

Erin Welsh

Hi, I'm Erin Welsh and this is This Podcast Will Kill You. Welcome back to another episode of the TPWKY Book Club where we interview some of the coolest people ever to ask them about the amazing work they do and the fascinating books they write. This is the last book club episode for this season, don't worry, there'll be more for next season, and it is such a great one. I think you all are going to love it. Over the course of this season we've gotten to have some incredible conversations. And if you would like to check out those books that we've already covered, head on over to our website [thispodcastwillkillyou.com](http://thispodcastwillkillyou.com) where you can find a link to our bookshop.org affiliate account, which has all sorts of TPWKY related lists, including of course a list that contains the book club books for this and last season.

And if you still got room on your bookshelves, check out our other bookshop lists where we include the books that we use to research our regular episodes plus disease or epidemic-themed fiction books, which I feel like could be so much fun to use as a starting point for another book club on how disease is used in fiction. Let me know what you think. As always, we love hearing from you about how you're enjoying these book club episodes, what questions you wish you could ask, recommendations for future books to cover, just send your thoughts our way. The best way to do that is through the Contact Us form on our website. And one last thing before I introduce this week's book club selection, the last one of the season, and that is a simple request to rate, review, and subscribe. It really helps us out. Okay, enough podcast business, onto the business of books and the business of vaginas and uteri and clitorises and ovaries and so many other crucial and amazing parts of human anatomy that really don't receive the attention they deserve.

In this Book Club episode, I am joined by award-winning science journalist and author Rachel Gross to chat about her book 'Vagina Obscura: An Anatomical Voyage'. Frequent listeners of the podcast probably won't be surprised to learn that female anatomy, which I acknowledge is not the most precise or accurate term, is remarkably understudied compared to the reproductive system of males. This disparity has incredibly deep roots, going all the way back to the earliest medical texts and how women were perceived to be essentially a lesser form of men. Of course this didn't translate into just ignoring female bodies and finding them uninteresting, although to be clear that absolutely did and does happen. It also influenced the language used for genitalia, the research questions that we ask, the scientific narratives we create, and the roles that males and females are forced into.

Sperm trying to get past the defensive shield of the egg, giving sperm all the credit in fertilization and hailing it as the strong hero that breached the walls of the fortress. The endometrium, described as a waste of energy and tissue during menstruation rather than recognized for its incredible regenerative abilities, vaginas seen as relevant only in the context of penises, even the word 'vagina' means 'sheath'. We cannot escape this gendered and misogynistic framing. It's a part of our everyday lives. And so what can we do? We can learn to recognize the roots of this misogynistic framing of female bodies. We can appreciate vaginas not just in relation to penises, we can re-examine the research questions we ask about genitalia to seek out assumptions with a cultural but not biological basis, and we can try to identify the questions that we're not asking.

And one of the best ways to start is by reading 'Vagina Obscura'. This book is simultaneously captivating, inspirational, beyond infuriating, and enlightening. In each chapter, Gross takes readers through a different part of female anatomy, and she doesn't stick to just humans either, and explores how our cultural history and attitudes towards women inform our perspective on quote unquote "female anatomy" today, highlighting the work of some truly incredible researchers and medical professionals today who are revolutionizing how we understand and treat our bodies not just in relation to males but as independent and deserving of interest, attention, and care. Plus the artwork in 'Vagina Obscura' is simply incredible. So let's get into it right after this break.

TPWKY

(transition theme)

Erin Welsh

Rachel, thank you so much for joining me today. I am beyond thrilled to talk about your amazing book, 'Vagina Obscura'.

Rachel Gross

Thank you so much for having me. It's such a pleasure and I'm always thrilled to talk about vaginas.

Erin Welsh

I mean same, same. I'm always curious too about the origin story of a book. I'm always asking like what inspired you? How did you become interested in a certain topic? And in the intro of 'Vagina Obscura' you tell that story and you tell it in a great way but it's also a terrifying story. And I was wondering if you would mind taking our listeners through that.

