with very low tension. How? By increasing metabolic stress, this is what occlusion training does. So, metabolic stress is definitely an important mechanism for building muscle and I think it lends support to the theory of effective reps because it's the same mechanism that I argue is at work here.

DANNY LENNON: Great! Thank you for that. One thing I also wanted to ask is when it comes down to these benefits we're seeing with strategies that are using effective reps like you've outlined there we know that metabolic stress is going to be present and potentially driving this. Could we have other things that are also, maybe not synergistically, but even additively also having the benefits so one thing that pop to mind is when we discussed earlier why those final few reps of a set are going to be more effective than the first few. There are a few different things happening, but one of those presumably is going to be the amount of fiber recruitment we're getting particularly at lighter loads those first few reps are not going to be recruiting as much muscle fiber and as the set goes on you get closer and closer to failure there's higher recruitment. Is that a strong part of what is likely going on or is that I suppose feeding into why these final few reps of those sets would be deemed more effective?

CARL JUNEAU: I think it can be part of it with light weights as you've said. If I remember well Schoenfeld came up with data showing that for weights that are heavier than 50% 1RM basically all fibers are getting recruited from the first rep. So, for most people training for bodybuilding or hypertrophy we're using weights that are generally 70% or at least 60% 1RMs from the first rep. It looks like we recruit all of our fibers, but for – if someone work to train with 40% 1RM then yes training to failure would bring this additional benefit.

DANNY LENNON: Okay, perfect that makes a ton of sense for me to get my head around some of this. So, before we start wrapping up Carl is there anything that we haven't touched on in this discuss that you think is

particularly important or that you would like to bring up?

CARL JUNEAU: Yeah. Two things; earlier I alluded to the way that I brought together zero rest with 3 minutes rest into training. How do we apply all this to build muscle as fast as possible? So, this is how I would do it. I would do a rest-pause set and the way I do them is I do my target number of reps for the day. I like to train with DUP that's Daily Undulating Periodization, on some days I'll do 5 reps, other days I'll do 10 reps for example. So, let's say that this is a 10 rep day and I am training with rest-pause set. I would do 10 reps I will wait for 40 seconds. I know that 40 seconds is more than 20 and it's getting close to that 1 minute mark, but I found that with heavy weights resting only 20 seconds lets me do only just 1 or 2 extra reps and I've seen the same with clients, so I'll take 40 second. I will do then as many reps as I can, 40 second as many reps as I can and I keep doing this until I double the reps. So, going back to my example of 10 reps I will rest-pause until I do 10 extra reps, so I've basically done 20 reps and I have done a lot of reps very close to failure. So, this is my no or short rest end of the spectrum or of the U-shape relationship. At the other end of the spectrum we know that 3 minutes is better than 1 minute, seems to be better at least maybe more studies would be interesting but at this point I think that it's safe to assume that 3 minutes is better. So, after my first rest-pause set I'm going to wait 3 minutes before I start another rest-pause set, and since I've waited for 3 minutes I can lift heavy on my second rest-pause set. So, I am getting the best of both worlds if you want. I am getting very short rest inside the rest-pause set and I am getting long rests between rest-pause sets. I usually will not do more than 2 rest-pause sets for a given exercise. Remember we're doubling reps, so I am actually 2 rest-pause sets that way is the equivalent rep for rep of 4 sets and if you look at the Prestes study 1 rest-pause set was actually the equivalent of 3 normal sets. So doing 2 rest-pause sets seems enough at least for me. I've been lifting for 17 years, so I guess that it would be enough for most lifters. Now, if you have a great work capacity maybe you can do more, but the idea is that you combine the short rests of the rest-pause set or drop sets if you prefer them with the long rests between sets that let

you keep the tension high. This is the way I would kind of tie it altogether.

DANNY LENNON: Brilliant, and just to clarify for people when you mentioned there that you have this doubling of reps you're talking about that first set for example, if that's a 10 rep set then after your pause the following 2 sets are going to be 5 reps each to bring up that double initial to that?

CARL JUNEAU: Yes. Well, there are going to be 5 reps if I can manage it, but I found it's different day-to-day and I take the 40 seconds sometimes I'll do 3 more reps, well in that case I'll have to do 3 reps 40 seconds, 3 reps 40 seconds, 3 reps 40 seconds for a total of 9 reps and if I really want to get my 10 extra reps I'll wait another 40 seconds and do more reps. So, it's hard to tell in advance how many rest-pauses you'll need before you can double your reps.

DANNY LENNON: Right, so it's just continuing to go with those number of sets to just to reach that kind of goal number and almost using that as a way to auto-regulate just on days you're going to be feeling better or worse will dictate how many reps per se you're likely to get?

