



Episode 11 Transcript

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Dr. Abbie Smith-Ryan: What Women Really Need To Know About Body Fat & Fitness

Nick Collias: Welcome, everyone, to our sweaty little podcast.

Dr. Krissy Kendall: Sweaty?

Cassie Smith: Speak for yo' self.

Nick: Blasting anabolism out of the high desert of Boise, Idaho. Anabolic tornado. I'm Nick Collias, some kind of editorial creature here at Bodybuilding.com. To my left as always, as ever, is Krissy Kendall, editor of science.

Krissy: All science.

Cassie: All science.

Nick: Do you edit? Do you edit sci ... can you edit?

Cassie: Are you even edit?

Nick: Are you allowed to edit science or does science just comes out perfectly born?

Cassie: Do you even science?

Nick: We've also got Cassie Smith, another BBcom lifer, created in a test tube to crush WODs.

Cassie: For real.

Nick: Got a baby that is straight up walking at 7 months old. Cruel and unusual parenting. Not so keen on spiders though, I learned yesterday.

Krissy: Yeah, that thing was gross.

Cassie: Oh, it had a face on it, like with a mustache. I think I saw a mustache.

Nick: But, you know, some people ... I posted a picture of a spider, cool looking spider, on Instagram.

Krissy: Hairy and disgusting.

Nick: It had a face on its back. Most people if they had a problem with it, would mention it in the comments. Ya know, I mean of course I don't have comments on mine, because nobody follows me. But Cassie, she doesn't hit the comments, she just straight up text messages me and says, and I quote, "Is that a fucking spider? Where are you? Why does that even exist?" I think she thought I was stuck in the web, like the spider had captured me.

Krissy: This spider actually posted to Instagram, like just took over.

Nick: Save me Instagram, save me celebrities of Instagram! We have four at the table today actually, we've also got Abbie Smith-Ryan. She's got a baby as well. I've got a baby. Let's hear it for babies! No, we don't need to talk about babies.

Nick: She's also got a Ph.D., the "fud". She's got the CSCS*D, the "kiss kiss ed", kissin' all the letters. But more to the point ...

Krissy: Kissing?

Cassie: Nick's had his [caffeine](#) this morning!

Nick: She's also an assistant professor at UNC Chapel Hill where, in the words of our nutrition editor [Paul Salter](#), "she crushes the DEXAs". That's what he told me. I said, "Do you know her?" He said, "I don't really know her all that well, but I know she crushes the DEXAs."

Krissy: Ohhhh! That's something to put on the nameplate.

Dr. Abbie Smith-Ryan: Good to know. I'll put that on my CV.

Krissy: Add it to the signature line.

Cassie: "Crusher of DEXAs."

Nick: And also an author and co-author on dozens of papers.

Abbie: Nobody reads them anyways.

Krissy: There's four of us.

Cassie: Yeah.

Nick: They just want those body fat scans, that's all they want to know. Except they don't really want a DEXA right?

Abbie: No.

Nick: Because a DEXA will tell you how wrong you've been about your body fat level.

Abbie: Yeah and how fat you *really* are.

Nick: Like your soul!

Abbie: Let's not say it.

Nick: Today, I don't know what exactly what we will be talking about, if what's happened so far is any indication. I'm figuring body comp and body fat and strength and nutrition for women. And those other jerks, too.

Krissy: Yeah, occasionally. We may talk about men.

Abbie: They're important, too. Are they? They make babies.

Cassie: They *assist*.

Abbie: Yeah, true that!

Nick: Ever done a DEXA scan on a baby?

Abbie: Oh.

Krissy: Bod pods, pea pod.

Abbie: Pea pod, yeah.

Krissy: Pea pods. They have bod pods for babies.

Cassie: For like fat babies?

Abbie: No, to see, to check obesity rates of children. It's pretty cool.

Cassie: Yeah.

Nick: Aren't they supposed to be obese, babies?

Krissy: Well, we had one of our close friends -

Abbie: She works at Kansas Medical Center, now.

Krissy: When she was pregnant with her first, she was getting bod pods throughout her pregnancy, so they were looking at her body composition and then when her baby girl, Chandler, was born for a

period of time they would both do it. And so, it's this pea pod, is what they call it, instead of bod pod. They wrap them very tight so that they can't move and then they do measurements that way, but yeah, I mean, there's, it's not like there -

Nick: It's a womb, in a womb, in a womb.

Krissy: Yeah, they are not like really competition lean, but I'm sure they could work on it if they wanted to.

Abbie: Well it's tracking what happens with the mom, right?

Cassie: Yep!

Abbie: And how that impacts obesity in the child, which is pretty cool.

Nick: But those aren't the kind of DEXAs you've been crushing.

Abbie: No, I do, we actually had to get a bigger DEXA to fit the very large individuals. It was the weight limit of 350 was not large enough.

Nick: For football players?

Abbie: Yeah, we see a lot of retired NFL athletes and then ... A lot of athletes, and then just normal overweight obese people, too.

Nick: Huh, interesting.

Abbie: 450 is our limit now.

Nick: 450, wow.

Krissy: That's a big, big person.

Cassie: Yeah.

Nick: Okay, so how many DEXA scans do you think you've done?

Krissy: Hundreds.

Abbie: Yeah, at least a thousand.

Nick: Really?

Abbie: Yeah, way more than that.

Nick: Okay, so yeah, I imagine having that volume to look at you have a different perspective on body fat than someone who's just like -

Abbie: Yeah, if you take your shirt off I probably could tell you!

Krissy: No, but the cool thing too about DEXAs and looking at the different body sizes -

Nick: Can you tell from my wrist? That's a swole ass wrist right there.

Krissy: You can see, in relation to their skeleton too, where they hold all the fat and the disproportion of it. It's so cool to even just pass ... Okay so you get a percentage. Which is great. But all of the other data you can get from a DEXA is really, really interesting.

Nick: Right, there's bone information, too.

