

Exercise to Fight Osteoporosis and Protect Your Bones

With Rebekah Rotstein, Founder, Buff Bones®

National Webinar Transcript

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Presented by:



SHARSHERET

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Disclaimer: THE RECORDING OF THIS PROGRAM HAD A DELAYED START. THESE ARE THE OPENING REMARKS. INDICATION OF WHERE THE RECORDING BEGINS IS ON PAGE 3.

Eve Kleinerman:

I want to thank everyone for joining Sharsheret today, for this important program on Bone Health. I am Eve Kleinerman, Sharsheret's Illinois Regional Director. Tonight we will be learning from Rebekah Rotstein about the relationship between bone health and fitness and how to protect your bones during and after cancer treatment.

Eve Kleinerman:

We are grateful to tonight's webinar sponsors, AMGEN and the Cooperative Agreement DP19-1906 from the Centers for Disease Control and Prevention. It is thanks to their support that we have been able to provide this series of 3 webinars focused on Bone Health.

Eve Kleinerman:

Before we begin, a few housekeeping items: Today's webinar is being recorded and will be posted on Sharsheret's website along with a transcript. Participant faces and names will NOT be in the recording. If you would like to remain private, you can turn off your video, and rename yourself. Or you can call in to the webinar. Instructions are in the chat box now for both options. You may have noticed that you were muted upon entering the Zoom, please stay muted during the call. If you have any questions, please feel free to send them in the chat box. We recommend you keep your screen on 'speaker view.' This will enable you to see the presentation more clearly. You can find this option in the upper right hand corner of your screen.

Eve Kleinerman:

As I mentioned before, today's webinar is part of a series on Bone Health. Over the course of these 3 webinars, we have provided an overview of what impacts bone health, how cancer treatment affects your bones, and what you can do to keep your bones healthy and strong before, during and after treatment. These webinars focused on potential treatments for bones impacted by cancer treatment, Bone Health and Nutrition and tonight's Bone Health and Fitness.

Eve Kleinerman:

Our follow up email with the recording and transcript of today's program will also include an informational resource with 3 osteo-safe exercises for bone strengthening and balance. If you'd like to learn more about osteoporosis and cancer, Sharsheret has a great survivorship kit that comes with an exercise band as well as additional information about bone health and osteoporosis. If you have further questions, our social workers are always here to provide you with additional resources.

Eve Kleinerman:

As we move into the webinar itself, I also want to remind you that Sharsheret is a national not for profit cancer support and education organization and does not provide any medical advice or perform any

medical procedures. The information provided by Sharsheret is not a substitute for medical advice or treatment for specific medical conditions. You should not use this information to diagnose or treat a health problem. If you have any questions that are specific to your medical care, you may be advised that you speak to your medical provider. Always seek the advice of your physician or qualified health provider with any questions you may have regarding a medical condition.

Eve Kleinerman:

Now, before we begin the program, I want to introduce Renee, who will be sharing her story with us.

Renee:

My story began about 13 years ago when I found out I was a carrier for the BRCA gene. My mother who had breast cancer at the age of 52 was actually advised by my doctor, even after she finished all her treatment, to get tested for the BRCA gene. She tested positive for BRCA2 and so did my aunt. All of my siblings and cousins then needed to get tested. Only my brother and I tested positive for the BRCA2 gene. Because of my test results, I immediately scheduled my first mammogram and ultrasound at age 32. My mammogram did not detect anything suspicious.

(RECORDING BEGINS HERE)

Renee:

However, the doctor mentioned that I should also do an ultrasound because that is how my mother's breast cancer was found. He performed a thorough ultrasound in order to establish a baseline image. He scanned my whole chest and neck area, and even under my arms. It so happens that at my first ultrasound, he saw something suspicious on my neck. He performed a biopsy and I tested positive for thyroid cancer.

Renee:

I went through a series of emotions from anger and frustration to anxiety. Not only did I test positive for the BRCA gene and have to worry about the high chance of getting breast cancer, I now had thyroid cancer. My mother said that the BRCA diagnosis was meant to be and that it saved my life. If I didn't go for an ultrasound at 32, I would not have gone for my first breast cancer screening until at least the age of 40 and my thyroid cancer may have been too advanced.

Renee:

I did not have the time to deal with my emotions since I had to schedule surgery immediately to remove my thyroid tumor. After my recovery, my breast cancer screening became a series of appointments, which ranged from a mammogram, an ultrasound, blood work, a routine physical exam and an MRI every six months. I was carefully monitored for any changes to my breast tissue and became accustomed to this whole process.

Renee:

At first, I was angry that I was the only young woman in my family that was BRCA positive, but then I realized I had the power to be in control of my health. At this point, I did not reach out to anybody. I was very reserved about my situation and I really just leaned on my family for support. I knew there were other people out there that may have been going through what I was going through, but I was so caught

up in the day to day of working and running a household. It was lonely and isolating at times, but I had my routine.

Renee:

About nine years ago at the age of 36, I made the decision to remove my ovaries once I decided that I was finished with having children. This minor simple surgery was strongly encouraged to mitigate my risk of cancer. I'm now fast forwarding the story to about four years later when I approached the age of 40 and the doctors recommended a second surgery, a prophylactic double mastectomy to greatly decrease my chance of being diagnosed with breast cancer.

Renee:

The doctor suggests that having the surgery about 10 years before the age of the first breast cancer diagnosis in the family. I was making my son's bar mitzvah the same year and I could not give this decision the full attention that it needed. I pushed it off for another year and it all came to a head the day my son's bar mitzvah was over. The breast imaging radiologist who I've been seeing for the past nine years and the one who actually caught my thyroid cancer announced his retirement.