Rachel Gross

Absolutely. So I'll just mention that this was a topic I had been thinking about a while before this particular inciting incident. I was an editor at Smithsonian Magazine covering science and I was kind of assigning a lot more reproductive health stories, stories about like medical training and why it was taking so long to learn these really basic facts about female anatomy. At the same time I was running this column on unsung female scientists in history. And I was starting to put the two and two together, that maybe the lack of representation in science had something to do with the lack of basic knowledge about female bodies. So that's the prologue. So there I am at Smithsonian Magazine, I'm doing my thing and I get this wild vaginal infection which I talk about in the intro of the book. And it's very unpleasant and itchy, I describe it as my burning bush. And I go to the gynecologist and I keep going back and all they can give me is the same antibiotics. They think at first it's a UTI, then they think a yeast infection. I think many of us have gone through this horse and pony show.

And eventually basically my gynecologist said I'm sorry, it looks like it's something called BV, bacterial vaginosis, which is a disruption in the ecosystem of the vagina. And it's super common, 1 in 3 people with vaginas get it. I had no idea. I had never heard of it. Now I know like a whole cohort of people. But she said although it's so common, there's actually no good cure for it. So the best we can offer you as like a last resort is rat poison. She literally used the word rat poison but she said like if you look it up on the internet, that's what it'll say, so I just want to warn you. And I'll always remember picking up a little tube with a skull and crossbones that said poison on it, which I still have, and just feeling ashamed. And then you have to go home and take this. It's a vaginal suppository so it looks like a pill but you put it up there and you just lay on your back and think about what you've done.

Erin Welsh

Oh my god.

Rachel Gross

So I did that for 10 days. And then here's the part where I kind of go off the rails. I had a long night, woke up in the middle of the night, went to my bathroom and had like a pill in my hand basically. I was like I forgot to do something, I forgot to take my medication. And then I swallowed the rat poison, the boric acid. And so basically I end up in the hospital thinking I'm going to get my stomach pumped and not knowing whether it's going to kill me because if you look up boric acid and ingestion, you do get a ton of studies that find death by injection and like call poison control and like kids shouldn't have this. So it fortunately was not enough to do anything except give me gas, said the doctor, but it was a scare.

And as I write in the book, it was one of these moments where I kind of was pushed back upon myself to kind of question what I knew about my own body. Like why was I taking this medication that I had no idea what it was, what it was doing, what the infection was? And here I am, someone who writes about reproductive health and thinks they know a lot about vaginas and like has a mother who's a doctor. And it just made me question like if I have access to all this knowledge and I know so little and don't even know how much I don't know, then certainly there are millions of other people who could use some more knowledge and I should look into that.

Erin Welsh

Absolutely. I feel like that's such a great example of we don't have a better treatment than rat poison. Like are we looking into this? I'm sure people are.

Rachel Gross

We are.

Erin Welsh

But are enough people looking into this?

Rachel Gross

No.

Erin Welsh

Like how? Right.

Rachel Gross

There's no funding.

Erin Welsh

There's no funding, right. And when you decided okay, I want to tackle this topic, how did that book that you first envisioned sort of turn into the book that you eventually wrote?

Rachel Gross

Ooh, I like that question. I think from the very beginning I knew that it wanted to be... That it wanted to be? That the book desired to be a wondrous journey into the female body. And I was initially thinking like 'Twenty Thousand Leagues Under The Sea', 'Journey to the Center of the Earth'. So I knew about that quality. I guess what I didn't realize was that each chapter would also end up profiling usually a female or LGBT scientist or even patient who was investigating this organ and reimagining what it could be. And that that would be tied in with the history and science of the organ and that it would go organ by organ kind of from the outside in roughly. And initially I settled on the name 'Lady Anatomy' which I was convinced would work. And it quickly became apparent that it needed too much explanation and that I thought it was tongue in cheek and I was actually referring to a lady anatomist who was called the lady anatomist in the 1800s in Italy. And I was referring to kind of like the term 'lady doctor'. But it became so clear that the book was about so much more than women. It was about anybody with these body parts, it really expanded quickly to include trans women and men, intersex people, non-binary people. So that was not going to work in the title.

Erin Welsh

And when you told people I'm writing a book about vaginas, I'm writing a book about vaginas et al, or that you had written this book, what kind of reactions did you get? I expect you got reactions from like all different ends of the expected reactions.

Rachel Gross

You would be correct. The people in my life were just like yeah, of course you're writing a vagina book. Duh.

Erin Welsh

Love that.

