Exercise & Osteoporosis: What Really Works | Lora Giangregorio, PhD Transcript

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Introduction

Hey, Marie here. We hear so much in the Hey, Marie here. We hear so much in the media about what exercises we should be media about what exercises we should be doing for our bones. Lift heavy, wear a doing for our bones. Lift heavy, wear a weighted vest, and then there are all weighted vest, and then there are all these devices and programs that are these devices and programs that are promoted saying they can improve bone promoted saying they can improve bone density. But today, we're looking at the density. But today, we're looking at the science, what's really been shown to science, what's really been shown to help our bones and prevent falls and help our bones and prevent falls and fractures. I'm so excited about today's fractures. I'm so excited about today's guest because she is someone who guest because she is someone who actually does this research. Dr. Laura actually does this research. Dr. Laura Gangorio is a professor and tier one Gangorio is a professor and tier one Canada research chair in bone health and Canada research chair in bone health and exercise science at the University of exercise science at the University of Wateroo. She leads the bone health and Wateroo. She leads the bone health and exercise science lab where her team exercise science lab where her team conducts research on physical activity conducts research on physical activity for fall and fracture prevention. She for fall and fracture prevention. She also serves on the scientific advisory also serves on the scientific advisory council for osteoporosis Canada. So council for osteoporosis Canada. So today we're going beyond the headlines today we're going beyond the headlines and looking at what the research really and looking at what the research really tells us about exercise and tells us about exercise and osteoporosis. This is full of so much osteoporosis. This is full of so much Welcome Laura. I am so excited to be Welcome Laura. I am so excited to be here with you. It's been years now since here with you. It's been years now since we talked and you're very busy and so it we talked and you're very busy and so it it takes a couple years to to arrange it takes a couple years to to arrange this, but here you are and I'm just this, but here you are and I'm just thrilled to have you here. So, thank you thrilled to have you here. So, thank you so much.

so much. >> Yeah, thanks for having me. I'm happy >> Yeah, thanks for having me. I'm happy happy to be here. happy to be here. >> So, what I love about the work you do is >> So, what I love about the work you do is that you are the real deal. you are a that you are the real deal. you are a researcher and unfortunately in this researcher and unfortunately in this world of ours, you know, people will world of ours, you know, people will take headlines and they do different take headlines and they do different things, but they're really they're things, but they're really they're missing the boat half the time. And missing the boat half the time. And that's what we want to do. We want to that's what we want to do. We want to distill what's real, what really works, distill what's real, what really works, so that no one wants to spend their time so that no one wants to spend their time or money on things that aren't or money on things that aren't effective. So that's where this research effective. So that's where this research comes in. And I just think it's always comes in. And I just think it's always important to look at things through the important to look at things through the lens of research and what's worked lens of research and what's worked because we we don't want to waste our because we we don't want to waste our time. So, we're just going to get right time. So, we're just going to get right into it and we're going to talk about into it and we're going to talk about the different types of exercises that the different types of exercises that are effective. So, let's start with are effective. So, let's start with exercise. Let's start with something exercise. Let's start with something that a lot of people don't think about.

that a lot of people don't think about. We'll get to other things.

The exercise that can help prevent falls and fractures

You know, We'll get to other things. You know, people are so worried about that bone people are so worried about that bone density score, but they don't realize density score, but they don't realize the key is they what's critical is about the key is they what's critical is about preventing falls and fractures. So, why preventing falls and fractures. So, why don't you share what the evidence says don't you share what the evidence says about about that because it's good.

about about that because it's good. >> Yeah. So we we have there's been >> Yeah. So we we have there's been systematic reviews which are a type of systematic reviews which are a type of study that sort of pull together all the study that sort of pull together all the studies on a topic and they use kind of studies on a topic and they use kind of a really structured methodology to kind a really structured methodology to kind of kind of mathematically pull the of kind of mathematically pull the effects from every single study, right?

effects from every single study, right? And so there's a really great one done And so there's a really great one done by Kathy Sherington in Australia and by Kathy Sherington in Australia and actually they're updating the reviews so actually they're updating the reviews so there'll be a new one out hopefully there'll be a new one out hopefully soon. But the one that was pub the last soon. But the one that was pub the last one that was published was in 2019 and one that was published was in 2019 and they showed that exercise in general they showed that exercise in general when they pull all the studies together when they pull all the studies together can prevent falls. And then when they can prevent falls. And then when they looked at the different types of looked at the different types of exercise they found that exercise exercise they found that exercise programs that included taichi or balance programs that included taichi or balance and functional training or ones that and functional training or ones that combined balance and functional training combined balance and functional training with other types of exercise were with other types of exercise were effective for preventing falls. Whereas effective for preventing falls. Whereas other types of exercise there either other types of exercise there either wasn't enough evidence or the evidence wasn't enough evidence or the evidence wasn't statistically significant. So I wasn't statistically significant. So I think if people want to kind of remain think if people want to kind of remain agile and be able to recover from a trip agile and be able to recover from a trip or a stumble and you know try to prevent or a stumble and you know try to prevent falls, people don't think of themselves falls, people don't think of themselves being at risk of falls, but we do lose being at risk of falls, but we do lose agility with age. And so if you want to agility with age. And so if you want to stay agile, you want to do exercise stay agile, you want to do exercise programs that include those types of programs that include those types of exercise that are effective, that exercise that are effective, that challenge your balance, you know, that challenge your balance, you know, that challenge your agility, those sorts of challenge your agility, those sorts of things.

things. things. >> Absolutely. And it's so interesting >> Absolutely. And it's so interesting because I'm very in into Tai Chi and because I'm very in into Tai Chi and Chiang and we've been doing it with the Chiang and we've been doing it with the state of New Jersey actually. We added state of New Jersey actually. We added that to the program they had and so many that to the program they had and so many people came have come up to me or people came have come up to me or trainers have said you know so and so trainers have said you know so and so didn't fall because they've been didn't fall because they've been practicing this. So they had that practicing this. So they had that dynamic movement you know it's you're dynamic movement you know it's you're moving and you know so if they tripped moving and you know so if they tripped or something they were equipped. So I or something they were equipped.

Why standing on one foot isnu2019t enough for balance

So I think it's really important because a think it's really important because a lot of times people will brush their lot of times people will brush their teeth standing on one foot and think teeth standing on one foot and think that's all they need to do and so I that's all they need to do and so I think that's such an important point. Is think that's such an important point. Is there any other specific balance things there any other specific balance things that you think may be missing that that you think may be missing that people should be aware of? I mean yeah people should be aware of? I mean yeah like there are different types of like there are different types of balance. So there's your ability to balance. So there's your ability to recover if somebody kind of you run into recover if somebody kind of you run into somebody or you trip over something. So somebody or you trip over something. So that's kind of reactive control. And that's kind of reactive control. And then sometimes you you make a movement then sometimes you you make a movement like let's say you go to climb a set of like let's say you go to climb a set of stairs or reach up for something and stairs or reach up for something and sometimes that causes you to become sometimes that causes you to become unstable your ability to kind of unstable your ability to kind of reestablish that stability or or make reestablish that stability or or make adjustments so that you don't become adjustments so that you don't become unstable in the first place you know so unstable in the first place you know so there's different ways of challenging there's different ways of challenging balance so I think one of the things balance so I

think one of the things that people might need to think about that people might need to think about when they design a balance training when they design a balance training program is having a variety of program is having a variety of challenges that challenge your the way challenges that challenge your the way you move in different ways like up and you move in different ways like up and down side to side reacting to things.

down side to side reacting to things. So, and and making sure that they're So, and and making sure that they're dynamic balance exercises where you're dynamic balance exercises where you're moving around. So, just standing on one moving around. So, just standing on one foot at the kitchen sink is not really a foot at the kitchen sink is not really a comprehensive balance training program.

comprehensive balance training program. You want to make sure that you include a You want to make sure that you include a variety of things. variety of things.

