

KAATSU: A Radical Way to Boost Fitness and Fight Sarcopenia

A Special Interview With Steven Munatones

By Dr. Joseph Mercola

Dr. Joseph Mercola:

Welcome everyone. Dr. Mercola, helping you take control of your health. And today, we're going to focus on exercise, one of my major passions in life. And my background looks a little different because I'm traveling, unexpectedly, and got caught up in some things and I really did not want to miss this interview. So, Steven was kind enough to arrange his schedule to allow this to happen. And who is Steven? Steven Munatones, who is a major player in the exercise industry and most people don't know of him, but he is the person, the single person, who spent so many hours on transcontinental flights from California to Japan because he is the first American that really understood and identified KAATSU as a profoundly effective intervention in – actually, radical innovation in exercise therapy. And was developed by Dr. Sato in Japan, and Steven speaks fluent Japanese, which is one of the reasons why he was able to negotiate this. But he spent many years flying back and forth from California to Japan to bring this innovation to the United States. I'm so grateful to him.

It's only been here for a bit. I mean, maybe a bit over 10 years. Steven could be more precise on the history. I wanted to bring Steven on today because there's so – you've heard me talk about KAATSU before. I really think Dr. Sato or the whole community there should get the Nobel Prize for Physiology for introducing this innovation to exercise because it just opens it up to everyone. We're going to go into great detail on just how it does it in a moment, but I wanted to first clear up a confusion about this KAATSU, K-A-A-T-S-U is a Japanese word, it means additional pressure, but it's a subset of blood flow restriction therapy. It's a type of blood flow restriction therapy. And the innovation that KAATSU brings is that it cycles. In other words, it's a band that looks like a blood pressure cuff, except it looks like it, but it isn't because it's not as wide so it provides less pressure and it's not, not, not a tourniquet. Tourniquet would be highly counterproductive.

And it's because it partially obstructs the blood flow when you're exercising, it generates this massive improvement in myokines, which are the muscle versions of cytokines, and it provides so many beneficial hormonal responses. So, what I would like Steven to go into, because we had a discussion a few weeks ago and he confirmed my thoughts on this and it really, deeply saddens me that the exercise community does not fully appreciate this yet and I'm hoping by continued discussions like this, will help them understand it. But the price of KAATSU, when it was first introduced in the United States by Steven, was pretty high. Steven, it was over \$20,000, wasn't it?

Steven Munatones:

We had a big, huge 16-pound analog device and very few people could afford that.

Dr. Joseph Mercola:

Yeah. I guess the specialty, within health, that really focuses on exercise and has become acknowledged as sort of the experts in the field would be physical therapists. That's what the state of the science is at this point. So, they were excited about this, but they couldn't afford to spend that much money, so they created their own device, which wasn't KAATSU. It was a constant pressure that didn't cycle off and on. And as a result, they started almost a whole – it's a different device that does that. And so, there's this massive confusion within the physical therapy community that they think that that's identical to cycling KAATSU, and it is not. It's two different animals. And for the most part, you can achieve many of the bands that the blood flow restriction devices do by just a simple \$15 band. You don't need a fancy device to calibrate the pressure precisely. The benefit of KAATSU is it cycles up and relaxes in 30 seconds, cycles up, relaxes. And it may do that 40, 50, a hundred times depending on how you're using it. We're going to go into details in a bit.

So, one of the other reasons I'm so excited about KAATSU and exercise in general, that has so many profound benefits. And as we are getting older, and I know many of you who are viewing this tend to be in the fifties, sixties, seventies or even older, that is a time where you're running the risk of developing a really nasty problem that both of my parents died from, it's called sarcopenia. And sarcopenia is two Greek words. A sarco means muscle and penia means loss of, or [inaudible 00:05:02], I think. No, it's loss of, sorry, it's autophagy. Sorry. So not that much muscle. And this is a progressive decline in muscle mass as you age, primarily due to the decrease in blood flow supply to the stem cells, called satellite cells in the case of muscle, to the type 2 muscle fibers. And when that doesn't get the nourishment it requires from the body, it becomes very, very difficult to increase muscle mass. So, you've got that going against you, even if you're doing regular, full-blown, hardcore resistance training.

Even with that, you're still not going to get the benefits because of this lack of blood flow to there. So, that's what KAATSU solves. And I don't know that he did it intentionally, but it's the miracle about it. It actually increases the blood flow supply to these satellite stem cells, which is what you need. So, why do we want to do that? Not only to increase the muscle mass because there's so much disability that results from not hitting up muscles. And it's not just aesthetics at all, it's metabolic health because your muscle is one of the most important organs in your body to control glucose and keep you metabolically healthy. But there's so many other reasons too. And we just published an article recently, about how exercise itself, just by itself, not necessarily KAATSU, but exercise is more effective than the best-selling antidepressant drugs for depression. It works far more effectively and it hits just about – makes every part of your life better, so we all need it.