Abbie: And muscle, we do a lot with injury prevention or post injury, looking at muscle and balances and return to play. And we actually published a really interesting paper on gymnastics and spine curvature. And even high jumpers, so like all torsional rotation athletes have a spinal curve, or most of them, and they don't know about it. And so knowing that you can kind of tweak their training to be more unilateral or ...

Nick: It makes me think, you go to a gym or you set up through a little transformational program and they'll give you the calipers or the electrodes or something like that early on. If ... There's a DEXA in every town, if someone went and got a DEXA scan instead, just a normal person, what extra value would that provide to them? Just for their ... "I'm not quite sure what my goal is, I think I want to lose my spare tire," Sort of...

Abbie: The best thing is that it's a three compartment model, so it does give you ... It's a little more accurate for muscle. So, I would say it would be more advantageous if they were to do it like a tracking changes type of thing. And it's less influenced by water and exercise whereas like skin folds and total body water are the sticker stuff.

Cassie: And you don't have to strip down. You can go, that's always been a benefit, you can go in sweats or whatnot.

Krissy: Can you just go to your local BSU. Your local college and be like, "Hey DEXA me?"

Abbie: Some of them will.

Nick: Could you tell us how to operate the machinery ourselves if we snuck in after hours?

Abbie: Maybe I've tried to do that before!

Krissy: You have to do, we have gone through, I've gone through extensive training for radiation. We learned about the history of radiation to use a DEXA and then you have to go through certification through DEXA to get it, so it's a little bit harder I would say than some of the other forms.

Abbie: In some states, you actually have to have an MD and an actual technician.

Cassie: Yeah.

Nick: Bodybuilding.com insurance probably won't cover it. But as we mentioned earlier, you kinda

don't want to know the answer, necessarily. If you are one of those internet ripped people, you are like "Oh, bro you're so 12%," "Oh, you're so 7." How different is the number, the DEXA number versus those Internet ideas of what a certain level.

Abbie: It's very, very different, even between DEXA devices. But I will say it's really nice. Post baby, I wanted to track my body composition and it was really, really interesting to see even, where you store your fat. So DEXA, our new DEXA, tracks visceral fat and abdominal fat. And so it's really good at tracking lean mass, too. And so I got to a point where I was like, "Fuck, I can't lose any weight." And I was like okay, lets wrap your head around this and get on the DEXA and I had gained 5 pounds of lean mass. So even though I couldn't get my weight down. So, It's good to put things into perspective.

Krissy: You okay, so just on that topic, because I think post-pregnancy weight is a big deal for fitness minded individuals.

Abbie: Scary.

Krissy: It is. And so to see what your body looked like before. Again, just quick background, collegiate athlete has done a figure show before, so, you are one who definitely came from the leaner side prior to having your baby -

Abbie: We can always be a little leaner, right?

Krissy: Right. And then you have a baby. And, you know, Cassie, the same thing, just being an athletic individual prior to, but then the pressure and the expectations that you put on yourself and that other people put on you. When do you feel it's a good time to start going back to, "Okay, I'm going to try to get back to what I was pre-pregnancy."

Nick: Or is it possible? Did you look at your DEXA and go, "I'm different now."

Krissy: Yeah. And that's okay. It's okay that I'm never gonna be ... Like, I'm fascinated by this -

Nick: You hear women say that.

Abbie: It's a good question. Cassie, you might have a different perspective. I think your body will always be different, you had a child, right? But I think that if you do it right, right? I think if I think if you exercise throughout, I told this to Krissy, I view birth as an athletic event. If you train and eat like you were competing, your body responds how it should. Even after the fact, I nursed until he was 13 months, 12 months, and so that has a big impact, too on how you want to manipulate things, but there's a lot of things you can do. So, I definitely got back to where I was, but your body serves a different purpose. I think you have to be ... Figure out what your goals are. And it can't be vanity. I wanted to get where I needed to be, so that I could be a good mom, and be fertile again, you know what I mean. And a lot of injury prevention stuff, too. You want to get your core tight, and you know, your nether regions tight.

Krissy: The whole undercarriage!

Abbie: So when I do HIIT on a treadmill I don't walk off with wet pants.

Nick: Like you're leaking oil.

Abbie: Yes. So, I think there are some underlying motivation. You can be skinny and lose a bunch of weight, but you lose lean mass. So doing it slow and steady is there's a definitely a way to do it.

Nick: You mentioned a really interesting idea in there too, training for birth like it's an athletic event.

Krissy: I love that.

Nick: My wife totally did that. And it made such a huge difference. Because it's like a battle for your life. I think Cassie can understand having gone through the cross fit games before giving birth. Just like a day or two before giving birth, right?

Cassie: Yeah. It's rough, it's way rough. It's interesting what you're saying. For me, it's been a weird battle. It was a weird identity battle for me when I was pregnant because I was ... Like my identity was to be an elite athlete, and then when I was pregnant my identity turned into pregnant person, and that was crazy for my mind. Post pregnancy I was like, "What am I now? Just mom? Or can I ever be back to elite athlete?"

Krissy: Well and then, instantly we are all asking, "Are you going to compete in the next games, Cassie? When are you doing? When's your next competition?"

Nick: I did not ask that question.

Cassie: Maybe hinted at it.

Nick: No, everybody else asks that question.

Cassie: So, that was probably the hardest part for me, wrapping my mind around who I am. That's really deep or whatever, but that was the hardest part for me for pregnancy and my career as an athlete and what it will turn into, if it will ever be the same, and I'm still trying to figure that out. I don't know, I hope so.

Nick: Is that something that you've encountered in DEXA scans? Maybe just a ...

Cassie: Is their brain like a little sad face?

Nick: No, I'm saying that maybe a woman's body is just kind of *different* afterwards? I know, I'm speaking totally anecdotally, I know women who say that, "It's so much harder for me after I had this one baby." Is there any real info to back that up.

Abbie: I hear that all the time. "It'll never be the same."

Cassie: Or is it the lifestyle? It's different.

Nick: Exactly, or is it the lifestyle?

Cassie: I had to prep food for myself now I have to take care of a baby and also if I am breastfeeding, or doing that, I need to make sure I'm taking in enough nutrients and stuff, whereas

before, I could do a 1500 calorie cut for four weeks, now I can't do that.