Renee:

I took this as a sign that it's the right time to do the surgery. Although I'd already gone through two surgeries since my diagnosis between my thyroid and my ovaries, this decision somehow seems more daunting, but also seems to be the final step of becoming part of the 95% of people who reduced the risk of breast cancer by having the surgery.

Renee:

While this surgery came with its own set of emotions and complications, I want to focus back on the four years prior to making this decision when I chose to have my ovaries removed. I was told I was highly likely to get osteoporosis based on my family history and my thin frame immediately after removing my ovaries, and I did. I was a 36 year old postmenopausal woman with osteopenia bordering on osteoporosis.

Renee:

Because of the breast cancer history, I couldn't go on hormone therapy and I had to figure out a plan to manage my osteoporosis. I was overwhelmed, I began to go through all the emotions that I went through years before when I was first diagnosed with the BRCA gene. I was angry, frustrated, and upset that I had to make yet another set of decisions about my health.

Renee:

Although this time I wasn't surprised by the diagnosis because both my mother and grandmother also had osteoporosis and both broke their hips at a young age, I knew the only way I could live with it was to look at the changes in my routine as something positive and not something to be fearful of. I followed all the recommendations of taking calcium and vitamin D supplements.

Renee:

I increased my diet with foods rich in calcium like almonds, broccoli, and yogurt smoothies. I avoid salty foods. I even added collagen to my coffee in the morning, and I tried to have salmon at least once a

week. I enjoy having fruits loaded with vitamin C which have been proven to increase bone density. I love having apples, strawberries and bananas.

Renee:

While working full time presents the challenge of finding time to do weight bearing exercise, I work from home, so I always try to find 15 to 30 minutes of exercise like Pilates, walking or running outside, even doing some type of dance video, even doing 30 jumping jacks before I start making dinner, or before I get into the shower is highly effective. I guess I should also consider myself lucky that I run up and down the stairs multiple times a day cleaning up after my children as climbing stairs is also a highly recommended exercise for osteoporosis.

Renee:

My doctor actually said that swimming and biking are not beneficial from an osteoporosis standpoint, but I should not rule it out as an enjoyable activity overall for my health. At this point, I had an orthopedic endocrinologist following my care, managing my thyroid and my bone issues. I go for an annual bone density test and blood work to monitor any fluctuations of my osteopenia. Although I follow all the recommendations, the doctors still wanted to put me on medication because of my age and because diet and exercise alone are still not enough to slope my bone loss.

Renee:

I went on Fosamax and was carefully monitored because patients generally do not stay on this medication for long period of time due to its side effects. I was on again and off again every six months for about three years. There are studies that suggest that Fosamax continues to protect bones even up to a decade after use. I of course suffered from the side effects that only a minor amount of people experience, which was severe joint pain. I had to then add ibuprofen to my routine to manage the pain.

Renee:

After a few years, I broke down to my doctor and I said, "I may look great on the outside with diet and exercise, but I do not feel great on the inside. There has to be another way." I kept saying I'm a 65 year old trapped in a 40 year old body. She recommended a once a year IV infusion called Reclast. Of course, I experienced the flu-like symptoms that only last about a week, but it was worth the trade off.

Renee:

I felt like myself again, and although my joint pain is still present, it is greatly diminished and it does not interrupt my daily life anymore. While I understood the need to be very aggressive initially with my bone age for the first five years, the changes that I've made have really been positive overall. And yes, it's true, when I walk or I run outside, I have to be very mindful to go on a day when there's no leaves in the way or when the ground is not wet, because I have to eliminate any factors that could add to the risk of falling due to the increased risk of fractures that come with osteoporosis.

Renee:

I will never forget one summer vacation with my family in Maryland. I lost control of the Segway and I was on and I went right into the boardwalk bench and I fell really hard on my hip, my hands and my knee. I immediately got up and although I was in pain, I needed nothing more than an ice pack, and I was really lucky that I didn't even sprain anything.

Renee:

I told my doctor and she said, "See, you're stronger than you think." So my message tonight really here to everyone is that the guidelines of nutrition, supplements, and medication are life changing and they could be positive and beneficial to your overall health. It is not something that I think about anymore on a daily basis, it's just something that I do automatically.

Renee:

I am now in a place both emotionally and physically where osteoporosis does not dictate my life, it's just a part of my life. While COVID did disrupt my infusion schedule, I am now back on track with my doctor who's managing my care while I manage the day to day. I really choose not to focus on the fact that it's my genetic fate, but that the health circumstances I face give me the knowledge and the power to be in control. I chose to speak about my story tonight through Sharsheret and hopefully I could be there to help any of you tonight as well. Thank you.

Eve Kleinerman:

Thank you, Renee. Thank you so much for sharing your story. That was wonderful.

Renee:

Thank you.

Eve Kleinerman:

And now this evening, I am honored to introduce Rebekah Rotstein. Rebekah is an industry leader for Pilates, bone health and movement education. She is the founder of Buff Bones exercise system for bone and joint health with trained instructors in more than 30 countries. She's a former ballet dancer and Rebekah worked in the sports medicine department of Smith College as a student athletic trainer.

Eve Kleinerman:

A diagnosis of osteoporosis at age 28 motivated her to advocate for others with low bone mass and to provide innovative education and programming for them. She has presented at numerous conferences in the Pilates industry at the International Osteoporosis Foundation worldwide conference, and for the International Association for Dance Medicine & Science.

Eve Kleinerman:

Rebekah is a member of the bone health working group of the Society for Women's Health Research and is a member of the ambassador leadership council for the Bone Health & Osteoporosis Foundation, an ambassador for American Bone Health, and has worked as a partner in the US Department of Health and Human Services Office of Women's Health. Rebekah, thank you so much, and this screen is all yours.