Rachel Gross

Not a surprise. My mom was very excited. Like I said, she's a doctor. But she was reading my draft as I went along and she was learning all new stuff that she'd never heard of and she was very excited about that. And she ended up being my biggest stan when the book came out. She really loved putting the cover out and giving it to all of her senior friends in the neighborhood and making sure that everybody saw it. And talking about, she called it her first grandchild, her only grandchild. So there was that. Definitely people did laugh. And I actually like that. I think that getting someone to laugh gets them to be open, to be surprised; it kind of like knocks them off kilter for a second. So I don't mind that.

But I do think there's an obvious discomfort in our culture, a squeamishness, sometimes a prudishness that like people don't know how to react. And then I think there were times where I was in a more like academic setting or talking to like a real buttoned up like old school researcher where I found myself kind of censoring my language and just being like oh, it's a book on reproductive health and history. And that was really interesting because we did face a lot of censorship of the word 'vagina' and did have to take alternate routes.

Erin Welsh

Oh very interesting. And you mention the cover of your book. And the artwork, I just have to say I'm obsessed, I want it all over my walls. I love it.

Rachel Gross

I do have it all over my walls, behind my couch. And I might get a tattoo soon. Yes, that is by Armando Veve, an award winning illustrator that I've been a huge fan of for a while. And we were paired together for a piece on the history of the birth control pill for the New York Times. And since then I basically was stalking him for a year until I could get a grant to help bring him in and do these interior illustrations. And we were actually thinking initially of like 'Alice in Wonderland'. I think at the beginning of each chapter there's like a little quote and then often a little sketch of what's to come. So they're themed sketches and I really enjoy them.

The clitoris is this really powerful structure with these deep roots in the soil that I love. And then the cover of it was really supposed to look nothing like any vagina book you've ever seen. So I was just really sick of all of these pink covers with like a zipper unzipping or like a flower, Georgia O'Keeffe, like we've seen that. And I also really didn't want to give the impression that this was just a women's book. It was really important to me that people felt welcomed in and maybe surprised like this is more the cover you'd expect from a sci-fi novel.

Erin Welsh

Let's take a quick break here. We'll be back before you know it.

TPWKY

(transition theme)

Erin Welsh

Welcome back, everyone. I'm here chatting with the wonderful Rachel Gross about her book 'Vagina Obscura'. Let's get into some more questions. In your book you discuss sort of the power of words and how a word sometimes is just a word but other times it carries with it a deeper meaning or it reveals a history that explains so much about our perspective or our current biases. How is shame just carved into the words that we use for our genitalia or our reproductive anatomy?

Rachel Gross

Ooh, I think it's very interesting you use the word 'carved' there because it does suggest that some violence is being done and sometimes that is literally the case. And yes, I do think that the concept of shame is bound up in the language we use to talk about our bodies. And I encountered this so much in my research, like literally the first time that Hippocrates decided to name the genitals he named them 'the shame parts' in Ancient Greek. And from then on it was just like over and over again male anatomists would continuously name usually the clitoris or the vulva the shame part.

So like in the 1500s, a French anatomist names it *membre honte*, like the shame member, and then we get *pudendum* which means the part for which you should be ashamed and that is a Latin term that is actually in gynecology textbooks today. So I kept encountering it and being like what the hell? And then there'd be a footnote in the bottom, it would just say 'the shame parts'. As if that explained the term. Like no. Which I ended up following that because it became a debate in anatomy whether to get rid of the term. And by the way, this was all going on at the same time that the discussion about Confederate monuments and taking down problematic monuments and names was going on. So it was very much top of mind.

And it's not lost on me that there are monuments in the body, in the organs we're born with, that are named after generally elite white men. And there are quite a lot of them and a lot of them are in the pelvis. And that is weird. That's just one example. This isn't a name but another example of how language can kind of shape the conversation is that the ovaries didn't have their own name until the 1600s, they were just called female testicles. And that really kind of reflected this idea that the female body was a lesser version of the male body and it didn't really even need its own name. And so things like that were always kind of a-ha moments like this little language fact I'm learning reinforces the other research I'm doing.

Erin Welsh

Like there has to be a qualification. Lady anatomy.

Rachel Gross

Exactly, right.

Erin Welsh

Yeah.