Abbie: Yeah. For sure. So I think most of it is lifestyle. And now, I will say that some women, every pregnancy is different, so if you gain a lot of weight really fast, stretch marks sometimes never go away, but I think exercise has a big impact on that. And too, I think some women's hips, they are never are the same jean size. That doesn't mean you can't be the same leanness. So there are a few things, but honestly I think it goes back to lifestyle. You have to be more strategic with your training. One thing I think about, too, I always incorporate my son with what I'm doing, so we have a bike and we will go do intervals on that. When he was little I would sit him next to the treadmill and do intervals and now he loves being involved in activity. I think teaching them young is important too, so not only are you ... Sometimes as women, I think we forget to do self care, that's our time. So, incorporating your children make you more strategic in doing more high intensity, get it done, as opposed to, "I'm gonna drink at the drinking fountain between each set," So, just being more purposeful.

Nick: Yeah, I think that's a good point because it can be very easy to say ... It can be easy to look at birth as a challenge to fitness, but at the same time there I'm sure there are many women who see that wake up call at the same time. You know what, now there actually is a purpose to this now. And the fact that I have so many fewer hours all of a sudden, makes me a little bit more intense, a little bit more efficient, a little bit more driven to get it done.

Abbie: It gives you more energy, it really, in the overall, has a huge impact.

Krissy: Yeah. And I think like what you said, and never having been pregnant and I don't have a baby, but just knowing that, in general, we give fitness and nutrition advice, not one person's going to be the same and not one person is going to respond the same. So pre/post pregnancy you cannot compare or expect yourself to respond in the same way. And sometimes just listening to your body and being around and having seen Cassie and talked to her post pregnancy and when certain lifts just didn't feel good. It's like, "I'm just not gonna do them, today." And when it felt good to go up in weights, "I went up in weights today. I'm not at a PR yet, but I'm getting close there," and just not rushing the whole thing. I think part of that is just your perspective ... It's like why do I even need to? What am I trying to prove? I've just created this beautiful life, I think that's important enough right now, so I think it's outlook on it, too.

Nick: Right, but your sport is also a performance oriented sport. You have that goal.

Cassie: Yeah, I don't have to worry about my abs showing as much as I want them, too. For weightlifting, I just have to be at a certain weight. So that's been really nice not having to necessarily have to worry about body composition but just my weight. Sometimes that takes a load off.

Nick: I want to return to body fat for a second, too, because it's something that we see a lot if you walk down the hallways in Bodybuilding.com, there's those posters of peoples' body fat right next to their name, like that's part of their fitness calling card. Something that Cassie and I in the past have had conversations about is, what the lowest healthy level is for a woman. Not only the lowest healthy level, but the lowest responsible level to put out there. We see pics all the time of a woman who says, "Oh, I'm 9%". And I think okay, is 9% possible for a woman, is it healthy for a woman, is it advisable for a woman?

Cassie: Yeah! Should we be telling people, "Hey! This is what you should be at?"

Nick: Yeah, you yourself said you can always lose a little bit more fat.

Abbie: Well I think it's funny, too, because we all have our own set point, and I'll just give you a kind of a quick story. So when I was in college, I ran, and we would get our body fat every couple weeks, which is ridiculous. But I had nine stress fractures, and every time I would get a stress fracture, it was when my body fat got below 15%. And that's not *that* low, I mean its low, but ...

Cassie: But for female athletes, and you're a runner -

Nick: There's that male versus female body fat thing in this as well, but continue.

Abbie: And so like a lot of other runners could get lower, but for me it was not healthy. I couldn't get lower than that, until I knew I needed to be more like 15, 16%. For women the lowest you'll ever see is 9 or 10%. I would never see that on a DEXA. The lowest I've ever see a female on a DEXA is I think, is 16%?

Cassie: Which, not to cut you off, but you bring up a good point and sometimes I get questions about different methods of body comp and how sometimes people, it's kind of like this spectrum, sometimes the leaner you are, it may over estimate you, the more fat you have it actually has a tendency to underestimate you. So DEXA ... And it can do that -

Nick: So, it's not perfect.

Abbie: No.

Cassie: So, sometimes for lean people will always overestimate what their actual body fat is because of inherent error with the -

Abbie: Which at the end of the day, who the hell cares?

Cassie: Right.

Abbie: Right. But its more about, and I'll say this till I'm blue in the face ...

Nick: YouTube cares.

Cassie: Yeah.

Abbie: They need to find something else to care about. People are dying in Africa! Hurricane! Global warming!

Nick: So, what's the lowest number you've seen in a DEXA scan for a man?

Abbie: I think the lowest I've ever seen is 9% on a DEXA, for a man.

Nick: Really?

Abbie: Yeah.

Nick: Gosh, we have people around here swearing that they are 3%, man!

Abbie: No, not happening. No. And because the DEXA actually assumes how dense your brain and head is, like if you have a fat head. It just assumes some of those things. And your bones and organs, it's more accurate. So if you think about even assuming some of the density of those tissues, some of them look more like fat than others. Your brain, the density is more closely related to fat than it is muscle, you know, some of those things. And so, and if you think about some of some essential fat, if you look at that and what's published, they'll say men 2-3%, and so with a bod pod I've seen a 1-2% value, but I don't know if I believe that, right? And so it's just error within the device. And it goes back to tracking changes. At the end of the day we want to see if whatever we're doing is working, or what's the change, not just in weight but in composition. That, I think, has more health implications. Overall body fat, unless you are talking about visceral fat, which is has more health consequences, or overweight obesity, some of those things, it makes a difference on general fat. But most devices have a plus or minus 4% error, which is huge. That means you could be 20% one day, 25% the next day, and what, 16% the next day.

Krissy: Which is why you don't do body comp every day.

Abbie: No! Or every month.

Krissy: We tell people that.

Abbie: Yeah, yeah.

Krissy: Don't expect changes and then they get so upset or down on themselves.

Abbie: Or like, they are like half a percent and they are psyched ...