The reason why I'm so enthralled with KAATSU is that it allows those of us who are older, to participate in relatively aggressive exercise with almost no risk of injury because if you're new to this, you'll probably be starting just with bodyweight [exercises]. Because even if you're using resistances like dumbbells, and a lot of people make this mistakes, if you're using dumbbells now, if you are not focusing on the mind-muscle connection, like just this bicep curl when you're coming up, I mean, you can go through the motion, but you got to contract that bicep and it's the mind telling it to contract and the weight that makes a difference. So, you can do this with zero weight, just your arm. So, you can come up and I can – I could put that KAATSU on and I can get massive benefits with zero real weight. We'll talk about different ways you can do that.

So, why don't you comment on the importance of exercise, but the benefits you're seeing in a large population because you regularly help people ramp on board and how to learn how to use this and you're getting lots of feedback and you're in the trenches with the community.

Steven Munatones:

Yes. And I love how you explain about sarcopenia, a word that's not commonly known, but is everywhere around us. Go to Costco, go to the park, wherever you see older people, you see that. Now, the advantage of Dr. Sato and the cardiologists in Japan had is, Japan is the most rapidly aging, the oldest society in the world, in world history, and they identified, in the 1990s, that sarcopenia, the loss of balance, simply falling, was going to actually lead to economic disaster because the cost of their very, very large older population, older meaning older than 65, their population pyramid had reversed. And they said, "What can we do now," in the 1990s, "to help our population not have the downfalls of sarcopenia? How can we help a 65-year-old man walk down the street, if he stumbles on something, have the leg strength to catch himself?"

Now, they knew that they couldn't take the average 65-year-old man and say, "Go to Gold's Gym, go start lifting weights." That was a non-starter. So, what they considered was, well, how do we help these people at their home, doing every day activities, walking your dog, cleaning your countertop, practicing golf swings, just stretching, and KAATSU was the answer. And the other part of this puzzle was, as you know, Dr. Mercola, if you use KAATSU, like you said, and you really have that mind-body focus, you can really get after it. But the average non-athlete, the average person isn't going to get after it because that rate of perceived exertion was too high. If you're an athlete or former athlete, you can get after it, you can feel the pump, that's not a problem. If you had a sedentary lifestyle for many decades, you just can't get after it right away. You're not motivationally interested in that.

However, with a KAATSU cycle, it's basically this very, very clever biohack that will allow the muscles to work, will allow the vascular tissue to become more elastic. As the person, they don't perceive the pain of heavy lifting, however, their vascular tissue and their muscle fibers are being worked out just as effectively, and they can do it for a longer period of time. Going out, putting the KAATSU bands on your legs and walking down to the beach or walking your dog or just walking around the neighborhood, standing, cleaning your windows of your house, folding your clothes, banging out emails, all of these things can be done with the KAATSU bands on your arms or legs. You're getting the benefit of exercise. All of those beta endorphins are being produced, all of those hormones and metabolites that you speak so eloquently about, those are being produced as you're doing simple things. And that is the way to get the older population in Japan, in the United States, around the world, to actually understand, you can stop sarcopenia, you can stop it in its place, but you have to exercise.

You don't have to run a 10K, you don't have to go down to Gold's Gym. Put on the KAATSU bands and live your life as you wish it to be. And the bands will be the mechanism that your body is working out. You touched upon the cycle, so pressure on, pressure off. And in our standard device, it's 30 seconds of compression, pressure, and then five seconds of release; 30 seconds on, five seconds release. A very, very important part of that protocol, that procedure, is that each time that you have the 30 seconds of compression, there is slightly more, incrementally

more, pressure. It's not enough that you and I can psychologically feel that, but it's enough that our capillaries and our vascular tissue and our veins feel it. They are impacted by just a very, very slight improvement. And that fine-tuning of what was an optimal time, what was an optimal increase in pressure, that took 30 plus years of Dr. Sato's relentless-

Dr. Joseph Mercola:

A lot of time.

Steven Munatones:

Yes. And you know, you can imagine, I've been to his laboratory so many times where he has notebooks and notebooks, just handwritten, of just experiment over week after week, month after month, year after year. And finally, he fine-tuned it. The second difference between BFR, standard BFR, as we know it in the physical therapy world, and KAATSU, is actually the shape of the air bladder inside the band. So, this is your standard blood pressure cuff, you know, everybody's taking their blood pressure. With KAATSU, there is a narrow air bladder, and when it inflates, it inflates in an oval shape. That oval shape means that the pressure on the arterial flow is minimal, but the pressure on the venous flow, so from your limbs back to your torso, is much more, and that is the secret that Dr. Sato found. He wanted to engorge the vascular tissue of your limbs in blood. That was the catalyst for all of these biochemical changes that you and I know of so well.

Dr. Joseph Mercola:

Yeah, and that's why you really don't want to use the inexpensive BFR bands, typically under a hundred dollars, you can find them as low as \$15 just for the arms, which most people wind up using, because it's a different thing. There's a risk there. You're going to get a tourniquet, which is really, really hard to do with this. Thank you for explaining the cost, but why don't we go into the differences between what physical therapists' understanding of blood flow restriction therapy is versus what KAATSU is, because there's two different worlds.

