

Sawbones 270: Pinworms

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Intro (Clint McElroy): Sawbones is a show about medical history, and nothing the hosts say should be taken as medical advice or opinion. It's for fun. Can't you just have fun for an hour, and not try to diagnose your mystery boil? We think you've earned it. Just sit back, relax, and enjoy a moment of distraction from that weird growth. You're worth it.

[theme music plays]

Justin: Hello, Jonathan Coulton Cruise, 2019, and welcome to Sawbones, a marital tour of misguided medicine. I am your co-host, Justin McElroy.

Audience: [cheers]

Sydnee: And I'm Sydnee McElroy.

Audience: [cheers louder]

Justin: Fine. It's fine. That's actually... That's actually... those were actually exactly the same, but there's an aquatic echo that made the second one... hey, if this boat's a rockin'... I was hoping you knew, because I am at a loss.

Sydnee: It's really moving.

Justin: It's truckin', eh? Captain, open her up. I went in, and he asked me. He was like, "Justin, do you think she could take a few more knots?" And I was like, "Let's turn this Oosterdam into a Boosterdam."

Audience: [laughs]

Justin: And like, open it up. And he asked me, he was like, "Would you feel more comfortable if I... would you like to come to the bridge and open her up

for me? 'Cause I'm a little hesitant." And I was like, "No Captain, you do it. You can do this. I believe in you. The magic was within you the entire time. I've taught you all that I know about the sea."

Sydnee: That whole story was just so you could use the term "boosterdam," wasn't it?

Justin: I'm really into "boosterdam." [laughs]

Audience: [laughs]

Sydnee: He's been practicing it for a couple days, now, so...

Justin: I'm really into it.

Sydnee: That's... okay. I'm glad you found a whole anecdote for it.

Justin: So the problem... we sometimes cover some challenging topics on Sawbones. And the problem with doing that in a podcast setting is, if people get skeeved out, totally wiggled out and grossed out, they can turn the podcast off. You're on a boat.

Audience: [laughs]

Sydnee: You're trapped here with us. [laughs] Last time we did a show on the cruise, we did Norovirus.

Audience: [cheers]

Sydnee: [laughs] Which made everyone uncomfortable, and I think maybe even alerted like, the crew, like, "What are those two up to?"

Justin: Yeah, what's their angle?

Sydnee: So we maybe took it too far. Uh, so, I was trying to come up with something else that would be... y'know, especially relevant to all of us living

in close quarters. And something that maybe is... I find very interesting, but I think Justin would say is a little...

Justin: Challenging.

Sydnee: Mm-hmm. So I wanted to talk about pinworms.

Audience: [cheers]

Justin: So that's the one you get. 'Cause after this... y'know, flee now if you need to, 'cause after this, we're barring the doors.

Audience: [laughs]

Justin: We're not actually. That'd be a fire hazard.

Sydnee: No, we're not gonna do that. There's nothing to be squeamish about, because the thing is, pinworms affect people everywhere. All over the world, no matter... it is truly like a parasite of equality. It does not discriminate.

Justin: We can all celebrate that here on the JoCo Cruise, right?

Audience: [cheers]

Sydnee: In fact, 20% of people in the United States will be infected with pinworms at some point in their lives.

Justin: Hey y'all, there's more than five people in here. Isn't there? Run the numbers real quick. Look to your left, look to your right. If those four people don't have pinworms...

Audience: [laughs]

Sydnee: So it's no big deal.

Justin: No big deal.

Sydnee: And specifically, some people in high risk environments are more likely to get pinworms, and that's usually places with like, close quarters. One of those is actually schools, so school kids are at higher risk for pinworms.

Justin: I don't know any other populations that are living in close quarters.

Sydnee: Well, I just wanted to make sure you knew we brought one on board, a school kid.

Justin: Oh, yeah, we do have a school kid on board.

Sydnee: Just in case.

Justin: Yeah.

Sydnee: Don't worry, we have one. I don't think she has pinworms.

Justin: We only have two kids, so the odds are good.

Audience: [laughs]

Sydnee: So usually on Sawbones, I start with all the history, because we're talking about a disease that everybody knows a lot about. When it comes to parasites, I feel like they're not as well-known. What do they do? What are they? How do they happen?

Justin: It's almost... it's weird, almost like people don't like to talk to talk about them.

Sydnee: [laughs] So I wanted to take just a little bit of time to kind of explain what pinworms are and how they happen, how you can get them, and why you shouldn't stress out about it. Even though I know... I'm gonna keep saying that, and nobody's gonna care, right?

Justin: Yeah.

Sydnee: Okay.

Justin: They're gonna be too distressed.

Sydnee: Uh, the name that you can use if you don't like pinworms is *Enterobius vermicularis*.

Justin: [snorts]

Sydnee: If you like that better. I think it's a little more clinical. I mean, it's still worms, but... a little more clinical. And they live their whole little lives, their wormy little lives, inside humans. And the way that happens—

Justin: Hey, I'm a human!

Sydnee: Mm-hmm.

Justin: Wait!

Audience: [laughs]

Sydnee: So what happens is, you gotta swallow the eggs first. But don't worry, you won't know. They're very little. They're very tiny. You wouldn't know. So it's no big deal. They're not like, y'know, they don't taste bad or anything. So you're gonna swallow them...

Audience: [laughs]

Sydnee: They're gonna get down to your small intestine, and then hatch, and become little larvae. And then they're gonna keep migrating down, and on their way in the ilium, they're going to stop—

Justin: What's the ilium?