Rachel Gross

So now I actually write a column about medical language for The New York Times. It's called *Body Language* and it talks about the origins and history of these little terms in medicine and how they affect patients and doctors today. Because what I found was, so talking about *pudendum* and the pudendal nerves which are still a term, often patients might not be aware of that term but they do have a lot of shame around that area. And when doctors are aware of kind of the weightedness of the language they use, they can really help patients be at ease. Like there are actual outcomes to the way we talk about this. In large surveys in Britain, a huge percentage of women just avoid going to the gynecologist out of shame or embarrassment and others don't want to say the word *vagina* to their gynecologist because they are ashamed, which obviously affects medical communication.

Actually the most horrifying example of this that I remember is I gave a talk once and a science student came up to me and said that his grandma, she'd had cancer and she'd had like a reproductive cancer and treatment for it and was at one of those like benefits where you pick a ribbon based on the type of reproductive cancer you have and she didn't know which color to pick. And he was like Grandma, what kind of cancer did you have? And she said I don't know, the doctor told me it was down there cancer. Like if doctors literally can't name our body parts using, I don't know, neutral objective terms, then how are we supposed to think about our bodies?

Erin Welsh

It just reinforces the shame and silence surrounding it.

Rachel Gross

Exactly.

Erin Welsh

Ugh, that's horrifying.

Rachel Gross

I know, I always think about that.

Erin Welsh

And I feel like... My god, yeah. And your book is full of so many surprising and fascinating and kind of like revelatory bits of information. What thing did you learn that surprised you the most or that contradicted what you thought you knew?

Rachel Gross

Ooh. Well one thing that just really like literally contradicted what I was taught was in a later chapter on this kind of cutting edge research on the ovaries and eggs, I learned that there was research being done that suggested that maybe the ovaries don't stop making eggs when you're born, before you're born actually. So you know there's that line at the beginning of biology textbooks and papers that says women are born with all the eggs they'll ever have and this like process of attrition begins before birth when she's a fetus in the womb and from then on the eggs trickle away like an hourglass. And I was really surprised to see that there were ovarian biologists who were challenging this idea and they were finding there were stem cells in the ovaries, as there are in most organs, that had this regenerative power and that potentially could be making more eggs under certain circumstances. And this is research that's ongoing so it's something where there's a lot of caveats. But just the idea I think challenged my idea of what the female body could do, what our organs were capable of, in a way that made me realize I'd never even questioned that. I just took that as a gospel.

Erin Welsh

Oh I mean same here, we have a menopause episode from our last season where I'm pretty sure we say that exact opener to the biology textbook. You are born with all the eggs, etc, etc. And so I was really fascinated to read your chapter on quote unquote "restoring" ovaries post menopause. What does it mean to revitalize or restore ovarian function after menopause and what data do we have about this quite controversial research?

Rachel Gross

Right. So when we talk about "restoring or revitalizing", quote unquote, the ovaries, that idea comes with some heavy baggage. That is one potential application of this kind of research. And again, this has not been... Well actually there is some interesting ovarian cortex transplants that have been done in women that are supposed to again kind of recharge the ovary and delay menopause. But what I talk about in that chapter, what I really do is kind of ground this in historical context and say like hey, we've been here before and the history of revitalizing the ovaries goes back to like the 1910s when snake oil salesmen were trying to graft monkey ovaries onto women's ovaries, promising them eternal youthfulness and femininity and sexuality. And this comes back again and again in this history to the 1960s where you have this book 'Feminine Forever' by a gynecologist funded by pharma, who is saying that estrogen is now the key to maintaining your good looks and your youth forever. Which is just a poisonous toxic message that you would need this and that femininity is something that wilts or needs to be revived. So when I hear these words I do kind of twitch and I also think of certain types of plastic surgeries like G-spot surgery or whatever, vaginal tightening, that really give me the ick. So that's one thing. However I think the basic idea of the research is that if the ovaries are more regenerative than we've given them credit for, then it is possible to find tools to manipulate them. And for some who want to, that might mean adjusting your menopause timeline which is a very controversial thing to say.

Erin Welsh

Yeah, absolutely. Yeah, we visited that book and quotes from that book and just quotes from like the early days of hormone replacement therapy and the advertisements that were geared towards husbands. And it's just like...

Rachel Gross

Exactly.

Erin Welsh

Wonderful.

Rachel Gross

The girl you met.

Erin Welsh

Yes.

Rachel Gross

She'll make you dinner again. Yeah. I just think we always need to be mindful of that kind of cultural context when we, I don't know, get excited about new technologies. I think there's like a lack of sense of history with a lot of this where it's just like ooh, new tools for feminism. Let's change our body's parameters to fit our capitalist workplace or demands that we be sexually available and attractive for our entire lives without questioning like why.

