

Episode 92 Transcript

Jaclyn (00:01.794)

So today's guest is Dr. Doug Lucas. He is a double board certified orthopedic surgeon and osteoporosis specialist. He really kind of retired from his traditional orthopedics field to further his mission to educate the world that osteoporosis is not only preventable, but you'll be surprised to hear also often reversible. His personal health story led him to the world of functional medicine and biohacking, which he now brings to the bone health space. And really to help achieve his personal professional and personal mission,

Dr. Doug's written multiple books, started a prolific YouTube channel, and he serves as a lead physician for his nationwide clinical telehealth practice, Optimal Human Health MD. So welcome Dr. Doug, I'm so happy to have you.

Dr Doug (00:52.254)

Thank you. Yeah, happy to be here and share this, this fun, these fun topics.

Jaclyn (00:56.536)

Definitely, and one that we haven't covered on our podcast before. So I'm really excited to talk about bone health because osteoporosis and osteopenia are a huge problem, primarily for women, but a really arising problem in our nation.

Dr Doug (01:11.082)

Yeah, absolutely. I'm glad you see it that way because I completely agree.

Jaclyn (01:15.0)

So can you start by just telling us a little bit about your professional background and like how and why did you transition from a more traditional orthopedics practice into where you are today?

Dr Doug (01:25.694)

Yeah, so like you said, I'm a board certified orthopedic surgeon. So this is my training. I went through the traditional model, although a DO rather than MD, but functionally the same thing. So I went through all of that training, residency, fellowship, foot and ankle was my sub specialty. But in practice, I did general foot and ankle, did a lot of trauma and did that for about a decade before I jumped ship or retired. I don't know if I can use that word really, but I left because I was really dissatisfied with the way that we were able to care for patients in the traditional medical model. think like a lot of people you interview who find their way out of the conventional medical system, I felt like I was just cleaning up metabolic disease, especially in the foot and ankle space. And really, as I learned more in my own health journey and those around me, I realized, man, I would love to spend more time talking about preventing these things rather than, you know, how do I operate on this to make you different and hopefully a little bit and so while I loved what we were doing in the operating room, I felt very restricted because of the way that I was forced to see patients in

the system. So I started searching for, what is that, what is that blend between the two and a functional integrative approach to osteoporosis really kind of marries them nicely.

Jaclyn (02:42.892)

That's really, really amazing. So I wanna dive into this, I know when we think about like disease states from a functional perspective, we look at them from multiple different angles. So can you paint the picture on a high level? When we look at bone health and bone optimization, what are the big like buckets or categories that you wanna start to evaluate a patient in? Because I think generally people think, is your calcium sufficient? And that's like the end of the story, but we know there's so much more than that.

Dr Doug (03:08.864)

I'm not even sure that's a part of the story actually, is surprising to most people. But yeah, so bone health, I have learned to look at this so differently now than I did, let's say, 10 years ago. When I was practicing and I would see a patient with a hip fracture and we would have this 30 second conversation like, you have osteoporosis and you should go see this person to consider drug therapy. And that was it. Because for me, was a disease that was causing a fracture that I could fix, hopefully.

Jaclyn (03:11.901)

Hahaha.

Dr Doug (03:38.964)

But when I started learning about functional medicine, integrative approaches and realized that so many of our chronic diseases have the same underpinnings. And if you think about, you know, how do we prevent cardiovascular disease? How do we prevent dementia? How do we prevent or potentially reverse osteoporosis or even those other two? It starts with a lot of the lifestyle stuff and optimizing health overall. So what we did in our practice is we actually started out not just focusing on osteoporosis, but very quickly, very quickly went that way.

And what we did is we said, okay, well, we're already focusing on diet. We're focusing on, on exercise and movement. we're looking at biomarkers. So which of these make the most sense to look at and pay attention to when it comes to bone health. And so we started narrowing things down. And so the buckets that we see, pretty much globally in this population would be some kind of a dietary issue. And this could be inadequate protein, inadequate calories, could be approach that's not working for your muscles and bones.

We see very frequently gut dysfunction. So people that have, know, leaky gut or inadequate, you know, enzymes could be hydrochloric acid, pancreatic, whatever. There's lots of reasons why the gut doesn't function appropriately. And if that's the case, then even if you have the best diet, you're not going to be able to absorb those nutrients. And then we look at, you know, what are people really missing from their diet? And then is there a supplementation approach? And that's where calcium may or may not be a part of that.

And then hormones are a huge piece of this. And that's why my second book was actually on hormone op because we recognized very early on that the people that were coming to us through our YouTube channel, through our community, they were saying, know, like, I don't have access. My doctor won't listen to me. You know, I hear you, I hear you, but I can't get it. And so we created a second company that's specific to hormones, trying to help women to get this for peri- and post-menopausal women. So I would say those are probably the three biggest buckets, but the challenge with osteoporosis, like most chronic diseases, is that there are dozens and dozens, if not hundreds and hundreds of potential contributors to developing the disease over time.

