

Lawrence Neal: 00:02 Jurgen, welcome to The Membership.

Jurgen Giessing: 00:05 Thanks for having me.

Lawrence Neal: 00:06 It's my honor to have you back and I really appreciate you taking the time. Obviously we were going back and forth on email about what to discuss on this particular podcast and was very excited when you announced that you had a couple of studies that were hot off the press, not yet published that you thought would be of interest and sound like they would be very interesting to The Membership and the members. The first one is you did a study on high intensity training and it's impact on diabetes, so I would love to hear about that. Tell us about that study.

Jurgen Giessing: 00:45 Okay. In this study we looked at the effect of high intensity training people who suffer from type two diabetes. And the thing is we got into contact with a hospital, Landau where I teach in Germany, and they were doing classes with some educational program on diabetes, for people who suffer from diabetes and don't know anything about the disease. So they go to the hospital and get some education, some information and we were asked to tell those people something about how physical activity could improve their condition and what is okay to do for a diabetic and what is not advised and so on.

And then we got the idea instead of talking about it we could make a study out of it. So, we had more than 100 people who took part in this program at the hospital and one very important aspect was to teach them about nutrition. What not eat to eat as a diabetic, what you can eat and how much and so on. That was I think a full week of classes on how to deal with their diabetes and then we offered those who were interested a sports program where we said, "We are going to do high intensity training, that means you work out resistance training style twice a week. It's supervised and it's free, you don't have to pay for all that. All you have to do is take our test and allow your doctors to let us see the results of your blood tests." Because they were getting regular checkups at the hospital and at their doctors.

And they allowed us to get this information on their blood sugar content and their hemoglobin and so on. We had quite a lot of people who were interested and we had to exclude some because some had already suffered from amputations and couldn't take part in the study or had other medical problems as well. We took 30 subjects who were otherwise healthy except that they had diabetes type two and 30 people in the control group that matched perfectly and had the same

educational program at the hospital, the same blood tests and everything. We had 30 people in the training group and 30 people in the control group. And then-

Lawrence Neal: 03:45 And all 60 had type two diabetes, is that correct?

Jurgen Giessing: 03:47 Exactly, exactly.

Lawrence Neal: 03:48 Okay.

Jurgen Giessing: 03:53 The training group, we introduced them to resistance training because they had no experience in resistance training and then we designed a program for them where they had to train twice a week, it was I think on Mondays and Thursdays. The training sessions were supervised so one of us was always there to look at them, to answer questions and to make sure they were really training intense enough. And the program consisted of 10 exercises, the usual two leg exercises, chest press, rowing, you know the program. Full body program consisting on 10 exercises and we taught them to choose a weight where they reach failure within somewhere between eight and 12 repetitions.

Now we did that for the first weeks and got them familiar with the program and then we did some tests, strength tests so we looked at how much weight could they do for 10 repetitions, that was

our basic test. Then we had them train for six month, 26 weeks and every workout was recorded so we had everything in a data, how many repetitions they did, with what resistance and so on. And it was a typical HIT workout, that means slow cadence at least five seconds or even slower per repetition and going to failure and then when they reached failure we told them to wait 10 or 20 seconds but no longer than 30 seconds and do some additional repetitions to failure again and then do that once again.

We wanted to make sure that they really exhausted their muscles, really fatigued their muscles and the results were really incredible. Because everything that we could measure improved in the training group and not so much in the control group which is interesting because the control group had the same conditions except that they weren't training. They also had the same education, they had the same medical problem and everything but the training group gained a little bit in weight but as it turned out this was completely consisting of muscle weight. So, they gained muscle and lost fat at the same time.

Lawrence Neal: 06:49

Any idea on how much either way?

Jurgen Giessing: 06:52

Yes. I can tell you. They started out both groups had 66.6% muscle mass and HIT group increased to 67.2 and the control group lost muscle mass .3%, which isn't much but they lost muscle significantly and the other group, the training significantly gained muscle mass. And the interesting thing is that this improved their diabetic condition very much, that means most of them could reduce the amount of medication they were taking and of those who already had to take insulin nobody had to increase the amount of insulin but lots of them were allowed to decrease the amount of insulin that they needed per day.