Rebekah Rotstein:

Great. Thank you very much. I'm very, very happy to be here and I want to thank Sharsheret for inviting me. Couple things I want to start off with. One is that this is all so personal for me in the sense that my mother's a breast cancer survivor. And I'm honored to do anything that supports other women who've gone through this because I've witnessed firsthand as a caregiver, as a loved one, the challenges that you all face. So I have a tremendous amount of admiration and respect for you who are here today.

Rebekah Rotstein:

And secondly, I want to thank you Renee for that very moving presentation. And it's interesting as somebody who's gone through my own health conditions with osteoporosis, I very much relate to the fear and anger and frustration that you experienced. And thankfully, I never had a fracture so I wasn't even having to deal with the treatments that you were going through. So thank you so much for sharing what you did and what you've gone through.

Rebekah Rotstein:

Well, I'm going to begin my presentation. I'm going to share my screen with everybody. So before we do begin and I take the picture off of me and the focus off of me, I'm going to give you a presentation and a background and some information that I think will be very useful for you before we actually apply it. So I think one of the challenges that occurs when people talk about something that is exercise based is there's no kinesthetic component, there's no actual physical representation or experience of everything that you're intellectually learning about.

Rebekah Rotstein:

It becomes very cerebral, which is great, but once you embody it and start to experience movement, I think it changes the... Well, it changes the experience for you. So we are going to do some movement, a short class that will be in a chair and you'll have a towel handy. And in between the two, I'm going to pause just for a moment as I stop my screen and move myself over to the area where you can see me move.

Rebekah Rotstein:

So we are going to get started here as I share my screen with you so bear with me here. And I'm going to move one other thing, and here we go. I just have to move this little part out of the way. So we're talking here tonight about exercise to fight osteoporosis and to protect your bones. So you already are aware that exercise is one of the key components of lifestyle, ways to manage and treat bone density and not just bone densities, we're going to talk about today, but bone health, overall bone health, that really is something that has to be addressed throughout the lifespan.

Rebekah Rotstein:

But you are here today specifically because you've hit a certain point in your life where you have, or you've known somebody who has been affected by cancer, and cancer can have a really deleterious effect on the state of your bones. So let's talk a little bit about what all this means. Here we go. So what are healthy bones?

Rebekah Rotstein:

Well, there's a bunch of different things that we can think of. Most people think, "Oh, it means that they're strong." Absolutely, but also very frequently people think dense. And density is a very, very important factor of what makes for strong bones, but it's not the only one. And there's some misleading information and findings about what that relates to. So I'll come back to that in a little bit.

Rebekah Rotstein:

But we do want our bones to be dense, but we don't want them to be excessively hard. So often we think of dense bones as very stiff and rigid, but it's not just a rigidity. So you have calcium and hard

mineral salts that comprise your bones, which give it that rigidity and density. But there's also a very important aspect of your bones, which is often overlooked, which is the collagenous component.

Rebekah Rotstein:

So collagen is an important component that makes up the bone tissue as well. And that is what gives it its resiliency and bit of flexibility, if you will. So if you were to take a pencil or a pen, you might notice that because it's not very thick, it does have... It's stiff, right? It's rigid, but it has just a little bit of yield. There's just a little bit of give here.

Rebekah Rotstein:

So I like to use that as a little bit of a metaphor to explain that we don't just want rigidity. We need to have some of this flexibility in the tissue as well. And that's partly what makes them adaptive and resilient. But the other thing that makes them adaptive and resilient is the metabolic component, how bones are constantly going through this remodeling process. And I liken the remodeling process to a really nice exfoliation.

Rebekah Rotstein:

So if you are getting a facial, one of the things that's happening is they're removing the old skin cells, so to speak, right? To make way for new fresh cells to come in and tissue essentially. That's also what happens in bone tissue. So there's this constant destruction cycle and a rejuvenation or a formation process that's happening throughout your life. It happens at different rates at different points in life.

Rebekah Rotstein:

And since our focus is here on exercise, I'm not going to go too much into this, but you may have heard about this when the physician was talking to you about osteoporosis. So we're getting a little bit into the science part and I'm not going to get too much into that today. But to understand that healthy bone tissue is constantly remodeling, and that's something that I will come back to slightly later.

Rebekah Rotstein:

So also, what do you think of when you think of strong bones? You think of things that are supportive for sure, right? That your skeleton gives you the ability to be upright, but certainly protective. So if you think of your two most important organs in your body without which you could not survive, your heart, right? As well as your brain, without those two organs, you would not be able to live.

Rebekah Rotstein:

And what is it that protects those? The ribcage and the skull, the cranium. So there's certainly protective element. Then I mentioned when I was mentioning the remodeling process, this is also what I was talking about when I say rejuvenating. Then there's the structural component that gives us that portion of our shape. But when it comes to movement, there's also this aspect of distribution of force.

Rebekah Rotstein:

So the ability to absorb force, the ability to distribute, disseminate force is also huge in what our bones do and how it operates through our ability to move. Then bones are also silos for calcium because about 99% of the calcium in your body is stored in your bones, whereas that pretty much more or less 1% is running through your bloodstream for vital organ functioning.

Rebekah Rotstein:

And then they're also hormone producers. So this is an interesting one because it kind of makes bone tissue go outside of the skeletal category and into endocrine world, right? And you're very familiar with your endocrine system and your hormones, hormonal structures and system because of everything that you've also had to deal with. So bone also is a producer of something called osteocalcin and that hormone, which has only really been identified in more recent decades is produced within the bone tissue.

Rebekah Rotstein:

I'm going to go onto my next slide here. So it's really important to identify and to recognize that we can benefit our bones at any age and at any stage in life. It is never too early, but it's also never too late. Now I want to explain how it is that muscle, like why exercise actually works, and it has to do with the mechanical loading. Again, to keep this really simple and basic, there's two big components that come into play.