>> Yeah, I think that's so important. And >> Yeah, I think that's so important. And if it's too easy, that's the other thing if it's too easy, that's the other thing I see. Oh, I got this. My balance is I see. Oh, I got this. My balance is good. Challenge yourself, right? What do good. Challenge yourself, right? What do you you you >> Yeah, we actually just created an >> Yeah, we actually just created an infographic about that. about thinking infographic about that. about thinking about, okay, if you're doing your about, okay, if you're doing your balance exercise, do you really have to balance exercise, do you really have to concentrate to stay stable or is it concentrate to stay stable or is it pretty easy for you? Because if if it's pretty easy for you? Because if if it's not hard, then it's probably not not hard, then it's probably not challenging your balance and improving challenging your balance and improving it, right? Just the same when we do it, right? Just the same when we do strength training, we want a weight strength training, we want a weight that's hard and and we want to make it that's hard and and we want to make it harder over time. So, as the weight gets harder over time. So, as the weight gets easier to lift, you want to make lift easier to lift, you want to make lift heavier. The same is for balance heavier. The same is for balance training. You want to pick a balance training. You want to pick a balance exercise where maybe you feel a little exercise where maybe you feel a little unstable or you make a few errors and unstable or you make a few errors and you have to correct or you you have to you have to correct or you you have to really concentrate to hold your balance really concentrate to hold your balance or or or make sure that you do it with or or or make sure that you do it with good agility. These are all like this is good agility. These are all like this is what you want to do when you choose a what you want to do when you choose a balance exercise and when you progress balance exercise and when you progress your program over time your program over time >> and the truth is you can keep >> and the truth is you can keep progressing the athletes keep progressing the athletes keep progressing giving them a challenge and progressing giving them a challenge and and that I and that I >> train your inner athlete. It's really >> train your inner athlete. It's really true. And the interesting thing is true. And the interesting thing is because there are people, we'll get into because there are people, we'll get into this, who who aren't able to do the this, who who aren't able to do the serious strength training or do serious strength training or do different things, but everybody can do different things, but everybody can do some type of balance. And I think we some type of balance. And I think we don't weigh how important that is don't weigh how important that is because if we can prevent a fracture because if we can prevent a fracture because we've improved our balance, because we've improved our balance, that's amazing and not something that we that's amazing and not something that we should minimize in any way, shape, or should minimize in any way, shape, or form.

form. form. >> That's right. Most fractures, many >> That's right. Most fractures, many fractures occur due to falls, like the fractures occur due to falls, like the vast majority of them. So if you can vast majority of them. So if you can provide prevent falls, you you could provide prevent falls, you you could potentially prevent fractures even if potentially prevent fractures even if you do have really low bone density.

you do have really low bone density. >> And just think about that. So you >> And just think about that. So you prevent a fall so you don't fall and prevent a fall so you don't fall and have the injuries and then your family have the injuries and then your family doesn't have to take care. There's just doesn't have to take care. There's just so many ramifications of that in terms so many ramifications of that in terms of what happens with falls and of what happens with falls and fractures. So so very important in terms fractures. So so very important in terms of balance. And how many what do you of balance. And how many what do you recommend? I know it's very varied, but recommend? I know it's very varied, but what's your recommendation when people what's your recommendation when people are

saying, "Yeah, you know what? I are saying, "Yeah, you know what? I should put this into my life." Like, you should put this into my life." Like, you mean what type of mean what type of >> Yeah. How often? How often would you >> Yeah. How often? How often would you >> Oh, well, so balance exercises are not >> Oh, well, so balance exercises are not like the kind of exercises that Well, it like the kind of exercises that Well, it depends on which how what type of depends on which how what type of exercise you're doing, but in general, exercise you're doing, but in general, if you're just kind of working on your if you're just kind of working on your agility and it's not sort of pushing you agility and it's not sort of pushing you to your sort of muscular limits or, you to your sort of muscular limits or, you know, causing a lot of fatigue like know, causing a lot of fatigue like heavy strength training does, you can heavy strength training does, you can probably do it every day. I would say a probably do it every day. I would say a minimum of two to three times a week, minimum of two to three times a week, but I would encourage people to find but I would encourage people to find ways to challenge their balance and and ways to challenge their balance and and and agility every day because that way and agility every day because that way you kind of make it a habit and bring it you kind of make it a habit and bring it into part of your life and and it's I into part of your life and and it's I think no reason why not to, you know, think no reason why not to, you know, like the only thing I would say is if like the only thing I would say is if the balance exercises you're choosing the balance exercises you're choosing incorporate like so some some exercises incorporate like so some some exercises like you think about people who would do like you think about people who would do like a bit more like plyometric type or like a bit more like plyometric type or exercises where they're moving really exercises where they're moving really quickly and using muscular hour. Like as quickly and using muscular hour. Like as you progress them, if if they are you progress them, if if they are becoming more intense, you might becoming more intense, you might actually need rest days. But I'd say for actually need rest days. But I'd say for the vast majority of folks, if they're the vast majority of folks, if they're just doing kind of balance challenges just doing kind of balance challenges that are not are not like close to that are not are not like close to maximal effort, I think, you know, you maximal effort, I think, you know, you can probably incorporate them most days can probably incorporate them most days of the week.

of the week. >> Now, that's what I feel too. And it's >> Now, that's what I feel too. And it's it's easy to do and you know, you throw it's easy to do and you know, you throw them into your day. But, you know, it's them into your day. But, you know, it's one of those things if you don't use it, one of those things if you don't use it, you lose it. But when you practice them you lose it. But when you practice them at every age, I just can't get over cuz at every age, I just can't get over cuz I've been a physical therapist forever.

I've been a physical therapist forever. But what I've seen, it's just incredible But what I've seen, it's just incredible how much balance can improve and and the how much balance can improve and and the results. You know, when people don't results. You know, when people don't fall, they're so excited. But it's fall, they're so excited. But it's really a very big deal.

really a very big deal. >> Okay. So, let's move to the second >> Okay. So, let's move to the second thing. We know about exercise and let's thing.

What the research says about preventing bone loss

We know about exercise and let's just let's start with bone loss before just let's start with bone loss before bone gaining bone. Let's talk about the bone gaining bone. Let's talk about the exercises that help prevent bone loss.

exercises that help prevent bone loss. >> Yeah. So, one of the the caveats about >> Yeah. So, one of the the caveats about that that area of research is that we that that area of research is that we don't have the this the clinical trials don't have the this the clinical trials aren't as strong as they are in the fall aren't as strong as they are in the fall prevention space. So, we do have prevention space. So, we do have clinical trials that have looked at the clinical trials that have looked at the effects of exercise on bone density, but effects of exercise on bone density, but they're not as high like overall the they're not as high like overall the body of research is not as high quality body of research is not as high quality or high certainty, I guess, like in or high certainty, I guess, like in terms of how confident I feel about terms of how confident I feel about making conclusions. they're not as high making conclusions. they're not as high certainty. So a lot of the studies have certainty. So a lot of the studies have been quite small. They sometimes have been quite small. They sometimes have sources of bias and so you know yeah sources of bias and so you know yeah when you pull them all together in a when you pull them all together in a

meta analysis you often get you know meta analysis you often get you know information that suggests that the information that suggests that the exercise can improve bone mineral exercise can improve bone mineral density but there's a lot of variability density but there's a lot of variability around those estimates and and I have around those estimates and and I have some concerns about how confident we can some concerns about how confident we can be in those estimates. So I don't it's be in those estimates. So I don't it's really hard to say definitely this one really hard to say definitely this one type of exercise is most effective just type of exercise is most effective just because I don't think we have enough because I don't think we have enough evidence that is good quality to make evidence that is good quality to make that conclusion. So if I had to guess, that conclusion. So if I had to guess, if I had to if I look at the body if I had to if I look at the body broader broader evidence, if I take what broader broader evidence, if I take what we know about from animal research and we know about from animal research and from clinical trials and from other from clinical trials and from other types of research, I would say that your types of research, I would say that your best bet if you're trying to maintain or best bet if you're trying to maintain or improve your bone density is to do improve your bone density is to do progressive resistance training and progressive resistance training and impact training and ideally towards the impact training and ideally towards the moderate to high end of the spectrum in moderate to high end of the spectrum in terms of intensity. It's hard to terms of intensity. It's hard to delineate for sure if it's like it has delineate for sure if it's like it has to be moderate or low or high. I I'd to be moderate or low or high. I I'd lean more moderate high. I think there lean more moderate high. I think there will be evidence like as studies emerge will be evidence like as studies emerge to help us answer that question a little to help us answer that question a little bit better. We actually just finished a bit better. We actually just finished a trial this year. So hopefully maybe we trial this year. So hopefully maybe we can chat about it next year once the can chat about it next year once the results are finalized. But I would say results are finalized. But I would say like it based on what we know probably a like it based on what we know probably a combination of resistance training and combination of resistance training and impact training and towards a impact training and towards a progressive. So it has to progressively progressive. So it has to progressively increase the challenge over time and and increase the challenge over time and and also like probably on the moderate to also like probably on the moderate to high intensity of the spectrum. That high intensity of the spectrum. That would be my advice based on the my read would be my advice based on the my read of the current evidence and and that and of the current evidence and and that and again as a scientist I have to say like again as a scientist I have to say like that can change as more research evolves that can change as more research evolves and so that's why it's really important and so that's why it's really important to and it's I really applaud you for to and it's I really applaud you for sort of highlighting people who are sort of highlighting people who are scientists who are doing research and scientists who are doing research and getting because you know you look on getting because you know you look on social media and people are like this is social media and people are like this is the one best exercise to improve your the one best exercise to improve your bone density and or people who are bone density and or people who are interpreting science but they're not interpreting science but they're not actually scientists they don't know how actually scientists they don't know how to read it and understand it with those to read it and understand it with those nuances. is so they'll say, "Oh, I found nuances. is so they'll say, "Oh, I found a meta analysis that shows that you a meta analysis that shows that you know, you know, jumping up and down on know, you know, jumping up and down on one foot is the best way to, you know, one foot is the best way to, you know, and it's like but there's lots of flaws and it's like but there's lots of flaws and the studies that are in that or in and the studies that are in that or in the meta analysis itself and they may the meta analysis itself and they may not realize that. So I think I would say not realize that. So I think I would say and this is a really long answer but and this is a really long answer but leaning towards the moderate to high leaning towards the moderate to high intensity progressive resistance and intensity progressive resistance and impact training and again caveats that impact training and again caveats that the evidence is less certain and that's the evidence is less certain and that's why you know we need to kind of continue why you know we need to kind of continue to do research and pay attention to the to do research and pay attention to the re research but also not get hung up on re research but also not get hung up on the bodensity piece because we can also the bodensity piece because we can also you know improve muscle strength and you know improve muscle strength and improve physical functioning and prevent improve physical functioning and prevent falls with a variety of types of falls with a variety of types of exercises.