Steven Munatones:

The current state of the physical therapy market is more muscle growth. Muscle hypertrophy is the goal of BFR. In fact, Dr. Sato and his team of cardiologists in Tokyo, they were focused also on muscle, but they were literally focused on the vascular tissue. When you talked to Dr. Sato, when you talked to the cardiologists, the KAATSU cardiologists in Japan, our vascular tissue is the muscle that they're focused on. The actual patent, the key patent of Dr. Sato is the strengthening of the vascular tissue. That was the focus. Now, they knew that if they made our vascular tissue more elastic, basically anti-aging, enabling our vascular tissue to be as elastic as it was when we were in our teens and our twenties, they realized that that was a catalyst for a variety of hormonal production, everything from nitric oxide, VEGF (vascular endothelial growth factor), et cetera.

So, their focus was engorging the limb in blood to the point where your hands or your feet, if you're using your leg bands, get pink, rosy, and in some cases, if you've been doing it long enough, I mean, a dark, dark red. We want the vascular tissue of our arms and legs to be very, very much engorged in blood, therefore, simple movement, and simple movement doesn't even

mean to use dumbbells. I mean, you could just, as you know Dr. Mercola, you go up and down slowly with your biceps, with your limbs properly and slowly, and that's very key, slowly, you want to ramp up very slowly. Engorged in blood, you feel that lactate, you feel that metabolic waste build up very, very efficiently. So, that's the real focus. We focus on the vascular tissue and the resultant hormonal response as opposed to a simple – well, not simple, it's still profound, but a focus on the muscular strengths.

Dr. Joseph Mercola:

Okay, so thanks for bringing that into it. I've been listening to a few of the podcasts, or, I guess you want to call them podcasts, but the training sessions that you have with new users who buy the KAATSU. I was previously unaware of the benefit, so if a person buys one of these things, where they've got the four bands and the compressor, how they get it to work? Well, you've got this educational service that you offer once or twice a week and people come on and ask any questions and you walk them through the whole process. So, I listened to a few of those and I was really surprised that most people, they're not using them with heavy weights at all. Well, first of all, you don't use them with heavy weights, but not using with weights at all. They're just using with the activities of daily living, ADL.

Steven Munatones:

Yeah.

Dr. Joseph Mercola:

So, washing dishes, typing on your computer, walking the dog, as you mentioned. So, that is sufficient to start. And what has your experience been with people who start that way? Is it like most people? Is it 75%, 80%, 90%? What is that percentage? And then, how long after they're doing it, before they're feeling so much better and great and powerful that they're at least interested in exploring some mild resistance training?

Steven Munatones:

Oh, it's profoundly exciting. I'll put two buckets, in general. The non-athletes who start KAATSU doing average everyday things. Once they see their increased strength, once they start looking in the mirror and seeing some definition in their arms, their core, their legs, they actually get motivationally excited to do more. I've had women come up to me and said, "You know, Steve, I haven't worn a tank top since 1984. I haven't been comfortable to show my shoulders. I haven't been comfortable to wear a pair of short pants."

Once you're comfortable in your own body as you increase in this journey to stop sarcopenia and reverse it and start again, as you said, they don't start off with the goal of becoming more aesthetically beneficial, but they see it with their own eyes and then they go, "Oh, well, can I use it on a stationary bicycle?" Yes. "I bought a pair of 2-pound dumbbells. Is that okay to use?" It's really great to see this migration from a non-athlete, sedentary lifestyle, to a much, much more active, and that drive is coming from inside themselves. So, that's the non-athlete population. On the other side of the spectrum, you have the athletic population, that former college athlete, that former high school quarterback, he or she might be a runner, a rower, a basketball player. Now they're older and they know how to push themselves. They typically get KAATSU and they,

typically, are the exact opposite. And they start lifting with heavy weights or they start really going after it, and they say, "God, I can't do much more than 10 minutes."

I go, "Wait, wait, stop. Don't be so aggressive. Be gentle, slow down. I'd rather you use the KAATSU cycle for 45 minutes than simply get after KAATSU for 10 minutes." And they go, "Oh, you mean I could still get the benefits of exercise, KAATSU, muscle-building, stamina increase if I slow down? If I don't use heavy weights? If I'm not as intense?" And I go, "Yes." So, these former athletes start coming down the intensity scale. So, it's very interesting seeing the non-athletes sort of go up the intensity scale; it's very interesting to see the former athletes or athletes come down the intensity scale and they all sort of meet in this happy medium in the middle.

Dr. Joseph Mercola:

Oh, that's great. Great story. So, as a testimony to that, I have a tendency towards being and pushing it too hard, but I listened to the advice and never went really much more than 30% of 1 rep max, maybe 40% occasionally, depending how you're feeling, but it's all about listening to your body and using that feedback. But what I've noticed is, I was doing both of them, conventional strength training twice a week and the KAATSU five other days of the week. Although I would walk pretty much every day with KAATSU, which I don't really count as strength training, but nevertheless, when I did the conventional strength training, I had to take a rest day, maybe one or two days a week, I absolutely had to take a rest day. But I've stopped that. Now, I don't do conventional strength training at all. Zero. Zero. I mean, I do not go heavy, I only go 30% of 1 rep max, which is pretty [inaudible 00:22:49], and allows you to do it longer.