Sydnee: The ilium is the last part of the small intestine.

Justin: Okay, thanks.

Sydnee: So when they get there, they're going to mate. Y'know, to make more pinworms.

Justin: Aw, I heard some 'aw's out there. How sweet.

Audience: [laughs]

Sydnee: Now, at that point, usually the male pinworms die. Sorry.

Audience: [cheers]

Justin: [laughs] What a cool boat.

Audience: [laughs]

Justin: [laughs]

Sydnee: The gravid pinworms continue on. [laughs] The pregnant pinworms continue on on their journey throughout the rest of the intestine. And as they migrate down, they get larger and larger, until they're essentially just filled with eggs. Somewhere between 11,000 and 16,000 eggs in a pregnant pinworm.

Justin: So many, really. It's like, a lot, eh?

Sydnee: It's a lot.

Justin: It's a lot.

Sydnee: It's a lot, yeah.

Justin: It's a lot.

Sydnee: Like, their whole body is filled with eggs. So... and they migrate, in case anybody is curious, at a rate of 12 to 14 centimeters per hour. So, I don't know who needs to know that, but hey, trivia.

Justin: Yeah, in case that comes up.

Sydnee: So anyway, they keep moving on down the colon. But the thing is, they need some oxygen for the maturation of the eggs. So they're not gonna lay—they're not gonna open up and lay all those eggs inside your intestine. They need to get out. And now, they're closest to... well, the other end. They came in through your mouth, but they've migrated down, down, down, down. So, there's a light at the end of the tunnel...

Audience: [laughs]

Justin: Not usually? But I...

Audience: [laughs]

Justin: I guess, maybe.

Sydnee: And they're going to follow it...

Justin: If you're doing some frat stunts, I guess it's possible.

Sydnee: ... to oxygen for the eggs. So what happens is, eventually, they will migrate out of your anus, and lay their eggs—

Justin: Interstellar pinworms migrate out of...

Audience: [groans]

Justin: Interplanetary... oh... okay. We have some leftover space nerds from the last show here to correct that. Thank you, it was fair. I know the difference.

Sydnee: So, they migrate out, and they lay their eggs in the like, the perianal folds. So they just... kind of all around the area.

Audience: [laughs]

Sydnee: You can't see that on the podcast, but it was just kind of a circular motion around the area.

Justin: Yeah, yeah, yeah. Cool, cool. Cool, cool, cool, cool, cool.

Sydnee: That's it. This is happening at night, by the way. They do this at night.

Justin: Aw. So wait, stop in the body. In the human body. They do it at night?

Sydnee: Yeah.

Justin: How do they know?

Audience: [laughs]

Sydnee: That's a good question.

Audience: [laughs]

Sydnee: They do it at night, though. That's when they come out and lay their eggs.

Justin: Are they just looking for the light at the end of the anus, and they're like, "Well, it looks like—"

Sydnee: Well, they're not looking for the light. They're looking for the oxygen, but I don't know—

Justin: Looks like noon, everybody. Back to bed.

Sydnee: I think generally speaking, they lay their eggs at night. I mean, I guess they could in the day. If you're somewhere where there... like, if you're... let's say you're up at the north pole. I'm not gonna... let's move on.

Justin: Okay.

Sydnee: Anyway. So, they lay their eggs, and then they hide back inside. Or, at that point, what can happen is, as they're laying their eggs and the worm is moving around, well, you might feel this now. And it's not painful, it's more itchy would be the word. It's itchy. And so, what can happen at this point is, either they lay all their eggs, or—

Justin: I don't like that one, so let's see what the other one is.

Audience: [laughs]

Sydnee: Or you scratch. And if you scratch right at that moment when the worm's there, you're gonna break the worm open...

Audience: [groans]

Justin: [laughs]

Sydnee: ... and lay all the eggs for it.

Justin: You're welcome.

Audience: [laughs]

Sydnee: And this, to continue with the lifecycle...

Audience: [laughs]

Justin: There's more! I thought they'd all beef it, then!

Sydnee: Of *Enterobius vermicularis*... no. The eggs don't. No, no, no. The pinworm that has laid the eggs is no longer with us. It has departed. Its job is done. But the eggs are just getting started.

Justin: [laughs]

Sydnee: Uh, the eggs are very sticky, and they're very hardy eggs. They can live for like, three weeks in a moist environment, so they can hang around for a while. And what tends to happen, since the eggs are irritating, and then the worm itself is also irritating, is people scratch. And then, touch things.

Audience: [groans]

Sydnee: And that's how the eggs spread. So, sorry about that one. Just that... that was the only one that was bad, right?

Justin: That's the only one that's been bad.

Audience: [laughs]

Sydnee: So you touch things, surfaces, and like I said, they're pretty hardy, so they can live there for a while. So you touch surfaces that other people touch, or maybe you touch, I don't know, somebody's face. I don't know why you'd just scratch your butt and you're touching somebody's face, but maybe you do. Or, you could touch your own mouth and re-infect yourself. That can happen, too.

Justin: Everybody, back to the... we got the fast pass, y'all, we're taking the ride again! Come on! Come on, kids, that was a hoot!

Audience: [laughs]

Justin: Let's get back in line.

Sydnee: But one way or another, they get into another mouth, and then, the whole...

Justin: Some other mouth. Any mouth. Doesn't matter to them.