Jaclyn (05:41.23)

Yeah, that makes a lot of sense. And it seems as though oftentimes we're not evaluating women young enough to like really make a difference. It's really with that first, what's the first age? What's the age for first DEXA scan today that's recommended?

Dr Doug (05:54.24)

It's hard to even talk about this without A, getting angry, but B, sounding like a conspiracy theorist. I've tried many, many different ways to describe this in a way that doesn't make me sound crazy. But if you think about the timing of this, from a public health perspective, the USPSTF has said, we want to screen women at 65 or men at 70. And their most recent release actually said, maybe, maybe not screen men at all.

Jaclyn (05:59.264)

Okay.

Hmm.

Dr Doug (06:23.178)

but men at 70 to see if they have osteoporosis to consider some kind of therapy, which of course would be drug therapy. And what's maddening about that is that we know that if you look at the trajectory of bone health for women, and men actually, men and women will reach peak bone mass in early adulthood. And then hopefully it'll plateau for several decades, and then it starts to drop. Now for women, it drops precipitously at menopause.

Right? So if they have a natural menopause somewhere around 50, 51, you're to see bone density and quality drop precipitously, but that's at 50 or 51 and we're not screening till 65. So I understand from a public health perspective, you want to screen when you're most likely to see the disease. So yes, I understand statistically this makes sense, but once you screen at 65, you have already missed 15 years where you had some really powerful tools to do something about it.

Jaclyn (06:53.582)

Bye.

Dr Doug (07:18.912)

And now it's not that it's too late at 65, it's just a different game. So my 65 year old patients are in a very different journey than my 50 year old patients, right? Now a lot of the same things happen, but it's a different conversation, different risk equation, and they're not always able to do things at 65 that they were able to do at 50. So it's hard for me to talk about that and not feel like it was designed in order to recommend drug therapy, right?

Jaclyn (07:44.77)

Yeah, well, you're getting to a point where there's no other option, right? Well, I mean, that's the conventional message is like things are so bad now that you really need to go on Fosimax or whatever bisphosphonate.

Dr Doug (07:53.088)

Right. Right. Well, so I'll actually take it one step further. And this is where I start to sound like I'm crazy. So if you look at even the definition of osteoporosis, and we should talk about imaging for sure, but they created DEXA, the adopted DEXA rather as a tool in the 1990s. So the definition of osteoporosis came about in 1994 when the World Health Organization, you know, set this threshold, I kind of call it arbitrary. It's not quite arbitrary, but it is pretty just random negative T score negative 2.5 is a T score. Anything below that is osteoporosis. Well then in 1995, the next year, Fosamax was FDA approved as a drug. So the definition and the drug therapy go hand in hand. And I'm not saying that this is a conspiracy. This is just how the system is built. So when we talk about diagnosing and screening for osteoporosis and what to do about it, we need to understand the perspective of which we're standing on. This is a diagnosis built off of drug therapy. So when we're going down a natural pathway, we need to take that into context.

Jaclyn (08:56.728)

This is a super helpful frame for this conversation and where we're headed. I'm curious from your experience, are there other markers that might be less expensive and easier than a DEXA to help evaluate women who might be at risk? I think that's a great place to start because certainly if you talk to someone in public health or in insurance, probably the counter argument is that to do DEXA scans on healthy women without disease or even get a baseline costs the system too much money and there's some validity to that, right?

How else, can you share with us what things you've done in your practice or you recommend to patients to start to get a grip on how serious they need to take this, their own bone health issues?

Dr Doug (09:36.032)

I've thought about this a lot and I don't have the answer but I'll tell you like what we do with our patients is we do take DEXA as a tool. We have to use DEXA because people have access to it Medicare and Medicaid and insurance will pay for it under certain circumstances So we have to consider DEXA, but it only tells us half of the equation when it

comes to your fracture risk So bone strength fracture risk is a combination of density and quality Dexa doesn't tell us quality

Jaclyn (09:40.301)

Mm.

Dr Doug (10:04.2)

It just tells us density, which is maybe half, maybe, of the equation. And so there are other imaging modalities out there. I think the leader of the pack is an ultrasound screening called REMS from a company out of Italy called Ecolite. So the REMS is an ultrasound. Like I said, there's no radiation. It can tell you both density and quality. But the problem is, as you said, from a public health perspective, does insurance cover this? Not at all, or at least not in the U.S.

You know, is it inexpensive? No, because right now access is limited. So then you're asking people to pay, you know, two, \$300 to screen their phones. So for some people that's not reasonable. And so this, this is a problem. How do we do this at scale? And I'm actually working with an international organization to come up with an answer to that, but I don't have the answer right now. But I think that that imaging is a modality that we should be using in young adults to get a baseline. Cause imagine if you are especially women.