Krissy: Within the error of that piece of equipment and you try to explain that to people, and they don't want to hear it. Everyone is so fixated on a number, and it doesn't care, they don't care about performance necessarily, how their body's actually functioning, but it's that stupid number with a percentage sign next to it. That's all we care about. Yeah, it's interesting.

Nick: Yeah, what I'm hearing here is it may be in the pantheon of performance markers, body fat shouldn't be quite as high as people assign it, value-wise. I've read online where you've said ... Body ... Living, dying by the scale also is not the way to go. Where do these belong in the order of importance?

Abbie: Yeah ...

Nick: Strength and how you feel.

Abbie: Yeah. That's a good question. I think you should incorporate everything, right? At the end of the day, sometimes it's how your pants fit. Right? So, I think it has a big impact and I would say you shouldn't live or die by anything. It's really looking at, what are your goals? And I would argue if your goal is to put on lean mass, well who cares what the scale says. And maybe you want to get ... Who even really cares what fat mass says. Because you are bound to gain some fat if you are trying to put on muscle to some extent. So it's really figuring out what your goals are. And maybe your goal is

total strength and who cares about weight and percent fat.

Krissy: Yeah, assuming that they don't get carried away with it.

Abbie: Right.

Krissy: Like, you know let's just eat cake because it's strength! Working on strength!

Nick: It's interesting that you said you found that there is a certain level of body fat, where below that your bones were actually getting symptomatic. A woman who has a number in her mind, or who just has fat loss in her mind ... If the numbers aren't really a good guide for her, what is? How do you know when you are getting too low? 'Cause there are women around here that sometimes we go, "I think she's getting a little too low."

Abbie: Yeah, there's a couple things. We actually use ... I use DEXA a lot to calculate, what we call, ideal body weight. So a woman might come to me and say, "I want to lose 30 pounds." Right? And we will do her body comp and when you actually look at it, she can't lose 30 pounds, otherwise you will lose the lean mass. So there are some good calculations you can do. Then there's other things like you can tell if you are too low in essential body fat. Your hair falls out, your skin is really dry, you have no glow, you lose menstruation.

Krissy: For women hormones are affected by that.

Abbie: Yeah, huge impact. Overall fatigue, but early symptoms, you can tell if a female is too low. She looks dry and just not full and happy -

Krissy: Like a hollow face -

Abbie: Yeah.

Krissy: Like you can see it.

Abbie: Yeah, and hair falls out, that's a really easy symptom, but that's different for everybody.

Krissy: For sure.

Nick: Okay, is there something, a level that you can think where it starts to impair athletic performance?

Abbie: Depends on the sport. But yeah, lots of, if you get too low, lots of injuries happen. But I think, I guess, again, it really depends, but most female athletes, I would say, fall between 15 to 18% in general.

Krissy: What would you say for general population, fitness-minded, so not a competitive athlete, but someone who does work out 5 days a week. That would obviously be a little bit different than say, a general population that would be, "I train or I do moderate activity three times a week." Is there ... What kind of ranges ... Because I think people are still really distorted when I say, "Oh, she's 23% body fat." And they say, "Oh, she's overweight". And I go, "No. Not at all!"

Abbie: Yeah, I would say the lowest I would ever want an average fitness goer to be, like 18% is pretty low. And for female. And so, I would say, probably depending on their age, obviously as you get older you have a little bit more leeway, but 25% I would probably say is the cut point. You want to be less than, between 18-25% is a pretty like a pretty lean individual, for women. For men, I think it depends, there's so much more variability with men. Damn, men! They can lose fat ... No boobs and no hips, right?

Nick: No brains either. No big fatty brains either.

Krissy: Really no fat at all.

Abbie: Yeah, so it'd be a little bit lower. I've actually seen some pretty fit guys at 18%, which is maybe on the upper end. So I would say maybe like 14-18%, I don't know, what would you say on the low end?

Krissy: I would say 12%.

Abbie: And it depends on how you're measuring.

Krissy: So speaking, kinda just, now that we've brought men into the picture.

Nick: They were always in the ... Always somewhere in the picture.

Krissy: Well, I block them out. On Instagram!

Nick: So do I! I blocked them on Instagram all the time.

Abbie: He's only saying that because there are three women next to him.

Krissy: I know! But I think that there's a lot of interesting points to be made and just a discussion in general, that we hear a lot on things where men and women might respond differently. Is that, as far as fitness ... Okay, so exercise, the way we train, and how we lose weight ... Is there really that big of a difference in how men and women respond to a similar training program, or are we, just as women, kinda using that as an excuse, "I'm a woman and my hormones, I've too much estrogen, so I will never lose this weight." Or, you know, "I can't do this type of lifting, because I'm a woman and I'm gonna get bulky." I just feel like we constantly compare and I think a lot of times, over assume that we, yeah, are too different to see similar results if we try to give common advise. So, any examples where you say, "Yes! No, actually men and women respond differently to this." Or, "No, it's kinda the same."

Abbie: Yeah, no. I think you kinda bring up a really interesting point. I would say first as a scientist, we actually don't know. There's no data comparing men and women, especially post-menopausal women. We need to know how they respond differently. Because they do, but that doesn't necessarily mean we need to give them a different program, right? So there's a lot left we don't know. And we, obviously, know, generally speaking, men are stronger than women, in a general sense. But that doesn't mean that women shouldn't do the same exercises, right? And I think you bring up the quintessential point, women think they are gonna get huge. Now some women genetically have more testosterone, but we still will never have enough, or like compared to a man. So you will never get huge, unless you take testosterone.

Krissy: Some men need that, too.

Cassie: Most men need that to get huge, too.

Nick: Thinking about strength, though. So, go back 20 years ago, one rep max strength was the domain of powerlifters, which was a fundamentally male sport at that point. But now you see a lot of not only female competitive powerlifters, but just women who want to get strong and who are valuing that sort of high level absolute strength.

Cassie: Thank you, CrossFit.

Nick: I don't know, but what special considerations, or questions or concerns should that woman have and mind?

