

Marieke

Hi, my name's Marieke. Well this is one of the strangest times in my life. In my late 20s to early 40s I was hyper productive, high achieving, goal oriented, and I was just able to get a lot done. I was able to be highly productive with little sleep. However now with brain fog and high levels of fatigue, some days it's difficult to complete a simple list of tasks. It's like living with my head in a cloud. Some days I'm so tired, the fatigue is really challenging and limits my ability to want to do things outside of my work and home responsibilities. I have also experienced a substantial weight gain of about 50 lbs, which no amount of physical activity or calorie restriction seems to address.

And oh my gosh, the heat. I used to get cold easily. Now I long for those days. My first hot flash or flush felt like a wave that started at my feet and slowly moved up my body and unfurled and unleashed its heat on me. It was wild and almost anxiety producing because it felt unlike anything I had experienced previously. Since then I have had many more but something I've really noticed is how hot I am most of the time. Interestingly, now I experience fewer hot flashes and instead just feel hot most of the time. I've also had really itchy inner ears, which I thought was just a strange issue I was having but as I read more I found that it is a common symptom for women at my stage in life. And the darndest thing is no matter the amount of scratching I do, which looks really pretty, the itch persists. So what's going on?

So menopause is defined as one year following one's last period. However I had an endometrial ablation in 2007 and haven't had a period since then. So the monitoring aspect of where I am in the time frame of menopause or perimenopause is based solely on my symptoms. I found it hard to find a practitioner who's truly knowledgeable about menopause and perimenopause. My OBGYN is not, my former general practitioner and integrative health professional was not, although she claimed to be. It took me years to find a North American Menopause Society or NAMS certified provider in my rural area. And in fact it took me a long time to even find out about NAMS. Meeting my certified NAMS provider was a relief because all the scientific information I had read about prior to our meeting was reinforced during the meeting. This led to complicated discussions and a lot of reading about hormone replacement therapy or HRT for short. There is so much conflicting information out there.

I'm an alternative medicine type of girl. And although I'm very pro vaccine, I've always prided myself on not taking a lot of meds or finding herbal remedies for many ailments. When I was in grad school in 2001, the large research study called the Women's Health Initiative was grounded and halted all recommendations for HRT meds due to the cost of treatment outweighing the benefits. One of my statistic professors was in the research group for this trial and talked to us then about the problems with stopping the trials prematurely, including how the data were being misinterpreted. And little did I know how this would affect me later. It turns out the misinterpretations of the data led to misinformation and led me to being really scared to try HRT.

As a result, I first chose bioidentical hormones, those that mimic the ones created by our bodies but derived from plants, or in this case sweet potatoes. When I was having little or inconsistent results, my provider gently shared the data and ideas about taking more traditional HRT. She mentioned that the traditional HRT which is bought at a standard pharmacy meets the standards for consistent dosing, is recommended by NAMS, and is effective when started prior to the cessation of symptoms. So now I'm six years in and while my symptoms are better across the board, they're still present. I look forward to the day when they are behind me totally. It's been so interesting to find how different people's experiences are. Some people have zero symptoms and don't know where they are, if they've completed menopause or not. And others have more extreme symptoms than I do. I'm happy to have great physicians to follow such as Dr. Jen Gunter. She's an OBGYN who wrote the Menopause Manifesto and actively works to debunk myths about menopause, as well as educate us about what's going on with our bodies.

TPWKY	(This Podcast Will Kill You intro theme)
Erin Welsh	Thank you so much, Marieke, for sharing your story with us. We really appreciate it.
Erin Allmann Updyke	Yeah. Thank you.
Erin Welsh	Hi, I'm Erin Welsh.
Erin Allmann Updyke	And I'm Erin Allmann Updyke.
Erin Welsh	And this is This Podcast Will kill You.
Erin Allmann Updyke	Welcome to the last episode of this season.
Erin Welsh	Yeah, I hope that we've been... I can't remember, have we been saying that we're wrapping up this episode or this season? Whoops.
Erin Allmann Updyke	Not even a little bit.
Erin Welsh	No.
Erin Allmann Updyke	Surprise!
Erin Welsh	Surprise! But we're making it an extra long, extra fun, extra fascinating one.
Erin Allmann Updyke	Yeah.
Erin Welsh	Yeah.
Erin Allmann Updyke	Talking today about menopause.
Erin Welsh	We say this a lot. This could have been a two parter, a three parter, a four parter.
Erin Allmann Updyke	Yeah.
Erin Welsh	A season.
Erin Allmann Updyke	Maybe. Maybe it should be. Maybe we'll redo it.
Erin Welsh	Yeah. But I had such a great time researching for this episode. I am super excited. Honestly I think that I've probably annoyed so many people because I cannot stop talking about it. I've lost friendships because I will not shut up about menopause.
Erin Allmann Updyke	You're probably not the first one, Erin.
Erin Welsh	Yeah.
Erin Allmann Updyke	I'm really excited to hear your entire section. Like I feel like you have given me just enough of a glimpse of the general topics that I'm like ooh, I can't wait.

Erin Welsh: I hope I do it justice.

Erin Allmann Updyke: Oh same.

Erin Welsh: But before we get to all of that, should we, is it...

Erin Allmann Updyke: It's quarantini time.

Erin Welsh: Oh yeah. What are we drinking this week?

Erin Allmann Updyke: We could be drinking nothing other than Blood, Sweat, & Beers.

Erin Welsh: I love it.

Erin Allmann Updyke: Me too, Erin.

Erin Welsh: And I also love the recipe because it's more or less a michelada. It's something that we've done before but we're spicing it up this time by adding cucumber and jalapeno and lime juice.

Erin Allmann Updyke: Yeah.

Erin Welsh: I don't know how. Like what?

Erin Allmann Updyke: It's going to be delicious.

Erin Welsh: It is. It is. And we will post the full recipe for the quarantini and the non alcoholic placeborita on our website thispodcastwillkillyou.com as well as on all of our social media channels.

Erin Allmann Updyke: On our website thispodcastwillkillyou.com you can find so many things, like our bookshop.org affiliate account, you can find our Goodreads list. You can find Bloodmobile, our music, and our merch and our Patreon and transcripts from all of our episodes and our sources from every episode. Oh the list is long.

Erin Welsh: So, so many things. Check it out. I don't think there's any other business besides this is the last episode of the season.

Erin Allmann Updyke: Oh yeah.

Erin Welsh: We will not make you wait very long for the next season.

Erin Allmann Updyke: No.

Erin Welsh: Don't worry. And the next season will be jam packed full of very many fun, cool things.

Erin Allmann Updyke: We have so much entirely unplanned but so many ideas. It's going to be a really great season.

Erin Welsh: You know what? I can't wait.

Erin Allmann Updyke

Me neither.

Erin Welsh

But first maybe we should do this episode.

Erin Allmann Updyke

We should, we should.

Erin Welsh

So should we take a quick break and then get started?

Erin Allmann Updyke

Yeah, we should.

TPWKY

(transition theme)

Erin Allmann Updyke

So the definition of menopause, according to textbooks and doctors and all the papers, the definition of menopause is 12 months of amenorrhea or 12 months of no period, specifically as a result of the cessation of ovarian function. That is the clinical definition. And menopause is clinically defined, there's not a single test that you can do to say menopause or not menopause. So in a person who menstruates, after menarche, which is like the start of getting your periods, some number of years later, once you then go 12 months without a period, without anything like contraceptives or IUD or pregnancy or breastfeeding or even cancer or chemotherapy or something that's altering your hormones temporarily, once you have 12 months with no period, because your ovaries are no longer having follicular function, we call that menopause. If you think of it as a reproductive lifespan, people with ovaries and uteruses have the beginning of their reproductive lifespan with menarche, that's your first period, anywhere from 10-16 years old. And someday we'll do an episode about menstruation.

Erin Welsh

Yeah. We really, really need to.

Erin Allmann Updyke

Yep. Feels like a missed opportunity, could have done that one first. But we start where we start.

Erin Welsh

Yep.

Erin Allmann Updyke

So menarche is the beginning of this reproductive lifespan as it were and then menopause is the end of it. And so after menopause you are postmenopausal but still alive for a really long time. Hopefully.

Erin Welsh

Okay, question.

Erin Allmann Updyke

I love it. Already.

Erin Welsh

Already. Like how long do the ovaries take to stop functioning? Is menopause a before and after snapshot in time or is it a progression? Is it something that happens over time?

Erin Allmann Updyke

Yeah. Okay, this is such a good question. So it is both a process and a single event and it depends on what you're truly talking about. Because a lot of people call menopause a whole period in which they are experiencing symptoms that they're relating to menopause.

Erin Welsh

Right.

Erin Allmann Updyke

So we're going to talk a lot about what is happening in your ovaries, in your brain, in your body during this whole transition. But because the clinical definition of menopause is this time point at which you've had 12 months with no periods, that's like the clinical in the doctor's office definition. Leading up to that period there is a lot of hormonal changes that are happening that may or may not result in symptoms. This time period is called perimenopause or the menopausal transition. And a lot of people just call that period menopause.

Erin Welsh

Yeah. I certainly I think use the two kind of interchangeably, like menopause to mean cessation of ovarian function.

Erin Allmann Updyke

Yeah.

Erin Welsh

But also going through menopause as like a term.

Erin Allmann Updyke

Right.

Erin Welsh

Yeah.

Erin Allmann Updyke

Yeah, yeah. And it's kind of like, it's all the menopausal transition. I think that's my favorite of the terms for it. And so this in theory can happen any time in a person who menstruates. But to be called menopause it generally has to happen toward the end of the 40th or beginning of the 50th decade of life. And the average age globally is about 48-52. And there's some variation geographically but not a ton of variation in this. If menopause happens between age 40-45, we call it early menopause. And if it happens before age 40, so if you have cessation of periods for 12 months before age 40, we don't call it menopause at all, we call it premature ovarian insufficiency.

Erin Welsh

Okay.

Erin Allmann Updyke

And I'm not going to get into that because it is something different. But part of the reason for that is that there's a lot of things that can cause premature ovarian insufficiency and they're not all permanent. So sometimes ovarian function can return in the case of premature ovarian insufficiency and sometimes it can't. Whereas with menopause, it's happening because the ovaries are done ovulating.

Erin Welsh

What if you're taking some form of birth control that results in like either really light or non-existent periods?

Erin Allmann Updyke

Erin, there's so much more to it than just if you're taking birth control.

Erin Welsh

Okay.

Erin Allmann Updyke

I'm so glad you asked though. Because this criteria that we use to define menopause is entirely dependent on bleeding, right, it's dependent on menstrual bleeding. By that definition, we can define menopause in a lot of people who menstruate but a lot of people get left out. So that includes, yes, people who are taking oral contraceptives or people who have something like a progestin IUD who might not have any periods because they have an IUD in place. Also people who've had a hysterectomy or an endometrial ablation, they're not going to be bleeding at all. It also means it's difficult to diagnose in people with PCOS who might have really variable cycles to begin with.

Erin Welsh

Right.