If you've had some reason to not develop peak bone mass, as you go through your adult life, how great would it be to know if you are at risk for osteoporosis or already had it? We have patients in their 20s and 30s that have osteoporosis. So it totally changes the way you look at your diet, your health goals, the way that you do exercise, what you're willing to put your body through, and even your hormone optimization as a cycling woman. How important is it that you have regular cycles is really important, especially if you already have for bone density. So I think it's so valuable. So when I look at this and I talk to people about it, I wanna frame bone health as a biomarker for health span. And I think this is how we get in in front of a younger audience to say, yes, great. If you are in your 20s and 30s and obviously 40s and 50s too, but if you are in your adult life and you are focusing on optimizing your health, improving your health span, how long you are going to live well, bone health has to be a part of that picture. And the way you do that is through screening preferably with REMS if you have access to it. And there are some blood markers too we can talk about, but I think we have to be looking at this at any younger population.

Jaclyn (12:10.54)

Yeah, I love that you mentioned that. And I love that you mentioned kind of health span too. And really, mean, as a younger, I mean, I'm not that young anymore, no spring chicken, but younger women, it's hard to imagine how your life would be impacted as an elderly woman with a hip fracture. But the truth is that if you look statistically, it's like one of the leading predictors of mortality, right? Like isn't the recovery can be so difficult? My grandmother fractured her hip and it's like, what comes first, the chicken or the egg? Is it disease first and then a hip fracture?

or the hip fracture that leads to more sedentary lifestyle and challenging recovery. But the fact of the matter is that when it comes to health span, the ability to move and move comfortably is a big piece of that. And so I completely can see that understanding bone health should be a big piece of that when you look at your health span, but also as a predictor of other potential, like underlying chronic issues that are leading to the decline in bone health. So it's kind of both.

Dr Doug (12:41.726)

Yeah. Right.

Dr Doug (13:07.168)

Yeah. Yeah. I think the pieces to that I'd love to chime in. So I, I've been shouting this for, don't know how many years now, you know, we need to consider bone health because fragility fracture is I think the number three cause of death over the age of 65. Like it's a big deal, but just like we don't do a good job, you know, thinking about long-term cardiovascular risk or long-term dementia as a young adult, our brains are just not wired to worry about long-term risk. There's too many other variables in the way.

Jaclyn (13:21.442)

Mm-hmm. It's big.

Dr Doug (13:36.106)

So I want to spin this around and say, okay, let's look at it like this then. There are so many factors that lead to how you feel, right? So as a young adult, how you feel your energy, your libido, your, you know, like your drive, like your vitality, all these things are actually really important. And we think about these things every day. So let's look at it this way, which is that all of those things are tied to the same things that are going to have a detrimental impact on your phone.

So then let's look at your bone. Let's look at the bone turnover markers. Let's look at imaging. Let's follow this over time. If you're losing bone as a young adult, there's something wrong that's affecting you in other ways. So again, let's use it as a bio marker rather than an indicator of long-term risk. That's true too, but let's reframe it so that we can actually hit the wiring where the human brain actually will make a difference.

Jaclyn (14:25.9)

Yeah, I see what you're saying. It's like, if you can identify this rapid decline in bone health, it is a absolute measurable biomarker that there's underlying factors that are also addressing libido, you know, your energy, your cognitive health, and all those things that are affecting you today. Yeah, great. Well, I do want to spend some time. actually, one more question around what you had brought up is when you talked about the density of bone and the strength of bone, that I think is an important piece because

There's a lot of criticism of like the bisphosphonate drugs on the market because they do tend to, the studies show, they do increase the density of bone but don't necessarily increase the strength of bone. Can you talk a little bit about maybe the physiology of bone for people listeners who are newer to the podcast? What's the difference between the spongy bone on the inside and the kind of more dense bone on the outside? And why are those drugs criticized by some groups?

Dr Doug (15:23.464)

Yeah. So, they're criticized by me too. So let me just give the framework here, which is bone. We think of, think most people think of bone. They're just thinking like, it's the skeleton, right? My muscles attached to it. Like if I didn't have it, I'd be like a ball of jelly on the floor. And that's true, but bones are a active organ system, right? So like they're always turning over, they're breaking down, they're building, they're responding to stress.

You have the bone marrow on the inside that's in the spongy bone. You have the hard cortical bone on the outside that's a variable thickness based off of the stresses that it sees. Bones are amazing. And this is why my background in orthopedics I think blends so well here is because I have spent time touching, feeling, examining, fixing bone, watching it heal. I know bone really well. When I think of osteoporosis, it is simply just a dysfunctional metabolism of bone. And this is why it's such an important biomarker because if it's breaking down more than it's building up, there's something wrong, right? Are you giving it the wrong inputs? If you are losing bone, this metabolism is messed up. If you're building bone, then things are probably going right, right? So there's so many inputs for the breakdown side and the buildup side that we can manipulate. So then to get back to your question, how do we look at the natural solution versus the drug solution?