Sydnee: The whole life cycle repeats itself again. You can also, by the way – I thought this was an interesting note. While this is the most common path—

Justin: Oh, God. This isn't gonna be interesting.

Audience: [laughs]

Sydnee: You can spread them by inhaling the eggs, 'cause they're very small.

Justin: Okay.

Sydnee: And I was like, "Well, how does that happen?" And the example that they gave was like, shaking out a bed sheet. Like, y'know, you just kind of like, before you spread it on the bed... just, schwoo. Eggs everywhere.

Audience: [groans]

Justin: [sighs]

Sydnee: [laughs] So here's the good news.

Justin: Oh. This has all been a dream, and I'm about to wake up, and these don't exist.

Sydnee: No. They do exist. But if you get them, your symptoms really aren't that bad. Uh, the number one symptom of pinworms... and again, not

everybody gets any symptoms. Like, some people just have them and have no idea.

Justin: Perfect, yeah.

Sydnee: You feel fine, you have no idea, you've just got eggs down there.

Justin: Perfect. Just got them. Just some eggs down there, no big.

Sydnee: You might be spreading them, or maybe you're a very excellent hand washer, and you never scratch your butt, 'cause it's not itchy, so... y'know, they're just your own little private wormy pet.

Audience: [laughs]

Sydnee: Which is fine.

Justin: Your secret pet. So secret that you do not know you possess it.

Sydnee: Now, like I said, the main symptom, though, is pruritus ani, which just means your anus itches. Your butt itches.

Justin: Itchy butt.

Sydnee: Yes, you have an itchy butt. That's number one, is you'll complain about like, "Man, my butt itches."

Justin: Meanwhile, everyone in the audience is like, "Wait, my butt itched..."

Audience: [laughs]

Justin: "My butt itched three months ago. Hey Doug, remember how I was telling you my butt itched so bad for days and days?"

Sydnee: And like I said, it can be worse at night. So, specifically like, an itchy butt that at night, you're like, you can't sleep. So like, insomnia can be another symptom, but it's really just that your butt itches so much you have trouble sleeping. [laughs] So you wake up to scratch your butt a lot. Um, or the area around your butt can be itchy. Everything down there can get itchy.

Justin: Everything down there.

Sydnee: In more severe cases, you can just have general below the waist itchiness.

Justin: Perfect. Perfect. Cool worms.

Sydnee: But most of the time, that doesn't happen. Most of the time, the only symptom is that your butt might itch a little bit and that's it. Which is why, in kids, this stuff can spread a lot in like daycares and schools and things, because like, kids scratch their butt all the time. I don't know if you know that. [laughs] Kids are constantly scratching their butts. And so, if every time they scratch their butts, you thought they had pinworms, you'd be taking them to the doctor all the time. So you just assume, like, well, it's a kid. Their butt itches.

The way you diagnose pinworms. So let's say you do have an itchy butt, and you're starting to think, "Uh oh. It does itch a lot at night, and it keeps me up at night it itches so much. Maybe I should get this checked out." Well, the test that is best for pinworms is something called the Scotch tape test...

Audience: [cheers]

Justin: [muffled] I hate it. I hate it. I hate the test. I hate it.

Sydnee: I love this stuff. It sounds like you make it up, and I didn't. It's just the thing. It's just the test. Justin, do you think you could guess what the Scotch tape test is?

Audience: [laughs]

Justin: Um, you put Scotch tape over your mouth and your nose, and you wait, and eventually, you die, and you don't have to think about this anymore.

Audience: [laughs]

Justin: And you passed the test. Everyone passes this one.

Audience: [laughs]

Sydnee: Well, no.

Justin: Do you put it on your... [strained] You put it on your butt, and then you take it off, and you see if there's worms there on the tape?

Sydnee: Hey, yeah! Now, you usually are gonna have to do like, a microscopic evaluation. Like, well, I have prescribed this in the office. Here's what you're gonna do. You're gonna get some clear tape. Any clear tape will do. It doesn't have to be Scotch tape, that's just what we tend to... that's what we're taught in medical school, the Scotch tape test.

So, a clear piece of tape.

Justin: Packing tape would really be ideal.

Audience: [laughs]

Sydnee: Put it—

Justin: `Cause Scotch tape is not...

Sydnee: Something to really get on there.

Justin: Scotch tape is not as perfectly clear as like a packing tape. Like a good, sturdy packing tape.

Sydnee: 'Cause what you're looking for is what's gonna be a good slide for your microscope later. So you're gonna put the tape there, leave it overnight, and then the next morning, you can bring it in and we can look at it under a microscope.

Justin: Here's my butt tape. Excuse me, can you direct me to the counter where I should give my butt tape?

Audience: [laughs]

Sydnee: And we look for worms or eggs or whatever. Whatever we might find. And usually, this will identify them. If they're there, we usually can find them using this test. Uh, now, I found it... when I was reading all this, I had the question, "Well, why don't we do a stool test?" Because for most worms, in case you're not familiar. For most worms, we just ask you to poop in a cup. That's... hey, I need to know if you have a worm. I need a stool sample. You give me a stool sample, we go look at that.

Well, we have to prepare it. We have to like, mix it a certain way, like, liquefy it. Get it watery, I mean. Not liquefy it, but like, get it watery. And then like, prepare a slide and look at that, and look for eggs or worms or whatever we're looking for.

But uh, in this case, that doesn't work very well, and I wanted to know why. Is... am I getting too... is this too gross?

Justin: Go ahead.