And this was the same in men and women and not only body fat was reduced in the training group but also the visceral fat, the dangerous fat in the stomach was also significantly reduced in the HIT group whereas it increased in the control group. So that's an interesting point, the control group was able just by what they had learned on nutrition to lose a little bit of fat but that was subcutaneous fat, that means fat under the skin but not stomach fat which is something that you have to watch for when you are diabetic.

Waist circumference, I can give you another measurement, the control group actually increased their waist circumference by almost

one centimeter whereas the HIT group lost one centimeter of waist circumference. That's another thing that proves that they gained mass, gained body weight but not body fat. They actually lost body fat and gained muscle and that's important to know because usually if a diabetic increased in body weight his doctor will say, "Oh yeah you're doing something wrong, you have to lose weight. Because additional body weight makes your diabetic condition worse." But in this case we could prove that after six months of training they had actually decreased their fat mass and increased their muscle mass.

Now, that's interesting point, all the diabetic measurements as I said improved because now that they have more muscle mass they have more stores for glycogen. That means whenever they eat carbohydrates they have more storage where they can put it so it's not so long in the blood stream, it's taken up by the muscles. And that was really something remarkable because they only trained 30 something minutes twice a week, that's all. They did not do any form of cardio or anything, we told them not to do anything else except the resistance training so that we can look at the effects of resistance training and most of them said anyway that they

don't want to do cardio exercise so that was perfect for all of us.

Lawrence Neal: 10:33 No surprise.

Jurgen Giessing: 10:33 Yeah and the interesting thing is that diabetics have been told all along not to do strength training, they were told to move around, to take walk or to go swimming or anything but resistance exercise, especially intense resistance exercise was not advised.

Lawrence Neal: 10:57 Why is that?

Jurgen Giessing: 10:57 Yeah it was believed to be dangerous. One thing might be that diabetics usually develop problems with high blood pressure, sometimes have difficulties in blood circulation and so maybe doctors believed that this might be dangerous. But first of all we always ask them, the workouts were supervised so there was always somebody of us present and we always ask them, "How do you feel? Are you okay?" And there was never any incident where somebody said, "Ooh I have to stop here, I have to quit working out today." Never, that never happened because we told them, "When you're doing the set take it to muscular failure and then rest enough so that you feel okay to do the next exercise." We didn't want to rush them and there was no need to anyway because those 10 exercises, if you need two

minutes or three minutes per exercise that's 30 minutes of actual workout time then you add some minutes of breaks.

So that's no problem, they were in and out of the gym. Even when you take in account that they were socializing and everything, one hour, 90 minutes, that's it. And the thing is-

Lawrence Neal: 12:29 Can I just comment on that a second Jurgen?

Jurgen Giessing: 12:29 Yeah absolutely.

Lawrence Neal: 12:31 One thing I want to ask you. The fears around blood pressure, I mean maybe you know this or you have a theory around this but is it because, and I've obviously read this and I think I've learnt about this on a HIT Uni and via Doug McGough as well, is it that when you're doing high intensity training you get an increase in diastolic blood pressure as a peripheral but you don't get an increase that would be considered dangerous at least, in terms of systolic? So, blood pressure centrally at the heart? Is that essentially why it's not actually that dangerous for most people even with such conditions to do high intensity training?

Jurgen Giessing: 13:13 Exactly, that's it.

Lawrence Neal: 13:14 Okay.

Jurgen Giessing: 13:15

Another point is that unlike running where your whole body is active, let's say you're running uphill or something, that's very, very exhausting and very high intensity on your whole system, cardiovascular muscular system. But when you're working out resistance training, when you're doing high intensity training then only a part of the body is working. Let's say you're working your arms or you're working your back muscles then that's only I don't know how many percent of your muscle mass all together, that's another aspect why it's not so bad.

And one tip for everybody who has problems with high blood pressure is to try rest pause training. You still want to fatigue the muscles but if you have problems going into really hard failure then it's a good idea just to do your repetition maximum, have a short break of maybe 10 seconds, do some additional repetitions and so on. There have been studies that prove that if you're doing little breaks in between then you get the same effect in exhausting your muscles and fatiguing your muscles but blood pressure is much less. So that's, I think, a good tip for somebody who has problems with high blood pressure.

Another thing is not exercising because of high blood pressure is a vicious circle because then

the vasculization of your muscles decreases because you're not training anymore, that means your high blood pressure is getting worse. That would be my tip, do high intensity training but use rest pause training.

Lawrence Neal: 15:08

Great tip, appreciate that. Sorry, I know I cut you off when you were in full flow. Do you want to just resume where you left off with regard to that study?