Rebekah Rotstein:

One is gravity. So working your body in an upright position or on all fours in which case you're working your wrist against gravity is very helpful and beneficial to the bone, but also the pulling sensation of, not even sensation, but the act of pulling of the muscles and the connective tissue known as fascia against the bone is what also helps stimulate and produce these bone building effects.

Rebekah Rotstein:

And there's something that's called Wolff's law which is simply the theory and acknowledgement that external forces on bone are what will help strengthen it. So use it or lose it is a very appropriate mantra in this scenario. And so bones will adapt to these loads that you put upon them, but they will also only do it when you exceed a certain threshold.

Rebekah Rotstein:

And if you have too much of a threshold on a bone, it will break. So it's an interesting fine balance of how much you have to keep adding more weight onto your bones or pulling forces against your bones. And it's also, I wanted to point out that interestingly, a recent meta-analysis identified that women with osteoporosis and osteopenia may actually have better bone building effects or bone effects on their bone from exercise than younger women.

Rebekah Rotstein:

So in case you think I haven't been doing this, it's too late, recognize that research is also showing it's definitely not. Now we also have to identify though and acknowledge that not all exercise is necessarily good. When there's osteoporosis or low bone mass, certain movements are considered contraindicated or could be potentially damaging. So we're talking about loaded flexion exercises, flexion of the upper spine, so like a forward bending type of movement unfortunately, that you find very frequently in a Pilates mat class.

Rebekah Rotstein:

So I want you to identify and recognize that Pilates can be a wonderful intervention for osteoporosis, but it needs to be modified appropriately. So you would not be wanting to do something like you see

Joseph Pilates doing here at the top of the picture of the screen. Or this is also a common exercise in certain types of yoga, like a yoga plow pose, you don't want to be doing that.

Rebekah Rotstein:

Also what we advise is not lifting the head and doing something like a crunch like you kind of see on the bottom left picture. Instead, there's so many other exercises that you can be doing and that are indicated where you will be benefiting your bones and you can still be getting the "abdominal benefits" that you might be seeking out in other aspects.

Rebekah Rotstein:

So there's other ways that you can do some of these exercises that are still safe for your body, but are also going to be really beneficial. So if we think and we talk about where most fractures occur... Oh, and actually before I mention this, I do want to say one other thing that is interesting of what things are not quite so beneficial to bone. It was mentioned before about swimming.

Rebekah Rotstein:

Well, actually there is a new and recent study that has looked at swimming, which I'll come back to interestingly in a moment and it's turning some of the findings and the past research that we've heard about on our heads. So we will come back to what types of exercise are better and what are not as useful. So let's look at where most fractures occur with osteoporosis. There's three common sites, the hip, the spine, and the wrist.

Rebekah Rotstein:

And I want to be really clear that when we're talking about the hip, it's really the femur or the top of the thigh bone. It is not the pelvis, although the pelvis can be a site of fracture that when you hear about a fracture of the hip, it's actually the top of the thigh bone. And then when you hear about the spine, it's not and you might say, "Oh, I was told that I have low bone mass in my neck."

Rebekah Rotstein:

It's not your neck of your spine. What you might be thinking of is the neck of the femur, which is the part of the hip where there's a reading of the bone density called a DEXA, which is, it stands for dual x-ray absorb geometry. It's a very, very low radiation x-ray that is what is used to help diagnose osteoporosis. So I just want to clear that up because that's a really common misconception.

Rebekah Rotstein:

Additionally, when we're talking though about exercise, because these are the three common most sites of fracture, these are also the areas that we want to target when we're trying to strengthen the bones. So we want to be "site specific" in our exercise approach so that we are very targeted in trying to strengthen the spine, strengthen the wrist and strengthen the hip.

Rebekah Rotstein:

And one of the things that I advocate for in my program is a full body approach so that you are working the entire body as a whole and you're integrating all these aspects in addition to just working site specifically. So let's look for a moment and talk about what the physical activity guidelines are in the United States. Well, the US Department of Health and Human Services advocates for at least 150

minutes to 300 minutes a week which is really about two and a half to five hours a week of moderate to intense aerobic activity, brisk walking, or fast dancing.

Rebekah Rotstein:

So this comes out to about a half an hour a day over the course of five days. In other words, we're also thinking about just upright weight bearing activity, which I'll explain what that is in a moment. It also advocates for muscle strengthening activities two days a week. So whether it's lifting weights or pushing your body weight.

Rebekah Rotstein:

And in case you think, "Well, I don't have weights at home," I'm going to show you why that's not an excuse. So I'm going to give you an example here of my mother. She's about to turn 76 next month, but look at all these options she has. So here's how she modifies it. So she is, as I mentioned, she's a breast cancer survivor and she also has osteoporosis and she is my osteoporosis role model.

Rebekah Rotstein:

And she really does represent so much what I want to advocate for everybody in terms of what is possible and allowing yourself to try to overcome any kind of obstacles that do come your way. And you'll see as we go on all the different things that really are an option no matter what your level is. Oops, sorry. Don't want to do that. I want to go to the next screen. So excuse me. There we go.

Rebekah Rotstein:

So what type of exercise is best literally for bone health? And this is where it gets very interesting and sometimes confusing. Research has shown us over the years that really what is the best is what's considered a multimodal approach. And not only does the Bone Health & Osteoporosis Foundation here in the US advocate for that, but also a consensus paper was published back in 2014, I believe it was, that came out of Canada.