Abbie: I mean, just talking off the top of my head, and I don't know if I have pregnancy on the brain, but there are things that happen like estrogen does cause joint elasticity so you are more so you are more susceptible to slip a joint or do something. So, some activities may need to transition. But it's like anything, if you train up to the at point, there's no limitations, in that sense, for a female. I wouldn't say. I don't know what you guys would say.

Cassie: I think what's cool about women in the strength world is that, because women are sort of new to it, what we could do and what we could be, no one knows yet. No one knows what the ... I think men are pretty much tapped out. Women are just like this ... It's ... We don't know. It's so cool to think about what could happen. You look at sprinters over the last hundred years. Men's times have started to sort of like, even out. And women's just keep going up. And I just think that the more opportunity that we give to women to be who they could be, we don't know.

Abbie: Yeah, like look at the Olympics, it was more than 50% women.

Krissy: And I think that just comes ... It's not just because women are doing new novel training, nutrition techniques, I think, we are just doing stuff that guys have been doing for a really long time, like taking creatine, because we know it works. I had to get that in there ...

Nick: Big Creatine, she's been in their pocket for a long time.

Abbie: "Crea-WIN!"

Krissy: But yeah, I think it just goes back to not being afraid of that sort of stuff. And it's just a misconceptions ...

Abbie: Inconsistency. We've been at it longer where we all know if you train long enough, your set point changes. And it's giving women an opportunity to train from when they were young, until they are old.

Nick: Right, but at the same time on the Internet you see these camps develop where you're a strength person, you're a muscle person and I see a lot of people swear off anything over 5 reps, basically that's just bodybuilding, that's just vanity. My concern for a women who is new to it is that she's going to be chasing for that ... Coming from a lifetime of *not* lifting, which is basically what I

was until I started working here, I was like, "Eh, I don't wanna lift weights,"

Krissy: Now, he's a deadlift king!

Nick: Yeah, exactly! But, at the same time, how much should a woman focus on building her muscular base before throwing herself into strength, necessarily? I mean, of course it depends on her background.

Krissy: Yeah, well, I was going to say, you've actually had ... You've worked with a lot of populations, female populations, who were more sedentary than not prior to, so yeah..

Abbie: Yeah, I mean, I think it's with everything, you want to make sure you're not putting them in a situation where they're going to get injured. And everybody has different genetics. But, it's like anything, you don't wanna go do deadlift if you have a really weak core, and I think if you take a female that's a baby and never worked on their core, they're going to be more susceptible to injury. So, I think it's taking a few extra precautions to tighten the center before you move on to heavy things where you need that core really tight. But, otherwise, it's the same, you wouldn't throw a dude into something if they don't have a strong base. So, yeah, definitely important if you take someone whose never done anything. And, I think even more important ... So, I obviously work on a college campus, and you get these girls who are like, "I'm going to do a five pound dumbbells," right?

Krissy: Only if they're pink.

Abbie: But it's sad, because they think they're like working out, right? But it's not to their advantage, so even if they think they've been training, making sure they're doing it appropriately, and then actually doing a high enough stimulus, you know? So, it's a lot of lack of knowledge, but there is some really cool movements that are catching on. And obviously, you guys do a good content, you know, to show people how to start.

Krissy: So, kind of just going a little more on that, you mentioned, "Are you getting enough of a stimulus?" What bare minimum ... I'll back up a little bit, specifically to women, is our bone health? So, let's take physique out for just a second and then we'll kind of get into their and we'll say what might we do something ... What are some cool training modalities that we could use. Women specifically, whether it's HIIT or type of lifting. But, just health, so we've got bone that we're trying to strengthen. So, what minimum ... We've got someone whose not very active or whose looking at becoming more active. What would you recommend have them do?

Abbie: Well, definitely start some strength training. Right?

Krissy: Squats!

Abbie: Yeah, well lower body and even ... You see a lot of women with shoulder problems, because if you think about how we sit all day. We're humped forward and unless you're do some sort of back exercise, you are humped over all day -

Nick: So, posture is a big concern ...

Abbie: Yep, core and posture. Yep. And then obviously bone is super important. You see so many women, even that are runners, that are low, right? And so, I always say, do something that you

couldn't do more than eight times, right? And not like, "Oh, I'm going to do a five pound dumbbell eight times." Like, really, you couldn't do it nine. That's a good starting threshold.

Nick: But does it necessarily have to involve an external load? If you can do eight to ten pushups, is that a sufficient bone building stimulus?

Abbie: Um, it can be. And honestly, if you're starting with someone sedentary ... So, I'll take like you're average 45-year-old female that doesn't know what they're doing. Like, I'll have them do body weights squats, so they know what they're doing. And a lot of women don't know how to contract their ass, right? Like, they lean forward and only use their legs? So you kind of throw them into lunges or squats, so being able to sit down and stand up and really squeeze your butt and get that base started first. I would still argue, you would want to pick up two gallon milk jugs and have some sort of stimulus as long as you have the technique, right? 'Cause you do need that stimulus, so if you can only do eight to ten pushups, that might be a good place to start for your upper body. But most of us need a little bit more.

Nick: Gluteal amnesia is robbing a generation.

Krissy: Yeah, I was going to say ... Like, the words you just said, like lit up Nick's brain. Like, "Yes! The butt!"

Nick: The butt is the answer, man.

Abbie: I mean, seriously. Have you ever seen how many flat butts there are? And even ... I'll have to switch my training so you like ... We overcompensate on our quads and so really getting that butt. It's where it's at.

Nick: For women in particular, you think?

Cassie: I would say, part of that is that, boys get to ... When boys are boys, they get taught how to do stuff. And they get to play sports, and they get to play football and they get taught how to jump. And you get taught how to land. And, you just get to play more. And for little girls, we're sort of taught to sit around and color and jump rope and you don't get the same -

Nick: Hey, jump rope is good.

Krissy: Yeah, yeah, yeah, and hula hoop, and play house and that sort of thing.

Cassie: Right. So, I just think, in general, girls just don't get the same ... Get to learn the way their body works or in the best way, the same way that boys do and I think that's sort of causing this whole ... I mean, it's been generational since the freaking beginning of time, of like how you can use your body and use it more effectively.