Jurgen Giessing: 15:18

Yes. One more thing that I'd like to mention and that is, as I said, the study lasted six months and after that time we had a stop or a break but interesting thing is that out of the people in the training group almost 50% continued training on their own. And after 12 months we asked them to do the tests again, to take the test, the control group and the training group so that was some kind of post-test.

And what we found is that in those subjects who were in the training group and who had improved so nicely during the six months of training they were almost back where they had started after 12 months. So 12 months later they were almost back to the point where they had started in terms of body weight, muscle mass, body fat and everything. But those who had continued training they improved even further, that means after six

months what we saw was not the climax or whatever, they improved even further, they gained muscle mass, they gained more muscle mass, they reduced their body fat even further and all the other conditions improved. Waist circumference went down another, what's that? Four centimeters.

Lawrence Neal: 16:51

Oh wow.

Jurgen Giessing: 16:52

Can you believe that? In one year four centimeters? Face angle which is a measurement of how healthy your cells are improved even further. It was incredible. That's another argument why high intensity training might be the best thing to do if you are a diabetic or, even better, if you don't want to become a diabetic later in life because we know that in order for a training program to get results it must be done regularly, it must be done for a long time.

I always say if you only do it once in a blue moon then it's not training, then it's whatever it is, it's physical activity but it's not training because training is always a process. High intensity training where people only train twice a week, this is something that they can do for all their life. I mean some in the training group were over 60, over 70, okay they had the time because they were retired but still working out twice a week,

that's something that most people can do. Unlike volume training where they have to workout four or five times a week and that simply doesn't work for most people over a long period of time.

We know that the gyms are crowded in January because the people have their resolutions and they are motivated and enthusiastic in the first maybe two months or something but before it can become a habit they run out of time or think they run out of time and lose their enthusiasm and then they quit training regularly. And that's the important thing and that's one reason why I'm so much in favor of high intensity training because this is something that can be done forever, forever. Like [inaudible 00:18:55] for example, he trained when with other Germans and now he's almost 80 and he's still training twice a week, every week and that's just one example. I mean so many people [crosstalk 00:19:08]

Lawrence Neal: 19:08

So inspiring. Yeah do you know what? I'd even challenge you on that, I reckon that most of those new years resolution have probably given up by this point. But no, you make some really good points and I totally agree with everything you're saying. That's fascinating, I just wanted one more question on that study was; remind me, how long were they supervised? And when

you said they were training for six months, how much of that was unsupervised? Or was the whole lot supervised?

Jurgen Giessing: 19:41

The whole six month was supervised.

Lawrence Neal: 19:44

Why? That's quite a long period of supervised training, isn't it?

Jurgen Giessing: 19:44

Absolutely. Yeah. Yeah.

Lawrence Neal: 19:49

Yeah no that's great because the results have more value because I wasn't sure whether a large amount of that kind of six month period was reported, so it's kind of a self reported which would obviously be less scientific I suppose.

Jurgen Giessing: 20:10

Yeah, no, no there was always somebody present. Most of the time it was my PHD student and he was there all the time, twice a week and yeah that was very important because attendance is better, people show up when they know there's somebody waiting for me and I don't want to let him down, he's waiting for me, he's expecting me to come and do my workout and that's another important thing so we tried to make sure that it's all supervised.

Lawrence Neal: 20:44

Yeah, massive benefit again for those personal trainers listening to this, that's a selling point. The accountability is a real thing and it will help people to adhere to training long term which is

good for everyone, good for your business, good for them. Same goes with moving from packages to monthly memberships is also kind of a similar effect.

Let's move onto the next study that you mentioned which is regarding reasons why many people have difficulty training to muscular failure and you said you did a survey with around 1000 people, that sounds really interesting so talk about that.

Jurgen Giessing: 21:24

Mm-hmm (affirmative) well first of all what we know from our studies is that people ... Well some people do not like training to failure because it can be unpleasant or they feel some discomfort when they reach failure because of the lactic acid and everything. It's just doing low intensity work for some people is more fun because it doesn't hurt. So, what we did is we tried to ... Another thing is that the term muscular failure is not without problems because failure is usually associated with something very negative, I mean there's a famous speech, or several speeches by Arnold Schwarzenegger who says, "Don't be afraid to fail." He means to fail in life and fail in attempting to reach your goals and everything, "Don't be afraid to fail."