The drug solution isn't wrong. And I want to be very clear about this. When doctors in the conventional system say, have osteoporosis, here, take this bisphosphonate drug, for example. They have the same goals that I have. I want to prevent fracture. The difference is I have the, we'll call it the, you know, it's such a gift to be able to have the time to talk to my patients about lifestyle. We can talk about diet. We have the right team for this. The doctors in the conventional system don't have that opportunity.

They probably don't have the training either, but even if they did, they don't have the time. So we can talk to our patients about how to do this naturally. If I had five minutes and I wanted to prevent a fracture in the next three years, I would prescribe a drug too. I used to do it because I want this person to not have a fracture or not have another fracture. If that's because I would be seeing them after they had a fracture, right? So the drugs do increase bone mineral density. They do reduce fracture risk in the near term. I was actually just scripting,

Dr Doug (17:45.216)

another video, I'm updating one on a different drug. But it's always interesting to read these studies because they do a really good job making them sound really good. So like the

relative risk reduction or fracture in the 40, 50, 70%, depending on the drug and the study, and that sounds great. But what we need to understand is that the absolute risk reduction, meaning what is the actual difference between the placebo group and the intervention group, is usually pretty small, less than 1%, between 1 and 2%.

Jaclyn (18:12.238)
Hmm.

Dr Doug (18:15.442)
And that might be clinically relevant, but it might not. And so we always have to look at these studies with scrutiny because they are funded and paid for by the drug industry because they're trying to get a drug approved. And that's again, not wrong either, but we need to look at these things for what they are. The problem with the drugs that I see is that you can't use them long-term. So bisphosphonate drug and Prolia and Avenity eventually, all of these drugs will squash bone metabolism, meaning it just shuts down the osteoclast all through different pathways. But those cells can then no longer break down bone effectively. And when you do that, the bone building cells can't build bone either. I like to liken it to like building a highway, right? Like you don't put a new highway on top of an old highway. would be fragile. It would break apart, you know, quickly. Same thing with your bones. You have to break down bone in order to build new bones. So if you suppress the bone breakdown, you suppress the bone building and you can't do that in death.

You have to have bone turnover. So that's why you look at the recommendations for bisphosphonates. They don't recommend taking them for more than three or five years, depending on the drug. Prolia has recommendations out to 10 years, but we don't have any safety data past 10 years. Avenity, one year. So while this might make sense for someone who is in their 70s, 80s, 90s, maybe, depending on their physiologic age, if you have a woman in her 40s, 50s, or 60s, this doesn't make sense to me.

And this is why a natural approach, although certainly it's harder, you have to actually do something, but a natural approach that can have similar results, impressive results in the right people, you can do that forever. And you're doing it through the lens of healthspan, but why not do that first?

Jaclyn (19:58.391)
Mm.

Yeah, great. Well, let's start to talk a little bit about some of those kind of fundamental pieces that you do work on from a natural perspective. And of course, for us at the Dutch podcast, it makes the most sense to start with hormones because we love hormones and we know hormones have a huge impact on bone health. So can you tell us a little bit about that? Maybe starting with women and then we can also touch upon men as well.

Dr Doug (20:12.724)

Yeah.

Dr Doug (20:22.74)

Yeah, no, I'd love to. We always leave the men out in this conversation. Let's definitely get that. But yeah, so when we started looking at this, we started identifying early on, okay, who is getting better? And who's getting better the fastest? And hands down, if you are on hormones, everything you do naturally is just expedited because hormones are an amplifier of all the other things that you're doing in your life from a health band perspective. So then we really dug into the details and we said, okay, so if that's true,

Jaclyn (20:35.213)

Mm.

Dr Doug (20:51.744)

then what are the factors that seem to be a difference? We hear about, you know, are there certain estradiol threshold levels we need to worry about? You know, what is, you know, what, how, much progesterone do we need? How should we being applied? What does the research say around cyclic versus non-cyclic? What about going all the way to physiologic restoration versus low-dose static? Because you have all these variables in the, in the hormone space. And so we were able to do a deep dive into literature and we started finding, oh my gosh, there's so much literature on hormone health and bone health has just been buried because of what happened in the early 2000s. So you go back to the 1990s and this was like, this was a very vivid conversation of hormones and bone health and how powerful hormones are for bone health and the study.

Jaclyn (21:34.286)

Sorry, when you say what happened in the early 2000s, do you mean WHI being published?

Dr Doug (21:41.024)

WHI and the other studies, yes, we all talk about WHI, but it wasn't just WHI, right? was a series of studies that came out that just scared everybody, doctors and patients alike, off of estradiol. But not only that, I think what's really sad is that it also scared the research away too, right? So before the early 2000s, there were studies looking at different estradiol doses.

Jaclyn (21:42.658)

Okay.

Yeah, there were others too.

Jaclyn (21:59.406)

Hmm.

Dr Doug (22:05.908)

different protocols, cyclic, non-cyclic, static, estrogen, cyclic progesterone, like all of these different techniques trying to figure out what's the best way to optimize hormones. All of that went away in the early 2000s, right? So now nobody even, when I even bring up the idea of cyclic hormones, people are like, what do you mean? Like this, why would you cycle hormones? And I look at them and I'm like, why would you use static hormones? Like that doesn't make sense. It never did. It's just easier. And that's what we did for the last 25 years. But what, like what was happening before that?