Rebekah Rotstein:

And I should say talking and resulting from physicians and physical therapists and experts around the world and what their findings were, was literally that a combination of weight bearing of resistance training, of balance training, posture training, and functional training is what we need to do. Now, generally it stated that weight bearing and impact around five to seven days a week is advocated, resistance training, about two to three days a week.

Rebekah Rotstein:

Now again, weight bearing is where you're standing upright, where you're getting the forces of gravity through your entire skeleton. You're also having the impact of your bones. Every time you strike your heel when you walk, it's a ground reaction force that transmits through your body that stimulates and fortifies your bones.

Rebekah Rotstein:

Resistance training includes using bands, using weights, using even your own body weight. In Pilates, we use springs. So creating additional resistance for your muscles to work against. Balance training, pretty obvious, so what we're talking about, posture training also how your alignment works. And functional

training is related to things that replicate or mimic daily movements so squats, lunges, even pushups, for instance. So things that mimic things that you're going to do in your daily life.

Rebekah Rotstein:

Now balance is often recommended for about two hours a week and that the two fit to fracture this consensus that I had mentioned previously also advocates aerobic work about three to five days a week for about 30 to 60 minutes. Now, interestingly, in terms of bone mineral density specifically, I'll come back in that to a moment, but impact training and high intensity resistance training has shown to have the biggest of osteogenic effects or effects on bone density changes.

Rebekah Rotstein:

But really the big thing to keep thinking about is something what we call the load principle, and it's that you need to consistently increase your load to be having continuous adaptive changes. So one of the big things to take away is that your bone is constantly changing or your bones are constantly changing. And I believe it's every seven to 10 years you have a new skeleton because of these constant continuous changes.

Rebekah Rotstein:

But your body needs to continuously be stimulated so you need to change up your program. You can't do a single DVD for 10 years of your life because your bones are going to get used to it and they're just going to get really lazy. So you need to keep surprising them. Now, other things though to consider. How do you start? Where do you start? How do you even develop the strength and control to do the kind of heavy loading that is being advocated? And what do you do if you have other injuries?

Rebekah Rotstein:

So I'm going to share with you principles that I advocate that are a part of my program that we're going to be looking at today, and that really our general program advocacy, or I should say, let me rephrase that, these are general parts of and elements of principles that are advocated throughout. So we're talking about safety and strength for your hips. So as I mentioned, anytime you overload a bone, it could be too much for that threshold to sustain.

Rebekah Rotstein:

So you don't want to risk fracturing a bone, but you need to find the sweet spot of how you get enough strength through your bones that they'll be protective and adaptive. So one of the movements that we're going to practice here is a hip hinge that you're seeing me do right here, a much younger version of me, but yet a version of me. Another one is back strength and alignment. And research has continuously shown the importance of back strength and back extensor strength to not only stop fractures, but also to stop falls.

Rebekah Rotstein:

Balance and core control. This is also important to prevent falls, but also something about the core control, this idea of your center, this area, some people will define it as the area from say, your rib cage down through your pelvis, others will define it as everything that is along and attaching to your skeleton. But that you have to have this sense of strength, but not just strength but control. And this is how your

nervous system dictates to your muscles how to operate. So it can get really complex, but we're going to keep it really simple in the way we apply it.

Rebekah Rotstein:

Function and mobility. So here's one of the things to keep in mind about strength training. You can be super strong and even have crazy dense bones, but if you do not have the ability to turn around to reach for things, to grab objects, in other words, mobility that is applicable to your daily life, it's not going to be that useful for you. You need to have these skills of mobility, which is essentially flexibility that is useful that will apply to your life and make your life easier.

Rebekah Rotstein:

So I'm going to go back to this idea of the hip hinge. So we're going to look at this shortly and right here, we're talking about how you move from your hips and not from your spine. So we don't want to be bending from the spine, we want to bend from the hips, how you move from your knees, not necessarily from your back. And I'm going to just move forward right away here to give you one other thing before we start moving more, which is about recent research here, because this is one of the things that I've been asked about so I want to share this with you.

Rebekah Rotstein:

Bone density, in terms of bone density, which is the thing that is most often asked about and talked about, that for many years, it was thought that this could be useful simply to prevent bone loss, but that it can't actually increase bone mass. And that has actually been shown not to be the case in more recent years. And a new meta-analysis came out in the last two years that looked at 74 studies, which is exciting because we haven't historically had the quantity of studies that is necessary to give enough validity and credibility to exercise when it comes to osteoporosis and bone health.

Rebekah Rotstein:

And so the findings in here was a positive effects of exercise regardless of the type of exercise was the big takeaway. So whether it was looking at just weight bearing, just resistance training or a combination of all of them. And the big challenge though in that is that it's really hard to specify the type of exercise in terms of what is the magnitude, the rate, how long, how often, like how many reps, the cycle, how long of a rest period.

Rebekah Rotstein:

So there's not a specific answer for you. That's one of the big questions. What's the one thing that you should be doing? And my big takeaway is there's not one thing. In 2017, a pretty groundbreaking study came out looking at high intensity progressive risk resistance training and impact loading with postmenopausal women who are at risk of osteoporosis. And it was looking over eight months.

Rebekah Rotstein:

And it used two sessions per week at very high loads and it found that they were able to increase their lumbar spine, so their spine, as well as the hip bone mineral density, as well as muscle strength and functional performance. And it was rather groundbreaking because the amounts, the quantity of weight that they were lifting was very, very high and it had previously thought that this would just make people fracture and it wasn't.

Rebekah Rotstein:

And yet, interestingly, we don't know about the rebound loss. So in other words, how long do you have to do it for? How long will that last? We don't have an answer for you on that. Also a problem with this study here is that it's not necessarily a... And the next study I'm about to show you is that it's not necessarily a normal sample because they were excluding people that had comorbidities, so other conditions going on.