exercises. exercises. Hey, Margie here. As a physical Hey, Margie here. As a physical therapist, I know firsthand how [music] therapist, I know firsthand how [music] important exercise is for our bones, important exercise is for our bones, overall health, and happiness. And overall health, and happiness. And unfortunately, there's a lot of unfortunately, there's a lot of confusion [music] on what exercises are confusion [music] on what exercises are safe

and effective for people with safe and effective for people with osteoporosis. That's why I created this osteoporosis. That's why I created this handout [music] handout [music] that contains a 30inut video where I that contains a 30inut video where I explain the concepts [music] so you explain the concepts [music] so you understand the dos and don'ts when it understand the dos and don'ts when it comes to exercise. And this is important comes to exercise. And this is important [music] because this way you can go into [music] because this way you can go into any class and know what you should be any class and know what you should be doing and what you should avoid because doing and what you should avoid because too many people are doing exercises too many people are doing exercises [music] [music] [music] that actually increase their risk of that actually increase their risk of spinal fractures. I also included videos spinal fractures. I also included videos of me [music] demonstrating effective of me [music] demonstrating effective balance, posture, and weightbearing balance, posture, and weightbearing exercises you can put into your [music] exercises you can put into your [music] day right away. So, all you need to do day right away. So, all you need to do to access this handout, it's free, is go to access this handout, it's free, is go exercises. So, it's t i nyurl.com exercises. So, it's t i nyurl.com [music] again/oststeoporosisex [music] again/oststeoporosisex exercises or you can click the link exercises or you can click the link [music] in the show notes. Now, back to [music] in the show notes. Now, back to the show.

the show. You know, it's just so important to look You know, it's just so important to look at the research because you'll see at the research because you'll see everything. I mean that's that's the everything. I mean that's that's the problem. The problem is people are look problem. The problem is people are look using social media and I think yes it's using social media and I think yes it's good to to learn different things or to good to to learn different things or to be aware but then you're bombarded with be aware but then you're bombarded with things and they sound so true and it things and they sound so true and it might be from people who it it's a real might be from people who it it's a real problem. That's why I'm so I think it's problem. That's why I'm so I think it's so important to go into the research but so important to go into the research but oftentimes they'll take one piece of the oftentimes they'll take one piece of the research and they'll make this huge research and they'll make this huge announcement when that's not really the announcement when that's not really the whole story. So, but I think what you whole story. So, but I think what you said with the strength training, the said with the strength training, the resistance training and the impact, you resistance training and the impact, you know, and I've seen this over the years, know, and I've seen this over the years, people have maintained an increased bone people have maintained an increased bone density. It's been so so that's the way density. It's been so so that's the way to go with everything that we have now.

to go with everything that we have now. That's what we know. And what pro like I That's what we know. And what pro like I mean the problem I see a lot of times is mean the problem I see a lot of times is people, you know, are doing the same two people, you know, are doing the same two pounds for like two years. What problems pounds for like two years. What problems do you see that people are not, you do you see that people are not, you know, are not interpreting this the best know, are not interpreting this the best way they should?

way they should?

Why u201clift heavyu201d isnu2019t the right advice for everyone

>> So, so you're asking like where what >> So, so you're asking like where what what what is some what what is some >> I see that also. Yeah. Because I guess I >> I see that also. Yeah. Because I guess I guess there's a couple things that guess there's a couple things that everybody needs to know. I mean, right everybody needs to know. I mean, right like in terms not everybody, you know, like in terms not everybody, you know, you get this message about lifting heavy you get this message about lifting heavy and you don't start there or so what are and you don't start there or so what are the important caveats to that that you the important caveats to that that you want to share?

want to share? >> I see. So, so yeah. So, there's a lot of >> I see. So, so yeah. So, there's a lot of messages around doing resistance messages around doing resistance training and doing impact training. And training and doing impact training. And I think that it can be intimidating to I think that it can be intimidating to people, especially if the message is you people, especially if the message is you must lift heavy. So, heavy is not right must lift heavy. So, heavy is not right the right word. The word is high the right word. The word is high intensity, right? That's what

they mean intensity, right? That's what they mean by heavy. And high intensity for some by heavy. And high intensity for some people could be sit to stands if they people could be sit to stands if they are quite frail, right? Okay. So, if are quite frail, right? Okay. So, if someone can't get out of a chair without someone can't get out of a chair without using their arms for the support, then using their arms for the support, then having them sit slightly higher and just having them sit slightly higher and just do sit the stands without the arms is do sit the stands without the arms is high intensity for them if they can only high intensity for them if they can only do five repetitions of that, right? So, do five repetitions of that, right? So, you know, you have to kind of people you know, you have to kind of people have to start where they're at and and have to start where they're at and and telling people they must lift really telling people they must lift really heavy weights can be quite intimidating.

heavy weights can be quite intimidating. So, my kind of thing is let's let's use So, my kind of thing is let's let's use the right words. The words is high the right words. The words is high intensity. For some people that means intensity. For some people that means heavy weights and certainly we think heavy weights and certainly we think that bones respond to higher load that bones respond to higher load magnitudes. So we want to have higher magnitudes. So we want to have higher loading magnitudes than we're used to.

loading magnitudes than we're used to. And so we do that's part of the reason And so we do that's part of the reason why I advocate for progressive training why I advocate for progressive training and aiming for higher intensity because and aiming for higher intensity because I I find when people do lower I I find when people do lower intensities, even moderate intensity, intensities, even moderate intensity, they tend to underdose. So they stop they tend to underdose. So they stop earlier than they they can one because earlier than they they can one because you kind of get a little bored and you you kind of get a little bored and you do get fatigued but but you your muscles do get fatigued but but you your muscles actually might have greater capacity or actually might have greater capacity or greater strength. And so but I would say greater strength. And so but I would say like the the whole like lift heavy like the the whole like lift heavy messaging kind of misses the point that messaging kind of misses the point that for some people they need to start kind for some people they need to start kind of not necessarily heavy but high of not necessarily heavy but high intensity but not heavy. Right? So I intensity but not heavy. Right? So I think that that's an important think that that's an important distinction is you need to start where distinction is you need to start where you're at and learn how to do the you're at and learn how to do the exercises with proper form. In an ideal exercises with proper form. In an ideal world, you have an exercise physiologist world, you have an exercise physiologist that can teach you that. And then you that can teach you that. And then you want to find, if your goal is high want to find, if your goal is high intensity strength training, then you intensity strength training, then you want to find a version of the exercise want to find a version of the exercise that you can only do it five or six that you can only do it five or six times. You can't do it eight times. You times. You can't do it eight times. You can't do it 10 times, right? Like you can't do it 10 times, right? Like you physically can't. That's what high physically can't. That's what high intensity means, right? So, you want to intensity means, right? So, you want to you want you want to do be able to do you want you want to do be able to do it, you know, sort of six or less times it, you know, sort of six or less times if that your goal is really building if that your goal is really building muscular strength and and and getting muscular strength and and and getting stronger. Now, you will get stronger stronger. Now, you will get stronger like with when it comes to muscle like with when it comes to muscle strength, any type of strength training strength, any type of strength training if it's progressive will make you if it's progressive will make you stronger over time. Some of the research stronger over time. Some of the research suggests that the higher intensity suggests that the higher intensity strength training tends to be most strength training tends to be most effective, but you will get stronger at effective, but you will get stronger at all intensities, especially if you're a all intensities, especially if you're a novice. With bone strength, it's harder novice. With bone strength, it's harder to make that conclusion in terms of to make that conclusion in terms of whether or not you get your bones get whether or not you get your bones get stronger at all intensities. We don't stronger at all intensities. We don't have the data across the spectrum or our have the data across the spectrum or our comparative data where we compare comparative data where we compare different intensities. At least we don't different intensities. At least we don't yet. But I would say like I would then yet. But I would say like I would then lean the same way. So if you're trying lean the same way. So if you're trying to build, you know, animal research to build, you know, animal research suggests higher magnitude loads are suggests higher magnitude loads are effective. And so I would want a effective. And so I would want a stimulus for bone that is very different stimulus for bone that is very different than what I'm used to every day, which than what I'm used to every day, which means you might need to push the means you might need to push the envelope a little. So, but again to your envelope a little. So, but again to your