So, the workout's like 45 minutes and what I noticed, based on my Oura ring, which gives you a pretty good parameters of your recovery rate, that probably the best one is your resting heart rate, not only what the number is, but when it occurs during the time of sleeping, is it early on or is it late? If you have a really high – the lowest heart rate is right before you wake up, that means you probably worked out too hard and you needed to take a rest day. But when I do it this way, I literally do not have to take a rest day, no rest days with this, which is phenomenal. So, interestingly, even though the volume of work is lower, it's actually more because you don't have to take a day off.

Steven Munatones:

Yes, absolutely.

Dr. Joseph Mercola:

Which is crazy. Yeah.

Steven Munatones:

Yes. So, we call it time under tension. How much total time, let's say, in a week period, in seven days, do you have the bands inflated on your arms? And to do that a long-term, sustained time under tension, you absolutely have to use the KAATSU cycle and you absolutely have to do it with non-intense, non-all-out vigorous movement. Walking, in your case, is great. Some people do Pilates, some people do yoga, some people actually just sit and watch Netflix. We have a lot

of people who are older, they're in retail, or they are in law enforcement. Let's say they're on their feet all day long and they come back home and they just want to be off their feet. They sit back on the couch, put the KAATSU bands on their legs, have a great recovery session.

Dr. Joseph Mercola:

So, it's good. Let's go into that too, because anyone who's done exercise is familiar with the components. One is the warmup, two is the exercise itself, and then three is the cool down. So KAATSU was actually useful in all of those phases. I believe your statements are that it is the best warmup you can have.

Steven Munatones:

Yeah.

Dr. Joseph Mercola:

At least for that limb. Now, if you just have the bands on your arms, it's not going to really warm up your legs too much. You want to be band-specific to the exercises you're going to be doing. And a caution, too, is you never really use the band simultaneously. It's either the arm bands once or the leg bands, but don't do both.

Steven Munatones:

Yeah.

Dr. Joseph Mercola:

Because it would lower your blood pressure too much and could be a problem. It's not going to cause a stroke or heart attack because the pressure in these cuffs is so low that it doesn't cause a clot, unlike a tourniquet band could.

Steven Munatones:

Yes, yes. So, yeah. So, quite often, especially for our elite athletes, our competitive athletes, let's say our NCAA (National Collegiate Athletic Association) student athletes, our professional athletes, our Olympic athletes, they're using KAATSU in their training. So, they might have an hour and a half or two-hour training session. They're not using it throughout that one hour or two-hour session, but they're using it within that training session. But most importantly, they're using it before they get to the gym, before they get to the track, before they get to the pool. So, when they do start their warmup, their traditional warmup, their vascular tissue is already ready to go. Already ready to go. And so, if we talk to our track athlete, "I feel light on my feet." If we're talking to a basketball player, volleyball player, "God, I'm already jumping near my vertical leap max."

So, they're using it before, they're using it during, and very, very importantly, afterwards. They could be after they've taken a shower, they could be hydrating, they could be talking with their friends. Whatever body part they really focused on in that workout, if it was a lower-body workout or upper-body workout, they're throwing the bands on, 30 seconds pressure on, five seconds pressure off. During that five seconds pressure, that metabolic waste is being whooshed out and, therefore, they are ready for maybe the next workout or the next day. And that's why,

Dr. Mercola, if you're using KAATSU seven days a week, there really is no need for rest day. You can hit it and again, think less intensity, less vigorousness and more a gradual ramp up of pressure. I'm quite sure, Dr. Mercola, when we look at your hands, they're probably a beefy red and your veins are distended and that's just a visual confirmation that you're really engorging the limbs in blood and then that's a kick-starter to all of this hormonal response.

Dr. Joseph Mercola:

Which is really profound. And as I said, the other component is that it doesn't just address sarcopenia and make you aesthetically more attractive, but it metabolically improves your resiliency so that you can really seamlessly transition between burning fat and glucose as your primary fuel. And most people, like 95% of the people in the country, are metabolically inflexible, which means they've lost that. So KAATSU will help build your muscle mass and by doing so, it increases the number of glucose transporters in the cell membranes, which suck that sugar in after you eat a meal and it lowers your blood sugar so the insulin doesn't go up and you don't develop insulin resistance, which is really, a profoundly effective component.

Steven Munatones:

You mentioned the mind-body, and really focusing on a bicep. And that was-

Dr. Joseph Mercola:

The mind-muscle connection, as opposed to body, just, you know, it's a muscle because that's what you're working out. You're focusing on a muscle. So, you want to talk about that?

Steven Munatones:

Yes. Yeah. So, Dr. Mercola, you had mentioned the mind-muscle connection. And the only other physician who had ever mentioned that to me was Dr. Sato.

Dr. Joseph Mercola:

Really?

Steven Munatones:

Yes.

Dr. Joseph Mercola:

Well, I'll tell you why. You know why? Because he's a bodybuilder and almost any bodybuilder, that is one of the core principles. It's the mind-muscle connection. You've got to focus on that muscle because if you're not, it's not going to work. Just unconsciously moving the joints through a range of motion with the weight is not going to do it.