Sydnee: Okay. I have this noted, like—

Justin: Syd bolded it and said, "When I get to this part, I need you to make a judgment call as to whether or not I should read this part." So now I'm saying, "Read this part, because you can only get so wet, and we're all here together, so let's go."

Audience: [laughs]

Sydnee: Man, I think I blew it by describing how you prepare a stool sample, so I think I maybe already made it too bad. But so... so, the reason checking the stool doesn't help... it's diagnostic like, 5% of the time. So almost never do you actually find anything, because they actually would have to cling to the sample on its way out... if you're following me. And in order for enough worms or eggs or whatever to cling to the sample, you'd have to have a lot there. So like, a super infection. Lots of eggs. And then, you'd have to choose just that right piece. So it's really hard to do it in a stool sample.

Justin: [quietly] Okay.

Sydnee: [laughs]

Audience: [laughs]

Justin: Hey, Sawboners. Still no? Okay. I just like to check every now and again. Uh, this is Justin McElroy coming to you live from Huntington, West Virginia to interrupt this live recording to tell you about our sponsors this week. The first up is Casper, a sleep brand that continues to revolutionize its line of products to create an exceptionally comfortable sleep experience, one night at a time. I don't know how else you would do it, and I think naps are... let me check here... yes, they are permitted. So you can do it like a night, and then an afternoon at a time.

Personally, I like a 25 minute refresher. That's not either here nor there. Uh, the prices are affordable, because Casper cuts out the middle man and sells directly to the consumer, which is very kind of them. They combine multiple supportive memory foams for a quality sleep surface, with the right amount of both sink and bounce.

You can be sure of your purchase with Casper's 100 night risk-free sleep on it trial. We have told the story of our super comfortable guest bed so many times on this program. Uh, it has become like a character in and of its own right. It's a Casper, and it is fantastic.

Get \$50 towards select mattresses by visiting Casper.com/Sawbones, and using promo code 'Sawbones' at check out. Additional fees pay apply for Hawaii and Alaska. Terms and conditions apply.

Also this week, want to tell you about Stitch Fix. How's your look going? 'Cause it—I feel like a bunch of us have been talking, and I feel like it could use a little help, and I feel like that little help is Stitch Fix, an online personal styling service that uh, you send them your sizes, some of your tastes, some of your price range for individual items, and they're gonna send clothes, shoes, and accessories to fit your body, your budget, and your lifestyle.

If you want to check it out, go to StitchFix.com/Sawbones. Just tell them your sizes, the styles you like, and uh, the styling fee is only \$20. But that's not all – if you get started now at StitchFix.com/Sawbones, you'll get an extra 25% off when you keep all the items in your box.

That address again – StitchFix.com/Sawbones to get started today. Any time we go on tour, people start complimenting each other's clothes. My brothers and I say, "Hey, I love that."

"No, I love that."

Well, guess what? It's all Stitch Fix every single time. That address, StitchFix.com/Sawbones, and get started today. And without any further ado, I would like to return you to our regularly scheduled program, which is already in progress.

Sydnee: Now, humans have been infected with worms of all kinds for a very long time. Parasites kind of live with us.

Justin: Mm-hmm, beautiful.

Sydnee: Sometimes... like I said, sometimes you don't have any symptoms of pinworms. They're just kind of hanging out with you, and they're just like your little...

Justin: You just never know. You just don't know.

Sydnee: Little buddies. Humans and parasites, we just evolve together. Sometimes they're problematic – not always – but a lot of what we have learned about them has come from studying coprolites. I love when we get to talk about coprolites. Justin, what's a coprolite?

Justin: I don't know.

Sydnee: I've told you on the show before!

Justin: You've told me a lot of things on the show before. I don't know. I'm sorry. I don't have a degree. What—what—what game was Super Mario Brothers 2 based on?

Audience: [laughs]

Sydnee: Doki Doki Panic?

Audience: [cheers]

Justin: Okay. Alright. Fine. Fine, you win. You win this round, Smirl.

Sydnee: Uh, a coprolite is fossilized poop. So, we can get... fossilized stool samples—

Audience Member: [cheers]

Justin: Thank you, one person that applauded.

Sydnee: --from humans, and I love reading about this, because I was reading all these articles specifically about finding parasites and finding larvae in fossilized poop samples, and how difficult it can be, depending on like, which castle... like, they were looking at all these different castles and finding like, the bathroom in the castle, and then analyzing stool samples found in like, the soil in that area. Which is a pretty cool way to deduce it. Okay, this is who lived here.

But the problem is, in some castles, they were only used for a short period of time, and so, you can really pinpoint like, this is when this stool sample is from and who may have made it and what larvae are in it. And then, other castles were used for centuries, and so, you have no idea. You just find these coprolites, and they got worms in them, and they don't help.

But this is where we've learned most of what we know about how old parasites are, and how long they've been with us. The earliest known instance of pinworms is actually from Utah. Didn't know that. And it was from uh, 7837 BCE.

Justin: Wow.

Sydnee: So we've had pinworms in us for a very long time. And like I said, not causing us problems. Most of the time. Um, they knew, as we're going through ancient history, they knew specifically that embalmers had a risk of contracting various worms.

And as you look through like, ancient text and their diagnosis and treatment of different parasitic infections, and specifically worms, it all kind of overlaps. Like, we didn't know exactly the difference between a tapeworm and a round worm, and y'know, a pinworm versus as ascaris, and all these different kinds of worms.