point like what's a mis misin something point like what's a mis misin something misinterpreted is the lift heavy means misinterpreted is the lift heavy means everybody needs to lift really heavy everybody needs to lift really heavy weights because it's all relative to weights because it's all relative to your ability and so for some people that your ability and so for some people that may mean starting with lighter weights may mean starting with lighter weights but that are challenging for them right but that are challenging for them right does that make sense does that make sense >> yes and I think it's so important >> yes and I think it's so important because your bones response to the force because your bones response to the force is placed upon you so just like you said is placed upon you so just like you said body weight getting out of a chair for body weight getting out of a chair for someone is more than they're accustomed someone is more than they're accustomed to which is going to be a stimulus for to which is going to be a stimulus for their bones.

their bones. >> Well, it it has to so I I hesitate. So, >> Well, it it has to so I I hesitate. So, it has to be again within that if a it has to be again within that if a person is like can't get out of a chair, person is like can't get out of a chair, then then that's where they start. But then then that's where they start. But you do want to progress over time and you do want to progress over time and and I I don't what we don't know is like and I I don't what we don't know is like in people who are frail is doing that in people who are frail is doing that type of exercise, is that going to type of exercise, is that going to increase their bone density? Is that increase their bone density? Is that enough of a stimulus? We don't know that enough of a stimulus? We don't know that because many of the studies are done in because many of the studies are done in pretty healthy, you know, middle-aged pretty healthy, you know, middle-aged and older women, right? they're not and older women, right? they're not necessarily done in much older or necessarily done in much older or frail individuals or they exclude people who individuals or they exclude people who have mobility impairments or shoulder have mobility impairments or shoulder impairments or other things, right? So impairments or other things, right? So then, you know, we don't know, okay, if then, you know, we don't know, okay, if we have to adapt the exercise because of we have to adapt the exercise because of these things, is it still as effective, these things, is it still as effective, right? That's that's a trickier question right? That's that's a trickier question to answer.

to answer. >> Yeah. Yeah, what you said with the >> Yeah. Yeah, what you said with the exercise physiologist as a physical exercise physiologist as a physical therapist, I think it's just so helpful therapist, I think it's just so helpful if you can work with someone and make if you can work with someone and make sure your form is right and then if you sure your form is right and then if you do have coorbidities and shoulder do have coorbidities and shoulder injuries, they work around that so that injuries, they work around that so that you don't injure yourself because I you don't injure yourself because I think that's one of the things I see think that's one of the things I see people will pick up an exercise program people will pick up an exercise program because this is shown in the research because this is shown in the research and yes, it's a good exercise program, and yes, it's a good exercise program, but it may need to be modified for them.

but it may need to be modified for them. They need guidance. They need to learn They need guidance. They need to learn how to do it safely. So, I'm such a big how to do it safely. So, I'm such a big believer in working with someone who is believer in working with someone who is knowledgeable and can help you and make knowledgeable and can help you and make sure that you're doing something sure that you're doing something effective. I personally have been doing effective. I personally have been doing I had Belinda come on the podcast many I had Belinda come on the podcast many years ago and I said, "You know what?

years ago and I said, "You know what? Who's doing it in the United States?" Who's doing it in the United States?" Because I wanted to see this in action Because I wanted to see this in action and she said there was one physical and she said there was one physical therapist who was right 25 minutes from therapist who was right 25 minutes from me in New Jersey. So, I I saw what's me in New Jersey. So, I I saw what's been happening with people and been happening with people and everyone is treated individually as they should.

is treated individually as they should. Not everybody's doing the same thing Not everybody's doing the same thing because certain people can't. They have because certain people can't. They have to have physical therapy first. They to have physical therapy first. They have to improve their posture. They have have to improve their posture. They have to know, you know, and that's that's a to know, you know, and that's that's a safe way of taking that program and safe way of taking that program and making sure that people don't get making sure that people don't

get injured. But it's amazing to see people injured. But it's amazing to see people going from couch potatoes to really going from couch potatoes to really strong and empowered. And you see that strong and empowered. And you see that not just with that program, but you see not just with that program, but you see that. And to me, that's one of the that. And to me, that's one of the silver linings I think in working on silver linings I think in working on osteoporosis. sort of force, you know, osteoporosis. sort of force, you know, it's a catalyst, this scary diagnosis it's a catalyst, this scary diagnosis and then you must see that all the time, and then you must see that all the time, right? People are getting strong and right? People are getting strong and empowered. Yeah. I mean, when we did our empowered. Yeah. I mean, when we did our a strength training study, we did find a strength training study, we did find that people I think initially were that people I think initially were uncertain about their abilities and I uncertain about their abilities and I think people underestimate what they're think people underestimate what they're capable of and you know, if you use a capable of and you know, if you use a progressive approach to strength progressive approach to strength training, you can achieve people achieve training, you can achieve people achieve a lot more than what they're capable of.

a lot more than what they're capable of. And when we asked people in interviews, And when we asked people in interviews, you know, they did say that they said, you know, they did say that they said, "I I didn't realize I could do that, "I I didn't realize I could do that, right?" And so, but you can't start like right?" And so, but you can't start like at a place that they feel is at a place that they feel is unrealistic. You have to also build that unrealistic. You have to also build that confidence. And so, having that period confidence. And so, having that period of focusing on form and building that of focusing on form and building that confidence that self-efficacy is really confidence that self-efficacy is really important.

important. important.

How to safely introduce impact exercise

>> Absolutely. And let's talk about impact >> Absolutely. And let's talk about impact also because that's that plays a role as also because that's that plays a role as well.

well. well. >> Yeah. you know the many of the studies >> Yeah. you know the many of the studies that look at the effects of exercise on that look at the effects of exercise on bone density combine resistance and bone density combine resistance and impact training. So it's really hard for impact training. So it's really hard for us to tease out you know if either one us to tease out you know if either one is effective on its own. There are a few is effective on its own. There are a few studies but not that many. So that's an studies but not that many. So that's an area I think you know we need more area I think you know we need more research on is those independent you research on is those independent you know can re is resistance training by know can re is resistance training by itself effective you know and for what itself effective you know and for what outcomes right lumbar spine hip whatever outcomes right lumbar spine hip whatever right and then is impact exercise right and then is impact exercise effective and how much impact and and effective and how much impact and and that sort of thing. So, I think that, that sort of thing. So, I think that, you know, again, if it was me and I was, you know, again, if it was me and I was, you know, trying to maintain or improve you know, trying to maintain or improve my bone density, I would probably try to my bone density, I would probably try to do both resistance and impact training.

do both resistance and impact training. And with impact training, it's tricky And with impact training, it's tricky because, you know, when people think of because, you know, when people think of impact, they think of like jumps and impact, they think of like jumps and jumping down off boxes, depth jumps, you jumping down off boxes, depth jumps, you know, or jumps where you jump down and know, or jumps where you jump down and then jump back up again, that sort of then jump back up again, that sort of thing. And that's not a beginner level thing. And that's not a beginner level exercise, right? Especially if you know exercise, right? Especially if you know someone is not used to regular other someone is not used to regular other types of exercise, like they're not types of exercise, like they're not strength training, they're not doing strength training, they're not doing other types of exercise to all of us the other types of exercise to all of us the that type of jumping or landing requires that type of jumping or landing requires you to absorb a lot of energy or you to absorb a lot of energy or generate a lot of force, right? So if generate a lot of force, right? So if you're not used to doing that and then you're not used to doing that and then you all of a sudden start doing it, you you all of a sudden start doing it, you could potentially injure yourself. So,