Erin Welsh

Right. Why? And also let's look at where we came from and let's look at how we may be looking back on this moment right now. Yeah.

Rachel Gross

Exactly. Yeah, a long view.

Erin Welsh

So you begin your book with a discussion on the clitoris. First, what is the clitoris?

Rachel Gross

Well I'm glad you asked. The clitoris is the only organ in any human body that is dedicated just to pleasure as far as we know. And it is a substantial organ, I think I mentioned that it is kind of deeply rooted and it's often referred to as an iceberg by people who handle it a lot in science. So it is often thought of as the nub that you can see or touch, which is one of the fun parts, but that nub is actually less than 10% of the entire organ and it has these of tulip bulbs that actually hug the vagina and the urethra and then it has these arms that flare back against the pelvic bones. And they're all composed of erectile tissue, exactly the same as in the penis, that basically is like porous or spongy and fills up with blood when you get aroused and essentially erects. And the clitoris has been like much discussed, maligned, neglected, ignored, omitted in the history of anatomy and medical education. It's a very long story. But we now have pretty accurate maps of it and we can definitely say that it is a substantial organ and it is the center of orgasm for people who have it.

Erin Welsh

Can you talk about this relatively recent paradigm shift in our understanding of the role that the clitoris plays in the anatomy of pleasure?

Rachel Gross

Yeah. There's definitely been a paradigm shift. I mean it's so funny that this is new or fresh to me because like come on, as long as we've had clitorises we've known that they feel great and we've known what they're for. You just need to ask us. But I often think about the G-spot. And the G-spot means a lot of things to a lot of different people. But to me, I grew up seeing it in women's magazines all the time as this like secret mysterious button that if you found it you would have like intense secret orgasms and it would be great. And so I was always like man, I can't find it. I don't know if I'm broken. And so as I started researching the clitoris and specifically a urologist in Australia named Helen O'Connell who comes up in medicine studying a lot of penises and realizes that the same medical attention has never been given to the clitoris, to the point that when she does a surgery in the pelvic region on women, she's not taught to spare the nerves or like know where the nerves are compared to penile surgeries where that's always considered.

So she's the one who's kind of credited with mapping the iceberg with modern tools. I mean a lot of people did a lot of work before her. But people definitely started asking her like what's the G-spot? Is it real? Is it a myth? And so she actually went in and tried to find it. And what she realized was that the G-spot is probably the front of the clitoris because it's such an internal organ and remember it kind of hugs the vagina. So where those arms and bulbs come together, kind of the root, that is... Sorry, this is so much easier with like diagrams and pictures but it's basically about an inch or two up the vagina on the belly side. It's just part of the clitoris that for some people might be more sensitive or feel a little different just depending on your anatomy, how thick your skin is, and like where it is. So basically it's all the clitoris.

And maybe that's the paradigm shift is that the clitoris is central and for so many years we've been like carving up women and their sexual experiences into these individual boxes, like talking about vaginal orgasms, which I go into why those don't exist, and the G-spot and the clitoris, as if these things are somehow like competing or like different parts. But to me, the important thing is that they all are interconnected and work as a system. Like our body knows what it's doing and it's all meant to be there and it all connects to the other parts.

Erin Welsh

Like split up in ways where it's like oh, it's so confusing and overwhelming, there are so many moving parts. And it's just like well...

Rachel Gross

Right. Well constantly the female body is described as more complex, confusing, and obscure, hence the final title. And like it's not you're just looking at it wrong, I would suggest. And unfortunately I think that the results of, for instance like the G-spot rhetoric I was reading, is to make you feel inadequate or broken. And the same thing with the vaginal orgasm idea. You have generations of women feeling like they are somehow incomplete or their bodies don't work the right way because they're not working the way that men said they should work and the male interpretation of their body is not lining up with their felt experience.

Erin Welsh

There was a really interesting part in your book where you discuss how as the clitoris began to get more attention and this like long overdue recognition, the vagina was kind of like shoved to the side, so to speak. How did that happen or why did that happen and why does the vagina deserve a bit more of the spotlight than maybe it's getting?