Nick: If it makes you feel any better, nobody's getting taught that. Boys or girls now. Now we're all fucked.

Cassie: Yeah, that's true. Krissy Kendall Well, the hard part about that, too, is sometimes when you're working with individuals and trying to get them to start training more and you give them cues that you would think anyone would get that, or you know, "Okay now, squeeze your butt," or "Tuck

your hips under," and they stare at you and they're like, "I have no idea what you're talking about," and it's just awkward watching them and let me help you.

Krissy: So, I do want to follow up on that just because I know you've done a lot with high intensity interval training, we actually did that in grad school quite a bit. So, we talked a little bit, just from a health perspective, some of the things we could focus on. Start with, core, posture, those sorts of things. But, now, let's be real, I have ...

Abbie: Ain't nobody got time for that!

Krissy: You know, I need to get my ass into shape now. You know, I've been training for a long time, and you know you have your ebbs and flows for weight and body fat, so you know, what are just some of the ways you can kind of kick up your workouts? And especially, for women, too, and we're busy and we're running the world. So yeah, I just want to hear your thoughts on that and your experience on all of it.

Abbie: Well, of course I'm biased. Yeah, you know, it's funny because I was a distance runner in college, so I was like the cardio queen, right? And now, I only do HIIT, high intensity interval training, most people know what it is. The data is just ridiculous, so obviously young people respond really well. I've done it in ... We finished a study, and doing a study now, in pre-bone marrow transplant patients, so we know that basically cardiovascular fitness is directly related to mortality, so VO2Max or Cardio Respiratory Fitness, is rapidly increased with HIIT, so we can increase it before treatment and they have a much better survival rate.

Krissy: Oh, fascinating.

Abbie: Yeah, I've done it ... The first big study I did at UNC was with overweight and obese individuals and it was actually humorous, now, not at the time, but it was really ... Nobody in the department and at the IRB, which is like the research regulators, they were like, "There's no fucking way you're going to do this. They're too fragile. They can't do it." And it's actually really interesting. So, I've published a few papers on that. They love it. So, not only do they enjoy it, but they respond. So, three weeks of training, if you think about that population and, even ... Anybody that's listening, like we all get in those times, where we've taken time off or we feel out of shape, it's one of the best ways to get your ass in gear ... Literally, you know, after two sessions you'll see a response. And so, you allow yourself to feel a little bit better. We're now trying to do it in knee osteoarthritis patients, because they're limited in the amount of volume they can do. An, I'll even say, post pregnancy, like obviously I didn't go like week two, but I started walking, and then started doing interval training, because I needed a way to get back quickly, and I needed a low volume so ... No overuse injuries, kind of like a fragile body time, and HIIT is the best time efficient way. Even, you know, I'd put my kid to bed and I'd jump on the treadmill and you'd bang it out in twenty minutes. I will admit, it's hard to get started, but once you get started, it's the best thing that happens.

Krissy: And how hard to I need to work on those intervals?

Nick: And that's the thing, you think about ... I remember my dad when the Tabata stuff came out and said, "Oh, we just read this article. Isn't it interesting?" And of course he goes and tries to do Tabatas on this resistance cycle at the gym and was just croaking on the floor and I think it turned him away from it for years. So, you know, how much does it have to suck for that person?

Abbie: I mean, it does have to suck. So, I always like to say ... We've looked at some different protocols in the lab and the best one we see is, one minute on, one minute off. Because you can do anything for a minute, right? But you also...

Cassie: But that one minute of rest might not be enough!

Abbie: That's good! Because you realize the intensity of that minute is not going to be like a Tabata ten second, so you're going to have to be able to make it through that minute, and then rest a minute. And, so usually we shoot for ten sets. But, sometimes you can't start that high, right? Maybe you do six or seven? And I always say, maybe you have to notch it down a little bit. The intensity isn't quite as high. It's just going to take a little bit long to see the adaptations, based on the science we know, you can get it in a couple of sessions, but maybe you bump it down, right? And it maybe will take a few more. So ...

Nick: Not a sprint mentality ...

Abbie: No, and it's not an exact science, which is so nice about it. We actually have done some at-home programs. Like, say, "Hey, go do this on your own." Which you can, you may not respond right away, but you're going to respond. And we know you're going to respond so much quicker than if I told you to do like a "Couch to 5K" program. So, yeah, there's lots of variations to them.

Nick: And does it matter really what modality you choose? What size of kettlebell you ...?

Krissy: Is it the size that matters? Please, tell me no!

Abbie: It depends. No, I think that's one of the nice things about HIIT is that mode doesn't really matter. However, if you're a runner, like, run. Right? And I find that since I was a runner, I don't get the some physiological and body comp benefits if I bike, because it's quad dominant. I still like it, but, so I think it just depends. We know this physiologically, if you can involve more muscles it's going to be better. So, like, rowing intervals -

Krissy: Hollaaaa!

Abbie: They suck, but they are good.

Krissy: Yeah, they suck.

Abbie: You can do them on the elliptical, but think about it. It's just harder to get your heart rate up.

Krissy: You kind of look weird going 85% on an elliptical.

Abbie: Yeah, but you should look next to you and be like, "Girl! You're doing it wrong!" You know like... Yeah, mode is dependent on the person.

Nick: And what about nutrition around a workout?

Abbie: Yes. Love that.

Nick: I know you've spoken recently about fasted cardio versus fed cardio ... If you're talking about

high intensity versus that more of that 45 minute to an hour, 130 heart rate.

Cassie: Less food the better, right?

Krissy: As long as you're in the fat-burning zone.

Cassie: Don't get your heart rate above 70% ...

Abbie: Such a disservice!

Cassie: That's so nice.

Krissy: They're just lying.

Abbie: I mean, it's hard. I can't have like a burrito before I go through HIIT, you have to be leary of that. But there's a lot good data, and we've actually looked at this too, specifically in women, that fasting blunts your ability to utilize fat -

Krissy: Did you hear that! Could you repeat that one more time?

Nick: Fasting, though. Let's define fasting. It's having not eaten in how long?