Jaclyn (22:29.742)

Mm-hmm.

Yeah.

Got it. Okay, so keep us going about the hormones. I mean, estrogen is a really important hormone for maintenance of bone health.

Dr Doug (22:44.03)

Yes. Yeah. So all three make a difference. We have the best evidence for estrogen, specifically estradiol. I'll talk about progesterone and testosterone too, but what's really interesting about estradiol is the first thing I did is to look at the literature and say, okay, is there a level we should be aiming at? Because I'm not seeing that all women on HRT are seeing improvement.

Jaclyn (22:47.63)

Hmm.

Dr Doug (23:07.37)

So it turns out the literature does support this threshold somewhere 60 to 80 picogram per ml. It's kind of like a threshold that you start to see either loss of bone if you're under or maintenance of bone if you're over. And that was a good starting point. But then when I started seeing the studies, actually looking at estradiol levels and looking at cyclic versus static patterns, you see that cyclic is always better, higher levels of estradiol seem to be better.

So then we started looking at other biomarkers like let's say FSH as a sign that your estradiol is optimized. Or let's actually look at the bone turnover markers themselves. What's happening with the CTX and P1 and P, these two bone turnover markers that we use. If we have a woman whose estradiol is at whatever level, but her FSH, CTX and P1 and P are all dialed in, I'm pretty confident that her estradiol is saturating her estrogen receptors on her bone. And that's sort of the path that we've gone.

But what's really interesting about that is that what we see clinically is that that is different levels for all women. And sometimes it's not that high. Yeah, yeah. so we're looking in blood, but if we look at the women who have hit these thresholds of FSH, CTX, P1 and P, all

dial that, the rest are dial levels are all over the place. Now, some of them do require relatively quote unquote high levels, over 100 picogram per ml, but some don't.

Jaclyn (24:04.898)

Different doses, like different hormone doses. Yeah, okay.

Dr Doug (24:27.744)

Some it's 50, 40, 30, like less than I would think that they would need. And so that's why it's really changed the way that we look at biomarkers and talking about symptoms. Some women feel great that don't need that much estradiol, but some women need more than their doctors are willing to prescribe. And this is the crux that we find women in is that they can't get access to the biomarkers and then their doctors don't know what they're looking at because they're not trained this way. So it's a big challenge to get adequate estradiol.

Jaclyn (24:55.566)

Yeah, and this makes a lot of sense. actually, when we talk about HRT, which is a topic we talk about a lot at Dutch, one of the things that's so fascinating is that, one, the industry, like medical, know, menopause society, all of our hormone societies don't recommend monitoring for estradiol and progesterone. In testosterone, women are on them. It's the only hormone I'm aware of that they don't. Like, you wouldn't put a woman on thyroid. You don't put a man on testosterone.

There's really not other models where you don't measure, you know, estradiol levels in serum or some other way. We think that urine is a better marker when it comes to that, when women are on HRT. However, this is exactly why it's, I think, it's making the case for monitoring, is that when you use hot flashes only to dose HRT for a patient, they might not achieve all the benefits that they're able to achieve. And bone health is a really great actually data model when you look at the research because they have identified estradiol levels in serum that can help protect bone where if you're below that threshold you don't see benefit but many women experience the other physiological benefits of hormone therapy like hot flash resolution, clarity of mind, sleep, all the things they're looking for at a dose that's not adequate for bone protection and that's a missed opportunity. So I'm really glad you're talking about this and talking about how you look at it from a bone health piece and

And I'd love you to talk a little bit more about some of the other markers, like the CTX that you talked about, because I think those are new for a lot of people. But absolutely understanding that getting adequacy of estradiol seems to be a really important piece of that puzzle for women.

Dr Doug (26:38.272)

Yeah, it really is. it's hard as a physician, if you've been brought up in the last 20 years, it's hard to get over this mindset that it's dangerous. Even though, I literally wrote a book on it and I keep saying over and over again, it doesn't cause this, it doesn't cause that. The

evidence is so clear. But yet still, even in my own providers, we talk about this every week. We go through cases, we tell them that

Jaclyn (26:48.749)

Hmm.

Dr Doug (27:06.942)

And I say, well, they probably need more estradiol. My providers go, ooh. You know, like, I don't know, it's pretty high. Like, what are you worried about? Right? Like, we know that they're not there yet. So let's get them there. Like, these are our protocols. And so it just is so hard to get over this mindset that it's dangerous. But if you look at bone, especially, because it provides feedback, it gives you feedback. So if you look at bone, it gives you feedback. We know that the bones then are saturated from the hormone perspective, and then maybe, we don't know this, but maybe the brain and the heart are as well. And they don't give you that feedback, though. They don't give you biomarkers like the bone does. So it's really the only one of those three that we have that can give you this feedback.