But in the gym the same is true, of course, don't be afraid to fail but some people are. And in order to find out how people feel about the term muscle failure we asked students of ours but also other people about several terms and one of these terms was muscular failure. And we asked more than 1000 people, a few hundred of them were sports students but several hundred were also doing other sports, some of them had experience with high intensity training, others had not so we tried to get a whole mix of people, different people and the results were so interesting.

We asked them how do you feel about the word workout, the words muscle soreness, the word muscle strain and all those things that have to do with muscle and it was interesting because two terms were really seen in different ways. And these two terms were muscle soreness and muscle failure. And muscle soreness interesting thing is people who do sports regularly, especially those who have experience with resistance training, they saw muscle soreness much more positive than those who did not do sports regularly and who had no experience with resistance training or even high intensity training.

And we know what it means because pain for people who are not used to feeling the pain that

you get when you train, for those people pain is something negative. When they have a back pain or I don't know, pain is always negative. But, for somebody who likes to train intensely pain can also be positive because if your muscle burns and you know it's the muscle that burns and not your joint that hurts or anything then you know you're doing everything correctly. If you're doing a biceps curl and the biceps is the one muscle that's hurting you're doing everything right so people who have experience in sport see that much more positive.

And now when we ask them about muscular failure, we said, "What do you associate with that term? Can you name another word that you associate with this word?" It was done in German but it can be translated very easily because the German terms are the same, muskelfersagen, muscle failure, it's absolutely the same as in English and the four words that were mentioned most often were: ouch, pain, bad and weak. Those four were mentioned most frequently. Interestingly enough several people said, "Effort." Is the word that comes to mind when they hear muscle failure. So, obviously those were the ones who had experience with high intensity training.

And then we asked them also for each of these words, we've got muscle failure and so on, to

rate it from very negative to very positive. Very negative, negative, neutral, positive, very positive, those were the options. And among those people who had no HIT experience 89% said that muscle failure was negative or very negative, 89% of those who have never tried high intensity training. And that was interesting because of those who did sports regularly but not high intensity training, even in that group 86% that muscular failure was negative or very negative.

Lawrence Neal: 26:44

Wow.

Jurgen Giessing: 26:47

But in the group of the people who had experience with high intensity training 52%, 52% said that muscular failure positive or very positive. If you compare this to those who have no experience with high intensity training there were only four percent, four percent said that muscular failure was something positive or very positive and in the HIT group it was 52%.

This is not surprising but it shows something because it shows that those people who have experienced muscular failure know that there's nothing to be afraid of and they even say that it's positive, that it's something good. Whereas those who have no experience see it as negative and this leads to several conclusions.

One conclusion obviously is if we want to get more people into high intensity training we have to make them try it, we have to make them try it, try to get to reach the point of muscular failure in an exercise where it's no problem to do so I think we have to introduce them to that. To teach them or to tell them so that they can experience not only is it not bad, it's actually good and it feels quite good to do that.

Lawrence Neal: 28:15

Yeah.

Jurgen Giessing: 28:15

Maybe it's also a matter of mentality because we know that from other sports that some people like to give everything they have whether it comes to cycling or swimming and you have that in every sport and others like to take it easy. We know all these people who say, "Well, I'd rather jog slowly for two hours than run too fast for half an hour." Maybe it's a matter also of personal taste or mentality or something.

Lawrence Neal: 28:49

Very interesting, yeah makes me think of why it makes sense that a lot of business owners, when they first bring a client into their studio rather than try and sell them high intensity training based on verbal communication they'll just try and get them into a workout. They try and get them into their studio on their equipment as quickly as possible so that they can really

understand what it's all about and actually feel it and that kind of links in quite nicely with what the data shows there.

But that's fascinating because it ... Yeah?

Jurgen Giessing: 29:27

Yeah maybe I would suggest if you do that, maybe you should not start with a leg press or something because we know that some exercises cause more discomfort than others. If you start them on a biceps curl or on a chest press or something then they might feel the pain in their muscles before they get exhausted cardiovascular wise. You know what I mean? When you're doing a leg press then maybe everything hurts but if we start with a more let's say isolation exercise then they get more an idea of how it feels in the muscle.

Lawrence Neal: 30:07

That's a great piece of advice. Do you have an idea of a template workout that you would start someone on?