Steven Munatones:

Yeah.

Dr. Joseph Mercola:

It just isn't. I mean, you get some benefit, but it's dramatically inferior to activating and contracting that muscle group.

Steven Munatones:

Yeah. So, when he first said that to me, he said, "Let me demonstrate it to you." So, he put the bands on my arms, and we did some simple bicep curls, and I was actually doing it, and this was early on in first meeting Dr. Sato in 2001. So, I was going pretty quickly, and he goes, "Slow down, slow down. What's the hurry?" I slowed down and I started to feel that lactate buildup. And he says, "Okay, Steve, move your arms much more slowly and contract the muscle up and down." And I was like, "Whoa, that's different." And he goes, "Okay, stop." He took the band off. He goes, "Now, I only want you to do it on the right arm." I did the same thing very slowly, contracting the muscle up, both upwards and downwards. When I got to the top, he asked me to make a fist and go back down.

And then he said, "Okay. Now, I want you to focus on that right bicep. Really just put your mind where that bicep is." Oh my gosh, that was the ultimate. So, I went from doing sort of a mindless, very quick KAATSU bicep because I did have the bands on, to a very, very focused-

Dr. Joseph Mercola:

Night and day.

Steven Munatones:

My muscle, and it was night and day. Night and day. So he took that and he said, "Steve, so now, let's say you're working with a stroke patient and let's say that one of their sides is affected, or someone simply with a total knee replacement or something where it's impacted one side of the body," [Dr. Sato] said, "Steve, in that same way you had that mind muscle focused, we want to do the same thing for those people who are disabled or who are injured. And so, instead of putting both bands on their arms, let's say, and focusing on sort of a mindless movement, let's take that stroke survivor and put a band on, put a pencil in his hand, put a fork in his hand, do something, and have them just do some movement. Put a toothbrush in his hand, put a comb in his hand, something which makes them focus on that movement." And boy, when I saw the effect of really that mind-muscle focus on able-bodied people and then people who were injured or disabled, it really opened my eyes to a lot that KAATSU can do for people.

Dr. Joseph Mercola:

And it can. So, when people transition from just doing bodyweight exercises, which you can do or go for quite a while, and depending on how fit you are or muscular you are, maybe that's all you need. You don't need anything more. I mean, it depends on how much you want to push, but if you do want to push it, you can use weights. Now, the problem with weights, and one of the benefits of KAATSU, and I may have alluded to earlier, is that because the weights are so low, you almost never get injured. Now, you see, yes, you should do the proper form so ideally, you have a trainer review your form, because if you have incorrect posture, even without any weights, that could be an issue, especially if you're doing a squat or something with your knee. But if you have the right form and a low weight, you're just going to avoid all injuries.

And that's what takes so many people out of exercise, is the injuries. So, you can eliminate that. But if you are at that inactive, sedentary person and you've just done the bodyweights and you want to progress, what I've learned, for me, my favorite type of resistance training is cables, and a cable machine, typically, can go up to \$10,000, a good one, but you can get them for less. I mean, you can get some under a thousand, but it's not as good. But anyway, you're very rarely going to find one under a thousand. Even if you do, you're going to have to put your own weights on. So that's out of the price point for most people. So, what could they do that's as good as a cable machine? Well, it's another type of band that's called the resistance band. And there's two types of resistance bands.

One is the tubes that almost everyone thinks of when you hear the word resistant band. You can get good workouts from them but they're made so cheaply that, invariably, they only wind up lasting few months and then they break and they snap and they can hurt you and stuff, so you got to be careful of those. But there's another type of resistance bands, I'm not sure if you're aware of this, Steve, but it's 41 inches and it's called the loop resistance band. It's one giant loop, like a giant rubber band, essentially. And they come in varying degrees of any one thing from a 5-pound resistance, to a 200- or 300-pound resistance that you'd be doing deadlifts with. But the beautiful thing about KAATSU is maybe you need two or three of the smallest bands. That's all you need, it's like a giant rubber band. And you can do, virtually, every type of exercise you can on the cable machine.

So, I'm actually in the process, right now, of going through it because it's not quite as elegant as the tube bands that have handles, but you can create things with carabiners. So, I'm working on a system and getting door anchors and essentially, making, literally, a sub-\$100 investment in loop bands to equal almost this similar benefit of a \$10,000 cable machine. So, that's my project for the next few months. But just to know that those types of things are just – if you already have the regular tube bands, you can use those. They are really fantastic, you just got to be careful. As they get older, they will break and snap and you don't want to get hit in the head with those or the body because it can hurt quite a bit.

Steven Munatones:

And, again, it's pretty amazing. We got to get you and Dr. Sato together because he loves cables, he loves cable workouts.

Dr. Joseph Mercola:

The reason why he loves them, and I love them, is, unlike a dumbbell, when you go through a range of motion, when you get that dumbbell in a bicep curl, there's almost zero resistance when you're up this way. Not so with a cable machine or the bands. And, in fact, with the resistance bands, the more you get up and the further away from the band, the more resistance you have. It's the highest up here, whereas with dumbbells, it's lowest, and that's when you need it the most, when you're maximally contracted. So, a resistance band is exponentially superior to a dumbbell, especially when it comes to biceps.