Jaclyn (27:50.158)

Okay, so tell us a little bit more about kind of the hormone therapy. You talked a little bit about estradiol. What about progesterone and testosterone?

Dr Doug (27:51.456)

Thank

Dr Doug (27:57.662)

Yeah, so progesterone is really interesting. So if you look at studies on women that are still cycling, although probably this particular study I'm thinking of, they were irregular. They showed that even if estradiol levels were normal, so it had a normal follicular rise, fall, but something happened and they didn't have progesterone rise in the luteal phase. If they didn't have five regular cycles per year, they started losing bone. And this was in young women. So we know that progesterone clearly plays a role here.

Jaclyn (28:13.58)

Hmm.

Dr Doug (28:24.916)

But it's never studied independently for bone. I've never seen a study looking at progesterone as an independent intervention. So I can't say in a postmenopausal woman how powerful is this tool. But I will say that we do use it off label for women who are postmenopausal who aren't willing or aren't candidates for estradiol because we know that it has an impact. I just can't say how much that impact is. And then we also will use the literature to say that whenever progesterone is cycled,

we see a better impact on bone mineral density, usually in conjunction with estradiol. But whenever it's cycled, we get this a little bit of a push-pull, which is what women had when they were cycling naturally. You get some of that push-pull and you always see better results from bone mineral density perspective compared to either static or placebo, certainly compared to placebo. So I know that it plays a role. There just isn't the right study to show us how much.

Jaclyn (29:20.152)

Yeah. Do you cycle progesterone alone or do you cycle it when you're prescribing it in conjunction with estradiol? Okay.

Dr Doug (29:28.296)

it depends on the patient and how they tolerate it. So for some women, if they're not on estradiol and they're only on progesterone, because we use oral for the vast majority of our patients, if they're on oral and they love how it makes them feel on a regular basis, it's hard to tell them to cycle. So, you know, we start generally the same dose and then we can talk about cycling and see how women feel. Maybe we use the lower dose and the higher dose. There's a lot of ways to do it, but this is the customization that it takes.

Jaclyn (29:52.462)

Okay, great. And what about testosterone?

Dr Doug (29:57.418)

Testosterone is interesting. So actually when I started writing the book, I wanted to write it mostly about testosterone because it's clearly under, it's under discussed, it's underrepresented. And so I wrote actually like eight chapters on testosterone from different angles. And then in the end, I ended up condensing it down to one because what I realized, especially in postmenopausal women, I have a hard time getting their testosterone levels. If we use testosterone alone, I have a hard time getting their testosterone levels very high before I start seeing.

So I think, especially in the younger population, this is a very valuable tool. But as women get past 65, 70, I don't find it to be as effective because I can't get their levels very high before I see side effects. yeah, hair loss is the biggest one, right? And hair loss is tough because in that population, hair loss is common anyway. it's hard to say, it coming from the testosterone, but we see it so frequently.

Jaclyn (30:40.952)

Side effects more like androgens, androgenic symptoms. Yeah. Okay.

Dr Doug (30:58.156)

that it's, it's become not our, our favorite tool, put it that way. but the literature is compelling, but I only found one study in all of the studies that I looked at. only one study on testosterone and women in bone health. So if you look at women who were on, they

were already on, this was a pellet study. So they were on an estradiol and progesterone. I progesterone was in the pellet too. And then they did an arm with testosterone and arm without. And the testosterone arm outperformed the estrogen.

Jaclyn (31:02.371)

Yeah.

Dr Doug (31:27.712)

testosterone arm. So that study is promising, but it wasn't very big. And of course it's in pellets, so this isn't how we would use it anyway. So I think that the physiology makes sense. I love for women to be more anabolic, to have adequate testosterone, but I can't say how powerful is this. If you go to men, so for men, there are more studies looking at bone mineral density, but none of them were big enough or long enough to identify reduction in fracture risk. And they didn't use adequate doses anyway.

So it's it's frustrating research. Testosterone research is just bad across the board. just like the right research in testosterone just isn't being done.

Jaclyn (32:06.688)

It's fascinating because I would imagine more research would be done on it because testosterone is believed to be one of the reasons why men don't experience osteoporosis at the same rate that women do. So if it seems like this obvious indicator and hormonal difference between men and women that impacts disease outcome or disease prevalence, you'd think there'd be a little bit more research to try to dig into that and figure out why.

Dr Doug (32:30.048)

I think it comes down to like two big things. So first of all, for men, there is a fear around testosterone. Like there's not quite the same, but there is a fear around testosterone, probably not to the same extent as there is a fear around estrogen for women. And that fear has been disproven, the need for that fear over and over again in studies. But again, same thing. Doctors are just afraid to optimize testosterone. Like, my gosh, let's not get your levels up to a thousand. You're gonna...grow a second head. I don't know what they're worried about, right? But like they're, they're not optimizing testosterone in men because they're not looking at free testosterone, SHBG. They're not looking at other biomarkers and symptoms. So yeah, men feel a little bit better with a little bit of testosterone, but it's probably not enough to optimize their, their bone. And so, so we see that in men and then in women testosterone has just been wrapped into the diagnosis of HSDD, right? So like it's only studied in women for sexual dysfunction but yet it has the benefit, the potential benefit for bones, heart, brain, and a lot of other tissues. But we just, there's no other clinical indication for it. So a drug company can't study it for anything else. So it's just, it's stuck. And I don't see a way out of that without some kind of a big shift in this relationship between research, pharma, and the FDA.