So you'll see like, treatments for how to get rid of intestinal worms in general. So some of these treatments probably were aimed a little more at like, an ascaris worm over a pinworm. But nobody really knew the difference, so they were just used for any kind of wormy thing that might be coming out of you. At the bottom.

Justin: [laughs]

Audience: [laughs]

Sydnee: In the Ebers Papyrus, we find like, an incantation that was used to try to protect embalmers. It was specifically like, the incantation to prevent worm infections in an embalmer. It's a very specific incantation.

Justin: That's a specific incantation.

Sydnee: Which suggested there was some belief that like, we don't know why this happens. We're not... we think it's some sort of like, Maleficent—malevolent—Maleficent. [laughs] Malevolent.

Justin: We think Maleficent from Disney...

Sydnee: We think Maleficent gave us worms.

Justin: That's the plot of Maleficent 2, is her infecting embalmers with pinworms.

Audience: [laughs]

Sydnee: [laughing] It's very niche.

Justin: Yeah.

Sydnee: We think something—

Justin: I mean, almost as niche as a movie about Maleficent, and a sequel to that movie about Maleficent.

Audience: [laughs]

Sydnee: So, this reflects the belief that it was some sort of malevolent force, like uh, you were cursed with worms. We don't know why you got them, but something to do—you'd think we would've put this together, like, you're an embalmer. You work with dead bodies. Eh, I got nothing there. You were cursed.

Justin: [laughs]

Audience: [laughs]

Sydnee: But what's interesting is, in that same papyrus, they talk about a treatment for worm infections of any kind. Any kind of worm intestinal problem. And they suggest pomegranate roots.

Justin: Hmm.

Sydnee: And what's kind of cool about this is that this is actually something that they've done studies on in the modern day. There is some worm killing property to certain parts of the pomegranate. So this isn't totally off base. Now, depending on which kind, and whether you're eating the root or the flower or the leaf or whatever, it can kill some worms in certain concentrations.

Justin: Ohh.

Sydnee: So this was like, a really good idea. I don't think the incantation necessarily worked. But the pomegranate actually was a really good idea. Hippocrates talked about worm infections, specifically a lot about roundworms. Some of this was probably ascaris, but he was probably also referring to pinworms, 'cause all these symptoms can kind of overlap like, in really severe infections, people will complain of like, loss of appetite, or maybe some stomach cramping, and then in some of the other parasitic infections, those can get really severe, those symptoms.

With pinworms, you probably wouldn't have that. But the itchy butt, you usually think of is probably pinworms. Hippocrates, Galen, our old pal Pliny the Elder...

Audience: [cheers]

Justin: Woo!

Sydnee: They all had uh, one number one treatment that kind of persisted for a while was garlic. Everybody just said, "Well eat garlic." I don't have any evidence that that necessarily worked, but garlic. Um, and then, a lot of their other advice was based on the idea of humors. So at the time, the

prevailing medical theory is that you had four humors in your body, and you had to keep them in balance, either by like, getting rid of some or adding more in in order to maintain health.

And so, a lot of how to get rid of worms was just, eat some... what were called like, cold foods and drinks, because those foods and drinks were thought to balance out like, too much warm humor, and then, you got more cold humor, and then the worms... went away? So that was a lot of their advice. Galen was big on modifying your diet. Also, bloodletting was a big treatment of the time.

Justin: Sure, of course. Got it, yeah.

Sydnee: Like, I don't know, you got worms. Let's open a vein.

Audience: [laughs]

Sydnee: We don't know. But they also at the—like, Galen specifically said, and part of this was the problem, they thought that worms formed through spontaneous generation. So like, if you've got something to cane and some heat, and leave it there long enough, a worm will crop up. It'll just appear. And so, without an understanding that like, worms were a communicable thing, and we were passing them around, and they were living inside of us, they were just like, happening in humans.

So you can see where like, then you would balance your humors to treat that, as opposed to like, well, let's stop pooping into our drinking water.

Audience: [laughs]

Justin: That's another thing we could try, as long as we're just trying stuff.

Sydnee: Um, I mentioned Pliny the Elder, and you know I had to do a deep dive there to see... you can't just have garlic, Pliny. Come on.

Justin: Come on, bring the heat.

Sydnee: A lot of people had worms. You had to have more than just garlic. And oh, he did. So he had lots of different treatments. One was mixing water and barley and wormwood, which I guess that sounds like it would make sense. You may be familiar, it's an ingredient in absinthe.

Uh, there was also, there were some nettle mixed with salt and hydromel, which was like, mead sort of, like a fermented honey kind of thing. So... okay, sure. Uh, there were some other like, wine with some roots, or wine with some oregano, or just wine.

Justin: [laughs]

Audience: [laughs]

Sydnee: I don't know, stop worrying about the worms. So your butt itches. Whatever.

Justin: By the end you're going, [slurred] "I don't even care if I have worms or not. It's fine. I don't care. They just hang out. It's fine."

Sydnee: He specifically mentioned, if you've got heliotrope flowers, you can mix it with wine, and that'll get rid of worms. Or gravel?

Audience: [laughs]

Justin: What?

Sydnee: If you've got some gravel?

Justin: So one thing I could do is wine with flowers...

Sydnee: Mm-hmm.

Justin: ... the other thing is gravel?

Sydnee: No, it'll get rid of gravel that you've got in you.

Justin: Okay?

Audience: [laughs]

Sydnee: Which I thought like, well, that's got... maybe kidney stones?