Erin Allmann Updyke

Or for example trans men who might still have ovaries and even a uterus but be on various hormones so that they're not menstruating. There are so many people that are left out by this specific definition of menopause and yet if they have ovaries, they're still going to eventually stop functioning and therefore have gone clinical through menopause or through this menopausal transition, whether they realized it or not. This is also quote unquote "natural menopause" which is different than surgical menopause, which is when the ovaries are removed surgically for any number of reasons. And as we'll talk about, this causes a really rapid decrease in hormones and results in menopause but it's different than quote "natural menopause".

Erin Welsh

Okay.

Erin Allmann Updyke

There's so much here, Erin.

Erin Welsh

There is so much here.

Erin Allmann Updyke

So because of that, there are other diagnostic criteria that we can use to help diagnose menopause. Part of it is if someone is of the right age, if they are having symptoms that we correlate to menopause, then we can also check certain hormone levels and we'll get into that. And if these hormone levels have risen the way that we expect with menopause, then you can use all of this together to say yes, you have gone through menopause or maybe are in the midst of the menopausal transition.

Erin Welsh

I have another question but I'm worried that I've stalled us out at the very beginning of the biology.

Erin Allmann Updyke

There so much though, Erin.

Erin Welsh

So, so much. So if it's like getting ahead of things, we can just wait and answer it later.

Erin Allmann Updyke

Okay.

Erin Welsh

Why is it important to know whether someone has or has not yet gone through menopause? Besides something like fertility.

Erin Allmann Updyke

So fertility is a big one. If people want to know either whether they could still have children or make sure that they can no longer have children, if they're for example wanting to come off of birth control or something like that. It also, as we'll talk about, risks of certain diseases do change after menopause because of these changes in hormone balance. So perhaps it would be worth knowing for that reason. But really if someone is not experiencing symptoms related to this menopausal transition, there is not a need to do any testing necessarily to say you are or you are not menopausal or postmenopausal.

Erin Welsh

Okay.

Erin Allmann Updyke

It really comes down to what somebody is experiencing and what their desires are in terms of knowing what's going on or what has or hasn't happened kind of a thing. So let's talk about that, shall we?

Erin Welsh

Yeah.

Erin Allmann Updyke

Let's talk about what is... We defined menopause and now we're like well what the heck is that?

Erin Welsh

Yeah. 40 questions.

Erin Allmann Updyke

Right? So let's talk about what is happening physiologically during this time. And then I will talk about the quote "symptoms" that can occur during this menopausal transition. But first, let's just talk about what the hormones are happening, doing. Okay?

Erin Welsh

Yes.

Erin Allmann Updyke

To do that, let's remind ourselves briefly of what is going on hormonally in people who menstruate prior to menopause. Like what is menstruation exactly? Okay? Just the basics.

Erin Welsh

Just the basics.

Erin Allmann Updyke

So the menstrual cycle itself, which again starts with menarche like in the teenage years, the menstrual cycle has two main phases, the follicular phase at the beginning and the luteal phase. The follicular phase starts when you start your first day of bleeding, that's how we define the start of a menstrual cycle. And every month-ish during this follicular phase, follicles in the ovary are recruited and start to mature. These are basically baby eggs, okay.

Erin Welsh

Yeah.

Erin Allmann Updyke

After a period of maturation and in response to hormone surges, specifically estrogen and luteinizing hormone, one mature follicle, AKA one egg, is released and that is ovulation. Following ovulation, we then enter the luteal phase which lasts about 14 days. And at the end of that phase, if there's no embryo that gets implanted, then menstruation occurs. That is the shedding of uterine lining and vaginal bleeding. Cool? And you've started your next cycle. During this menstrual cycle there are a lot of hormonal fluctuations that are happening. And these hormonal fluctuations are a very complex interplay of positive and negative feedback cycles that are happening between our ovaries which are making hormones that you've heard of like estrogen, progesterone, testosterone, but also a lot of lesser known but not less important hormones like anti-müllerian hormone and inhibin B. And these hormones travel through our bloodstream and interact with and are then affected by hormones released in our brain, specifically by this axis in our brain called the hypothalamic pituitary axis. So like two different areas in our brain. And these are hormones like gonadotropin releasing hormone, follicle stimulating hormone, FSH, and luteinizing hormone or LH.

We don't have to understand all of the nitty gritty of this cycle in part because that's another episode but also because what we just need to understand to understand menopause is that there are these cyclic ups and downs of all of these hormones that are happening in communication between our ovaries and our brain. And as our ovaries start to deplete these follicles, big shifts start to happen. So because we are born, if you're born with ovaries, you have a set number of ovarian follicles that you're born with, we don't make any more. Unlike people born with testes who are constantly just making more sperms all the time, the ovary has a certain number of follicles and they don't make any more. So as these follicles are literally depleted because they are used up and either ovulated out or just half matured but then never quite ovulated, this ovary loses a number of follicles.

And as this happens, hormone levels start to shift. Specifically anti-müllerian hormone or AMH and inhibin B which are two hormones the ovary produces, slowly starts to fall as we age. They peak at around age 25 and then slowly, slowly, slowly start to go down. Over time, this has an effect on our brain of slowly increasing hormones like FSH, which is what stimulates our follicles to make an egg for ovulation, to make a ripe egg for ovulation. And as we see these declines in the number of follicles and these hormones like AMH and inhibin, what we see is an ovary and follicles that are less responsive. So they need higher and higher amounts of FSH to be able to respond appropriately, if that makes sense.

Erin Welsh

Yeah.

Erin Allmann Updyke

Kind of like in our diabetes episode when we talked about your pancreas is making more and more insulin because your tissues just aren't responding. It's kind of like that. But eventually you get to a point where there are so few follicles that ovulation just isn't going to happen. But you're still going to get this increase in FSH because of all these complex feedback loops. And at the same time that all of this is happening, estrogen declines pretty drastically. So by the end of menopause, what has happened is that we have depleted all of those follicles, there's no more eggs left in your ovaries to ovulate and our hormone levels have shifted from estrogen being high, which is what it looks like during the reproductive years, and FSH being low on average, to a reverse where FSH is high and estrogen is now low. And that is the big change that occurs by the point that you've gotten to menopause, that is 12 months without a period.

Erin Welsh

So if there are no more Fs for FSH to act on or stimulate, then what is FSH doing?

Erin Allmann Updyke

Oh great question. Not much. But it's still going to be there, right.

Erin Welsh

Okay.

Erin Allmann Updyke

Because our brain doesn't necessarily know like hey FSH, you're not doing much, like we can just chill out with you.

Erin Welsh

Yeah.

Erin Allmann Updyke

It's more like we have lost the negative feedback.

Erin Welsh

Okay.

Erin Allmann Updyke

Inhibin has decreased and so now there's no negative feedback to say hey, we don't need this anymore.

Erin Welsh

And so that's how it remains after menopause? The whole time we're just still making FSH.

Erin Allmann Updyke

Yep. Yeah. And it's possible that there's a point at which it slowly starts to kind of go down from a peak or something like that. But realistically for the rest of your post menopausal life, estrogen is low and FSH is high.

Erin Welsh

I am... Okay. I don't know why but I'm so hung up on this.

Erin Allmann Updyke

Yeah. Well it's interesting, right. Because it's basically you've lost this, what used to be cycles, you've lost it.

Erin Welsh

Yeah.

Erin Allmann Updyke

You've lost that cycling. Now during the menopausal transition, right, during this time frame when your ovaries are still making eggs, they're still ovulating but the number of follicles has started to decline, what we see is a lot more erratic hormone changes because your ovaries still have enough to sometimes ovulate and they're still making enough estrogen that they might sometimes cause a cycle to happen even if it's not an ovulatory cycle. So it gets really complicated in that time frame that we call perimenopause or the time leading up to menopause. And that is a time frame in which sometimes people might have symptoms but it's also after that menopause transition and the years thereafter where your body is getting used to this new normal of low estrogen and high FSH.

And it's not just FSH and estrogen. Because this alteration in hormone production, remember, is affecting our brains, our hypothalamic pituitary axis. And the hormone production alterations that happen in our hypothalamus also have direct effects on other pathways like our noradrenergic pathway, our serotonergic pathway, we can see decreases in growth factors and growth hormones and insulin. This can alter the lipid profile, there's a change in the activity of GABA. Like this is affecting the hormonal milieu of our brain entirely in addition to our body experiencing a very significant decline in estrogen specifically. Does that kind of make sense?

Erin Welsh

Yes. There's a whole lot of stuff going on.

Erin Allmann Updyke

Yeah.

Erin Welsh

It's not just estrogen.

Erin Allmann Updyke

It's not just estrogen. Yeah.

Erin Welsh

Erin, I have so many questions.

Erin Allmann Updyke

Me too.

Erin Welsh

Have we been able to quantify these effects and how much variation is there from individual to individual?

Erin Allmann Updyke

I don't have an answer for that except that like yes, lots.

Erin Welsh

Yep.

Erin Allmann Updyke

Yeah. So I think what we could start to talk about is what does this end up looking like? What are the quote unquote "symptoms" of menopause or of this transition?

Erin Welsh

Right.

Erin Allmann Updyke

And I want to take a moment here to say that we're going to spend time on what these symptoms are because they're really important. Because what I think is tricky about menopause is that these are changes that are happening hormonally in people's bodies that have ovaries, always. It is an inevitability, right? And it is a natural phenomenon. It really is an inevitability if you've got ovaries.

Erin Welsh

It's life.

Erin Allmann Updyke

It's life, yeah. So I think what's difficult about menopause is balancing the very real experience that people have and their symptoms, some of which as we'll talk about might be very unpleasant or distressing or significantly impacting their life, while at the same time not overpathologizing something that is a normal physiologic process. And understanding that while everyone with a uterus and ovaries will experience menopause because their ovaries will eventually stop ovulating, not everyone with the uterus and ovaries will experience it in the same way at all. And some, many might never experience any quote unquote "symptoms" related to it while others might have very significant symptoms during this time. So it's a very interesting phenomenon I think. And I know Erin, you're going to talk more about the cultural history of it all. But it's even biologically really interesting that the experience can be so different.

Erin Welsh

Yeah. Everything, like there are so many different components that go into this. And I feel like menopause has at the same time been... Its importance has been overstated and understated.

Erin Allmann Updyke

Yes, I agree. I feel like it still is.

Erin Welsh

Yeah, totally.

Erin Allmann Updyke

So that's why we're doing this episode.

Erin Welsh

Yeah, okay.

Erin Allmann Updyke

So anyways, let's talk about it.

Erin Welsh

Yeah.

Erin Allmann Updyke

So let's talk about these symptoms. I will say there's a lot of big buckets of symptoms that people associate with menopause, not all of them are actually clearly attributable to menopause itself. And when I'm saying menopause, I mean this hormonal transition itself. And some of them definitely are, like we know the kind of mechanics of estrogen withdrawal causing X, Y, and Z, right. So what I will try and do is at least mention all of these symptoms that are often associated and then talk about which ones have more support for truly being menopause-driven vs perhaps a result of aging and happen in an even wider population or it might be just happening in all populations but we're only studying it in certain populations, if that makes sense.

Erin Welsh

Yeah, yeah, yeah.