Rebekah Rotstein:

So does that necessarily translate is the problem to the general public. But these are things that are being looked at right now. And then the final thing I wanted to point out is just last year, that same group that published that study did a comparison study comparing Buff Bones, which is the program I've created and this other protocol, the high intensity protocol. Both of them were able. And so the protocol that we're going to be looking at today is not high intensity progressive resistance training.

Rebekah Rotstein:

It's a mind body based program that looks at or uses strength, mobility, function, and coordination as the skill sets that we're working on. And both though were able to improve muscular strength and functional performance. And then when using medication in conjunction, there was also improvement in the lumbar spine in bone density although there was more improvement in the lumbar spine for the group that was doing the high intensity training.

Rebekah Rotstein:

And then also in that one, they did find that the one that was doing the high intensity training increased their bone density in the lumbar spine even without medication, but they were not able to find improvements in the hip. Next. So I want to end this little part of the presentation before we move about the understanding and this discussion of density versus just fracture focus.

Rebekah Rotstein:

I was recently part of a round table that was looking at national guidelines and clinical recommendations that we should perhaps be advocating and adopting for bone density. And one of the big takeaways during this is that osteoporosis is something that we should be addressing throughout the entire lifespan. It is not something that we should just consider once it becomes an issue, whether that's because of menopause or because of secondary osteoporosis, meaning it's related to other conditions, cancer being one of them and side effects from cancer treatments.

Rebekah Rotstein:

Additionally, there needs to be greater emphasis on lifestyle choices, exercise being one of them. And so one of the things that I want to explain from my point of view is that density has its place and we need to focus on density, but you can also have very dense bones and we've seen from research that there are actually more occurrences of fractures in people with osteopenia than osteoporosis.

Rebekah Rotstein:

So people who have higher bone density than lower bone density, there's more fractures that are occurring. So it's not just a case of bone density that we need to consider. So I'd like to shift more of the focus onto fracture prevention. And how do we avoid and prevent fractures? The biggest thing is we

prevent falls and we also take into account these other skill sets that we're practicing and that we're about to embark on.

Rebekah Rotstein:

One final thing that I wanted to get back to, I had a note on here that I was going to share with you about the question of swimming. And I thought this was very interesting. I just came across a study that was published this year that suggests because for years we've been told that bicycling and swimming are great if you want to do them, but they're not going to be helpful for your bones. And there's now suggestion that swimming may actually affect bone mineral density and that it can increase bone turnover markers in postmenopausal women if done for three to six hours a week.

Rebekah Rotstein:

So you'd need to be doing a lot for it. But if swimming is your thing, there's hope that that actually might have some osteogenic effects for you. So don't discount it if you're an avid swimmer. So pause with me for one minute. I'm going to switch gears here and bring you into the studio area. So I'm going to turn off my screen share, and I am going to stop my video.

Rebekah Rotstein:

So in this one minute break, grab a glass of water, take off your shoes. Preferably take off your socks so that you don't slip. Grab your chair and grab your towel. I will see you in just a moment. Okay. And I would like to just ask my colleagues at Sharsheret, can you give me a time check of how much time we have now?

Eve Kleinerman:

I would say about six to seven minutes.

Rebekah Rotstein:

Okay, we will move quickly then. All right, we're going to start here seated in our chair, seated at the very front. So when I'm talking about the front, you're not leaning against the back, you're at the very front of your seat. And you're going to take your towel and you're going to roll it up here. Let me scoot back so you have a little bit of a better view of me.

Rebekah Rotstein:

Plant your feet straight out in front of you toes facing forward, and you're going to lift your towel straight out in front of. Pull it tight and lower down, lift it up and lower down. You're going to do this a couple times. We've decided to do a class that is mostly seated or standing, even though there are plenty of exercises and things that you can do on the ground as well. But for the sake here to make it easier for everybody, we're just going to go like this.

Rebekah Rotstein:

Now you're going to take that towel and you're going to place it behind your head. Press down into your feet, grow a little bit taller through the crown of your head, push your head back into the towel. Now notice how your shoulders could shrug and now notice how they could slowly relax. And again, shrug and relax. One more time, and shrug and relax.

Rebekah Rotstein:

Push your head back further. You're not leaning back, but you're starting to relax your shoulders. Now take a deep breath in through your nose and out through your mouth. Hinge forward and return back up. So here's the hinge we were talking about it before. Notice how I move from my pelvis here on my hip, but I'm not actually rounding the back. Let's do two more like that, and back up and once more and back up.

Rebekah Rotstein:

Now, lift your shoulders, lift the towel and bring it straight down in front of your knees. Pull straight back. You're going to feel the tricep, this area here right along the arms. And push down through your feet and inhale, exhale through your mouth, relax. Push through your feet, pull with your hands, inhale and exhale. One more time. Push through your feet, pull with your hands, inhale and stage.

Rebekah Rotstein:

Turn your head to one side, turn your head to the other side. Turn your head to the first side, turn your head to the second side and relax. Place your hands on your thighs. Now hinge forward and return up. This time you're going to think of pulling or zipping up your pants and hinge back. Notice how your belly starts to become active, and return, and hinge back and return.

Rebekah Rotstein:

Here's the side view. And hinge back and return. This time hinge back, push through your feet to grow up and forward like you're coming to the top of an escalator and hinge back, push through your feet and return. Once more, hinge back, push through your feet, exhale and return. Now, place the towel just behind you here for a moment. Wrap the back of one thigh and just hold it here.

Rebekah Rotstein:

Now find that little zip up and straighten and bend your knee without rounding. So I like to think of a spotlight here. And in Buff Bones, we call this the sternum spotlight. Shoot your sternum spotlight forward, don't let it reach for the ground and we're going to straighten and bend. If you need to lower your hand, you can do so. Four, exhale three, flex that foot exhale two, exhale one.