could potentially injure yourself. So, you know, you want to start by building you know, you want to start by building a foundation where your muscles can a foundation where your muscles can generate, you know, higher amounts of generate, you know, higher amounts of force, that your joints are used to force, that your joints are used to going through a certain range of motion, going through a certain range of motion, that you've got good body mechanics that you've got good body mechanics doing those types of movement. So, for doing those types of movement. So, for example, if you jump down and your knees example, if you jump down and your knees cave in, you know, maybe you're not able cave in, you know, maybe you're not able to sort of, you know, absorb the energy to sort of, you know, absorb the energy or control your your body in space. And or control your your body in space. And so, you want to work on that. or you so, you want to work on that. or you don't have like if you jump and then you don't have like if you jump and then you lose your balance and fall if you don't lose your balance and fall if you don't have good balance then then you can hurt have good balance then then you can hurt yourself right so you want to work you yourself right so you want to work you have to build a foundation of dynamic have to build a foundation of dynamic balance your ability to absorb energy balance your ability to absorb energy your body mechanics you know your your body mechanics you know your ability to generate forces and then you ability to generate forces and then you can start graduating to movements that can start graduating to movements that are require a little bit more speed a are require a little bit more speed a little bit more agility a little bit little bit more agility a little bit more force absorption little hops those more force absorption little hops those kinds of things multi-directional kinds of things multi-directional movements so that you and you have movements so that you and you have stability in multiple planes then you stability in multiple planes then you can progress to the higher impact. So can progress to the higher impact. So impact exercise is a continuum that the impact exercise is a continuum that the way that I think about it in terms of way that I think about it in terms of how we progress through it and it's not how we progress through it and it's not as obvious I think as like you know you as obvious I think as like you know you start strength training learn form and start strength training learn form and then increase the weight over time or then increase the weight over time or whatever it is right it's you the the whatever it is right it's you the the types of things you might do in that types of things you might do in that continuum with impact exercise are going continuum with impact exercise are going to change so I think that's again where to change so I think that's again where it's nice if you have someone who knows it's nice if you have someone who knows how to coach this or identify where how to coach this or identify where you're at and where you can go but I you're at and where you can go but I guess starting small and progressing is guess starting small and progressing is another strategy. So if you don't have a another strategy. So if you don't have a coach, start with resistance training, coach, start with resistance training, start with, you know, movements in start with, you know, movements in multitiple directions. Build that multitiple directions. Build that foundation, work on your balance, and foundation, work on your balance, and then slowly add impact or start with then slowly add impact or start with lower impact exercises like walking or lower impact exercises like walking or whatever it is that you like to do that whatever it is that you like to do that involves impact, dancing, whatever, and involves impact, dancing, whatever, and then slowly increase the level of then slowly increase the level of impact.

impact. impact. >> Yeah, that's great advice because we >> Yeah, that's great advice because we don't want to get hurt. No, that is not don't want to get hurt. No, that is not the goal here at all. And we don't have the goal here at all. And we don't have to. we can do just like you said and to. we can do just like you said and really make a big difference. So really make a big difference. So >> I've heard reports of people like you >> I've heard reports of people like you know you see like when you're on socials know you see like when you're on socials and I see these posts saying oh you have and I see these posts saying oh you have to do four times body weight impact and to do four times body weight impact and whatever and you see people in the whatever and you see people in the comments saying I can't do that because comments saying I can't do that because I have arthritis or I tried this and I I have arthritis or I tried this and I developed palent planer fasciitis or I developed palent planer fasciitis or I had a physician come up to me after at a had a physician come up to me after at a conference and said yeah I had a patient conference and said yeah I had a patient started doing foot stomps and they started doing foot stomps and they fractured a metatarscil. So, you know, fractured a metatarscil. So, you know, there there's definitely risk if you're there there's definitely risk if you're not doing these things properly. I don't not doing these things properly. I don't want to create fear. I just I think in want to create fear. I just I think in just understanding that again it's not just understanding that again it's not good messaging to kind of say this is good messaging to kind of say this is the only way to do it and you must start the only way to do it and you must start jumping right away because that doesn't jumping right away because that doesn't allow for people to kind of develop allow for people to kind of develop those capacities first before they get those capacities first before they get into that type of movement.

into that type of movement. >> No, I think it's really important and >> No, I think it's really important and because it is doable wherever you start.

because it is doable wherever you start. You're right. if you're just doing You're right. if you're just doing gentle, you know, impact next level and gentle, you know, impact next level and just when you do things gradually, just when you do things gradually, that's when it works and you don't get that's when it works and you don't get injured. And I think it's really injured. And I think it's really important. And I think the other thing important. And I think the other thing is that when people see these things, is that when people see these things, they freeze. They're like, um, that's they freeze. They're like, um, that's just not for me. And then they stop just not for me. And then they stop doing everything. And I think that's, doing everything. And I think that's, you know, that's not what we want.

you know, that's not what we want. Anything is better than and but just to Anything is better than and but just to learn what's what works. I I think so learn what's what works. I I think so helpful. All right, let's talk about helpful. All right, let's talk about [laughter] [laughter] [laughter] myths and truths. And for everybody myths and truths. And for everybody listening, we'll have this in the show listening, we'll have this in the show notes, but Laura has absolutely notes, but Laura has absolutely fabulous social media and your YouTube fabulous social media and your YouTube videos are so good because they're based videos are so good because they're based on science. And so when you have a on science. And so when you have a question, you know, you just do a really question, you know, you just do a really good job of explaining it very very good job of explaining it very very simply like, no, it doesn't say this or simply like, no, it doesn't say this or it does say this. So what do you what do it does say this. So what do you what do you find? All right, let's start with you find?

The truth about weighted vests and bone density

All right, let's start with one that I actually did a whole podcast one that I actually did a whole podcast on myself because I feel really strongly on myself because I feel really strongly about this. Let's talk about your about this. Let's talk about your thoughts on weighted vests.

thoughts on weighted vests. >> Yeah, I think that the weighted vest >> Yeah, I think that the weighted vest literature is not great, right? So the literature is not great, right? So the there if you look at across the body of there if you look at across the body of research, so we've actually done a research, so we've actually done a scoping review on this topic and scoping review on this topic and there's, you know, a chunk of studies, there's, you know, a chunk of studies, but we had to kind of essentially ignore but we had to kind of essentially ignore more than half of them because they're more than half of them because they're they're not they're not randomized they're not they're not randomized trials. They're poorly not poorly trials. They're poorly not poorly designed, that's a horrible way to say designed, that's a horrible way to say it. They're either control trials or it. They're either control trials or other types of studies that don't other types of studies that don't address sources of bias. And and that address sources of bias. And and that that's common in the literature. There's that's common in the literature. There's lots of people who publish studies that lots of people who publish studies that don't have an optimal design. But the don't have an optimal design. But the other reason is because a lot of them other reason is because a lot of them are less than 6 months long. And so when are less than 6 months long. And so when you're looking at a bone mineral density you're looking at a bone mineral density outcome, you want to have enough time outcome, you want to have enough time for bone to change. And so if you're for bone to change. And so if you're measuring bone mineral density, you measuring bone mineral density, you know, after 3 months, like a bone know, after 3 months, like a bone remodeling cycle, like one packet, remodeling cycle, like one packet, little pocket of bone where they bone little pocket of bone where they bone osteoclass come along, break down bone, osteoclass come along, break down bone, and the osteoblast fill it back up and the osteoblast fill it back up again. That cycle is like 3 to 6 months again. That cycle is like 3 to 6 months long. So if you're measuring at 3 long. So if you're measuring at 3 months, you're not likely observing a months, you're not likely observing a change that is real, right? So you want change that is real, right? So you want to have, you know, 8 12 months to to have, you know, 8 12 months to observe changes. So, you know, there's observe changes. So, you know, there's out of the entire body of literature in out of the entire body of literature in weighted vests, there's three randomized weighted vests, there's three randomized control trials that are greater than 6 control trials that are greater than 6 months long with bone density outcomes.

months long with bone density outcomes. One is very small and underpowered. And One is very small and

underpowered. And I and that was the only one that showed I and that was the only one that showed a positive change and only at one site.

a positive change and only at one site. So, I I'm not confident in that outcome. So, I I'm not confident in that outcome. And then there are two other ones that And then there are two other ones that are much larger. And the one was done in are much larger. And the one was done in people with low bone mass and they people with low bone mass and they showed no effect of the weighted vest showed no effect of the weighted vest intervention and the other was done in intervention and the other was done in people who were overweight and they also people who were overweight and they also showed no effect. And so a lot of the showed no effect. And so a lot of the people that are saying use weighted people that are saying use weighted vests are citing a 5-year follow-up vests are citing a 5-year follow-up study of 18 people, nine of which were a study of 18 people, nine of which were a weighted vest. So they actually there weighted vest. So they actually there was a control trial that was done many was a control trial that was done many many years ago like in the 1999 or many years ago like in the 1999 or sometime around there and they had uh it sometime around there and they had uh it was it was they had a bunch of was it was they had a bunch of people who did weighted vest plus exercise and who did weighted vest plus exercise and then they found a matching control then they found a matching control group. So they didn't randomize them.