Rachel Gross

I love that you caught that actually, not many people do. There was definitely a vagina vs clitoris moment going on. It was kind of in second wave feminism and it was definitely a response to Freud, who is the one who came up with the idea of the vaginal orgasm. And the reason why I get so annoyed with this concept is like you can feel an orgasm anywhere, you can experience it anyway, including in the vagina. But he said that there's two things. There's a vaginal orgasm and a clitoral orgasm and one is good and one is bad. And to become a mature, healthy woman, you have to transfer your clitoral orgasm to your vagina because your clitoral orgasm is your vestiges of masculinity that you're holding onto that you need to let go of. So he kind of is the root of all of this feeling that your body is broken, which it's not, it works perfectly.

So second wave feminists were the one who challenged this idea. And there's this great speech by Anne Koedt that's called the 'Myth of the Vaginal Orgasm'. And yeah, and so basically they say that for so long we've been elevating the vagina and the vagina represents like male pleasure and reproduction and the clitoris represents female pleasure and like independence and wholeness and so we're going to champion the clitoris. And this continues, there's a lot of great clitoris imagery. I mean I myself have clitoris jewelry and we love this organ. However I guess I was saying that to me the important thing is that this is all part of the same system and it's super interconnected and through your vaginal walls you of course feel the clitoris in beautiful specific ways that are related to your own particular anatomy. And they work together as a team. They are not enemies, they are friends. It's an enemies to lovers story.

Erin Welsh

Oh yes.

Rachel Gross

Love those.

Erin Welsh

As someone with a background in ecology, I loved your discussions on the incredible vaginal diversity in the animal world. What does our new recognition of this diversity or relatively recent recognition tell us not only about vaginas but also about our research bias?

Rachel Gross

Super recent actually, shockingly recent. First of all, weirdly that chapter, like the one that addresses the vagina, was maybe the last chapter I wrote. And for some reason, I don't know, it wasn't the most difficult but I thought it'd be super easy. I was like this is a book about vagina science, we're going to talk about the human vagina and that should be central. So it surprised me that the vagina chapter ended up being more about animal vaginas than human vaginas. But it was an incredibly fun journey.

I follow a biologist named Patty Brennan who became known as the duck penis and vagina researcher but she is so much more than that. She also does dolphins and snakes. I dissected a snake clitoris with her which has two prongs because snakes have two penises and they match up. And we made a little silicone lollipop out of it using dental latex. So yes, animal vaginas were very understudied. And like this one was just really blatant compared to in some of the histories there are these more subtle cultural assumptions going on. But here I call up the male researcher who like first described this crazy duck penis and ask him do you look at the duck vagina? He's like no, we didn't bother. And literally a lot of male scientists it seems described the penis of certain species and just extrapolated that to the female and didn't bother to look. So Dr. Brennan is basically the first person to fully dissect a duck vagina which seems shocking. They are pretty plentiful, pretty easy to do. I mean it did sound difficult actually.

But so it almost didn't sound plausible to me that no one had bothered to look at these vaginas. But if you look in the literature, female animal vaginas are literally described as passive and almost boring. A literal quote in one of the textbooks was that "females are the field upon which males compete". So they're really considered just like the medium upon which the real action happens. And that sort of gave me context for why this super basic research wasn't done. And it turns out vaginas are fascinating and they're doing a lot. They can store and reject sperm in some cases depending on which animal, I'm not saying we can do this unfortunately. But there are ones that look like corkscrews, there are ones that look like labyrinths. And if you're looking at vaginas, you end up looking at a lot of clitorises.

So Patty ended up looking at dolphin clitorises which are huge and very frontal facing, so they get a lot of action. And is like I mentioned looking at clitorises in snakes, things that were really surprising to people but I think it's kind of because they didn't think about it and didn't bother looking. So it really is very unexplored terrain. So to your question of what this says about male bias, I think it says that there are a lot of assumptions about female bodies and their relevance to the science and how much we should dedicate to studying them that turned out not to be true. And I think part of the answer is just getting in voices into science who can ask different questions, in some case very obvious questions, and giving them the resources and power to follow them.

Erin Welsh

Just looking at the questions alone, like what research questions are we asking not just about animals but also about humans and how even today it can reveal this historical bias that has such incredibly deep roots. And I won't ask you to like take us through all of that because that's what the book is for.

Rachel Gross

People can go find that.

Erin Welsh

Yeah. But I was wondering if you had anything in mind about some of the research questions today we're failing to ask about human vaginas, clitorises, uteruses, endometrium, like all of these different things. Are there patterns that you're seeing in bias there?