Abbie: A few hours, like usually we define -

Nick: So, starting in the morning with fasted HIIT is what you're talking about potentially, right?

Abbie: And I would say, if it's somebody, like sometimes people do it like once every few weeks, that's okay. But, a lot of times people do it, because they're like, "I'm going to burn fat! I'm going to be like a fat burning machine!" Which, you're just gonna be miserable. Especially if you do that day in and day out, because then you're not fueled and your volume suffers. And then we did a really interesting study, cause it goes back to, think about what a women is going to grab if you say, don't go fasted. What are you going to grab? A banana or some pretzels. And so we really wanted to look at, "Okay, what happens if you have you know 90 calories of carbohydrate or 90 calories of protein before you train?" Something like high intensity interval training or resistance training or aerobic. And we found that the 90 calories of protein, not only did it burn more calories after exercise, so it stimulated metabolism, but it also stimulated a greater fat use. So, it matters what you have before, which is kind of nice now it's saying, don't just eat anything, right? Let's pump you with some amino acids or some protein and all we used was like a scoop of whey protein and ...

Nick: How long before a workout?

Abbie: We did it for the study purposes, like 30 minutes before.

Nick: And that's long enough for you to actually be able to use it as fuel, to a certain degree?

Abbie: Especially if it's liquid. So, if you had like a chicken breast, it's going to take longer. But like a branched-chain or amino acid or a whey is going to get there ... I would even argue if you could stomach a yogurt, you know? For a whole food, like a Greek yogurt, that would digest pretty quickly.

Nick: Maybe just give yourself a little more time then, or?

Abbie: Yeah, everybody's stomach is different. But, so important. The same is true for men, too. The data shows that fat oxidation, their use is blunted when they fast, it's just more blunted for women, which is kind of interesting.

Nick: So this is only for interval training? Or that person who is going and doing that 45 minutes steady state -

Abbie: Everything.

Nick: They're also blunted.

Abbie: Yep.

Nick: Interesting.

Abbie: Yeah.

Nick: Okay, so the workouts done, they need to slug the shake as well then? Is there any real case to say, "Yeah, you really should then." Or cases that you really shouldn't ... Well, why would you not do it, I guess?

Abbie: Yeah, well I think you look at two things. Definitely nothing to lose by doing it, right? But then, also, it goes beyond, like maybe your goal isn't body comp or, you know, whatever, fat oxidation, but damn you're going to be sore! Right? Like if you move that window out too far and don't eat pretty close, we know that you'll have greater muscle damage or you won't recover as quickly and then it goes back to what do you want to feed, do you need to feed protein before and after? A lot of it goes with just fitting your macros into the best place around your workout. And sometimes you have all your intakes squared away, but it's moving things around your workout just to be more advantageous.

Nick: She did say the M word.

Krissy: Yeah, I know. I heard it.

Nick: Macros.

Krissy: Figure out your macros. And so, you did bring it up. Eating before, versus after. I know that comes up a lot, and sometimes for us, too ... I teach a class where I go work out and then I have to go do something. But, I had a pretty good meal an hour before. Does that allow me to push out my window a little bit further and not think, "Oh, there go all my gains." Or I'm not going to recover as quickly. So, you kind of can play around with that a little bit?

Abbie: For sure. Well, especially, I would argue if you had your 90 calories of protein shake before, that's probably not going to get you there, but if you had like your whole meal, yeah. For sure.

Nick: What if it was like three hours earlier. Like, I had breakfast, then I worked out on my lunch break. Does breakfast still serve me, basically?

Abbie: I think it depends on how big your breakfast is and how hard your work out was. Right. So most of us, on an everyday basis, we're not going to deplete our glycogen stores and tear ourselves down. So you probably would be okay. But, still, I would argue if you're eating breakfast and working out at lunch, you need to eat anyways, right? So, I'd be hungry.

Krissy: I wouldn't even make it that long. I would be eating *during* my workout!

Nick: That *is* the workout.

Cassie: Welcome to the fridge.

Nick: So, another thing we hear a lot from, not only women, but men as well, but seems like more from women, is talk about food sensitivities in all of this, as well. But not only food sensitivities from the angle of, "I have food sensitivities," but there's also this food sensitivity backlash that is also happening. You don't really know what your sensitivities are ... Where does that fit into this? How high of a priority is it to figure out your sensitivities, if at all.

Abbie: That's a really good question. So, one bad thing is that it's a self science, there's really not a lot of good data on it. But there is data that show women's guts are more susceptible to things like that. And it's more related to stress. And, a lot of what we know about sensitivity is it comes from eating the same foods all the time, which we are notorious for doing. So, I believe that we have sensitivities, however, the science behind it is a little soft. Like how you might measure that. But I would encourage people ... So you can get a fancy test ... And I've actually done that before. And maybe there's something to be had if you had all the money in the world, right? But, if you kind of stop and think and ask a woman to look at the foods she's eating. You can usually pick out what's causing the problem, or you start eliminating certain foods to figure out. And by causing the problem, most women who are listening, will know you get like gut gremlins, is kind of like a good way to describe it. No! It's not a rumble. It's like they're hitting you from the inside, you know? And bloated. So usually, there's one culprit and it also comes, too, a lot of our guts, our bacteria are really poor, based on our diet and stuff, so I find, and what the science shows - we're doing a study on this now - is actually a probiotic can help kind of rebuild the gut. And build up against some of those intolerances or really, prevent against leaky gut. So, it kind of keeps the gut stronger, from some of those things causing the problems. So, there's a lot of things you can do. I will say it's really hard, because usually, if you eat something at breakfast, it might be after lunch that you feel those gremlins. So, it's starting ... Was it what I had for lunch or was it what I had for breakfast? And it's usually a couple meals before. So, it's like delayed onset response.

Krissy: And what about for women who have dieted for a competition. Maybe, you mentioned eating the same thing. But maybe they might've taken out dairy, or they might've taken out a lot of carbs or grains from their diet because they're trying to cut back and lose any extra pound of body fat that they can. So, what type of reactions do they see? But then, can they reverse it so they can ... "I can eat dairy, I can eat gluten, I can... eat..."