Rebekah Rotstein:

Try it on the other side. Zipping up, pushing down, letting you grow taller and straighten and bend. So you might start to feel a stretch through the back of the thigh and four, three, exhale two, exhale one and pause. We're going to now turn and face sideways. You're going to have one butt cheek on the chair, the other one off the chair.

Rebekah Rotstein:

Holding onto the back of the seat, you're going to slide the free foot out to the side and place the free hand here right at the crease of the hip. Now reach out with your elbow so from the side, it looks like this. You're not side bending, so you're not having a different orientation from your head, you're just reaching straight out to the side.

Rebekah Rotstein:

So we're doing a little release of tension that could be there through the inner thigh. That tension in the inner thigh can actually create inhibition or challenges to you in your balance. Slide the foot back in and slide this back. So now you're going to get a stretch on the front of the thigh. Notice how the toes are tucked. If you can't do that, you can go the other direction if your toes don't do it.

Rebekah Rotstein:

But if you tend to cramp through your foot, you're going to find this useful. Now push down through your feet, reach the free hand up toward the ceiling and stretch toward the sky. Breathe in, breathe out. We're going to make it a little bit harder now. Pushing down through the foot, holding onto that chair as long as you feel steady, you're going to start to lift up and lower, lift up and lower, three, lower, two, lower, one and then we're going to go to the other side.

Rebekah Rotstein:

So one butt cheek is on the chair seat, holding onto the back of the seat or back of the chair and slide the free foot up. Now make sure that your toes are all facing forward. That's also going to change the beam here. If you start to cramp, bring your leg in, bring it out a couple times. Now, place the free hand into the crease of the hip and reach out in that direction with your elbow.

Rebekah Rotstein:

Take a deep breath in, deep breath out, once more breathing in through the nose, exhale out through the mouth. Slide that foot in, and now slide it straight back. And stay here for a moment, reach the free hand up toward the ceiling. You'll notice that by pushing down to that back foot, we drive the hips forward. This is extremely helpful for your posture, also for your balance to be able to have that mobility here through the hip joint, breathing in, breathing out one more time.

Rebekah Rotstein:

So especially if you do want to get to a point where you're adding extra or heavy loads, you have to have proper form or alignment so you don't hurt yourself. And that's really where Buff Bones comes in, is we're really the foundation program for any kind of movement that you want to do with the rest of your life and bring that... Oh, Nope. We have to do our lift.

Rebekah Rotstein:

Push down through the foot and hover and lower, hover and lower. Let's do a couple more, hover and lower. So notice how these become lunges, and two, and last one, bring the knee right back in. Now we're going to bring our feet really wide and we're going to hinge forward here feeling the stretch on the inner thighs, and back up, and hinge forward, and back up. Two more, hinge forward and back up. Last time, hinge forward.

Rebekah Rotstein:

If you can, lift your hips and lower. So you just barely hover, and lower and hover and lower. Two more, hover and lower. Last time, hover and lower. Let's walk the feet closer in, not completely together, a little wider than your hips. Pull the feet back and you're going to bring your hands straight out in front of you. If you want more assistance, you can use your hands to help you lift up, and lower, and hover and lower, hover and lower.

Rebekah Rotstein:

You want to make it harder, lift one heel, hover and lower, hover and lower. Lift the other heel if you'd like. Hover and lower. Last time, hover and lower. And now you're going to hover and stand all the way up. Sit and stand, sit and stand. So just barely tap. Four, tap three, tap two. You can also reduce to it half speed, tap one.

Rebekah Rotstein:

And finally, before we end just our little demo here, you're going to come to the back of your chair, holding on to the seat, right? This is not the seat, the back of your chair. You're going to push the ground away as you lift your heels, lowering back down. So if you want... Hold on. If you want to make it easier or you make... Sorry, want to make it harder, don't hold on at all. And then if you want to make it really hard, you could close your legs. Four, three, pushing the ground away, two, last one and see if you could hold it there.

Rebekah Rotstein:

You really want more challenge, turn your head. So interestingly, this is an exercise that gets harder as we age. When you're in your twenties and thirties, it's much easier to do than once you're in your fifties even, and lower back down, bend your knees. And if you'd like, you can balance. 10, 9, 8, 7, 6, 5, 4, 3, 2, 1.

Rebekah Rotstein:

Push the ground away, lower the heels. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. So we're keeping the knees straight and we're just doing heel drops, which it has a nice stimulatory effect for your bones to help them fortify and rejuvenate 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and rest. Let's end here by lunging forward so you get a nice stretch on the calf, breathing in. And now take the same side hand up toward the ceiling for a stretch.

Rebekah Rotstein:

And then let's switch sides. Drive that back heel down, breathing in, breathing out. Final thing, step further back, get a stretch on your back. So again, your back stays straight. If you want, you can just keep the stretch here. If you want more challenge, you'll lift one leg. If you want to take it out of being a stretch and you want it to be a balance exercise, you'll hold your hands onto your pelvis.

Rebekah Rotstein:

Try it on the other side, come back into your stretch, lift the other foot if you're doing that part of the movement. And if you want to go for the balance, place your hands here onto your pelvis and rise all the way back up. So I'm afraid that in our interest of time that's a bit all we had time for for just a quick little movement class. But I wanted to give you an opportunity to experience just a tiny bit of some of the, I should say the application of some of these skills that we're talking about.

Rebekah Rotstein:

So to sort of tie everything together the idea is there's so much that you can do to help your bones working on all these different skills, as well as focusing on your bone density, and it doesn't matter how old you are. So thank you so much for joining me for this. And I'm happy to answer any questions that come along.