Erin Allmann Updyke

So the most classic, the most strongly associated, and the most, it really is just the most classic, are vasomotor symptoms. That is the hot flash.

Erin Welsh

Yep. Also hot flush. I've seen that.

Erin Allmann Updyke

Hot flush, night sweats.

Erin Welsh

Night sweats, yeah.

Erin Allmann Updyke

They're all vasomotor symptoms is what these are all called. And these are exactly what they sound like. They're often sudden feelings of maybe like a head rush, sweating, feeling hot, and then sometimes thereafter feeling cold and chills. These type of vasomotor symptoms can start as early as a couple of years before the actual final menstrual period but they often tend to peak a year or so after that. So kind of after the true quote unquote "menopause" point. And then they can continue and in some people for years thereafter. So in a lot of the literature it's reported that the median time of experiencing vasomotor symptoms for people who experience these is about seven years, which is a pretty long time.

Erin Welsh

That is a long time.

Erin Allmann Updyke

Typically vasomotor symptoms have been attributed directly to estrogen withdrawal. But it's thought that it's actually more a manifestation of the declining sensitivity of that hypothalamic pituitary axis to estrogen because a lot of times they start happening before that estrogen has truly declined, right, during that time when menstrual cycles are maybe more erratic and estrogen is still cycling but in a perhaps different way than it used to during the peak reproductive years.

Erin Welsh

Yeah.

Erin Allmann Updyke

We still don't have a perfect explanation for X, Y, and Z is what causes vasomotor symptoms but we do think that it's directly related to changes in temperature regulation. And I'll get into a little bit more of that in the current event section. There's some new medicines that are not estrogen hormonal related that affect vasomotor symptoms which are really interesting.

Erin Welsh

Huh.

Erin Allmann Updyke

Yeah.

Erin Welsh

Until you get into the mechanistic underpinnings of that?

Erin Allmann Updyke

A little bit more.

Erin Welsh

Okay.

Erin Allmann Updyke

It's basically because estrogen is affecting your brain hormones, there are other brain hormones that are related to your temperature regulation set point that we can also target to treat vasomotor symptoms.

Erin Welsh

Okay.

Erin Allmann Updyke

Yeah.

Erin Welsh

But also hot flashes or hot flushes are not unique to perimenopausal or postmenopausal people.

Erin Allmann Updyke

Absolutely not. And they're not universal in post menopausal or perimenopausal people.

Erin Welsh

Right. So like have you come across studies that looked at the breakdown of let's say people who are nowhere near the age of menopause or people without ovaries? Like who experiences... Is it significantly higher in people who are going through menopause?

Erin Allmann Updyke

It's a good question. I didn't look at papers that specifically look at those comparisons. And even looking like geographically, there's pretty huge variation in people reporting vasomotor symptoms across the globe. Although vasomotor symptoms do tend to be one of the most commonly reported if there are going to be symptoms associated with menopause. But I think if we think about this as menopause is a time when hormones are affecting our brain and causing changes in those hormones that could affect temperature regulation, there are lots of other states in our lives, whether you have ovaries or you don't have ovaries, that can also affect your temperature regulation because it's affecting hormones in your brain, right.

Erin Welsh

Right.

Erin Allmann Updyke

So it's not that surprising that other people can also have hot flashes even if they're not menopausal and that menopause can directly cause these vasomotor symptoms. Does that make sense?

Erin Welsh

Yes. What about the geographic variation?

Erin Allmann Updyke

I don't have a great explanation for that because some thought is like oh is it also related to ambient temperature? But not necessarily because there's not seasonal effects. I don't know, Erin, there's too much.

Erin Welsh

There's too much.

Erin Allmann Updyke

There's too much. And I've only said one symptom so far.

Erin Welsh

I know, I know, I know.

Erin Allmann Updyke

There's a lot more. It's going to be a long episode. Another one that's commonly associated with menopause is sleep disturbance. And sometimes this tends to be conflated with the vasomotor symptoms because these hot flashes do often occur at night and can lead to a lot of nighttime awakenings. But other than that, this idea of menopause directly causing sleep disturbance, we don't have a lot of great data on A) what the mechanisms are or B) is it truly menopause or is it other things that are happening that are not directly attributable to menopause? And that is true for a lot of the symptoms, like the laundry list that are often associated menopause. Depression and anxiety in some cases are reported as higher during the menopausal transition compared to premenopause.

Cognitive changes including declines in memory and concentration are sometimes associated with this perimenopausal time period and sometimes reported as transient during this time period. Weight changes are sometimes reported as related to menopause. That one especially, there's really not good data that menopause itself has any influence over weight gain. But all of these are things that people might experience at any point in their lives. And for some people, they might experience it in association with this hormone fluctuation and in some people they might not. But we don't have hard data to say that menopause is causing any of those type of symptoms, especially not universally. In our migraine episode, we talked about how sometimes migraine headache can increase in frequency during perimenopause and often decrease post menopause. But again, this is not universal.

Erin Welsh

Yep.

Erin Allmann Updyke

There's so many caveats on everything I'm saying. But it is something that sometimes people might experience because we know that migraines are sometimes strongly associated with things like estrogen. So if you're having these sometimes extra fluctuations in estrogen in that menopausal transition period and then a decline in estrogen thereafter, you might see a similar effect on your migraines with an increase in frequency and then a decline thereafter maybe. A couple of things that we do know are associated with the estrogen withdrawal that happens post menopause, so now I'm not talking about menopausal transition symptoms but really postmenopausal where we have this shift from high estrogen to low estrogen, right. There are a few things that we see are strongly associated with this time period. One is an increase in risk of cardiovascular disease. This is something that we see especially in the cases of surgical menopause when the ovaries are removed at a potentially young age but they're also removed entirely where you have a very drastic decline now in estrogen. Cardiovascular disease risk increases significantly. And post menopause we see an increase in cardiovascular disease risk compared to age matched male, so people with testes, controls of the same age. Does that make sense?

Erin Welsh

Yeah. Why? What is estrogen doing or what is its withdrawal doing?

Erin Allmann Updyke

We don't fully know. Classic. But estrogen is kind of protective in a way where it reduces the low density lipoprotein levels, that's our LDL cholesterol which is the most strongly associated type of cholesterol with cardiovascular risk. And estrogen helps to increase our high density lipoprotein or our good cholesterol levels. And it has benefits to our endothelial function in our vasculature, especially in our coronary arteries. So estrogen itself is protective and we have higher levels of it during the reproductive years and then a low levels of it postmenopausal. So we see an increase in risk independent of age after someone has gone through menopause.

Erin Welsh

Okay.

Erin Allmann Updyke

To where your risk looks more like someone with testicles than someone with ovaries that are still functioning.

Erin Welsh

Yeah, yeah, yeah.

Erin Allmann Updyke

Is that kind of right? It's pretty similar. So that is a known risk associated with lower estrogen levels. Another thing is urogenital symptoms. And this can really run the gamut and is definitely not universal. But the tissues of the vagina, the bladder, and the whole vulvar area are very estrogen receptor heavy, so they are very dependent on estrogen. As estrogen declines and over time, I'm talking many years post menopause, not immediately post menopause usually, this lower level of estrogen causes changes to the tissues of the vagina and the vulva and the urethral opening. So for some people, this can result in a wide variety of symptoms. It could be things like recurrent UTIs or vaginal dryness or pain with vaginal intercourse. And this could then result in sexual dysfunction for people, especially if they're having a lot of pain with intercourse. So this is more directly related to that low levels of estrogen. But again, this is something that's happening usually a pretty long time postmenopause once these tissues have significantly changed because of that low level of estrogen. And finally, though not the final symptom that people have associated with menopause-

Erin Welsh

Nope.

Erin Allmann Updyke

But the other one that we see a really strong association with this decrease in estrogen is a decrease in bone density. So a significantly increased risk of osteopenia and osteoporosis and therefore fractures associated with that because estrogen has direct effects on our bone formation and remodeling. So the decline in estrogen causes a shift so that bone resorption is exceeding formation. And so overall, you're losing bone mass as a result of this loss of estrogen.

Erin Welsh: That's not fair.

Erin Allmann Updyke: I know, it really isn't, right?

Erin Welsh: Like but why? I mean all of these things.

Erin Allmann Updyke: but why? Yeah, yeah.

Erin Welsh: It's very interesting.

Erin Allmann Updyke: It is, I know.

Erin Welsh: And there's like so many moving parts to this which I think is the thing that I struggle with. Like how does it affect the hearts and bones? And I don't know.

Erin Allmann Updyke: I know, I know. It's really, it's a lot. And so I think again, it comes back to this idea that these are changes that are happening as a result of the natural aging process of the ovaries. And at the same time can potentially cause quite a lot of symptoms and result in morbidity from that, right.

Erin Welsh: Right. Okay so I know we talked a little bit about hot flashes and how they are certainly not universally experienced. Is something like the cardiovascular disease risk, is that more or less universal? Like everyone experiences an increase in risk? And then the urogenital symptoms, like what is the breakdown of the symptoms that we talked about after hot flashes?

Erin Allmann Updyke: Yeah. The breakdown is, I don't have numbers for you on the breakdown. The increase in risk, like yes, everyone's cardiovascular disease risk is going to increase but everyone's cardiovascular disease risk increases as we age, period. And everyone's baseline cardiovascular disease risk is different, period, because of genetics, because of environment, because of so many other factors. So I can't say that everyone's risk postmenopause increases by blank percent. It's very individual.

Erin Welsh: Okay.

Erin Allmann Updyke: And similarly with the urogenital changes. Those tissues are likely to undergo some degree of change in most everyone, though I don't know that we have data to say yes, everyone experiences changes to the vaginal mucosa. But because those are whole hormone sensitive tissues, it is likely that all of those tissues are going to undergo some version of change. That doesn't mean everyone's going to notice that there's any changes, right. And that is definitely something that the data on people's reporting and experiences is all over the map, as you can imagine, especially because some of those symptoms that get associated with menopausal changes aren't actually menopausal related.

There can be increases in urinary incontinence that happens post menopause but some of that is not due to the estrogen changes but is due to a whole bunch of other things that also change as we age or is associated with how many children someone has had or whether they've had a hysterectomy or like so many other things that also coincide with menopause. It's just so complicated. And then when you get into sexual function, depending on who you're talking to, people might have very different experiences, expectations, willingness to talk to researchers about their sexual function. So it's really all over the map.

Erin Welsh

What are some of the factors or do we know what factors contribute to or are associated with age of menopause and likelihood of experiencing these symptoms during menopause?

Erin Allmann Updyke

Yeah, it's a really good question. There's a lot of things that can influence the age at menopause and there's not at this point anything that we can do to predict at what age someone is going to go through menopause. But there are a lot of things that potentially influence it, some of which we don't understand why or how. But things like smoking status can influence the age of menopause, parity, so how many children someone has had, at what age they've had them, and how long they breastfed for. There's some relation maybe between environmental factors, like how much things like soy and other things that have isoflavones in them that kind of act like estrogen in our bodies. Genetics plays a huge role, so at what age your mom went through menopause can maybe help you predict at what age you might go through menopause. But it's not like a 1:1 at all. So there's a huge range of things that can affect. And we don't again fully understand what is it? Is it also the number of follicles that you happen to be born with or is it things that are altering how quickly your follicles are being depleted and why that is? So there's a whole range.