Rachel Gross

Absolutely. The female reproductive organs are often seen as not doing so much and as mainly meant for reproduction or prone to disease for some reason. The uterus is the origin of all diseases was one of the ancient Greek texts. And that's a very particular lens and if you come in thinking that, that's what you're going to find. And there are now researchers coming in saying I think that the female body is more regenerative than that, I think that this body part plays a role in more of overall health than we give it credit for. So the vaginal microbiome, which was my problem with my little infection, was just not really appreciated for being essentially an extension of the immune system and a really rich ecosystem similar to the gut microbiome, although technically quite different.

But once we started looking at that, new solutions emerge. Instead of just thinking women are prone to infection, this happens, it's fine, we don't need to solve this problem that affects 1/3 of women, just give them rat poison. Instead you might say hey, there are solutions we use for gut microbiome problems. So fecal transplants became really big in the 2010s and they were found to solve some deadly gut infections. And basically what happens is usually you start by transplanting a healthy ecosystem into one that's struggling. And then science moves on to kind of synthesizing a formula that's more standardized and does the same thing. And so finally like 10 years later, vagina science is beginning to catch up.

And I write about these trials to do vaginal ecosystem transplants essentially from woman to woman that likely will end up being like a synthesized microbiome supplement kind of thing. This to me is both obvious and is solving a problem that is so common and causing much distress because many of these infections are actually a lot more serious than what I dealt with. So that's an example. Another example I go into a lot is the uterus and endometriosis. So endometriosis for a long time has been viewed as this like disease of infertility and that's actually mainly how it's funded through infertility research. And most women only discover they have it when they get an infertility workup. And scientists are beginning to reconceive this as a body-wide disease that's not just to do with the uterus, it actually has to do with the immune system and body-wide inflammation.

And it turns out we have tools and we have researchers who study those things who could be looking at the uterus. And when you bring them in, you get new solutions and possibly new medications. So similar to the way that endometriosis has been looked at as purely a disease of the uterus, purely like a reproductive disease, the uterus itself has often been looked at as just like not doing anything when it's not making a baby, like that's its main purpose, the rest of the time it's just like sitting fallow, waiting to be spermed or something. But actually when you menstruate, which many of us do every month, your uterus is essentially building up a new organ, a new lining every single month with its own blood vessels. And then the body is telling it that it has to self-destruct, which is very bloody which we know.

But it's a very regenerative process full of immune cells, full of stem cells. That's pretty unique in the whole human body, this amount of constant regeneration building up every month. And if you studied that, you actually learn a lot about just regeneration in general, scarless wound healing; you find stem cells that you might be useful elsewhere. So looking at it from a lens of regeneration I think opens up new possibilities. And then just like another example of looking at the female body with different lens is that a really promising avenue to getting that diagnosis for endometriosis is menstrual blood and looking at the unique biomarkers in it to find out if you have this kind of inflammation that might suggest you have endometriosis and that is easy and plentiful and free and noninvasive, unlike surgery.

Erin Welsh

I loved your chapter so much on gender affirming surgery and how far we've come over the years. How has the approach or construction of neovaginas changed over this time?

Rachel Gross

Yeah. And I do use that word in the book because it's sort of like the medical term that you'll often see in research but people can use whatever terms they prefer. So that chapter brought together so many themes for me when I looked at the history of gender affirmation surgery, which goes back surprisingly far, it was happening in the 1930s in Germany. But when it hit the US it was done very institutionally after being done underground. So Johns Hopkins was the first to open a clinic that was offering this to trans women and it was very, very selective and it made very explicit that its goal was not to help people reach their own goals with their body but to end up with women who disappeared into society and had husbands and essentially were feminine and didn't rock the gender binary. So basically make anyone who's a problem in society invisible.

And if you go with that approach, then the point of a vagina is to do what you think women's vagina should do which in this case was have penetrative sex with your husband. So the surgeon I follow, Dr. Marci Bowers, who is herself one of the first trans women to be a gender reformation surgeon, she would give a presentation where she basically put like it's like a hole in a cliff on the screen and everyone laughs because she's like essentially the goal in the past was make a hole, it's good enough. And then she goes on to talk about how in her practice the clitoris is so central. It used to be an afterthought if it was a thought at all, now it's about your experience, your pleasure, what you want out of your body. It's really about your internal experience, not what society expects of you. And that really is a paradigm shift because it starts with the patient's goals instead of society's understanding of the female body.