Steven Munatones:

Yeah. Yeah. I remember early in my training, and Dr. Sato literally trained me for 13 years. It was very much like the movie “Karate Kid,” or if you want to be a sushi chef, you got to wash

the rice for many, many years before you start cutting the fish. We'd travel together and then he'd go, "What do you see when you walk into a hotel room?" And I said, "Well, a bed, a desk, a TV." And he goes, "No, no, no." He goes, "That is a workout room." He goes, "Those water bottles, you could use those for resistance, that chair, that desk, you could use it for incline pushups." And it was pretty amazing. We walked through an airport, let's say, and he would just quiz me and he would say, "That person over there is walking with a limp. How would you use KAATSU on that individual? What are the things that you would do, what are the things you would say?" And it was like sitting with a modern-day Socrates who would just ask the question and ask the question until I got the answer nearly right.

Dr. Joseph Mercola:

No, that's great. Yeah. So, we went straight to the hotel room and we were talking about the bands. Well, you got to be careful. I just made this mistake recently, because I'm still traveling from – like last week, I put the bands or the loop band on a coat rack or something, and I thought it was secured into the studs and it was just simple drywall anchors.

Steven Munatones:

Oh.

Dr. Joseph Mercola:

And I pushed it. I was doing face pulls and boom, the whole thing came out of the wall.

Steven Munatones:

Oh no.

Dr. Joseph Mercola:

I went back down on the tile floor and I fractured my finger, actually. So, you can get injured with KAATSU. But the key thing, and I'm changing, this is why I've come up with this whole system and relating to that hotel room, the other aspect of that room that's really vital is a door. Who would've thought a door could be so great? Well, the door, there are things called door anchors, they cost a whopping \$6, that you could put in the door, close the door, it's secure. Usually, you put it on the side of the door where it's closing in, so it's hitting against the jamb. Otherwise, you don't want to come through that. And so, you might just go on the outside of the door in a hotel room, I don't know. I don't know how that works, but anyway.

But it creates this anchor and you can put the anchor low, medium or at the top, and then you can use the bands and you can work out like crazy. You don't have to worry about finding a tree trunk or something, because in a hotel room, it's kind of hard to find an anchor. I mean, I'm in a hotel room now, and I just don't see any anchors out here unless you go to a railing or a stair railing or something, or a banister. But yeah, so these door anchors, I never even knew they existed until last week. But you combine that with handles on these loop bands and oh, I mean, literally, it's just like a giant rubber band. You can do so many things with them. I'm so excited about it, this is my new project now because I think it brings resistance training to the masses, and they don't have to pay, literally, I mean, the lowest – I've gotten it for friends before, the lowest that you can do – Thankfully, with KAATSU, you don't need weights more than 20

pounds, typically, unless you're really athletic.

So, you can get sets of dumbbells and a bench between \$300 and \$400. That's still \$300 and \$400. I think you can get the bands for, with everything, between \$100 and \$200, easily. And you've got everything you need, and probably even closer to \$100.

Steven Munatones:

Yeah, yeah.

Dr. Joseph Mercola:

So, it's pretty exciting.

Steven Munatones:

And I think that the excitement that I obviously hear in your voice, et cetera, is the excitement that we get with a lot of the new KAATSU users. They start to explore different things that they can do, and then the different things that their body can do over time. And when they're excited about themselves, I see them blossom. Their self-confidence starts to increase, they're smiling. Dr. Sato calls it the KAATSU smile. You need to have people smiling when they're doing KAATSU. Smiling because they're satisfied, smiling because they're happy, smiling because they feel their body moving and they feel their body having greater range of motion, greater strength. So, that's what we try to do in these twice weekly sessions for new users or people who are just interested, we have a Zoom call and people can fire away any amount of questions that they would like, and we stay on and try to answer as many questions as we can, as simply as we can, so they can understand how they can really make a paradigm shift in their lifestyle and their health.

Dr. Joseph Mercola:

So, I'm really excited because it's, to me, the ideal form of exercise for the elderly and the long-time sedentary and inactive adults who need it the most desperately and will die prematurely if they don't get some type of exercise intervention. So, to me, it is just so massively important. And I want to repeat it again, but it's important because it's so fundamental, is that, you're not going to get the same result by strapping on a tourniquet band that you would draw your blood with. Yes, you can use constant KAATSU but that's a different deal. It's not the cycling, you're not going to get – see, because even with constant [KAATSU], even when you get benefits, it's when you release the pressure, that cycle that activates the myokines.

Steven Munatones:

Yes.

Dr. Joseph Mercola:

It's off and on, and if you do that twice a minute for 45 minutes, you're getting a lot of activations. So, you get a lot of hormonal benefits as opposed to just wrapping it tight. Because I made that mistake for the first time. I started using it for two or three years. I was mostly doing the constant tension, which you could do with an inexpensive band, but then I realized, “Oh my gosh,” my muscles were getting bigger, but they were getting spastic, they weren't as healthy,

and it's just so much better. So now, I never do the constant tension. I just don't. Always a hundred percent cycle. And I was opposed to that when I first started, I said, "Nah, the constant is going to be better," But no. No, but it is. The cycle is the way to go. A hundred percent.