I remember going down a rabbit hole trying to figure out, okay well if you're on combination contraceptives, right, like an estrogen-progesterone contraceptive, then you are not ovulating. So then shouldn't you have a greater reserve of ovarian follicles, so then would you have a later age of menopause? And there's people who thought maybe that that's the case but there's not really actually data to support that when we've looked at the literature which is so interesting. So it's very complicated. But there are definitely a lot of factors that can influence, especially whether you are at higher risk of having an early menopause. And then you also ask what influences the risk of whether or not you have symptoms. And that is a can of worms that I don't feel qualified enough to dive into.

Erin Welsh

Right.

Erin Allmann Updyke

Because there's a lot.

Erin Welsh

Because it's also like we think this is associated with some of the symptoms that have previously been associated. But yeah.

Erin Allmann Updyke

Right. And one thing that I think is important is... So we can also talk about how do you treat these symptoms? Like what do you do if someone is having potentially really bad symptoms that might be associated with menopause? And very often the answer is hormone replacement therapy or HRT. And there's a lot of controversy regarding-

Erin Welsh

Yeah.

Erin Allmann Updyke

A lot of controversy regarding hormone replacement therapy. And for some people, hormone replacement therapy completely resolves their symptoms. Whether or not we have data to say that this symptom is definitely associated with menopause, does it matter that much if hormone replacement therapy resolves the symptoms, right?

Erin Welsh

Right.

Erin Allmann Updyke

Or if any of the other therapies that we use to treat menopause specifically is helping with those symptoms, then it's associated with menopause even if it's not on like a scientific level that we can have enough data to support it, right.

Erin Welsh

Right. Like if it's menopause or if it's aging, period.

Erin Allmann Updyke

Right.

Erin Welsh

Like does it matter... I mean I think it does matter to distinguish between the two just because it often seems like if you're a woman and you are aging and you experience something, there's a tendency to be like oh it's menopause.

Erin Allmann Updyke

Oh, we're attributing everything to menopause.

Erin Welsh

Right.

Erin Allmann Updyke

Always.

Erin Welsh

Always.

Erin Allmann Updyke

And then we're not treating it because it's just menopause.

Erin Welsh

There's so much, yeah.

Erin Allmann Updyke

So that's an interesting, like that's a what?

Erin Welsh

Yeah.

Erin Allmann Updyke

Yeah. That's all I got, Erin. I mean I don't know if that was enough or too much.

Erin Welsh

No, totally. And are you going to talk about HRT later on? Because I am very curious.

Erin Allmann Updyke

Yeah, I can talk about it later, I can talk about it now if you want.

Erin Welsh

I mean totally up to you.

Erin Allmann Updyke

What do you want to know about HRT, Erin?

Erin Welsh

I guess I want to know... Okay, because when I did a little bit, and I'll talk more about this in the history section but like coming across the HRT as the solution and then people finding out that like we actually don't know with some of the earlier HRTs, is this working in the way that we expect? Is it working at all? And is it actually associated with an increase in risk of things like cancer?

Erin Allmann Updyke

Yeah.

Erin Welsh

And so when are people advised to try HRT and when are they not?

Erin Allmann Updyke

Yeah. It's a great question. So there was a time period in which hormone replacement therapy was the holy grail and the answer for any anyone with ovaries going through menopause or the menopausal transition or anything when they were in their 40s, 50s, 60s, 70s and beyond. And there was a lot of thought for a time period that part of the reason to treat with hormone replacement therapy, even if someone had no symptoms whatsoever, was to reduce the risk of osteoporosis and fractures and reduce the risk of cardiovascular disease. Because remember we know that those are associated with declines in estrogen. So there was this huge study in the late 90s when it was all the rage where everyone was getting hormone replacement therapy if you were above a certain age and had ovaries. And this study was trying to look at the risks and benefits and the protective benefit, if there was one, of hormone replacement therapy in postmenopausal women.

And they found something unexpected and that was an increase in breast cancer risk and either no change or in some cases an increase in cardiovascular risk in their study of hormone replacement therapy vs placebo. So after that study came out in the early 2000s, it was like no one can have hormones, take them all away, absolutely not, hormone replacement therapy is the worst thing ever. And as pendulums often do in medicine, it swung from one extreme to another and I think that we have landed in a place that's much more in the middle. Because as the same cohort of women that were in this study has been subsequently followed through, the last paper I read was through 2016, the data that they collected has now been stratified and reanalyzed. And with this longer term follow up, it turns out that the results of the study are actually a lot more nuanced than that and not nearly as scary as they seemed in 2002.

Erin Welsh

Right.

Erin Allmann Updyke

So what it comes down to really is the timing of the initiation of hormone replacement therapy. And the data suggests that when people are prescribed hormone replacement therapy within that first 10 years post menopause, which means the first 10 years after that final menstrual period, then it is actually protective against cardiovascular disease. We see small but significant decreases in the risk of coronary artery disease, we see decreases in the risk of hip fracture, we see decreases in all cause mortality. And when it comes to breast cancer, there are some studies that actually suggest a protective effect of hormone replacement therapy and some that suggest perhaps a slight increase in risk. And so it's thought that it's more of like a net neutral overall.

Erin Welsh

Okay.

Erin Allmann Updyke

But this is in people who start hormone replacement therapy early on.

Erin Welsh

Gotcha.

Erin Allmann Updyke

There's also nuance if you have a uterus or don't have a uterus, whether you need progesterone or not and what type of progesterone. So there's definitely a lot of nuance there. But it is not the horrible thing that it was thought to be in the early 2000s. At the same time, there are some risks associated with it especially if we're starting it after that 10 year time frame. And for some people, they might not be candidates for estrogen, especially oral estrogen at all because there are reasons premenopause that we don't recommend estrogen for people if they have a history of migraines with aura or a history of blood clotting disorders. Because estrogen, though it decreases your cardiovascular disease risk, can increase your risk for clotting and for strokes in certain people. So again, there's a lot of nuance but it's often very effective for treating some of the vasomotor symptoms and it can be protective in these cases. So where the medical literature has landed as of now, 2023, is like we don't use hormone replacement therapy as a preventative but it's perfectly reasonable to use it if you're experiencing symptoms.

Erin Welsh	Okay.
Erin Allmann Updyke	Does that kind of make sense?
Erin Welsh	Yes. Another question. What about menopause?
Erin Allmann Updyke	Ooh yeah.
Erin Welsh	Or are there substantial hormone changes in people with testes?
Erin Allmann Updyke	It's such a good question. I didn't do any digging, I didn't do any research on this, Erin.
Erin Welsh	Okay.
Erin Allmann Updyke	So I don't know. But I know it's a thing that people look at. The testes are a whole different organ than our ovaries. So we should just do an episode about aging testicles.
Erin Welsh	Just old balls.
Erin Allmann Updyke	Old balls. Because I don't want to say things that I don't know.
Erin Welsh	Okay, fair enough.
Erin Allmann Updyke	So Erin, with that, can you please tell me... I don't know what to ask, Erin. I have so many questions.
Erin Welsh	Well I'll just try to preempt them by getting started on my very long history section right after this break.
Erin Allmann Updyke	Okay.
TPWKY	(transition theme)
Erin Welsh	After spending the past few weeks reading books and articles about menopause, watching videos about menopause, thinking about menopause, talking so much about menopause, and writing about menopause, I feel at the same time like much more informed about menopause and also completely, totally lost. You know the saying that's like the more you know, the more you know what you don't know? Something like that.
Erin Allmann Updyke	100%.

Erin Welsh

That's exactly how I feel. The more that I learned about the possible adaptive reasons for menopause, the more I learned about the cultural history of menopause and the variation in its perception across cultures, about the huge diversity of symptoms and the gap in clear mechanistic research on menopause, the more I came to see menopause as not one thing but so very many things. For some people it's a relief. It's freedom from not having to worry about pregnancy or your menstrual blood ruining your clothes. For others it's a nightmare with distressing symptoms and a loss of feeling socially significant maybe. Or maybe for someone else it's the reason why humans have evolved big brains and live cooperatively, the key to what makes us human. Or perhaps it perfectly encapsulates the pathologizing of women's bodies by western medicine over the centuries.

Erin Allmann Updyke

I love it.

Erin Welsh

And some people might find it to be a combination of all of those things while others may not even think about menopause or have a word for it.

Erin Allmann Updyke

Whoa.

Erin Welsh

If I wanted to keep this history section short, I'd be tempted to leave you with just one sentence. Menopause is whatever you want it to be. For me, someone who has not yet gone through menopause, I've been thinking so much about this over the past few weeks. Like how do I feel about it? And hopefully someday I will go through menopause, like I'll be lucky enough to reach that age. Menopause is right now a thing on the horizon. Like I feel curious about it, not really apprehensive but like what will it be like? Will I notice it at all? So I'm one of those ones that takes birth control pills continuously, so I don't get periods. But how will I know like when it's done? When is my last, like did I already have my last period technically? I'd be lying if I said I didn't struggle with getting older. I blame our culture's obsession with youth for that one and my own vanity. Come on. But I also think I'll feel a sense of relief.

I've never wanted to have kids and so hopefully with menopause comes an end to the 'when are you going to have kids?' 'Why don't you have kids?' 'Oh you'll change your mind and want them someday' that I do get from time to time, though not for my family thankfully. Then again, while I know I'm not going to change my mind about having kids, maybe I will feel differently about menopause when I'm in it. But one thing is for certain, I know I'll feel grateful to be going through menopause in a time when there are so many amazing resources, books, articles, documentaries, podcasts about menopause, should I feel like I need them; when menopause has started to appear on TV as more than just a punchline on a sitcom and when the silence surrounding menopause has slowly started to lift. Are things perfect? Of course not. But they're a heck of a lot better than they used to be. And so speaking of which, maybe it's about time I actually got started with the history of menopause.

The word 'menopause' was coined in 1821. But that was far from when menopause was first recognized. Ancient Greek and Chinese medical texts both describe menstruation and fertility ending around the 40th year but it was mostly in the context of just this is what happens in aging rather than and here's a list of miserable symptoms you're going to experience. There were lots of ancient remedies for menstruation but not really for the cessation of menstruation.

Erin Allmann Updyke

Interesting.

Erin Welsh

Yeah. In Ancient Greece, life was thought to take place in seven year stages with considerable change happening across each stage. The seventh stage of life, happening in the 49th year, was called the Climacteric which eventually became synonymous with menopause.

Erin Allmann Updyke

Oh my god, I saw that word written and I was like I don't understand what this word, why are they calling it this? That is so interesting.

Erin Welsh

Yeah, I think they used it occasionally to mark periods of very substantial change or meaningful change.

Erin Allmann Updyke

Okay, yeah.

Erin Welsh

Yeah. And this isn't to say that menopause was just casually described as a totally normal part of life and nothing to be feared. Women's bodies in general were pathologized in Ancient Greece and Rome with women generally being seen as inferior to men and defined by their differences to men. For example, under the humoral theory of disease, the balance of the humors in men's bodies made them warm and dry while women's bodies were considered cold and wet. To maintain that balance, men sweated and women bled, which was used by Ancient Greek physicians as a justification for menstruation as like a normal and necessary process. So it purged women's bodies of what they viewed as toxic and poisonous, AKA menstrual blood.