group. So they didn't randomize them. They said they gave a bunch of people They said they gave a bunch of people weighted vests and then they said can weighted vests and then they said can you guys be the control group you guys be the control group essentially and they compared them and essentially and they compared them and there was no effect of the weighted there was no effect of the weighted vests in that trial of like 44 people or vests in that trial of like 44 people or however many it was. Then they five however many it was. Then they five years later followed up a small portion years later followed up a small portion of those people. So you can imagine the of those people. So you can imagine the people who show up five years later are people who show up five years later are quite different than the people who quite different than the people who [gasps] [gasps] [gasps] who didn't. And so people five years who didn't. And so people five years later who are still wearing the weighted later who are still wearing the weighted vest and doing the exercise are probably vest and doing the exercise are probably quite different. And so those people quite different. And so those people they show they said that those people they show they said that those people were able to maintain or increase their were able to maintain or increase their bone density compared to the controls.

bone density compared to the controls. And and so this is a five-year follow-up And and so this is a five-year follow-up study in a small subset of people from a study in a small subset of people from a rand a trial that wasn't randomized. And rand a trial that wasn't randomized. And the original trial show no effect. So, the original trial show no effect. So, so to me that is very biased and I so to me that is very biased and I wouldn't put place any confidence in wouldn't put place any confidence in that. But that's what everybody cites that. But that's what everybody cites when they talk about the effects of when they talk about the effects of weighted vests. The actual randomized weighted vests. The actual randomized trials showed no effect except for one trials showed no effect except for one very small trial which again I have I very small trial which again I have I don't put any confidence in because it don't put any confidence in because it was nine people were vest compared to was nine people were vest compared to nine controls. That's not enough for a nine controls. That's not enough for a bone density outcome. Like there's too bone density outcome. Like there's too much you need a larger sample size to much you need a larger sample size to have any confidence in the effect have any confidence in the effect estimates. So my it's not that I'm estimates. So my it's not that I'm saying weighted vests definitely don't saying weighted vests definitely don't work. I'm saying we don't have evidence work. I'm saying we don't have evidence to recommend them because the evidence to recommend them because the evidence is very bad and the evidence we do have is very bad and the evidence we do have suggests that there is no effect. The suggests that there is no effect. The thing with weighted vests is you can't thing with weighted vests is you can't really add a lot of load right there's really add a lot of load right there's only like you can only add a certain only like you can only add a certain amount and then it so so I don't think amount and then it so so I don't think the change in load magnitude that's my the change in load magnitude that's my personal opinion is high enough to be a personal opinion is high enough to be a stimulus for bone and that's why we stimulus for bone and that's why we don't see it. So I would say like if a don't see it. So I would say like if a person you know wants to use a weighted person you know wants to use a weighted vest for conditioning or if for example vest for conditioning or if for example someone has paralysis and they're

using someone has paralysis and they're using weighted vest to increase the weight for weighted vest to increase the weight for their sit to stands like there's good their sit to stands like there's good reasons to use a weighted vest.

reasons to use a weighted vest. Increasing bone mineral density is not Increasing bone mineral density is not one of them. Yeah, I I couldn't agree one of them. Yeah, I I couldn't agree more. And what I've seen and so many of more. And what I've seen and so many of the other physical therapists I speak to the other physical therapists I speak to you're right because it's not enough you're right because it's not enough stimulus when you're wearing it every stimulus when you're wearing it every day and the people that are taking day and the people that are taking walks. But what happens is it changes walks. But what happens is it changes their posture. So now they're having their posture. So now they're having shoulder pains, their backs sore.

shoulder pains, their backs sore. They're getting, you know, when people They're getting, you know, when people gain weight, their knees start hurting.

gain weight, their knees start hurting. So I've seen so many other things that So I've seen so many other things that we don't want because people are we don't want because people are thinking they're helping their bones.

thinking they're helping their bones. And so, you know, enjoy your walk, move And so, you know, enjoy your walk, move freely. I see people tensing up. And freely. I see people tensing up. And there's just unfortunately very smart there's just unfortunately very smart people. I'm seeing wear your weighted people. I'm seeing wear your weighted vest and physicians are calling me. Oh, vest and physicians are calling me. Oh, there's a new company that has these there's a new company that has these beautiful But I do I agree with you. I beautiful But I do I agree with you. I had fractured my wrist and it was a had fractured my wrist and it was a crazy fall off of an ebike. But anyway, crazy fall off of an ebike. But anyway, the point was that I couldn't do my the point was that I couldn't do my intense squats, you know, with the intense squats, you know, with the weights. I couldn't hold I couldn't do weights. I couldn't hold I couldn't do them. So, that was a perfect situation them. So, that was a perfect situation where I wore the weighted vest to help where I wore the weighted vest to help my short exercise program. And we always my short exercise program. And we always recommend just as Canada does, they have recommend just as Canada does, they have a beautiful statement on this, you know, a beautiful statement on this, you know, osteoporosis Canada about, you know, osteoporosis Canada about, you know, with supervision for exercise, you know, with supervision for exercise, you know, if you're doing something. But I just I if you're doing something. But I just I wanted the exercise expert because I've wanted the exercise expert because I've talked about this all the time and I get talked about this all the time and I get asked this question all the time and and asked this question all the time and and even some of the research that they've even some of the research that they've shown, what I saw also was they did, as shown, what I saw also was they did, as you said, they had the weighted vest you said, they had the weighted vest plus impact. So how can you say it's the plus impact. So how can you say it's the weighted vest, right? But even those are weighted vest, right? But even those are often not effective, right?

often not effective, right? >> Yes. So, yeah. >> Yes. So, yeah. >> Yeah. And it's just so I'm so glad you >> Yeah. And it's just so I'm so glad you helped clear that up. What other myths helped clear that up.

Are bone-building devices and vibration platforms worth it?

What other myths would you like to clear up that people would you like to clear up that people are all excited about or things that I are all excited about or things that I think people need to know so they don't think people need to know so they don't waste their money?

waste their money? >> Yeah. So, I you know there's there's lot >> Yeah. So, I you know there's there's lot of you know tech techniques and of you know tech techniques and technologies that are being promoted. I technologies that are being promoted. I think that a lot of people are think that a lot of people are capitalizing on people's fear, right? So capitalizing on people's fear, right? So there's this whole movement, you know, there's this whole movement, you know, the menopausy is like what can we do to, the menopausy is like what can we do to, you know, change, you know, change this you know, change, you know, change this trajectory and not lose bone and not trajectory and not lose bone and not lose muscle and all this stuff. And so lose muscle and all this stuff. And so

there's a lot of interest in, you know, there's a lot of interest in, you know, what happens to women at midlife and what happens to women at midlife and what happens in older life. And so what happens in older life. And so people are are now capitalizing on this people are are now capitalizing on this this movement and the fear around losing this movement and the fear around losing bone, losing muscle, fracturing, and bone, losing muscle, fracturing, and they're developing interventions that they're developing interventions that they can sell. and and unfortunately they can sell. and and unfortunately there's not always the evidence to back there's not always the evidence to back those interventions. So, you know, one those interventions. So, you know, one of those is osteo strong. So, there's we of those is osteo strong. So, there's we did a scoping review on the evidence did a scoping review on the evidence available for osteo and it's, you know, available for osteo and it's, you know, poor quality, lots of bias, conflict of poor quality, lots of bias, conflict of interest, predatory publishing, you interest, predatory publishing, you know, many issues and there's just not know, many issues and there's just not the evidence to show that it's the evidence to show that it's effective. And yet, you know, Osteong effective. And yet, you know, Osteong franchises have expanded all over the US franchises have expanded all over the US and and even into Canada and in other and and even into Canada and in other countries. And I think that last time I countries. And I think that last time I checked their website, they have toned checked their website, they have toned down their messaging. So you don't down their messaging. So you don't see the same prominent, you know, you can the same prominent, you know, you can reverse your osteoporosis in 10 minutes reverse your osteoporosis in 10 minutes sort of messaging that I saw on socials sort of messaging that I saw on socials or in other places. But I do think that or in other places. But I do think that it's misleading to say that there's it's misleading to say that there's strong evidence that osteo strong is strong evidence that osteo strong is effective cuz there isn't. And that effective cuz there isn't. And that that's my opinion and and it's also that's my opinion and and it's also based on the scoping review that we did based on the scoping review that we did that is published. And there's also been that is published. And there's also been two trials since then that reinforce two trials since then that reinforce that. will certainly don't provide that. will certainly don't provide additional evidence that it's effective.