Steven Munatones:

Yeah. KAATSU is very non-intuitive.

Dr. Joseph Mercola:

Yeah.

Steven Munatones:

You use less weight, less resistance for more muscle, you do less intensity for better results. On the face of it, what we know on, I'll call it, on the macro level, just doesn't make sense. But if you look at it at a nano level, a micro level, what is actually happening within the body as you engorge the limbs in blood, KAATSU makes a whole lot of sense.

Dr. Joseph Mercola:

Yeah, I'm not sure that I would agree with less intensity. I mean, it's definitely, overall, the conventional training, but you'd have to put some intensity into it. That doesn't mean you have to put a lot of weight. I mean, you can do a bodyweight [exercise] we were talking about earlier, where you're getting that muscle-mind connection, that's a pretty intense contraction. I can feel my biceps contracting now, and it's intense. You want to get that. You really want to contract the muscle. If you're just going through the motions and thinking that the KAATSU bands are magic, they're really good, but they're not magic. They need your cooperation actively, as an active participant.

And you don't have to use a lot of resistance, but you have to be involved, engaged and thinking through this process of what you're doing, it's not just going through the motions, or just putting them on and typing and walking. Walking is good, but still, you need to be involved. And now, obviously, when you're walking, you're not going to be actively thinking, "Well, I'm contracting my hamstrings and my calves." No, because doing thousands and thousands of reps but when it's a specific motion like this, I think you got to be more conscious on it.

Steven Munatones:

What I meant by less intensive is any one moment in time. So, with the KAATSU cycle, you can increase that duration, and if the duration increases and the time under tension is, let's say, the area under the graph, that area is much greater. So, the total – I'll call it hard stuff, is much greater, that's what I meant.

Dr. Joseph Mercola:

Well, it's really good for the elderly, as I mentioned, and the sedentary and inactive population, but it's also good for athletes. So, as a testimony of this and not suggesting that everyone should go out and try to be a professional athlete, obviously very few people are capable of doing that type of endeavor. But to me, that's a testimony to how effective this is as a tool to improve overall metabolic and biological health. So maybe you can share with us some of the athletes that

are using this, professional athletes, college athletes, and getting results with it, and that's why they use it. And professional teams, too.

Steven Munatones:

Yes. I mean, you can go all the way from the teams in Boston to the teams in Los Angeles. Clayton Kershaw is a pitcher, Caeleb Dressel as a seven-time Olympic gold medalist. You can have things as varied as the German bobsledder teams. Bobsledding, you've got these large men that are pushing a very heavy sled, and they're very intense for about seven seconds, and then they're tucked inside, to Olympic divers, Laura Wilkinson. If you think about a platform diver, they're a very fast-twitch athlete. They're in the air for about a second or a second and a half. That is their event. And so, whether you are focusing on a fast-twitch activity like Clayton Kershaw throwing a baseball or Laura Wilkinson jumping off an Olympic platform dive or something like the cycling teams that we have, the ice hockey teams that we have in the NHL (National Hockey League), I mean, these are all different ways, and they all use slightly different protocols.

They're using the KAATSU cycle but in different formats. So, for example, if we're working with the Olympic track athletes and the 100 and 200 meters, they could be using their bands and then working on their starts or that first hurdle on the hurdles. They, typically, will do KAATSU, cycle to warm up, if they're doing a very specific motion in the starting blocks, using it in a constant mode there, and then releasing the bands. And this is very important for athletes or someone who's going to make a speech. We found that the human growth hormone, and most of the hormones that are released, are released about 12 to 15 minutes after you take off the bands. So, the maximal production of hormones isn't when you actually have the bands on. There's a time delay. So, what does that mean? Now, when we share that information with a professional athlete, let's say an NBA (National Basketball Association) player who's in the NBA dunk contest. Well, they're doing KAATSU, ideally 15 minutes before they get on the court to do their dunk. They want to maximize their physicality when their hormones, their adrenaline, their beta-endorphins, et cetera are flowing. You want to perform at that point in time.

So, we basically backdate, we go back and say, okay, let's say at 12 noon, you know that your race is going to start, then let's finish the KAATSU session at 11:45. That gives you enough time to put on your jersey, get ready, et cetera. So, same thing in between periods, in between halves, we have everybody from high schoolers, to college athletes, to pros, that are using the bands. And this actually came from the Japanese pitchers who are using the bands in between innings. Between innings. So, it's a nine-inning game, let's say they pitched six innings, they were recovering in between the first and second and third and fourth inning. And we did a test with the equivalent of the NCAA baseball players in Japan. Those young athletes who were aiming at the pros, whether it was the Japanese leagues or major league baseball. And we found, for those athletes who use KAATSU exclusively, their pitch count and their number of innings that they pitched increased over the whole season versus the control group that did not use KAATSU during that season.