Jaclyn (33:50.764)

Yeah, it's fascinating. it's not a real, I mean, there are like obviously FDA approved drugs in the hormone space, but they're probably not the most profitable category of drugs today, which unfortunately it does influence research because companies are willing to invest and this is not a criticism, but they're going to invest in areas of health that are going to have a return when it's commercially funded, right? That they're going to be able to develop something that can make money back to that investment. you know, certainly makes sense, but it is unfortunate.

Dr Doug (34:00.32)
for sure.

Jaclyn (34:20.558)
piece of that with kind of all natural therapies and I think hormones as well, that you get less research just generally when it can't easily turned into a profitable component.

Dr Doug (34:28.298)
Right. Yeah. I mean, you know, like we have to recognize that business models, like these companies are businesses and know, are for profit businesses. And so yes, this is the business model and you're right. can't fault them for that. But at the same time we can look to, know, maybe it's the federal government, maybe it's a government organization, you know, maybe it's, it's, maybe it's a private, you know, yeah, like there's, there are other ways to do it. Or we could say, you know, maybe, maybe we don't need a 10,000 or

Jaclyn (34:34.549)
Exactly, they're businesses.

Jaclyn (34:48.44)
academia. Yeah.

Dr Doug (34:56.736)
30,000 person study to prove the thing that we're doing. Maybe this doesn't need to be a \$500 million study. Maybe we can do it in a different way if we understand that, RCTs are good, randomized control trials are good or they're great, but there are other modes of research as well that are less expensive that can still answer some of these questions.

Jaclyn (35:15.862)
Yeah, absolutely. So I know that you do use Dutch test in your practice to evaluate hormones for patients. Can you share a little bit about what are the markers that you're really looking at on there and why do you find it as a useful addition?

Dr Doug (35:29.024)
Yeah. So we've kind of gone around and around on this because I love urine testing for hormones because it gives you different information. think the most powerful part is the breakdown of estrogen in general. So we actually started out in the practice. We used it on

everybody who was on a hormone, any kind of exogenous hormone, right? So we're like, let's look at the breakdown. We're worried about, you know, what's the breakdown? How's it going to affect your symptoms? What's the potential risk of the breakdown products, et cetera.

The challenge that we had is just that if you just keep adding functional tests after functional tests, then we run into cost issues. And so we said, okay, well, how often is it really changing what we do? And so we kind of backed away from it, but then we really missed it. So now we're back. So now we're back and we're doing it more frequently. We don't do it on everyone, but anyone that is, that's open to it. We always talk about it. Anyone that says, yes, I would love to see that information. We do it. Or anyone that's having unusual symptoms, I would describe it. And we see this all the time where, especially on our YouTube channel, we get comments, know, well, I tried HRT and like, you know, such and such happened. Like I didn't feel good. I didn't feel like whatever. It was a million reasons why HRT might not work for somebody. But I think a lot of it is either, you know, wrong form, wrong route, wrong dose, or what's happening in your body. And so what I love about the urine metabolite testing is that it tells us, okay, what's happening with these hormones? What is it breaking down into?

And then what can we do about it because the different pathways have different tools. So it just helps us rather than guessing and asking how you're feeling and trying different supplements and going down this pathway. We can actually answer that question and we can come up with a solution much faster that's going to help women to stay on their products and get to optimal dosing, minimize those symptoms and ultimately risk too.

Jaclyn (37:20.33)

That's great. And I mean, one of the things, I think the estrogen metabolites are huge. And I can imagine for bone that androgen metabolites might play a really big role for women as well because you can see like 5-alpha reductase activity, whether they're kind of retaining that. And the other marker that is a really interesting one that I don't know if you look at this one because it's not on the imagery page is the 5-alpha androstain dial, which is only on the table page. But it's actually, you know,

Well, let me step it back a second. I think sometimes patients and even providers don't realize the difference between looking at hormones in serum and urine. Obviously you do, you've talked about that. But serum is like the pool of hormones available to tissue. When we look at urine, it's actually looking at what was used by the tissues and how it was used. So it's a little bit different because you're looking at metabolites. 5-alpha-andro is a metabolite basically of DHT intracellularly. so

DHT can't leave the cell. It leaves as 5-alpha-android, but we can measure that. And there's actually some really interesting data showing that in women, it's probably the best marker for intracellular androgen activity. And I love that it's on here. We're actually going to be

elevating it this year and talking more about it because the data is starting to show how impactful. But I imagine for bone, that could probably play a pretty big piece.