Erin Allmann Updyke

Oh my god, I can't.

Erin Welsh

Oh buckle up, hun.

Erin Allmann Updyke

Okay.

Erin Welsh

Yeah. But in this way, bloodletting, which was like such a popular thing to do, didn't need to be done as often for menstruating women. But as soon as menstruation ended, boom, you were told that you had lost that superpower.

Erin Allmann Updyke

Okay.

Erin Welsh

And so some Ancient Greek physicians believed that as you got older, you got drier overall. And so women in menopause didn't need to bleed to balance their humors.

Erin Allmann Updyke

Okay, yup.

Erin Welsh

But others thought that bleeding continued for all of your life and that in menopause, it just stayed in your body and that it would accumulate and accumulate and eventually that toxic build up would cause breast cancer, uterine cancer, epilepsy, consumption, dropsy, etc.

Erin Allmann Updyke

Okay.

Erin Welsh

Some physicians went even so far as to suggest that this fictional menstrual blood build up made the woman herself toxic. With one book claiming that if a woman who stopped menstruating looked at a baby in a cradle, that baby's eyes would be damaged.

Erin Allmann Updyke

Like you can't even... Oh my goodness.

Erin Welsh

It's like bending over backwards to just make cruel things up.

Erin Allmann Updyke

Yeah. For like what?

Erin Welsh

For what?

Erin Allmann Updyke

Dudes, like come on.

Erin Welsh

Medieval clout. I have no idea. And this taboo surrounding menstrual blood, it being deemed as unclean, is found in many cultures around the world, both historical and contemporary. And it's a theme that we've touched on before at least in our endometriosis episode. But it's also very relevant to the history and meaning of menopause. So where this taboo is very strong, like in cultures where menstruating women are supposed to be kept separate or forbidden to prepare food or who must undergo ritual cleansing after menstruating, menopause is sometimes seen as like a positive thing, as freedom from these taboos. We don't know of course how women in the ancient world felt about menopause since the texts that we do have are written almost entirely by men. But I don't think it's a stretch to imagine that there was relief from this taboo in places where it existed. But from these male perspectives in Ancient Greece, menopause was not just an internal build up or a drying out of menstrual blood. To some it signified a return to the baseline ideal state. In other words, once a woman stopped bleeding, she became more like a man. Quote unquote "manly hearted" and less feminine in the words of Galen.

Erin Allmann Updyke

Okay.

Erin Welsh

And sometimes this was taken to mean that a woman who couldn't produce children any longer was not worthy of keeping around. She held no more relevance. But on the other hand, some priestesses in Ancient Greece were reserved for post menopausal women, which I think is interesting.

Erin Allmann Updyke

It's all so interesting, Erin.

Erin Welsh

It is. But overwhelmingly, menopause was described simply as a stage of life. And that continued to be the case really until the 18th century, which isn't to say that post menopausal life wasn't written about as though it was like this most horrid condition. Many physicians, almost entirely men, advised that once you're past menopause, it's a quick march to decrepitude and death. And of the few voices of women from this time, there isn't really much said about menopause but I'm sure that there was knowledge shared probably by midwives but also by women of any occupation or status. A quote from an early gynecological handbook from the Middle Ages in England, written by a woman, says quote: "And so to assist women, I intend to write of how to help their secret maladies so that one woman may aid another in her illness and not divulge her secrets to such discourteous men." End quote. Love it.

Erin Allmann Updyke

I love that.

Erin Welsh

Yeah. This element of fear and shame is completely understandable when you have male physicians comparing post menopausal women to trees that no longer bore fruit and should be cut down and burned.

Erin Allmann Updyke

Oh okay.

Erin Welsh

I saw that somewhere.

Erin Allmann Updyke

Yeah.

Erin Welsh: These attitudes about menopause that were perpetuated by the predominantly male medical writers, they persisted for like really hundreds of years and they're still around today to one degree or another, like a lingering fart. And in the 18th century-

Erin Allmann Updyke: Like a lingering fart, Erin.

Erin Welsh: I know. It's really the first thing that came to mind.

Erin Allmann Updyke: I mean it paints a picture.

Erin Welsh: Thank you. And in the 18th century they served as the backdrop to the reframing of menopause as a disease, as a diseased condition. A quote from a physician in 1739. Quote: "It will not be amiss to touch upon the disorders that most women labor under when being between 40-50 years of age, their courses begin first to dodge and at last to leave them. For then they are frequently troubled with a severe pain in the head and back about the loins, oft times also with colic pains, gripes, and looseness, at other times with vapors to a violent degree. Likewise, feverish heats, wandering, rheumatic pains, and general uneasiness." End quote.

Erin Allmann Updyke: Wow.

Erin Welsh: So yeah.

Erin Allmann Updyke: General uneasiness. I'm feeling that right now.

Erin Welsh: I mean I feel that often. He then of course went on to prescribe bloodletting and if that didn't work, his purging pills or his uterine drops.

Erin Allmann Updyke: Oh dear.

Erin Welsh: Which of course he charged a pretty penny for.

Erin Allmann Updyke: I don't want to know what's in a uterine drop. Let me just say that.

Erin Welsh: I do. I absolutely do. The reasons why menopause began to be labeled as a disease during this time are too many to count. But one of them is certainly because it made physicians indispensable to those going through menopause. It was an opportunity to expand into a new market, if you will.

Erin Allmann Updyke: Wow.

Erin Welsh: Something that is still happening today. Like I came across a New York Times article from December 2022 titled 'Welcome to the Menopause Gold Rush'. Yep. And in the article, it mentioned how a lot of well known quote unquote "wellness" companies and other startups are beginning to get into the menopause biz, like selling products. I don't know, I feel... Anyway, I'll just keep going. Because I mean it's really just reiterating what you already said, which is that some people do experience things-

Erin Allmann Updyke: Right.

Erin Welsh: These symptoms that can absolutely use management and those are completely valid.

Erin Allmann Updyke

Right.

Erin Welsh

But at the same time, I really don't like the predatory nature of some of these things that can reinforce or act as like self fulfilling prophecy through corporation and marketing, I guess. I don't know.

Erin Allmann Updyke

It is a really, really interesting interplay and balance I think when it comes to menopause specifically. Yeah.

Erin Welsh

Also I don't know if I've said this yet but if I have, it bears repeating anyway, that the vast majority of the cultural and social history of menopause that I'm covering is from the quote unquote "western world", AKA mostly like Europe and North America. And part of that is because the focus of most sources is the history of menopause in the western world. But part of it is also that menopause in many other places wasn't really considered a major change warranting medical attention. And there's at least one culture I read about that didn't have a word for it or it was like not really recognized as a constellation of symptoms. But what's really interesting too, I don't really talk about this but in the mid 20th century with sort of the spread of western medicine, places that previously had never treated for menopause, symptoms associated with menopause, began to do that or began to include it in textbooks. Anyway, interesting.

Erin Allmann Updyke

Oh it's so interesting because then is it like that people were actually suffering with symptoms but just didn't have words for it? Right? Because that's a thing too of just not ignoring things and then just not having any kind of access to treatment for it because it's just like oh well this is just life but I am actually miserable but it is just life. Ah, it's so much.

Erin Welsh

It's so much. And so I know that there has been some work done on this about people who have done work on like contemporary foraging societies or contemporary societies who don't have a lot of exposure to like western medicine. And it does seem to be kind of a mixed bag where some of those people do experience symptoms of menopause, or symptoms that we traditionally associate with menopause, and others don't seem to. And so how much of it too is like the biases of the researchers themselves asking these questions expecting that like oh you seem to be around this age, do you experience these things? Instead of what changes have you experienced, if any?

Erin Allmann Updyke

Yeah. Well and I read a paper... I know I'm interrupting you so much.

Erin Welsh

No, I love it.

Erin Allmann Updyke

I read a paper that was looking at the biological and cultural differences that was also like that's also really difficult to disentangle.

Erin Welsh

Totally.

Erin Allmann Updyke

Because then if you have differences in environmental exposure and in diet, then do you have differences in what your symptoms may or may not be because of differences like that are now biological? Like right? Like how much is it biological differences vs perception differences vs culture differences? What is culture?

Erin Welsh

And then throwing aging into the mix.

Erin Allmann Updyke

Yes.

Erin Welsh

Like how many of those things can you can you attribute to aging vs menopause vs diet culture? Like all of these things, yeah.

Erin Allmann Updyke

Why are we doing this? It's too much, I love it. Please keep going.

Erin Welsh

I know, I know, I know. But yeah. So anyway, the inclusion of menopause as an official medical entry in the 18th century marked a new era, one where medical intervention was seen as necessary to help women survive what had previously mostly been considered just a natural progression of life. It also provided ample opportunities for physicians to express their hateful contempt of women which was thinly veiled as medical observation.

Erin Allmann Updyke

Okay.

Erin Welsh

I know, just brace yourself. From the 18th century, quote: "With the shrinking of the ovaria, there is a corresponding change in the outer form. The form becomes angular, the body lean, the skin wrinkled, the hair changes in color and loses its luxuriance. The skin is less transparent and soft and the chin and upper lip become downy. With this change in the person, there is an analogous change in the mind, temper, and feelings. The woman approximates in fact to a man. This unwomanly condition undoubtedly renders her repulsive to man while her envious, overbearing temper renders her offensive to her own sex." End quote. Like medical description.

Erin Allmann Updyke

I should not be as shocked as I am.

Erin Welsh

I know. It just...

Erin Allmann Updyke

Wow.

Erin Welsh

I know. Well things didn't get much better in the 19th century.

Erin Allmann Updyke

Okay.

Erin Welsh

In 1870 Augustus Gardner wrote, quote: "The body itself does not long delay entering into decrepitude. And soon we see the woman, once so favored by nature when she was charged with the duty of reproducing the species, degraded to the level of a being who has no further duty to perform in the world." End quote. It's like tell us what you really think.

Erin Allmann Updyke

I feel like that's also something we didn't even get into yet of just like if your role is only reproduction, now you are useless. Ooh, feelings.

Erin Welsh

Feelings, feelings. We can talk about it.

Erin Allmann Updyke

Yeah. Symptoms.

Erin Welsh

But symptoms first. So menopause has been blamed for a long, long list of symptoms. I found this list. Quote: "Hot flushes, cold sweats, night sweats, weight gain, backache, tingling, fatigue, headaches, palpitations, arthralgia, dizzy spells, irritability, nervousness, anxiety, apathy, depression, early wakening, emotional instability, fears, feelings of suffocation, forgetfulness, insomnia, lack of concentration, lightheadedness, loss of interest, loss of self worth, feelings of panic, sadness, tenseness, osteoporosis, depression, dysuria, dyspareunia, paresthesia, chest pains, breast pains, constipation, diarrhea, facial hair, vaginal dryness, changes in libido, in skin and hair, and worry about the body." End quote.

Erin Allmann Updyke

Sounds about right.