Jurgen Giessing: 30:17

I would have to think about that for a moment first.

Lawrence Neal: 30:20

Yeah, no well you gave great principles, yeah single joint, smaller, fewer muscle groups if you're going into a multi joint near the beginning but yeah chest press is a very good example of that.

Jurgen Giessing: 30:31 Yeah and something that does not require too much coordination because if it's somebody who just starts then doing a very difficult exercise might ruin the effect by ... If the exercise is too difficult to do then this might be a problem so that they couldn't reach failure properly. That's why I mention the biceps curl because that's a very simple exercise, single joint exercise and so almost nothing you can do wrong about that.

Lawrence Neal: 31:05 Yeah, I wonder if it might be advantageous for trainers to introduce a client to a leg press maybe on their second or third workout?

Jurgen Giessing: 31:15 Yeah, yeah absolutely I think so too because that's a very tough one.

Lawrence Neal: 31:20 Yeah, don't we know it? Great. Well, anything else you want to add with regard to that study? Anything other things that you found really interesting about it? Any other outcomes?

Jurgen Giessing: 31:34 That was basically it. Thing is I already expected it that people who have experience with high intensity training and those who don't have that experience might consider the term muscular failure differently or might have different associations but I was surprised that it was so obvious and so pronounced the effect.

Lawrence Neal: 31:56 Should we be then not saying muscular failure to new people? Should we be using other terminology, avoiding that entirely at the beginning?

Jurgen Giessing: 32:05 Yeah that's a good point. On the one hand I would say yes, that would be a good idea. On the other hand muscular failure is an established term and basically it is what we want to reach so yeah if you tell them, "Do as many repetitions as you can." Or something [inaudible 00:32:27] I think we should maybe not in the first session but at the beginning of the training process we should introduce them to that term because it's important to know what we're doing. It may not have the nicest connotation or the nicest associations but still it describes very well what it's all about.

Lawrence Neal: 32:53 Yeah, I agree and I think actually it's about how the context within which you say it, right? So if you're educating a client or speaking to them for the first time you're not obviously just going to say, "We're going to train you to muscular failure." Because that might, like you say, scare them off. But you might explain that muscular failure, although it sounds negative, is a very safe outcome and it's going to mean that we're going to stimulate all of these improvements in your muscles and you're actually going to learn to

enjoy the feeling. Obviously you could say it something far more articulate and more effective than that but that's just an idea.

Jurgen Giessing: 33:28

Yeah, but what we could also do is take this disadvantage and turn it into an advantage because as we said before maybe not everyone is made for high intensity training but we could use that. If you have a business selling high intensity training then you could turn that into an advantage of saying high intensity training is something special and not everybody can do it because some people are not made for it, some people don't have the guts to do and so people running a business could give their clients a feeling of being a member of a very elite group or something. And I think it's not wrong because some people say that high intensity training is the thinking man's or the thinking woman's kind of training. Because you don't just go to the gym and pump up, you have plan, you know what you're doing, you know what you're trying to achieve and you're doing it in a very logical and sensible way.

I mean anybody can go to a gym and get a pump but that's not really training, I mean is it? As we said it's not training if it's just a coincidental thing that you do, if you do whatever you feel like. The muscle confusion principle is bullshit actually,

confusion is a complete inappropriate term in that context.

Lawrence Neal: 35:02

Yeah, yes.

Jurgen Giessing: 35:02

Because a muscle does not have to be confused, all it can do is contract or not contract basically.

Lawrence Neal: 35:09

Yeah, great point and I think that was a great point to finish on. Jurgen, thank you so much for doing this for The Membership. Really, really appreciate it, really enjoyed learning about both of those studies, that is some fascinating stuff. What's the best way for members to find out more about you, check out your work, maybe get in contact?

Jurgen Giessing: 35:32

Well, I'm still old school in that sense. Best way to reach me is via email, because I'm not on the social media much.

Lawrence Neal: 35:45

Again, I'm proud of you for not succumbing to social media. But no, I have your email address already so what I'll do is I'll add that to The Membership thread so that people can email you if they've got any questions, if that's okay?

Jurgen Giessing: 35:59

That's okay, absolutely.

Lawrence Neal: 36:00

Cool, okay, well that's it. There's no URL to leave because the members will be in the thread if

they're listening to this. Jurgen thanks again,
really appreciate you joining me.

Jurgen Giessing: 36:10

My pleasure.