Eve Kleinerman:

Thank you, Rebekah. That was just really fabulous. And I especially loved this last section with the exercise pieces. And so many of our questions actually relate to the exercises and so I want to just highlight a few of them if you have a moment to stay a few minutes over, is that if somebody has movement limitations, do you have a suggestion of some more limited movements and exercises that somebody could do? Let's say they have arthritis or other issues that they could use for bone strengthening.

Rebekah Rotstein:

Absolutely. So part of the things that we were doing, I mean, it depends on where this arthritis might be or where the injuries were. But part of what we were also doing was things that are actually very simple. These are some exercises that are part of a program that we did as a part of a pilot study with Hartford Hospital's Bone & Joint Institute about five years ago, and they were for people who couldn't get down to the ground.

Rebekah Rotstein:

So these are some things that you might think, oh, but you're not loading so much. Well, again, what we've seen from the research is it depends on the background of the individual, of how much these might actually have osteogenic effects. But regardless, these are things that you'd want to be working on for your balance, for your alignment. So even though you're seated, say you can't stand, right?

Rebekah Rotstein:

Or it's hard for you to stand, you can't get down to the ground, even just in a seated position, pushing down to the ground will help you get that axial elongation, some of the decompression in this state, doing things that with your ankles, moving the ankles around, even things like this where you're actually activating the bottoms of the feet, stimulating them that are going to help you with balance for one thing as you push the ground away. Some of these stretches.

Rebekah Rotstein:

I would say also things that somebody could do say that you have injuries with your shoulders and you're not able to lift weights. You can still be getting the strengthening effects through your spine by doing simple things like side stomp, side walking. So you're stomping and moving in directions that you're not used to moving will have a stimulatory effect on the bones. So instead of just walking forward, try walking side pace.

Eve Kleinerman:

Great. Thank you. And you've mentioned the stimulatory effect for the bones. And one of the questions, actually multiple questions came in regarding bone health versus bolstering the muscles around the bones. And so the question is, are these exercises really focused on that bone support, bone health, or is it about bolstering those muscles?

Rebekah Rotstein:

They go hand in hand. So you can't actually strengthen the bones if you don't have the muscles to support them. So part of what has this osteogenic effect on the bones is that muscle pull like I showed in

that original image of gravity and then muscle and fascia pull. So that pulling force is what stimulates the bone. So you do need to work on muscle strength.

Rebekah Rotstein:

At the time though, you can't just go and think that you're going to lift some kind of heavy weights when you haven't really aligned your body. So that's why a big focus of what we do is it's not just about certain exercises, it's about the entire method and how it works together.

Rebekah Rotstein:

So in this method, for instance, we do a whole series of decompression movements and alignment and working what I mentioned before, what makes your muscle smart, not just strong, of your nervous system before we add on the additional outside load, like with weights so that you have a better chance of the forces from gravity and from those outside loads running through your entire body when everything is better stacked and better organized and aligned.

Rebekah Rotstein:

It's kind of like you wouldn't just build a house when it doesn't have a solid foundation. You got to get that foundation set before you add on the other loads. And sometimes that's also what you have to do every day. You have to realign your body because there's kinks and you're texting and you're in weird, awkward positions that you need to reorganize.

Eve Kleinerman:

That's great, that's great. Thank you, Rebekah. I know we have many questions that came in both through the chat box, as well as in advance and we will follow up with Rebekah and get some of those answers out to you in our post webinar email. And I want to thank Rebekah again for educating us this evening on the relationship between bone health and fitness.

Eve Kleinerman:

You answered so many of my questions and I'm sure that our participants feel more knowledgeable this evening after hearing your presentation. And thank you too, for teaching us a few exercises to keep our bones strong and healthy. It was really a great demonstration. There are links to follow in the chat box for Rebekah and for Buff Bones on Facebook and Instagram. And I also, again, want to thank our sponsors this evening, Amgen and the cooperative agreement DP19-1906 from the Centers for Disease Control and Prevention, as well as sponsoring the previous two webinars on bone health and nutrition.

Eve Kleinerman:

I also want to recognize our partners for this evening Advocate Aurora Health and Team Sharsheret. A link to a brief evaluation survey is being placed in the chat box right now. If you can please click on that, you'll still be able to hear the last few announcements while you click there, but evaluations really do inform future programming for us.

Eve Kleinerman:

And in fact, we found tonight's presenter Rebekah from Buff Bones, from an evaluation survey from one of our previous bone health webinars. So it really does work. And I want everybody to know that

rounding out the month of May just next week, we'll be having a webinar on clinical trials with Dr. Brian Slomovitz. So please check that out, as well as check out our website.

Eve Kleinerman:

We have a busy summer ahead with exciting events being offered, both in person and virtually, and you can see all of those programs as well as transcripts and information about prior events on our website. In the spirit of bone health, I want to let everybody know about the Sharsheret West Coast dash. It's a 5K, 10K family race on Sunday, September 18th in Los Angeles. For everybody outside of LA, we are going to have a virtual race option so you can join the fun as well.

Eve Kleinerman:

We'd love for you to stay connected to Sharsheret via social media, whether that's Facebook, Instagram, or Twitter. You can feel free to follow us. And as always, please never forget that Sharsheret is here for you and for your loved ones during this time. We provide emotional support, mental health counseling, and other programs designed to help you navigate the cancer experience.

Eve Kleinerman:

All of our programs are free, completely private and one on one, and we have contact information in the chat box. All of our social workers and Sharsheret counselors are available to each of you so please do not hesitate to reach out. And again, thank you for being here with us this evening and thank you to Rebekah and to Renee, and have a great night.

Rebekah Rotstein:

Thank you.