Erin Welsh

I also saw rabies mentioned once.

Erin Allmann Updyke

I'm sorry. I'm going to veto that one and just say no.

Erin Welsh

You get one veto. You veto the rabies. Got it.

Erin Allmann Updyke

That's my veto.

Erin Welsh

And Edward Tilt in the 19th century considered quote "melancholia, mania, alcoholism, uncontrollable murderous instincts, and other types of mental derangement typical of menopause." End quote. Like you could use menopause as a defense against murder. A legal defense based on Edward Tilt, have him on the witness stand. I also came across an example, I'm just going to keep going, from the 1920s where a physician met with a woman who was coughing up blood and told him I think I have tuberculosis and he was like no hun, you're just menopausal. This is your body's way of getting rid of the extra blood.

Erin Allmann Updyke

You said in the 1920s?

Erin Welsh

1920s, yeah.

Erin Allmann Updyke

1920s, like when my grandparents were born.

Erin Welsh

Yeah.

Erin Allmann Updyke

Okay, cool. Yeah, great. You're just coughing up your menstrual blood.

Erin Welsh

Yeah.

Erin Allmann Updyke

We know from our endometriosis episode that technically in theory you could have endometrial implants in your lungs but that's not what's happening.

Erin Welsh

No. Yeah.

Erin Allmann Updyke

Wow. Okay. Great.

Erin Welsh

And if it wasn't enough that menopause was responsible for all kinds of horrible things, women were also told that they were responsible, their diet, their temperament, whatever for when menopause happened and how bad it was. To be clear, the 18th and 19th centuries were a time of enormous growth in the medical and surgical fields, in the rise of patent medicines, and in the pathologization of bodies overall. Menopause was not the only thing targeted or impacted.

Erin Allmann Updyke

See our tonsils episode.

Erin Welsh

Exactly. But this new framing of menopause as a disease cemented it for centuries up through today as something to be feared, survived, battled against. And my intention is absolutely not to dismiss anyone's experiences or feelings about menopause or say that menopausal symptoms are made up or no big deal, especially as someone who hasn't had menopause. My intention is simply to try to understand how the male dominated medical community in the western world has over the centuries constructed and pushed a concept of menopause that may not be representative of the huge variety of experiences that people may actually have.

Erin Allmann Updyke

Yes.

Erin Welsh

And while some physicians like John Fothergill in the late 1700 maintained that menopause was not dangerous or not associated with any change in health, but just in case he sold Fothergill's pill to help, other physicians saw it as a drastic transformation regardless of whether it was quote unquote like "natural menopause" or if it was menopause after surgical removal of ovaries. So Virchow, who's the famous surgeon, was referring to the surgical removal of ovaries and wrote this in the 19th century. Quote: "To remove the ovary means we shall have before us a masculine woman, ugly half form with the coarse and harsh features, the heavy bone formation, the mustache, the rough voice, the flat chest, the sour and egotistic mentality and the distorted outlook. All that we admire and respect in woman as womanly is merely dependent on her ovaries." End quote.

Erin Allmann Updyke

Oh wow, Erin.

Erin Welsh

Yeah.

Erin Allmann Updyke

That is a quote.

Erin Welsh

Isn't that a quote?

Erin Allmann Updyke

All that we admire and respect that is womanly can be attributed to the ovaries. Also who are you admiring and respecting? Because like...

Erin Welsh

I wish that I could better articulate the way that I feel about all this.

Erin Allmann Updyke

Same, same, same.

Erin Welsh

Because there's just so much feeling of like, what? Yeah, I don't know. Okay, I feel like we're just going to rage the whole time.

Erin Allmann Updyke

Yeah, pretty much.

Erin Welsh

I should keep going.

Erin Allmann Updyke

Let's keep going, I love it.

Erin Welsh

Because then we have the expectations around how a postmenopausal woman should act, which are utterly ridiculous. Essentially the expectation was for you to fade into the background, to no longer feel desire or feel capable of having a sex life, to act sweet and polite, and just wait peacefully until death takes you.

Erin Allmann Updyke

I'm sorry. Oh gosh.

Erin Welsh

If a post menopausal person expressed sexual desire or wore form fitting clothes, if they flirted, drank alcohol, spoke their mind, or just acted like a human being, that could be grounds for a diagnosis of hysteria at a minimum or just grounds to have you locked up in an asylum.

Erin Allmann Updyke

Okay.

Erin Welsh

Which did happen.

Erin Allmann Updyke

Okay. Cool, cool, cool. I mean not that different as premenopause honestly.

Erin Welsh

Yeah. I mean that's the thing is that people were just like handing out hysteria diagnoses all over the place.

Erin Allmann Updyke

Yeah.

Erin Welsh

And menopause was sometimes thought to trigger hysteria, which we all know is a fake diagnosis. Check out our endometriosis episode.

Erin Allmann Updyke

It's a good one.

Erin Welsh

And so some of this extreme blaming of menopause for everything began to be reined in as the 20th century began. But around that same time, menopause was about to undergo another major transformation. And this transformation would simultaneously shed much more light on the mechanisms of menopause and understanding what's actually happening to our bodies. But it would also solidify its status in some ways as a disease. So one of the areas that was very much booming in research developments in the early 1900s was the field of endocrinology, hormones. And so maybe someday I'll tell this part of the story in more detail. But long story short, the discovery of estrogen redefined menopause as a problem of hormones, as a disease of deficiency. This meant that all of the things people might experience during menopause were sometimes reduced to just a lack of estrogen. It became about biology, not about the individual and their experiences.

So even if physicians couldn't make a mechanistic link between say like estrogen and depression or weren't able to immediately, they would just point towards estrogen levels and go yep, there's your problem right there. Couldn't possibly be our society's dismissal of women over the age of 50. And maybe it's not that, maybe it is estrogen but like there was sufficient research then or now to make those distinctions and also acknowledging individual differences. For one person it could be biology, for somebody else it could be what their life is at that moment or a combination of both. Like menopause is whatever you want it to be. Ugh. And this also especially played into this idea of mood swings in menopause. If you're experiencing mood swings, she's just hormonal. Couldn't possibly be the microaggressions and condescension that you're faced with like every day at work or even at home, right. And while it was great that the discovery of estrogen promised potential symptom relief to those who wanted to explore that, it also told women to feel inferior in some ways, to view menopause as a time of loss.

Early hormone replacement therapies were advertised as quote unquote "restoring femininity", as essential if you didn't want to drive your husband away with your erratic mood swings and changing libido. Which by the way as we talked about, there has not been shown any universal effect of menopause on libido. And I also think it's fascinating that as the author of one of the books I read pointed out, the focus shifted to be on sexual symptoms of menopause in the mid 20th century as marriage became more an institution based on love and sex. I don't know, that's just something. I don't know the research in that but I thought that's interesting. But overall, physicians in the 20th century seemed dead set on establishing menopause as a major shift in health and identity. In the 1966 book 'Feminine Forever', author Robert Wilson wrote quote, "No woman can be sure of escaping the horror of this living decay. Every woman faces the threat of extreme suffering and incapacity."

Erin Allmann Updyke

Holy guacamole.

Erin Welsh

I know. A few years later in the 1969 book 'Everything You Always Wanted to Know About Sex', author David Rubin writes, quote, "As estrogen is shut off, a woman becomes as close as she can to being a man. Having outlived their ovaries, they have outlived their usefulness as human beings." End quote.

Erin Allmann Updyke

Whoa, whoa, whoa, whoa, whoa, whoa. 1969. Outlived our usefulness as human beings.

Erin Welsh

I mean I feel like I've heard certain people on the internet say that today. But yeah.

Erin Allmann Updyke

Whoa, whoa, whoa, whoa, whoa.

Erin Welsh

And it wasn't only men doing the fearmongering and perpetuating these stereotypes, this concept of menopause. Some women were also guilty like Helene Deutsch, colleague of Freud, who wrote in the 1940s that quote, "The changes that take place in the body of a menopausal woman have the character not only of the cessation of physiologic production but of general dissolution. Women's biological fate manifests itself in the disappearance of her individual feminine qualities at the same time that her service to the species ceases. With the lapse of her reproductive service, her beauty vanishes and usually the warm vital flow of feminine emotional life as well." End quote.

Erin Allmann Updyke

This is so much more than I even like... I knew that this was going to be a lot, Erin, but I... Wow. Wow.

Erin Welsh

Yep, yeah. Wow indeed. I mean with all of this, is it any wonder that hormone replacement therapy became so hugely popular and widespread throughout the early 20th century?

Erin Allmann Updyke

No.

Erin Welsh

Even before proper testing.

Erin Allmann Updyke

That's not surprising at all. You must remain vital to your species.

Erin Welsh

Yeah, right? And I know that we talked a bit about how the hormone replacement therapy used today has gone through a lot of changes and there's been a lot more better research or more like thorough research on them. But my point is that the construct of menopause as a disease was so strong that medical intervention was seen as necessary, even if physicians weren't sure whether the cure, AKA these early before being well tested hormone replacement therapies, would be worse than the quote unquote "disease".

Erin Allmann Updyke

Wow.

Erin Welsh

Yeah. There was a 1975 ad in JAMA-

Erin Allmann Updyke

1975. Okay.

Erin Welsh

From a pharmaceutical company.

Erin Allmann Updyke

In JAMA.

Erin Welsh

In JAMA. And this company made HRT and the ad stated, quote... I can't, okay. "Almost any tranquilizer might calm her down but at her age, estrogen might be what she really needs." End quote. So this is advertising to medical professionals, right.

Erin Allmann Updyke

Oh my god, Erin.

Erin Welsh

I can't. I'm sweating so much right now with anger. And just like I laugh because otherwise I'd cry, right. Okay, there's more. Because another company advertised its estrogen pills, and I think this advertisement was more widely, not just in JAMA, but it advertised its estrogen pills, quote, "For the menopausal symptoms that bother him most." End quote.

Erin Allmann Updyke

Okay, please keep going.

Erin Welsh

But HRT was not without controversy, is not without controversy. And many researchers over the decades advocated for a closer examination of what HRT actually did, what side effects were associated with long term use, whether there was any clear benefit, and how to use it safely. And so we're in a much better place than we used to be. And starting in the 20th century also, women began to share their experiences of menopause more openly in books, on radio programs. And one of the themes that began to emerge was that women who had not yet gone through menopause tended to have a much more negative perception of it than those who had. The fear of menopause was worse than menopause itself. And granted, this increased attention on menopause didn't always lessen the stigma or shame surrounding it.

Books intending to be guides for quote unquote "surviving" or dealing with menopause in some ways continued to perpetuate the idea that menopause was inherently a struggle for everyone who experienced it, something to be dreaded. And that was something that more research was finding to not necessarily be the case. In fact, researchers were finding that in some cultures there appeared to be no word for hot flashes. And I think I mentioned earlier but I read about at least one traditional foraging society that does not appear to have a word for menopause, as in the menopause that we think of with its collection of signs and symptoms. People of course did recognize that their period stopped but there didn't seem to be this concept of the period during which that happened and an increase in certain symptoms.

Erin Allmann Updyke

Right.