Justin: How big of a problem was this?

Audience: [laughs]

Sydnee: But specifically, if you want to get rid of kidney stones, you have to also add cumin. So it wasn't kidney stones. I don't know.

Justin: What is happening?!

Audience: [laughs]

Sydnee: [laughs] Um...

Justin: Who has gravel in there?

Sydnee: He also mentioned pomegranate. Again, this was a good idea.

Justin: He's just copying.

Sydnee: But what he said was, you've gotta take a pomegranate, boil it down until it's a third of its size, and then just fill in all that you just lost with wine, again.

Justin: Perfect.

Audience: [laughs]

Sydnee: And drink it. That sounds pretty good, I mean...

Justin: Sure, yeah. Sure.

Sydnee: Yeah, I like that. And then, his last recommendation – this was my favorite. This is a quote. “A considerable number of walnuts.”

Justin: [laughs]

Audience: [laughs]

Justin: “Is that enough, Pliny?”

“You’ll know when it’s enough.”

Audience: [laughs]

Justin: “Just keep munchin’.”

Sydnee: A considerable number.

Justin: Considerable number of walnuts.

Sydnee: Would you say you've ever eaten a considerable number of walnuts?

Justin: Um, I don't like walnuts. Uh, at all.

Sydnee: So, no.

Justin: So, no.

Sydnee: So you might have worms.

Justin: Considerable number of walnuts for me is like, four. If you see me eat four to five walnuts, assume I have pinworms.

Audience: [laughs]

Justin: Assume that I am trying to get rid of my pinworms, because that is a lot of walnuts for a cat that does not enjoy them particularly. I'd rather do the pomegranate fruit challenge or whatever.

Audience: [laughs]

Justin: That looked like... y'know what that reminded me—it reminded me of one of those things that you'd see on AllRecipes.com where you think like, "I'm gonna do that." And then you don't. "I should do this. This wouldn't be that hard. We just gotta go get the pomegranate and get the wine and then take... throw the pomegranate seeds, and then you boil it out... I'll just do it."

Sydnee: And then you boil it down, and then you... yeah.

Justin: "We'll do it next time we have a party." But we don't have a party, 'cause we have two kids. Anyway.

Audience: [laughs]

Justin: You were saying about gravel?

Sydnee: Uh-huh. I found so many articles, as I was trying to research like, ancient treatments for pinworms and all this kind of stuff, what did we used to use? I have found that... and I don't know if this is common knowledge. Archeologists seem to really love to dunk on the Romans for like, not being as smart as we all think they were.

Justin: [laughs]

Sydnee: I found all these articles which were like, "Romans: Not as clean as they seemed!" "Roman baths ineffective!" "Romans: All that water, still not clean!" Like... and I was like, what is the deal? Why are we hating on the ancient Romans? I don't know.

But apparently, the ancient Romans were crawling with worms of all kinds all the time.

Justin: The great thing about the JoCo Cruise is, there's probably like eight people in here who are like, "Ha, typical Romans."

Audience: [cheers]

Sydnee: Well, that's what I was hoping. I thought somebody would be like, "I know, right? The ancient Romans." Because it was really like, just endless articles that were like, "You had your bath houses, and you thought you were clean, but guess what? You weren't." And they did. Like, sanitation improved. I mean, at least, I remember learning that like, in grade school. You learn about aqueducts, and you're like, "Aha! We have a sanitation system."

And it did improve at that point in history, but the worm thing didn't. It actually got worse.

Justin: Nice.

Sydnee: Parasitic infections actually got worse in ancient Rome, and that was, I think, a lot of the question was why, because everybody was like, trying to use toilets and trying to drink clean water, so what was going on?

And so, part of that was probably the bath houses, because they didn't necessarily like, clean them all the time? Or like, drain them and refill the water? So I read that there were like, layers of like...

Audience: [groans and laughs]

Sydnee: Human...

Justin: Human. End of sentence. Human. Layers of human, end of sentence. Layers of human, Syd.

Sydnee: Like, on the water.

Audience: [groans]

Justin: Just like layers of people, person, on the water.

Sydnee: And I also didn't know that people ate a lot in the bath houses. It didn't seem like a place where you'd want to eat.

Justin: You haven't a big rowdy chicken leg, just like, chunks falling... "Look how clean I am, Augustus! Nom nom nom."

Sydnee: Well I'm not—'cause I keep thinking of like, a hot tub, and I've never been in like, a hot tub and been like—

Justin: It's a luke tub. It's a lukewarm tub.

Sydnee: I want a big ol' plate a food. But I don't know, maybe people are doing that. There's the taco bar. There's the hot tub here.

Justin: It's right there. It's begging for it.

Sydnee: Anyway, so apparently, it was not... the bath houses were not necessarily the most sanitary of places. So this could've been a way that it—even though you were taking a bath, which was great, that we were actually spreading a lot of these parasitic infections.

They also, on a side note, there was also a lot written about how much lice there was. Like, they invented like, all of these fine lice combs to remove lice. Like, they found these. I don't know why that was important. Again, I feel like archeologists just really hate the Romans. They're like, "They even had their own lice combs." Well, I mean, that's good. They were getting the lice out.

Uh, so, anyway. Aside from all that, there were probably two other reasons that parasitic infections spread in ancient Rome. One was, there was a sauce called garum, I believe, that was very popular, and it was made from pieces

of fish, herbs, salt, and other flavorings and stuff. Spices and seasonings. And it was like, fermented and old. And like, fish sauce basically.