additional evidence that it's effective. And then the there's there's Osteo Boost And then the there's there's Osteo Boost which is relatively new. So there's not which is relatively new. So there's not as much science that has been done to as much science that has been done to even evaluate the the company itself has even evaluate the the company itself has done one study and I don't think that done one study and I don't think that the results of that study support a the results of that study support a recommendation for using osteob as a recommendation for using osteob as a technology. So I I I don't feel that the technology. So I I I don't feel that the evidence in that in that paper suggests evidence in that in that paper suggests that we should recommend it. So at this that we should recommend it. So at this point I think you my answer if people point I think you my answer if people ask me they should use osteo boost to ask me they should use osteo boost to say I I don't think the evidence say I I don't think the evidence supports the spending money on it at supports the spending money on it at this point and there we do need more this point and there we do need more evidence because there really isn't any evidence because there really isn't any like there's one study so and it was like there's one study so and it was done by the company so we would want done by the company so we would want sort of an independent study to kind of sort of an independent study to kind of determine if it's effective. people determine if it's effective. people have, you know, talked about vibration have, you know, talked about vibration platforms for decades and I don't think platforms for decades and I don't think there's evidence to support the use of there's evidence to support the use of vibration platforms either. Many of the vibration platforms either. Many of the big trials were negative in terms of big trials were negative in terms of they they showed it wasn't effective. So they they showed it wasn't effective. So I don't advocate for those either. And I don't advocate for those either. And then what else is there? I'm probably then what else is there? I'm probably missing something.

missing something. >> I know those are the main things. >> I know those are the main things. >> Yeah. So so those are the things and >> Yeah. So so those are the things and unfortunately there's and and it's not unfortunately there's and and it's not and I don't want to like people have and I don't want to like people have good intentions. they want to develop good intentions. they want to develop techniques and solutions that will help techniques and solutions that will help people. But sometimes it's hard because people. But sometimes it's hard because you have a bias and a narrative and then you have a bias and a narrative and then you know when things come up that aren't you know when things come up that aren't aligned with it, it's you your intent aligned with it, it's you your intent your inclination is to explain it away, your inclination is to explain it away, right? Or you know if you've used his right? Or you know if you've used his device and it made you feel good, you device and it made

you feel good, you you know you want to promote it, right?

you know you want to promote it, right? So and and I I'm the first to say there So and and I I'm the first to say there also isn't strong evidence for strength also isn't strong evidence for strength and impact exercise either, right? like and impact exercise either, right? like there's more evidence for that type of there's more evidence for that type of exercise than there is for the other exercise than there is for the other technologies. But even that evidence has technologies. But even that evidence has some as I mentioned earlier there's less some as I mentioned earlier there's less certainty there's bias that they're certainty there's bias that they're often underpowered. So the only thing often underpowered. So the only thing I'll say though is that there's I'll say though is that there's definitely evidence that it can improve definitely evidence that it can improve physical functioning and and you know physical functioning and and you know there are is evidence that it you know there are is evidence that it you know strength training has an impact on strength training has an impact on mortality and other outcomes. So even mortality and other outcomes. So even from that perspective it's worth from that perspective it's worth recommending. So that's why I don't feel recommending. So that's why I don't feel as bad about emphasizing it because hey as bad about emphasizing it because hey if we can get a bone benefit that's if we can get a bone benefit that's great too but there's other reasons to great too but there's other reasons to recommend it that are relevant for you recommend it that are relevant for you know a aging and physical functioning.

know a aging and physical functioning. And so when we think about you know the And so when we think about you know the clinical practice guidelines for the clinical practice guidelines for the management of osteoporosis and management of osteoporosis and prevention of fractures we strongly prevention of fractures we strongly emphasize the balance and functional emphasize the balance and functional training because that's where we have training because that's where we have high certainty evidence. We do suggest high certainty evidence. We do suggest resistance training understanding that resistance training understanding that the our understanding of its effect on the our understanding of its effect on bone density is more limited. However, bone density is more limited. However, we know that it will improve in physical we know that it will improve in physical functioning which patients told us was functioning which patients told us was important to them and also it you know important to them and also it you know it's it's recommended in national it's it's recommended in national physical activity guidelines. So it physical activity guidelines. So it makes sense, you know, because it makes sense, you know, because it addresses outcomes important to patients addresses outcomes important to patients and because it can have an effect on and because it can have an effect on other outcomes. And there is some other outcomes. And there is some evidence that it might have an effect on evidence that it might have an effect on bone density. Although we do really need bone density. Although we do really need to fine-tune to fine-tune does resistance training have an effect does resistance training have an effect by itself or do you have to combine it by itself or do you have to combine it with impact? And also does it have to be with impact? And also does it have to be high intensity? That's those are the high intensity? That's those are the ants questions that remain unanswered, I ants questions that remain unanswered, I think.

think. think. >> Yeah. So it's interesting from a >> Yeah. So it's interesting from a scientist's perspective because you look scientist's perspective because you look at the size of the studies you know you at the size of the studies you know you look at all so many different things look at all so many different things versus a clinician I want to know the versus a clinician I want to know the science but then you also see what you science but then you also see what you see and you're right regardless of what see and you're right regardless of what happens where I have seen you know bone happens where I have seen you know bone density improve I have seen bone density density improve I have seen bone density stabilize you know but people are doing stabilize you know but people are doing a lot of things too so I can't say it's a lot of things too so I can't say it's absolutely that but it's always absolutely that but it's always important to go to the science but as important to go to the science but as you said there's no negative there's no you said there's no negative there's no negative there's only positive when you negative there's only positive when you start doing these wonderful exercise start doing these wonderful exercise program.

program. program. >> I mean there is a negative though. So I >> I mean there is a negative though. So I I do think we need to be mindful that I do think we need to be mindful that you will increase your chance of injury.

you will increase your chance of injury. So exercise resistance training studies So exercise resistance training studies do report that often there is an do report that often there is an increased incidence of muscle strains,

increased incidence of muscle strains, muscle soreness, that sort of thing. You muscle soreness, that sort of thing. You can, you know, by nature, the more can, you know, by nature, the more physically active you are, the more physically active you are, the more you're moving around, the more likely you're moving around, the more likely you are to fall. like your exposure to you are to fall. like your exposure to fall risk is higher. You know, you so so fall risk is higher. You know, you so so you could increase your risk of you could increase your risk of fractures. You know, you can experience fractures. You know, you can experience other other risks. So, but but there's other other risks. So, but but there's risks in everything. So, you have to risks in everything. So, you have to decide like, you know, I I strength decide like, you know, I I strength train regularly and occasionally I pull train regularly and occasionally I pull a muscle or occasionally I hurt my a muscle or occasionally I hurt my shoulder and this is something that I shoulder and this is something that I accept because the benefits of strength accept because the benefits of strength training outweigh the the risks of these training outweigh the the risks of these injuries. But there are risks and I injuries. But there are risks and I don't want to downplay them.

don't want to downplay them. >> Oh, absolutely. That's why it's so >> Oh, absolutely.

What yoga can and canu2019t do for your bones

That's why it's so important to you do things safely and important to you do things safely and gradually and with the right guidance. gradually and with the right guidance.

So let's talk about yoga because you So let's talk about yoga because you know there was research and let's talk know there was research and let's talk about the quality research. This was about the quality research. This was more years ago you know that and I'll more years ago you know that and I'll still hear this that people are doing still hear this that people are doing yoga to increase bone density. Now I yoga to increase bone density. Now I love yoga pilates when done using love yoga pilates when done using osteoporosis precautions but let's set osteoporosis precautions but let's set the record straight in terms of what you the record straight in terms of what you can achieve through yoga.

can achieve through yoga. >> Yeah. So I I don't my read of the >> Yeah. So I I don't my read of the evidence is that yoga is not something evidence is that yoga is not something that has been shown to be effective for that has been shown to be effective for improving bone mineral density nor has improving bone mineral density nor has it been shown to be effective for it been shown to be effective for preventing falls. So unfortunately so preventing falls. So unfortunately so and it's interesting because you would and it's interesting because you would think it would prevent falls but I think think it would prevent falls but I think one of the challenges in the yoga space one of the challenges in the yoga space is that there's so many different types is that there's so many different types of yoga and ways of applying it and it's of yoga and ways of applying it and it's often taught in a larger group setting often taught in a larger group setting where there's not the tailoring. And so where there's not the tailoring. And so I think that's part of the reason where I think that's part of the reason where you know whereas a lot of the fall you know whereas a lot of the fall prevention interventions are quite prevention interventions are quite tailored to people's abilities and tailored to people's abilities and progressive over time whereas a yoga progressive over time whereas a yoga intervention is less that. So my guess intervention is less that. So my guess is a it's not studied as much, b it's is a it's not studied as much, b it's not it doesn't have some of these not it doesn't have some of these characteristics or there the characteristics or there the interventions are more variable and that interventions are more variable and that it may not necessarily be you know it may not necessarily be you know including these exercises targeting including these exercises targeting specific specific aspects of balance and specific specific aspects of balance and then also tailoring it and progressing then also tailoring it and progressing it over time. So my that's my guess as it over time. So my that's my guess as to why the evidence hasn't isn't as to why the evidence hasn't isn't as strong for for yoga for fall prevention strong for for yoga for fall prevention and and definitely there isn't the and and definitely there isn't the evidence to show that it it can improve evidence to show that it it can improve bone density. So I I also occasionally bone density. So I I also occasionally enjoy yoga. I think it's something that enjoy yoga. I think it's something that if you enjoy it and you can do it safely if you enjoy it and you can do it safely like by all means just don't do it like by all means just don't do it instead of the balance and functional instead of the balance and functional training to prevent falls and or design training to prevent falls and or design your yoga so it incorporates aspects to your yoga so it incorporates aspects to challenge those aspects of balance challenge those aspects of balance similar to so challenging anticipatory similar to so challenging

anticipatory control dynamic stability reactive control dynamic stability reactive control those sorts of things and and control those sorts of things and and also like don't do it instead of also like don't do it instead of strength training impact training if strength training impact training if your goal is improving bone density.

your goal is improving bone density. Okay. So, what other things is there Okay. So, what other things is there anything else before we end that you anything else before we end that you want to share with people that is want to share with people that is important from your perspective as a important from your perspective as a researcher solely on exercise? So, researcher solely on exercise?