Erin Welsh

And this research on menopause across cultures revealed that there is no standard definition of menopause as a quote unquote "syndrome" or collection of syndromes, nor is there one universal attitude towards menopause. Dread, shame, anticipation, relief, feeling more respected, not feeling any particular way at all, like these and so many other attitudes or feelings are real and valid. And as researchers began to ask these questions about how people feel about menopause, when menopause happens, what symptoms can be tied directly to the hormonal changes experienced during menopause, they also began to set their sights on another big unanswered question. Why?

Erin Allmann Updyke

Yes. Ugh.

Erin Welsh

Why does menopause exist? We don't know.

Erin Allmann Updyke

Erin, I can't tell you how excited I am for this question because it's so... This is the part where I'm like it is so cool that humans menopause.

Erin Welsh

I know. Okay. So there is so much literature on this subject.

Erin Allmann Updyke

Yep.

Erin Welsh

More than I could ever hope to cover. Like I would have to go back and do a PhD and then another one and then by the time I finish that PhD, all the literature would have been updated, all of that. And then if I came back here and we did an episode, it would be like a 15 hour episode minimum.

Erin Allmann Updyke

Yeah.

Erin Welsh

So what I'm going to do here is just give a short overview of some of the ideas that are out there, just enough of a taste so that you end up really curious and excited and brimming with questions and then I can be like go to our website, you can read more on our sources. But before we get into these various hypotheses, let's first consider why someone would ask this question of why menopause exists.

Erin Allmann Updyke

Yeah, yeah.

Erin Welsh

Menopause is actually very rare in the animal kingdom.

Erin Allmann Updyke

Yeah.

Erin Welsh: More precisely, humans are one of a handful of species where females experience a significant part of their life after their reproductive lifespan ends, not just a decline in fertility but sterility.

Erin Allmann Updyke: Right.

Erin Welsh: And not just a few years but often in the case of humans, decades.

Erin Allmann Updyke: Right. Like more than half our life potentially. Yeah.

Erin Welsh: Studying whether menopause exists in wild animals is really challenging because you need to collect accurate data on lifespan, fertility over lifespan, and then determine whether it's a decline in fertility that you're observing or true sterility. For long lived animals, that's incredibly difficult to do both logistically and then like where are you going to get the funding for that?

Erin Allmann Updyke: Yeah.

Erin Welsh: And so while several animal species have been proposed to live a significant portion of their lives after their reproductive lifespan ends, and so to make things easier I'm just going to call that menopause for the rest of the section-

Erin Allmann Updyke: Yeah.

Erin Welsh: Only a few species are widely considered to have or experience menopause. Humans of course, orca whales, and short finned pilot whales.

Erin Allmann Updyke: Yeah.

Erin Welsh: There are a few more out there that sometimes get mentioned and there's a recent science paper about menopause in a chimpanzee population that we could probably spend an entire episode talking about. But I'll link to it on our site, very interesting. Hard to say what's going on there. There's no grandmothing in this population, in chimpanzees I should say. So like anyway. So that rarity of menopause is in itself interesting and invites the questions why so few species and why these species?

Erin Allmann Updyke: Yeah.

Erin Welsh: Yeah.

Erin Allmann Updyke: Oh Erin, it's also so interesting and this is something we'll have to talk about more in our menstruation episode. Because humans are also one of only a few species who menstruate but the group of species who menstruate is not the same as the group of species who undergo menopause with the exception of humans.

Erin Welsh: Right.

Erin Allmann Updyke: So it's like what? Why do we do these two things that are kind of weird in the whole animal kingdom? Like what? It's fascinating.

Erin Welsh: It is so interesting. There is so much here. Like honestly it's overwhelmingly cool.

Erin Allmann Updyke

Yeah, it really is.

Erin Welsh

Yeah. And so the possible answers to the questions of why so few species and why these species, it depends on whether or not menopause was selected for, as in whether menopause provides an evolutionary advantage to those species or whether it is just like a byproduct of something like the evolution of longevity and a natural expiration date to eggs. Because as you mentioned, we are born with all of the eggs that we will ever produce. So we can't make more. These are just like oh, those expire 50 years from now.

Erin Allmann Updyke

Yeah.

Erin Welsh

Is menopause an accident or is it intentional, essentially?

Erin Allmann Updyke

Right.

Erin Welsh

Menopause must come with some cost because it limits the total reproductive output. But is that cost outweighed by the benefits of menopause? And if so, what could those benefits be?

Erin Allmann Updyke

Yeah.

Erin Welsh

Or is the cost of menopause not very big?

Erin Allmann Updyke

Yeah.

Erin Welsh

Or is it just really difficult for evolution to act on increasing reproductive lifespan? I don't know. So the hypothesis of why menopause exists fall into two general groups, adaptive hypotheses where menopause provides a benefit, and non adaptive hypotheses where menopause is more like an artifact of aging. So let's get into a few of the adaptive hypotheses first, starting with the mother effect. So this is this idea that in species where offspring are dependent on parents for longer than a typical time between births, so you can have a child and then become pregnant again and have that child and your first child is still dependent on you for like survival and everything.

Erin Allmann Updyke

Right. Like you could have another baby in nine month, but your nine month old is still breastfeeding, etc. yeah.

Erin Welsh

Yeah. So in those species, at a certain point it's beneficial for the mother to stop reproducing because otherwise she'll have more offspring than she can care for and they will all struggle as a result.

Erin Allmann Updyke

Okay.

Erin Welsh

On top of that, this is still within the mother effect, pregnancy becomes riskier with age, both for the pregnant person and the fetus. And so not being able to get pregnant after a certain age could be protective to the existing offspring because if the mom dies, that could hurt the chances of survival for her existing offspring.

Erin Allmann Updyke

Cool.

Erin Welsh

There's not much evidence in support of this. Also if the species is social and like works in a cooperative group like humans, the death of a mother may be offset by care from the rest of the community. Okay. So then there's the grandmother effect. Under this hypothesis, longer lifespans in women were selected for because, I'm just going to find a great quote in this book called 'The Slow Moon Climbs' by Susan Mattern. Quote: "Post-reproductive women helped their daughters, daughters-in-law, younger sisters and nieces and granddaughters to feed and care for their infants and young children. This allowed the younger women to have more babies closer together, which in turn increased the inclusive fitness of the older women." End quote. So essentially grandchildren who had grandmothers providing care were more likely to survive to reproduce. And so then they would tend to have, yeah, it's like this indirect evolution of grandmothing. I don't know.

Erin Allmann Updyke

Because you're still passing, those are still your genes. And so that longevity is then being selected for in those genes that are surviving. Yeah.

Erin Welsh

And there's mixed evidence for this and by mixed I mean like not very strong and sometimes opposite. But it also varies too based on like paternal and maternal grandmother and social structure. So like do daughters stay with the mothers or do they go with their mate's family? And stuff like that. Like there's a lot here. And why would it just be post-reproductive longevity that evolved because of grandmothing, not reproductive longevity as well? So a third adaptive hypothesis actually tries to answer that in a way. This is the reproductive conflict hypothesis.

Erin Allmann Updyke

Yeah, it's the killer whale one.

Erin Welsh

The killer whale one, yeah. So basically by stopping reproduction, there's less competition between mothers and their offspring over resources. So if you and your daughter are both able to reproduce at the same time, there has been some work done on orcas that seems to suggest that the offspring from the grandmother is less likely to survive than the offspring from the daughter, than like the grandchild.

Erin Allmann Updyke

Right.

Erin Welsh

I said that very confusingly. I think I got that right.

Erin Allmann Updyke

Yeah. No, that makes sense though because and then what they're saying is that then that's why it would be selected for that you at some point would stop reproducing, so then your grandchildren can survive even though it means that you have less children but your children wouldn't have survived because they'd be competing with your other children, etc.

Erin Welsh

Yeah, exactly.

Erin Allmann Updyke

And your other children's, your grandchildren.

Erin Welsh

Yeah. Yeah. But yeah, there are also many other adaptive hypotheses of menopause like one where it evolved to protect against certain cancers. But those seem to be the big three that I kept encountering, the mother effect, grandmother effect, and reproductive conflict hypothesis. And then there are the non adaptive hypotheses where menopause is kind of like a byproduct. So one idea is called the patriarch hypothesis where longer lifespans in males were selected for and then that led to like an overall increase in lifespan for both males and females because like the longevity genes would be on autosomal chromosomes. I don't know. But extending reproduction in women wouldn't have led to much benefit. And so instead women who lived past reproductive age would have helped by sharing knowledge and helping with foraging. I don't like, I'm not super, I don't feel super familiar with this hypothesis. And so maybe that's like my poor presentation of it. But I'm like I don't quite get how menopause fits into that.

Erin Allmann Updyke

Yeah.

Erin Welsh

But then there's this idea that eggs, that mammalian eggs have a shelf life and that we are just living beyond the shelf life. And it's true that a drop in fertility is observed in many captive of animals where their lifespans tend to be much longer compared to in the wild, where in the wild they have to worry about like resource availability and predators. And so you can see sort of that decline in fertility that may normally be experienced if they didn't have to worry about predators and so on.

Erin Allmann Updyke

Right, if they didn't just die in the wild.

Erin Welsh

Yeah, yeah. But humans have, at least as far as we can tell, lived beyond their reproductive lifespan, as in lived beyond the last egg, for a very long time. This notion that life expectancy was 40 in the Middle Ages is totally wrong, right, that life expectancy number is so low because of high childhood and infant mortality. In foraging societies today that don't have access to modern healthcare, public sanitation, vaccinations, or reliable food supply, about a quarter is expected to live as grandparents for 15-20 years. And longevity, this longevity is estimated to have evolved at least 130,000 years ago.

Erin Allmann Updyke

Yeah.

Erin Welsh

While most mammals do seem to have an average upper limit on fertility at around like 40-50 years, there are a few species like the fin whale which reaches sexual maturity around 6 or 7 and continues to reproduce until beyond 70, with maximum life spans over 100. So maybe there's a shelf life or maybe there isn't. And maybe part of the reason why we have no single leading hypothesis or no single convincing or satisfying hypothesis for why menopause exists is that we don't really know when it evolved or the context in which it evolved. It's also possible that menopause evolved for different reasons in those species that experience it, maybe not. Like orcas are social, they live in social groups. I actually don't know anything about the short-finned pilot whale. So I think it's really challenging to try to disentangle this, particularly when you're talking about something that happened on the order potentially of millions or hundreds of thousands of years ago.

Erin Allmann Updyke

Yeah.

Erin Welsh

How do we understand what social groups were like then? I don't know. And also how variable they were. So yeah, we don't know why menopause exists and we may never know.

Erin Allmann Updyke

Yeah.

Erin Welsh

And while I don't necessarily agree with the grandmother hypothesis or think it's the answer, the sole answer, I do appreciate the sentiment that it inspires, particularly in our society today. And so I'll leave you with this quote from 'The Slow Moon Climbs' by Susan Mattern. Quote: "Midlife is and always has been about relationships, about the roles we play in the community and in the family, the sacrifices we make, the experience we bring to bear. We become non reproductive so that we can do other things. The transition is important but not because of the symptoms it may or may not cause us to suffer. It is important on a much larger scale and to reduce it to a medical condition is to trivialize it. The apprehension about menopause, the embarrassment, the tiresome jokes, the judgment and hostility aimed at older women in western culture and in other cultures today and in the past are all unnecessary. But menopause is necessary. Humans have menopause because we need it. The contributions of post reproductive women have brought us this far and will lead us into whatever future we have." End quote.