Dr Doug (38:37.92)

Yeah, could help us to identify somebody who potentially would be, know, somebody who needs more androgens. And then, you know, how do we then do that as the clinical question that maybe you could maybe we can talk about that offline. But yeah, there's definitely a role in looking at the breakdown. But the challenge I have with the breakdown for the androgens is that there's not as much for me to do with it. You know, so I can look at it. But then my only tool is to back off of

Jaclyn (38:49.24)

Yeah.

Jaclyn (38:53.484)

Yeah, definitely.

Dr Doug (39:05.768)

are two tools, of testosterone and DHEA. So I haven't found it to be as helpful from a clinical outcomes perspective, but it is helpful to explain symptoms for sure.

Jaclyn (39:14.446)

Yeah, definitely. Women who might be more sensitive to a lower dose of HRT like testosterone as well. Absolutely. You can kind of identify the women that would be most at risk for that. Could you share with us maybe a case or a patient where you utilized touch testing and what it helped you learn that added value to their case?

Dr Doug (39:35.732)

Yeah. So I can just give you like, have a whole like bucket of cases where someone wasn't tolerating as we were trying to increase the estradiol. They would have symptoms, right? So they would have symptoms either of a breast tenderness, maybe it was even breakthrough bleeding, you know, or like something that just didn't seem right. Because usually we can balance these things. We have all kinds of tools for this. and so where, where Dutch testing comes into play for us as we say, okay, there's something going on. I don't know how to manage this because I don't know what's happening under the hood.

Jaclyn (39:45.486)

No.

Dr Doug (40:04.852)

let's look at your metabolites. And when we do that, it helps us to then come up with a plan that includes potentially lifestyle, potentially nutrition and other things, but also supplementation to help to direct different estrogen metabolites that break down in different ways. We have seen so much benefit and that has allowed us to then take these

patients who weren't tolerating an increased dose, allow us to get their estradiol optimized. And then once everything gets dialed in, then sometimes they don't even need those things anymore.

But understanding the metabolites and sometimes the genetics associated with that has really helped us to change the protocol for some women to help to get them optimized.

Jaclyn (40:41.592)

Yeah, I'm really happy to hear that it's been a helpful tool with kind of optimizing that dosing for patients because we see the same thing all the time in our building. Yeah, so I really appreciate you spending time with me today and I know we're almost done with our hour together. Can you share a little bit if patients want to learn more or providers want to learn more from you? I know you've taught at A4M. You have a couple of books available. How can we access those books?

Dr Doug (40:49.566)
that.

Dr Doug (41:07.572)

Yeah, so both of my books are on Amazon. If you just look at my name, Doug Lukias on Amazon, you'll find them. One's on bone health specifically, and the other one is on hormone optimization specifically. So the books are great. They're short. They're an easy read. I think good for both clinicians and for people that are struggling with osteoporosis or have questions about hormones. And then if you want, the best way to find the content is on our YouTube channel. So you mentioned it in the intro.

The YouTube channel is where we're spending a tremendous amount of time and resources to create evidence-based content specifically on bones, hormones, and healthspan is the name of the channel. So that's again, Doug Lucas. If you look that up on YouTube, you'll find me. And then our offerings for people would include our community, which is a great way to just get involved. If you have osteoporosis, great way to get involved with a community of people who are doing this on their own.

This is the fastest growing thing that we're doing because this is international. We're again, putting a ton of resources in there. My team's in there. I'm in there. We do a weekly Q and a, we keep track of all of this content and we split it up into a searchable format and log it. So if you're looking for content that's easily searchable with different resources, the osteo collective is what that's called. The osteo collective is awesome. And then lastly, we have our practice optimal human health in D as you mentioned earlier, this is our bone health program. It's a 12 month membership.

based program and it is designed specifically to reverse osteoporosis naturally, which we're doing in most of our patients.

Jaclyn (42:36.288)

Awesome. Well, we will put links in our show notes for those of you listening. You can visit the page on today's show and find all the links to find Dr. Doug. And Dr. Doug, just want to say, sorry, go ahead.

Dr Doug (42:44.89)

Sorry, I forgot one. Sorry, I too many things. So also the hormone company Pema Bioidentical, I mentioned it briefly. So Pema Bioidentical is the nationwide platform that is just hormone specific. So if you don't have osteoporosis, then this is the way that we optimize hormones for people throughout the country. our patients in Pema don't necessarily have osteoporosis, but can't get the kind of care that they're looking for. So we'll make sure you have that link too.

Jaclyn (43:11.554)

Great, thank you. And I wanna just thank you for joining me today. I'm really excited to have the opportunity to share more of your work because in the functional space, there's not a lot of people focused on bone health and your evidence-based approach that you've run through so many patients with has helped a lot of people. So really, really happy that you spent the time with me today. Thank you so much.

Dr Doug (43:31.732)

Yeah, thank you. has become my mission to educate across the globe. So happy to be here.