How to tell good bone-health information from hype

So, that's what you know this is what you do that's what you know this is what you do and so is there anything else that I and so is there anything else that I miss that you think is really important miss that you think is really important to share? Yeah, I think a lot of people to share? Yeah, I think a lot of people are getting their information from, you are getting their information from, you know, social media, from AI, a bunch of know, social media, from AI, a bunch of places. And, you know, the information places. And, you know, the information is only as good as the like root source, is only as good as the like root source, right? And so, unfortunately, even right? And so, unfortunately, even people who are interpreting science, people who are interpreting science, there's a lot of studies that are not there's a lot of studies that are not well done or not inter even the authors well done or not inter even the authors are not interpreting them correctly. And are not interpreting them correctly. And so then people are reading that science so then people are reading that science or AI is reading that science and or AI is reading that science and interpreting it in accordance with the interpreting it in accordance with the authors which so it's perpetuating these authors which so it's perpetuating these inaccurate interpretations. So you inaccurate interpretations. So you really if you want to know something really if you want to know something about an area you really have to follow about an area you really have to follow or seek out the science as interpreted or seek out the science as interpreted by a real expert in that area and it's by a real expert in that area and it's getting increasingly difficult to getting increasingly difficult to identify experts in those areas. So I identify experts in those areas. So I think and and maybe even triangulating think and and maybe even triangulating and so when you hear people saying and so when you hear people saying different things like what are these the different things like what are these the nuances and I think if someone is saying nuances and I think if someone is saying stuff and there isn't nuance if they're stuff and there isn't nuance if they're not saying this is where we have high not saying this is where we have high certainty and this is where we don't or certainty and this is where we don't or this is kind of if they're not waffling this is kind of if they're not waffling at all if they're saying number one way at all if they're saying number one way to do this and this is the only way like to do this and this is the only way like this is where you would start to this is where you would start to question I think so you know and and the question I think so you know and and the problem is like I'm a scientist and I problem is like I'm a scientist and I I'm on social media and we do try to I'm on social media and we do try to post things we have a YouTube channel post things we have a YouTube channel Bones Lab we have everyone why don't you Bones Lab we have everyone why don't you Just it'll be in the show notes, but Just it'll be in the show notes, but just tell everyone the URL. This is just tell everyone the URL. This is really good.

really good. >> Yeah. So, we have an a website. It's >> Yeah. So, we have an a website. It's boneslab.ca boneslab.ca boneslab.ca and we actually have a newsletter that and we actually have a newsletter that we send out a few times a year where we we send out a few times a year where we tell people about new blog posts or new tell people about new blog posts or new information or if there's a new study information or if there's a new study happening and they can actually sign up happening and they can actually sign up for our newsletter on that web page. And for our newsletter on that web page. And then we will also post content then we will also post content occasionally like we create infographics occasionally like we create infographics or other things and we'll post them or other things and we'll post them there. So, if people want to stay there. So, if people want to stay informed around what we're doing, that's informed around what we're doing, that's the best way is to sign up for our the best way is to sign up for our newsletter and use that and and navigate newsletter and use that and and navigate our website in addition to our social our website in addition to our social media channels.

media channels. >> Oh, that's great. I'll have all of that >> Oh, that's great. I'll have all of that in the show notes for everybody. in the show notes for everybody.

>> But I don't as a scientist have a lot of >> But I don't as a scientist have a lot of time to carve out to do social media time to carve out to do social media stuff. So, I try to do it and put it out stuff. So, I try to do it and put it out there, but ultimately like it is really there, but ultimately like it is really challenging for scientists to to have challenging for scientists to to have that time to put stuff out there. So, so that time to put stuff out there. So, so you do want to try to find accurate you do want to try to find accurate sources, but also there's give us that sources, but also there's give us that grace that we don't always have time to grace that we don't always have time to post every day and you know we don't post every day and you know we don't always have all the answers. So, I think always have all the answers. So, I think you know hopefully we'll have additional you know hopefully we'll have additional findings to share with you in a year, findings to share with you in a year, you know, as we analyze the results of you know, as we analyze the results of some of our studies. But I'm happy to some of our studies. But I'm happy to >> happy to to chat again for sure. Oh, >> happy to to chat again for sure. Oh, well this has been so wonderful and I well this has been so wonderful and I always appreciate taking the time to always appreciate taking the time to share this with us and Osteoporosis share this with us and Osteoporosis Canada has really done a good job and Canada has really done a good job and added so much to the conversation and I added so much to the conversation and I just you know I'm very appreciative of just you know I'm very appreciative of everything they've done in terms of and everything they've done in terms of and you know the bones lab and it's really you know the bones lab and it's really wonderful that your you know what your wonderful that your you know what your mission is and you know it's I think mission is and you know it's I think everybody appreciates that. So, we're everybody appreciates that. So, we're very grateful to you.

very grateful to you. >> Yeah. Thanks very much. We, you know, >> Yeah. Thanks very much. We, you know, it's I'm very passionate about making it's I'm very passionate about making sure that we share the science that we sure that we share the science that we do. So, want to continue doing that and do. So, want to continue doing that and yeah.

yeah. yeah. >> Oh, well, thank you so much. It's always >> Oh, well, thank you so much. It's always a pleasure and hopefully I'll see you a pleasure and hopefully I'll see you less in less time than I think last time less in less time than I think last time was maybe three years or so that you was maybe three years or so that you came on the summit. So, yeah.

came on the summit. So, yeah. >> No, thanks for having me. It's been a >> No, thanks for having me. It's been a pleasure. pleasure. pleasure. >> Oh, thanks so much, Laura.

>> Oh, thanks so much, Laura. So now you've heard it straight from the So now you've heard it straight from the scientist. So at the end of the day, scientist. So at the end of the day, what did she recommend? Number one, what did she recommend? Number one, balance exercises to prevent falls and balance exercises to prevent falls and fractures and all the different types.

fractures and all the different types. Number two, strength resistance and Number two, strength resistance and impact training. But again, doing that impact training. But again, doing that very safely, starting slow, meeting you very safely, starting slow, meeting you where you're at. And I always think if where you're at. And I always think if you can to have a physical therapist or you can to have a physical therapist or have someone assist you with that to have someone assist you with that to make sure you're doing it safely. And make sure you're doing it safely. And then we talked about the different then we talked about the different things that are available and what is things that are available and what is the research on them. And I think this the research on them. And I think this is an important point because it's so is an important point because it's so easy to want to oh yeah that sounds easy to want to oh yeah that sounds great just go ahead and get something.

great just go ahead and get something. But as I as she said we need to really But as I as she said we need to really look at the research and really see look at the research and really see what's been shown. And that's what I try what's been shown. And that's what I try to do because knowledge is power and we to do because knowledge is power and we want to put our efforts into things that want to put our efforts into things that work. And the good news though, because work. And the good news though, because I've been doing this now with bone I've been doing this now with bone health for, you know, for over 30 years, health for, you know, for over 30 years, that when you do, things do improve and that when you do, things do improve and it's just such a win-win is what I see it's just

such a win-win is what I see on a daily basis. So, thank you so much on a daily basis. So, thank you so much for tuning in. And for those who don't for tuning in. And for those who don't know, I do have a membership program know, I do have a membership program where every month we have a 2hour Q&A where every month we have a 2hour Q&A where if you have questions on different where if you have questions on different devices, what do you think? I answer devices, what do you think? I answer those with the research. So feel free to those with the research. So feel free to look into that. It's called the Happy look into that. It's called the Happy Bones Club. And you know, if you join, Bones Club. And you know, if you join, we have so much fun. It's full of all we have so much fun. It's full of all sorts of good things. But anyway, thank sorts of good things. But anyway, thank you so much for tuning in and I [music] you so much for tuning in and I [music] look forward to seeing you on the next look forward to seeing you on the next episode.