Athletes are always looking for an edge, and we are advising the athletes, well, is recovery important? Is recovery for a pitcher, in between innings, important? What about that relief pitcher who is sitting in the dugout or in the bullpen for the first five or six innings, and all of a

sudden, he's called up in the seventh inning? Okay, start using KAATSU gently in the fifth inning. You may or may not be called, but if you're called, at least you're ready. What about that athlete in halftime, pretty soon March Madness will come on. You're an underdog team, you're playing against the North Carolinas, the Kentuckys of the world, well, you want to come out in that second period, like gangbusters. Do a little recovery in the halftime. There's enough time where the basketball players are sitting down, listening to the coach in the halftime, put the bands on your legs, get some fresh energy, fresh blood in there. So, we do it, really, in inventive ways.

Dr. Joseph Mercola:

It's obvious for pitchers, or maybe most baseball players, that bands should go on the arms because again, you don't want to use them both simultaneously. But for endurance athletes like a basketball player or soccer player, obviously, or even – well, I guess even football player too, it would likely go on the legs, right?

Steven Munatones:

Yes. Most likely, especially, let's say, in a football season, early part of football season where it's very humid and hot, that you want to avoid the effects of dehydration or overheating. Usually, the legs are where the athletes prefer it. So, it's a lot easier with the basketball player as opposed to hockey player who's got a lot of equipment on. So, it depends what body part you have.

I'll give you a very practical example. At the Olympics, especially for 100-, 200- and 400-meter runners. You've got three races, the preliminary heats, the semi-final heats and the final heats within one 36-hour period. Well, they're doing KAATSU in between the prelims and semi-finals, and between the semi-finals and finals, simply to get that body back to 100% as quickly as possible. So, we have arm wrestlers. Arm wrestlers, typically – I mean, we're talking professional level arm wrestlers. In a tournament, you might have as many as five, six, seven arm matches within a very short period of time. Very intense. Very intense. As soon as they're finished, we want that metabolic waste whooshed out. So, they throw on the KAATSU bands on both arms and do some KAATSU cycles.

Dr. Joseph Mercola:

I was going to ask about arm wrestlers because that would seem, to me, to be a perfect application for it.

Steven Munatones:

Yeah.

Dr. Joseph Mercola:

Really intense concentrations of those muscles in the arms.

Steven Munatones:

Yes. Yeah.

Dr. Joseph Mercola:

Well, this is great. Any other information you'd like to share with us?

Steven Munatones:

I mean, we've got KAATSU, literally, being used underwater with aquanauts.

Dr. Joseph Mercola:

How do they do that? Because the device isn't waterproof.

Steven Munatones:

No, we're talking aquanauts in the Jules Verne – I mean, literally, underwater structures.

Dr. Joseph Mercola:

Oh, okay.

Steven Munatones:

That are mimicking what would happen if we sent a spaceship to Mars. We've used them in submarines. If you're a submariner, you're pretty confined for months on end. You're living in a small space, obviously there's some stress involved, just doing some simple bicep curls, some hand clenches, some tricep extensions, some squats by your bunk. I mean, these are all really innovative ways we use KAATSU. Everything from long-distance haulers, truck drivers, who, they're sitting and they're going, let's say, from Ohio to Florida or from Oklahoma to California. This is an ideal way, in a confined space, that you can get a workout if you don't have the luxury of going down to the gym or even working out, just walking around your neighborhood. You might be quite busy, as you are on a business trip, and maybe you're at your convention and you've been on your feet all day, by the time you get back to your hotel room and dinner and you know, you're just exhausted. Throw it on, get there.

We're in 49 countries around the world. Through your help, Dr. Mercola, we've been able to reach a lot of people. It's really, really a heartfelt labor of love that we're doing. We hear so many stories that are really touching, and that drives us every single day. So, if people are interested, they're very welcome to attend our Tuesday and Thursday one-hour sessions at 12 noon.

Dr. Joseph Mercola:

Oh, that's great. Yeah, because it's a fantastic resource. When I was promoting this device for many years, but I wasn't even aware that resource existed for new people. And it is a great benefit that you get so that you don't feel abandoned because many people were-

Steven Munatones:

You've got a community. Yeah.

Dr. Joseph Mercola:

“What do I do now?” I'm also, as I said, in the process of really compiling the next advanced level, once people are past the sedentary, inactive mode to use these relatively inexpensive loop bands and sets with handles and things that you can attach to your door, anchors, it's a whole

setup that, hopefully, we'll have available later this year, which you could use without the KAATSU [bands], certainly. So, whatever you want, but I think ideally, you would merge both of them and you get the best of both worlds, which is fantastic because I like KAATSU but I think I've got three units because I just don't ever want to be without this device as I use it every day. Yeah.

Steven Munatones:

Yeah. That's great. Well, thank you very much, Dr. Mercola. I mean, it's-

Dr. Joseph Mercola:

All right. Well, thank you for your pioneering work, your commitment, your dedication for doing, really, the hard work of going over there and bringing this to the United States. We would not have this if it wasn't for you so as a representative for the community, I'm just extending my gratitude and appreciation for all the work that you did.

Steven Munatones:

My pleasure. Thank you.