Erin Welsh

So one of the things you talked about too is that we've come a long way in these gender affirming surgeries but there are still some challenges just in terms of the fact that we've been not really thinking about this in these terms for as long as we should. What are some of the challenges in constructing or surgically creating these vaginas?

Rachel Gross

Yeah. We were talking about them, I'm like picturing vaginas floating untethered. But yeah, so it's really interesting. Again, Dr. Bowers is pretty explicit about it. She's like we essentially contain all the same parts except the uterus. And by understanding deeply, as a gynecologist in her case, what the female body parts, the body parts of the vulva are and what the parts of the penis are, she can really reconstruct using homologues because the penis and clitoris come from the exact same embryological structures. You have erectile tissue, you have like a head or a glans. So that actually makes a lot of sense surgically and makes the surgery easier. However the vagina does a lot of cool things that are pretty difficult to replicate and one is that vaginal microbiome that we talked about. So that is kind of like specific to the vagina and usually if you surgically create a vagina, it will have its own microbiome that will be more similar to the part of the body that you use to create it, for instance the skin. So that might be different. The vagina also self-lubricates which is pretty unique and involves a crazy process of liquid transfer, so that is also very difficult to recreate.

There is so much in your book that really highlights the different biases that we've had over the years both in medicine or in ecological or evolutionary research but also just like how that has kind of spilled into societal or cultural understandings of these different parts of our bodies. And it kind of made me wonder that although bias has gotten reduced or as we've gotten better at at least identifying the bias that is there and tracing its roots, there is still bias present. But it also made me wonder what will we look back on potentially. What do you think we will look back on in 50 years' time, 100 years' time, something like that and go I cannot believe we were approaching it this way? And it's a little bit like asking you to predict the future but yeah, I wondered if you had thoughts on that.

Yeah. I definitely think we're gonna look back and say that the way that we treated or didn't treat women in menopause for the past 50 years has been grossly inadequate, that the idea of at first giving one hormone to address superficial things which took forever to actually look at the systemic overall health effects. And when we did look at that, we did it wrong in a way that meant millions of women didn't get vaginal estrogen. I think that is just like a huge misstep in the history of women's health or reproductive health. I think it has a lot to do with the fact that when you're past your reproductive age, gynecology doesn't see you as much or in the past that was the case and that is changing.

One thing that I hope that society really reconsiders is the amount of plastic surgeries that are done on the vulva and the vagina I guess I would say, I'm thinking like "vaginal tightening", "G-spot rejuvenation", and I'm using all these words in air quotes. But I didn't talk about this too much in the book but it goes back to the exact same themes we're talking about, is your body for you or is it for someone else or is it to meet some societal standard or fit some ideal? And where does that ideal come from? Does it reflect your values? Obviously we all have individual choice and people can do whatever they want but I hope that there's more questioning of the proliferation of surgeries that promise to make you look younger or increase your sex life or basically that continue to reinforce shame around our natural genitals.

TPWKY

(transition theme)

Erin Welsh

Rachel, I just have no words. That was so much fun. One of my favorite conversations so far. And I really appreciate you taking the time to chat with me. I know that you all enjoyed that as much as I did and want to read more. So you should definitely head to our website [thispodcastwillkillyou.com](http://thispodcastwillkillyou.com) where I'll post a link to where you can find 'Vagina Obscura: An Anatomical Voyage', as well as a link to Rachel's website which includes links to some of her other incredible writing which has been published in The New York Times, Scientific American, The Guardian, and others. And don't forget, you can check out our website for all sorts of other cool things including but not limited to transcripts, quarantini and placebo recipes, show notes and references for all of our episodes, links to merch, our [bookshop.org](http://bookshop.org) affiliate account, our Goodreads list, a firsthand account form, and music by Bloodmobile.

Speaking of which, thank you to Bloodmobile for providing the music for this episode and all of our episodes. Thank you to Lianna Squillace and Tom Breyfogle for our audio mixing. And thanks to you, listeners, for listening. I hope you liked this episode and are loving being part of the TPWKY Book Club. And a special thank you as always to our wonderful, fantastic patrons. We appreciate your support so very much. Well until next time, keep washing those hands.