CARL JUNEAU: Yes, and that's a more advanced way to do it. As a coach I like to give very specific guidelines, but when you're more advanced if you feel better that way or you feel that your rest-pauses are easier to do, yes, and sometimes I go over let's say I do an initial set of 10 on that day I am feeling good I am going to do 15 extra reps using rest-pause and I am really squeezing the muscle, and then bringing this metabolic stress very back and very high and going to failure more times. So, I believe giving a stronger hypertrophy stimulus to the muscle.

DANNY LENNON: Perfect. Before I get to the final question or two Carl how could be summarize this and leave people with a couple of key ideas that you want them to take away from this discussion?

CARL JUNEAU: Yes, okay. The first thing to remember is that reps closer to failure are more effective at least this is what I argue and I've done a brief review of the literature. We didn't have time to get into this, but found 8

studies 5 of them tend to support the theory, 3 of them don't, overall I think there's support for the theory. So, reps closer to failure this is the first thing I would remember. If you're going to train to failure and especially go to failure often I would do it on exercises that are safe, especially if you're towards beginner end goal or even intermediate don't try this on your snatch, on your squat right away. Start with an exercise if you can fail safely on and finally I would say that if you want to combine best of both worlds you can do rest-pause or drop sets and rest 3 minutes or more between each of those, so you keep the tension high and when you're working out you boost metabolic stress as much as you can tolerate.

DANNY LENNON: Perfect, and so kind of before I get to our last question where can people find you online and on social media and more of your work on the Internet, where is the best place for them to go?

CARL JUNEAU: Absolutely, people can find me on Facebook Carl Juneau and this is a business account so feel free to add me, follow me, I welcome people getting in touch with me on that account – Carl Juneau on Facebook. I also have something for your listeners who are interested in building muscle and who would like to use rest-pause sets and other advanced methods to build muscle faster. In the last 2 years with a small team I have been building a phone app that helps you build muscle faster using AI that automates a lot of the advanced training methods that we know work to build muscle like rest-pause that we've been discussing today. And with this app what you get is a smart program that grows with you as you gain muscle. You answer a few questions when you create your account. Your program starts at your level and then it levels up with you as you become more experienced bigger and stronger and it will update every time you workout with the best reps and set for you based on your actual progression on that day so you always build muscle as fast as possible. It's like a personal trainer in your pocket that's 10 times cheaper than a human trainer available 24x7 and always up-to-date and I keep it up-to-date with the latest science. I love digging into the science, so you don't have to. I know that not everyone can keep up. So, Danny what I'd like to do is offer your listeners

their first month free if they want to check it out, so if you like to learn more start building muscle faster using AI and get your first month free because you're listening to Danny's podcast go to drmuscleapp.com/danny this is where they can find out more about me that's D-R-M-U-S-C-L-E-A-P-P.com/D-A-N-N-Y drmuscleapp/danny. Danny I really like your podcast and I am excited to hear about your other listeners of the podcast, so on Facebook or on our website if people want to check out the app and give us their feedback we're still in early access building and improving the app. I would really welcome their comments and feedback.

DANNY LENNON: Awesome! So, for everyone listening I will put those links in the show notes of this episode for you if you want to go and check out the app and also leave feedback and as well whilst you're on social media and on the Internet I would be glad and I am sure Carl would too to hear your feedback on this particular episode. So, all of that stuff will be in the show notes for you to check out. Connect to Carl on social media and you can check out the app there too. So, Carl that brings us to the final question that we round out the show on and this can be to do with anything outside of today's topic and it's simply if you could advice people to do one thing each day that would have a positive benefit on any area of their life what would that one thing be?

CARL JUNEAU: I like this question Danny and I know you, you ask it all the time. So, I was actually wondering what I would answer to it and what I would answer to it is simply to exercise, to train and like I said briefly us you know as trainers and as people who're really passionate about lifting or exercising in general we look for the best ways to work out, but for most people just doing any type of work out, any exercise and I've learned a lot about this in epidemiology in public health is that will make a tremendous difference in your life. What got me started lifting was just to feel more confident and it has changed my life and I know it sounds very cheesy but for people listening to this do it, you know, exercise, start lifting, keep lifting, do more of it. Exercise has so many benefits for your physical and mental health that I can't recommend it

enough and this is what I would recommend people to do.

DANNY LENNON: Excellent. I love it my man and this has been great I've thoroughly, thoroughly enjoyed this conversation today and to be able to get an insight into some of the things that you've been discussing and for the information you've given today. So, I thank you so much for coming on and talking to me and having a great conversation.

CARL JUNEAU: Danny it's been an absolute pleasure. You took me by surprise with your questions, very good questions as usual that you ask. It was a blast and I mean the privilege is all mine. It's really a honor to be on your podcast and I am stoked to hear what people will have to say about it.

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