And it may have had like, things like tapeworm eggs in there very easily, and it was used all over Rome, and it was like, taken, like people would, when they would travel outside of the empire, would take it with them to put on their foods other places and give everyone else their intestinal worms as well.

So, this spread a lot of um, like, you can follow the path of this sauce and follow the path of worms throughout the ancient world where humans were just like, "Here, have our tapeworms."

Justin: Y'know, I didn't touch condiments when I was five years old, and it turns out, I had it right. I knew what I was doing.

Audience: [laughs]

Sydnee: I found one archeologists that I... I read a lot of his work on this, and it was very interesting. Dr. Piers Mitchell, and he said... he summed up all of Rome's sanitation by saying this: "It seems likely that while Roman sanitation may not have made people any healthier, they would probably have smelt better." So that's it.

Justin: Alright then.

Audience: [laughs]

Sydnee: All those... I mean, don't you remember all the aqueducts? I feel like we learned... anyway. They also, a practice that started then and would continue throughout the medieval period, was fertilizing crops with human waste. And this was probably also a big reason that any kind of... pinworms, roundworms, any tapeworms, all these different worms would continue to be spread is because they wanted... It was like a time period where like, "Let's get the poop out of the streets! Let's keep our streets clean!"

Justin: Yeah, let's put the poop on our plants!

Sydnee: "Let's put it in the fields! Let's get it all out to the fields." And so, this was probably another big reason that this stuff spread. Um, and then, this was, again, very popular in medieval times, so you would just, y'know... don't you call it like, night soil?

Justin: That's a lot of people who knew that.

Audience: [laughs]

Sydnee: So anyway, this was probably another big reason. 'Cause then like, it's all over the fruits and vegetables, and then, you're eating it. And this was another reason like, everybody, again, it didn't discriminate. Like, royalty was documented as having intestinal worms, just like, y'know, the peasants who worked the fields. Everybody got infected with worms.

I like that. Great unifier. That's something we can... that can... this age of division can bring us all together. Our intestinal worms. So, uh, in the medieval period, they didn't have a lot of better ideas than the ancient Greeks or the Romans did as far as how to treat this stuff. We were still using a lot of humoral system of medicine, so a lot of leeches, a lot of bloodletting, a lot of things that might make you puke or pee or poop.

Um, and then, the only thing was tansy. For whatever reason, tansy was like an herbal remedy that would be cooked into fritters and given to people. I just love the idea that was like, "Oh, you got some worms? Let me make you a fritter."

Audience: [laughs]

Justin: Here's a fritter. You won't be any better, but like, fritters are delicious, so it'll take your mind off of it a bit.

Sydnee: In the... as we move into like, the 1800s, you find that this, that various worm infections become a big deal in the American south. And so, you can find a lot of like, folk remedies, and herbal remedies, and like, traditional medicine that came out of the American south to try to treat all of

these different worm infections. A lot of them, you'll see the term 'vermifuge.'

Justin: Vermifuge?

Sydnee: Vermifuge, which was something to clean out the worms, 'vermi' referring to worms, and you just clean them. Vermifuge. Anyway, if you see that, that means it'll get the worms out of you. And while, again, these were not specifically always aimed at pinworms, a lot of worm infections were hard to tell—like, you didn't know what worm you were treating.

Justin: And it didn't work anyway, so why quibble?

Audience: [laughs]

Sydnee: So uh, molasses candy was a very popular...

Justin: I'm into this! Yeah!

Sydnee: To me, that just seems like... we think our kids might have worms. What will they eat?

Audience: [laughs]

Sydnee: That must be a vermifuge. So, uh, molasses candy was a popular one. And sometimes, they would add certain like, um, herbal things to the candy that were thought to be good, specifically for worms. Something called wormseed, so, or also called gooseroot. It was Jerusalem oak, whatever you know—or wormseed, American wormseed. Whatever you know it by.

Justin: It's nice something when things are named stuff like wormseed. It's kind of nature's way of telling you like, this can help with worms, y'know?

Audience: [laughs]

Sydnee: [laughs]

Justin: It's nice. It all makes sense. It all adds up. The circle of life.

Sydnee: You know we called it that, right?

Justin: Yeah, yeah, I know.

Sydnee: Plants aren't like, labeled...

Justin: It was more of a thinker.

Sydnee: Plants aren't labeled in nature.

Justin: It's more of a grower. You'll be walking back to the Rotterdam deck here in a few minutes. You'll think, "Oh, wait a minute! That's hilarious. He didn't... he knew the difference. What a kidder."

Audience: [laughs]

Sydnee: Tobacco tea was a popular treatment.

Justin: Now we're talking.

Sydnee: Um, that probably didn't work. Things like sage, or sienna, or horsemint. Just all different kinds of herbal things. Now, pumpkin seeds were made into a tea, and this was often used for worms. And again, sort of like pomegranate, we've actually done some studies now that have shown, this may work a little bit. This may actually kill some worms in some conditions.

It's harder to predict the dosing, so who knows, how strong was their pumpkin seed tea? I don't know. So was it actually doing anything? I can't speak to that. But may it have been, and could it actually work? Yeah.

And there have been... what's really cool is, I was looking specifically at these studies, like, now, are these in a lab? Or did they do these in humans?

They've actually done it with pomegranate and pumpkin seeds in vivo, in body, in living human being studies. And they've killed worms that way. So it's kind of neat.