Nick: Yeah, that was my question. If you're sensitive ... Is it off limits? Do I never get to eat the broccoli again?

Cassie: Yeah, no more ice cream or cake?!

Abbie: Yeah, I think that's a great question. I think lactose intolerance is a little bit different, right? But yeah, so if you take it out of your diet and then reintroduce it, that sometimes causes problems. But, really what they say to do, or really what you're supposed to do, is removed it for a few months and then slowly reintroduce it. And same thing, for competitors, if you take grains totally out, and you start to eat them or you have your cheat meal, you're not going to feel good. Right? If you think about grains take a water molecule with it. So, you're going to be bloated, you're going to be heavy, right? So, even slowly reintroducing on the backside is going to be helpful.

Krissy: So, you may not actually have an allergy to grain, it's just that your body doesn't know ..

Abbie: Like, give me all the carbs!

Krissy: Yeah, yeah. And then you bloat from it.

Abbie: So, that's a normal response.

Nick: I'm still trying to think, though, if someone's curious about this, what their options are to learn about what their problems are or what their challenges are. Is it go to the local naturopath, who then might really want you to have very specific plan based on their principles or is it something online or ... How do you figure out what your sensitivities are?

Krissy: Well, you said you did a test? What was your ... How did you respond to that? Did you follow what it said and you found it to be beneficial or ... no?

Abbie: I found it to be really beneficial, it was just kind of expensive, so even to this day. So, I use ... There's a company out there use ALCAT, and they just send you a kit, they draw your blood and you send it back. Or have a lab mate by your blood. Or however, go to a clinic and draw your blood and send it in. And then, they can measure different things, so I had the measure main foods, and then they can also measure food colorings, and ingredients. Which is really interesting. And I, at the time, this was several years ago, because I was having a lot of gut problems, and turns out it was mostly related to stress, but then also, the same foods, like broccoli was on there, like really healthy foods that I ate every day. So, you take them out and then reintroduce them. And even, like little things, like I was sensitive to Red 40, which is in everything, so maybe I was consuming too much of that, so usually it's related to that, and there's not anything you can't ever have. It's just reintroducing them. And I will say -

Nick: I think I have a glass of Red 40 every night.

Krissy: Note to self ...

Abbie: And sometimes, you honestly don't realize it until you take it out. Right? And I will say our guts go through different phases. I don't know, Cassie, if you saw this, but, I don't know what happens post-pregnancy, but I was like lactose intolerant, couldn't eat broccoli, like all my favorite foods and I had like phase it out and then now it's fine. Like, something happens to your gut, which makes sense if you think about physiologically what happens. So, even after competition, your gut changes and so I would say there's different times in life based on what you eat and everything, that your gut is continually changing.

Krissy: It's interesting that you bring up broccoli, because I think people are like, "Oh, I have GI

problems, I'm going to get rid of dairy and gluten." Those are the two things ...

Nick: No one would ever get rid of broccoli!

Krissy: Yeah, but you could have ... I know my sister, besides having Celiac Disease, and actually being allergic to gluten, but eggs, iceberg lettuce ...

Abbie: That's what came up for me, too.

Krissy: Things that you would think ...

Nick: Iceberg lettuce?

Cassie: Yeah. Just like water.

Nick: What is there in that to irritate you? I don't understand.

Cassie: Yeah, it's interesting that we kind of have this mindset that it has to be this horrible thing that I'm eating, but you could take that out of your diet and still be miserable. So, if you do phase out things and you don't notice any change to go ...

Krissy: Right, if you're miserable like you need to figure it out.

Abbie: The other thing, too. And I actually think BBcom has an article on this, but the [FODMAPs diet](#). So helpful. Actually, that's what I did post-pregnancy. I just took all those foods out, and they're like really great foods, right?

Nick: Onions are on there.

Abbie: Yeah, it's like things that are high in fructose and fiber. And it has a huge, for me it had a huge difference. So sometimes when I have a flare-up or, you know, when you're traveling out of your element, you just kind of bring it back to the basics, and good to know those two tricks. And even the science on FODMAPs is increasing, and it's just some of how your body responds to it. Which is another kind of good step that's cheap.

Nick: Can also be easy to start to feel like, "Oh, no. I can't have anything."

Abbie: Yeah, but it's short term.

Krissy: You start self diagnosing yourself and then we know how that always ends up. "I have a tumor. I'm going to die. And I can't eat anything but water." So ...

Abbie: But I can poop.

Krissy: Yeah! According to WebMD.

Nick: Well, thanks for talking. I feel like we've covered a ton of good information. So, where can we find more about you, our listeners who want to find more about you.

Abbie: Hmm, no, I don't have a website or anything like that.

Cassie Smith: Bumble.

Krissy: Ha, don't tell her husband that.

Abbie: I'm very happily married. My... at UNC, we have a homepage and I have [contact information](#) on there. I am on Twitter, I'm a tweeter.

Krissy: What's your Twitter. 'Cause you post science stuff, you do ... Yeah, what's your Twitter?

Abbie: It's [@asmithryan](#).

Krissy: @asmithryan. Always interesting. Any up-to-date, new novel research stuff, you'll know you get it here first, or see it first on a nice tweet.

Nick: You ever start any Twitter flame wars with other scientists?

Abbie: "Ain't nobody got time for that."

Nick: Obviously, you don't go to the same part of Twitter I do.

Abbie: Those people, let me tell you, science and research take a long fucking time. So, I don't have time to do the data and you know, fight people on it.

Krissy: We'll leave it to other people because you know they're some out there.

Abbie: Yes, people love that. That's not really my forte.

Nick Collias: All right, until next time. Thanks again, everybody.

Krissy Kendall, Ph.D.: Peace.

Abbie Smith-Ryan, Ph.D.: Bye, bye!



GLUTEN-FREE DIETS: REAL SCIENCE VS. BRO SCIENCE

From gluten-free pizza to gluten-free brownie mix, our fascination with gluten-free anything has taken off over the past few years. But is gluten really that bad for you? See what the science pros have to say about going gluten-free!