Erin Allmann Updyke

I like that.

Erin Welsh

I do too. And with that, over to you, Erin.

Erin Allmann Updyke

Ooh! Okay, no pressure.

Erin Welsh

No pressure.

Erin Allmann Updyke

We will talk about where we stand with menopause today right after this break.

TPWKY

(transition theme)

Erin Allmann Updyke

In terms of the epidemiology of quote "menopause" at this point, yeah, like everyone with functional ovaries will go through menopause. So I don't have numbers.

Erin Welsh

Yeah, I mean like I don't even know what to ask.

Erin Allmann Updyke

Right. There's nothing. Thousands of people will reach the point of their ovaries ceasing to function on any given day. And in an aging population of course, more and more people are living well and well and well past the age of menopause. And like you beautifully talked about Erin, there have been so many differences historically, even just in Europe and North America and the quote unquote "western world" in the reporting and the perception of menopause and menopausal symptoms. And the literature is really difficult to try and understand beyond the perception of menopause in the western world. There are some studies that report that there's geographic variation in the reporting of symptoms. And I mentioned that one paper, which I'll mention again at the end, that really tried to dive into the cultural and biological and cultural and biocultural differences in menopause, both the perception and the symptoms and everything. And it's just really difficult to try and assess. So I don't have for you today numbers, like 80% of people will experience vasomotor symptoms. That's true in some studies and it's not true in other studies.

Erin Welsh

Right, right.

Erin Allmann Updyke

There is a study that looked in the United States called the SWAN study that really did try and specifically recruit across a wide range of racial and ethnic groups to see if there are differences in the experience of menopause across these groups in the United States. And in the papers from the SWAN study, there are differences that they reported in symptoms across different racial and ethnic groups. But even that is still very limited because this is still people living in America. And as one example that this other people that I mentioned will give, living in the United States as for example a Japanese-American is not the same as a Japanese person who has lived their entire life in Japan, both in terms of cultural as well as environmental exposures.

And so again, I don't have numbers for the symptoms of menopause, even the age of menopause which does vary a little bit geographically and in some areas seems to be declining. But I don't know that again we have enough data to say for sure that that's happening globally. Some papers will report that on an international level, whatever that means, 20% of women perceive menopause as a disease. So that's like a number that's cited. I don't know exactly how that number came about and how many papers really gathered what kind of data to answer that question. So it's complicated. And all of the papers that I read that talk about menopause and look at menopause are focused entirely on cisgender women undergoing menopause. Some of them might distinguish between surgical menopause and quote "natural" menopause and some papers don't even do that. So when it comes to the experience of menopause for people that are not cisgender women, I really have no data on that whatsoever.

Erin Welsh

Yeah.

Erin Allmann Updyke

So that's what I have for epidemiology. It's not a lot. So let's talk about where we're going in terms of menopause.

Erin Welsh

Yeah.

Erin Allmann Updyke

I don't know where we're going either. Because again, for this I feel like there's a lot that you could focus on. We could talk about where are we going culturally in terms of our perceptions in the United States, in Europe, in places that I have data for, on what our perceptions of menopause are. From all of the papers that I read, it really seems like menopause is very much still a disease for a lot of people.

Erin Welsh

Yeah. Yeah.

Erin Allmann Updyke

A lot of the papers, even in really well respected journals that I read, really focused on menopause as (old-timey voice) this time of great transition for women undergoing such times of stress. And that is really the tenor of all of these papers.

Erin Welsh

Yeah.

Erin Allmann Updyke

Which I find really interesting, especially now knowing so much more about the cultural history and medical history of how we have defined this time period.

Erin Welsh

Right. I mean I think like the biggest thing is that yes, the leading attitudes and perceptions of menopause have changed throughout history but they all treat people who are going to go through menopause or who are going through menopause as one unit.

Erin Allmann Updyke

Right.

Erin Welsh

They're all the same.

Erin Allmann Updyke

And that is definitely not the case. So what I really wonder, and this is me, Erin Allmann Updyke, wondering and this is not based on things that I read and data. But I really wonder if as we explore more of the deep nitty gritty biology of what is happening in our brains as these hormone shifts happen? And can we predict, because this is a big area of research is like can we predict and diagnose menopause earlier? Can we know when someone is going to have their last menstrual period and how long things might be on the beforehand and the after in terms of when these hormones shift? We can't do that yet, can we in the future? Are we going to see something like a splitting of various menopause-related syndromes that might be more specific? Where if X, Y, and Z is true in terms of the effects on all of these other various hormones that estrogen is affecting along your hypothalamic pituitary axis, you're affecting your serotonin levels, your norepinephrine levels. Like if we can better identify those effects, can we then split things out in a way that doesn't lump every symptom that has ever been associated with menopause as menopause? But really call it what it is once we know what that is.

Erin Welsh

Yeah. I mean I think teasing apart those hormonal pathways is something that...

Erin Allmann Updyke

Yeah.

Erin Welsh

Like menopause could teach us a lot of about that.

Erin Allmann Updyke

Definitely.

Erin Welsh

Especially when it comes to like here's what you should expect and here's what you shouldn't expect.

Erin Allmann Updyke

Right.

Erin Welsh

And here's what is highly variable and why it's highly variable vs like yeah, this is a pretty much like more or less there's a trend.

Erin Allmann Updyke

Right, right. And I couldn't help thinking while I was researching for this about our endometriosis episode and the thought of how menstruation itself we know is not a disease but there are disorders of menstruation. Endometriosis being one of them. So might it be someday that menopause is not a disease but there are perhaps disorders associated with menopause.

Erin Welsh

Oh yeah.

Erin Allmann Updyke

And might we have better identifications of those for people who experience them someday?

Erin Welsh

I think that's really, really interesting. Yeah.

Erin Allmann Updyke

Yeah, that's kind of a way that I've been conceptualizing it. And for that, I will say that there is also a lot of hope on the horizon for people who are experiencing especially vasomotor symptoms, which again are some of the most common associated with menopause. The hot flashes. Which maybe I didn't emphasize this enough in the biology section but they can be very debilitating for some people.

Erin Welsh

Yeah. How long can hot flashes be? Or like what's the time range? I know you said how long people can experience them, it's like seven years.

Erin Allmann Updyke

That's the average.

Erin Welsh

But what's an individual hot flush?

Erin Allmann Updyke

Oh great question. A matter of minutes to hours perhaps.

Erin Welsh

Okay.

Erin Allmann Updyke

Yeah. They're short in time frame. But people can experience anywhere from one every couple of weeks to multiple an hour.

Erin Welsh

I mean hours sounds like a very long time.

Erin Allmann Updyke

I don't know that they're generally hours but I think that you can, especially with the night sweats, you can wake up and it can disturb things for a longer time.

Erin Welsh

Yeah.

Erin Allmann Updyke

But there's hope on the horizon. There's a new class of medicines, one of which was just approved in May of 2023, that are entirely different than hormone replacement therapy which is one of the main things that's often used to treat hot flashes. Sometimes things like SSRIs or selective serotonin reuptake inhibitors that we use for depression and anxiety can also be used and things like gabapentin, which is an epilepsy drug that we use for a lot of non epilepsy things, can be used for treatment of these. But I don't know how effective they actually tend to be. But here's a brand new one. It's a neurokinin antagonist. So this is targeting a whole different receptor in our brain that is involved in specifically regulating our internal thermostat, which we think gets disrupted in an indirect way as a result of all these hormonal shifts during and after menopause.

And so neurokinin is one of the many hormones that can get disrupted and is directly related to our internal thermostat, as it were. And so this is a neurokinin antagonist that's basically blocking that and saying just put your temperature set back to a nice 98 degrees and let's leave it there. So one of these was just approved in May of 2023 by the FDA in the United States. So that's pretty major. And it's especially helpful for people who can't take estrogen for one reason or another, right. There are reasons why someone might not be a candidate for hormone replacement therapy. And so now we have more medication options, which is awesome.

Erin Welsh

That's great.

Erin Allmann Updyke

There's probably a lot more that I could say about where we could go with menopause. But I feel like I've talked enough.

Erin Welsh

This is our longest episode in awhile I think.

Erin Allmann Updyke

But I think it's worth it and I feel like we could have said so much more.

Erin Welsh

Totally.

Erin Allmann Updyke

If you would like to read more, we have a lot of sources for you. But also, listeners, since this is our last episode of the season and we're preparing for next season, we would really love to know not only if you enjoyed this episode but also what other questions do you have about menopause, about menstruation, about I don't know, anything related to this realm. I feel like we've had a lot of fun doing episodes similar to this and I want to do more of them.

Erin Welsh

Absolutely. I still think we should do a pregnancy series.

Erin Allmann Updyke

Yes. There's a lot, there's so much there.

Erin Welsh

There's so much there. But sources for this first?

Erin Allmann Updyke

Yep.

Erin Welsh

I want to shout out two in particular. I do have some papers but there were two books that I took most of this from. One is the one that I've already mentioned, 'The Slow Moon Climbs' by Susan Mattern. And the other one is called 'Hot Flushes, Cold Science: A History of the Modern Menopause' by Louise Foxcroft.

Erin Allmann Updyke

I had a lot of sources for this episode and probably not even enough. A few that were really good on just the overall overview of symptoms and things like that. One was by Monteleone in Nature Reviews Endocrinology from 2018, 'Symptoms of menopause, global prevalence, physiology and implications.' Another by Davis et al in 2015 in Nature Reviews Disease Primers. Menopause as a disease. It was just called 'Menopause Primer.' And then that paper that I referenced a few times was by Melby et al from Human Reproduction Update and it was published in 2005, called 'Culture and symptom reporting at menopause.' I thought that was a really interesting read. But we'll post the list of all of our sources from this episode and every one of our, how many hundreds episodes at this point, on our website thispodcastwillkillyou.com.

Erin Welsh

We certainly will. Thank you again so much, Marieke, for sharing your story with us. Just thank you.

Erin Allmann Updyke

Yeah.

Erin Welsh

We appreciate it.

Erin Allmann Updyke

Thank you also to Bloodmobile for providing the music for this episode and all of our episodes.

Erin Welsh

Thank you to Tom Breyfogle for the audio mixing.

Erin Allmann Updyke

Thank you Exactly Right.

Erin Welsh

And thank you as always to our amazing, wonderful listeners. You make this possible truly.

Erin Allmann Updyke

Yeah. We really like getting to make this podcast. We're really excited for next season. Thank you for listening for six whole seasons.

Erin Welsh

Yeah.

Erin Allmann Updyke

We can't wait to bring you more.

Erin Welsh

Tell us what you want to hear.

Erin Allmann Updyke

Yeah, tell us! And a special thank you as always to our patrons. Thank you so much for your support.

Erin Welsh

So, so much. Well until next season, wash your hands.

Erin Allmann Updyke

You filthy animals.