Justin: Nice.

Sydnee: I am not suggesting that if you have... if you think you have a parasitic infection, that you make yourself a pumpkin seed tea. You have no idea if it will be strong enough. But, it is kind of interesting that there was... there was truth to some of these older treatments.

Justin: Do little pastries help? 'Cause I've eaten a lot of those this week.

Audience: [cheers]

Sydnee: Do they have pumpkin seeds or pomegranate?

Justin: I don't know.

Sydnee: Okay, well...

Justin: They have like, red. Red...

Sydnee: Why don't you know?

Justin: What? Why don't I know? I don't really look at them. I just kind of [eating sounds]. I'm worried people will try to take them. I know that's not how it works.

Audience: [laughs]

Justin: I'm on vacation. Sort of.

Audience: [cheers]

Sydnee: You're dressed for it.

Justin: We match. You can't tell this if you listen to it later, but we're wearing the same patterns. Our formal outfits.

Sydnee: When we found it was formalwear day, we were like, "What does formalwear mean to us?" Well, we bought these at Disney, and we match. Formal?

Justin: Formal?

Audience: [cheers]

Sydnee: Is that formal? Uh—

Audience Member: You guys are very cute!

Sydnee: Aw, thank you.

Justin: Thank you.

Sydnee: [laughs]

Justin: If you're listening to this later, someone just said, "You guys look amazing. Like Greek gods."

Sydnee: [laughs] No.

Audience: [laughs]

Sydnee: Uh, so, one interesting note I found was that there was a belief that turpentine was very good for like, anything that made you sick.

Justin: Let's go back to pumpkin seeds.

Sydnee: In the south. And—well, I thought this was interesting, because I have seen this as like, a folk remedy in where we're from, West Virginia. Which isn't... isn't really the south. Like, specifically, we left the south.

Justin: No, specifically not the south.

Sydnee: Specifically, we said, "No, south. We're the north." But then, still. Turpentine was still used—

Justin: Still, we drink turpentine.

Sydnee: Still, we drink turpentine sometimes when we're sick.

Justin: We can't get too up on a high horse about it.

Audience: [laughs]

Sydnee: But even though this was like, people recommended against this, like, doctors would be like, "Please don't have your children drink turpentine," that was a very popular thing to do was to give your kid like, a sugar cube with turpentine on it.

Audience: [groans]

Sydnee: Because they thought it was a cure for like, anything intestinal, like, when your stomach is upset. Come here.

Justin: At least they've got the great taste of molasses candy to get the taste out.

Sydnee: There were a lot of patent medicines at this time, some of which we have talked about before, but there were a lot of medicines advertised to get rid of worms that probably didn't do anything. But they were very popular, and were advertised well, and so people would buy them.

A lot of them were laxatives, so you would think you were ridding yourself of worms, because you would, y'know, poop a lot afterwards. And like, parents

specifically were targeted, because it was like, your kids will go to the bathroom a ton, and you gotta think, well, the worms gotta be gone. Everything else is gone.

Uh, and so, they were all like, called vermifuge. So there was like, White's Cream Vermifuge. Jane's Vermifuge. Young Kind's Tapeworm Specific Vermifuge. And then my favorite, which was Kickapoo Worm Killer.

Audience: [laughs and cheers]

Justin: Great. Great. Great.

Sydnee: Again, all of which probably...

Justin: Nothing worked.

Sydnee: ... didn't do anything.

Justin: What do we do today, Syd?

Sydnee: So, the nice thing today is, we have lots of treatments for all varieties of intestinal worms. Pinworms are pretty easy to treat with like, two doses, usually one, and then like, a week later, another dose of a medication, and it's that simple, and you can be rid of them.

And it's almost... I found like, lots of notes that it's almost easier to just treat them if they happen than it is to like, worry yourself too much about preventing them, because they are hard to prevent. They are fairly contagious. So like, if one member of a household comes in and we diagnose them with pinworms, we're gonna treat everybody. We're just gonna assume, like, well...

Justin: Everybody's got the worms.

Sydnee: You all got pinworms. But again, it's not something—it is the most common parasite in the developed world. We all are going to encounter it in

a family member or a friend, a loved one, or maybe an enemy, I don't know. Somebody you know is gonna get pinworms. So don't stress.

Justin: Maybe you. It's probably you. Hasn't that been the way it's gone so far for you? It has for me. That's been the situation for me so far, so it probably is me.

Audience: [laughs]

Justin: And I know, statistically, it doesn't make sense for all of us to have pinworms, but it feels that way, doesn't it? It feels like probably the way things have been going, we've probably got pinworms, also. Just seems like that's the way our luck has been going lately.

Audience: [laughs]

Sydnee: But again, don't stress about it. Just wash your hands, don't scratch your butt, and see a doctor and get rid of it.

Justin: And when you do scratch your butt... [laughs]

Sydnee: [laughs]

Justin: Uh, folks, thank you so much for listening to us talk about pinworms. You've all been very courageous, and I'm very proud of you. Thank you to the Taxpayers for the use of their song, Medicines, as the intro and outro of our program.

Thank you to uh, Paul Sabourin and Jonathan Coulton, all of the JoCo family, for having us here aboard their just massive boat. And uh, thank you to you for braving the rocking of these waves to listen to us. That is gonna do it for us this week, so thank you so much for listening. And until next time, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

Justin: As always, don't drill a hole in your head!

Audience: [cheers]

[theme music plays]

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