

## Sawbones 549: Can I Use My Own Tears as Saline?

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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 song, "Medicines" by The Taxpayers, plays]

**Justin:** Hello, everybody, and welcome to *Sawbones*, a marital tour of misguided medicine. I'm your cohost, Justin McElroy.

**Sydnee:** And I'm Sydnee McElroy.

**Justin:** And I'm so excited to be back with you. Apologies for missing and not being with you last week. Hello, I'm here. He's back. As everybody— You know, people... Honey, if they can't get their Justin fix for even a few days, [through laughter] they go absolutely gaga.

**Sydnee:** I feel that way.

**Justin:** Well, that's kind of you, sweetheart. Thank you.

**Sydnee:** Mm-hmm. I'm very sad when we're apart.

**Justin:** Me too. But not right now! We're happy. We're together, and we're answering your medical questions. It's one of my favorite kind of episodes. So Sydnee, I have these questions our listeners have sent in. If *you've* ever had a medical query that you'd like us to take a crack at, but in a non-binding way, in a for-entertainment-purposes-only way...

**Sydnee:** Yeah. This is just for infotainment.

**Justin:** Infotainment— [bursts out laughing]

**Sydnee:** This is for fun. This is for fun.

**Justin:** Popski! It's just popski!

**Sydnee:** I don't give medical advice. And I try to stay away, if it's like a very specific "diagnose me" question, I probably won't tackle that.

**Justin:** Yeah.

**Sydnee:** 'Cause I might do a bad job, and that would be terrible for both of us. So...

**Justin:** Alright. Here is a question from Mark. Good one, good one to start out with! "If you're only hot on one part of your body, do you sweat only on that part of the body, or do you sweat all over?" Now, Mark, I will say this: you probably could've gotten an answer to this with some testing, and reported your findings to us. To save us the trouble, you could've conducted [holding back laughter] this science on your own.

But I will ask Sydnee what the community says. [giggles]

**Sydnee:** Now, listen. While I may have—

**Justin:** We reward self-experimentation with exposure on this show all the *time*, Sydnee!

**Sydnee:** Yeah, but no, I do it myself. Or you do it. I don't encourage—

**Justin:** No, I mean, assuredly speaking, too.

**Sydnee:** Well, yeah.

**Justin:** We've celebrated lots of heroes that have donated their bodies to science, *Mark*. Maybe just get part of your— Maybe it just gets one of your pits hot, Mark!

**Sydnee:** And see what happens.

**Justin:** See what happens!

**Sydnee:** I do not encourage self-experimentation. I may celebrate it.

**Justin:** [bursts out laughing] So...

**Sydnee:** And I might *do* it, but I do not encourage it!

**Justin:** We need a new *Sawbones* t-shirt that says, [through laughter]  
"Celebration is not encouragement."

**Sydnee:** [laughs]

**Justin:** [snorting laughter]

**Sydnee:** Some people have learned some great things about science through self-experimentation. But that doesn't mean I'm telling you to.

**Justin:** [laughs]

**Sydnee:** I will say, it seems like a fairly harmless experiment, if you're just like, "I don't know. It's hot outside. So I'm gonna stand in the doorway, and just stick my arm out until my arm's hot. And then... see what sweats."

So you're gonna sweat—

**Justin:** [holding back laughter] "See what's what's"?

**Sydnee:** See what sweats. You're gonna sweat all over, if you're hot. I mean, if you're hot enough that your body needs to employ the mechanism of sweating for thermoregulation, then you just sweat.

**Justin:** You know, I've never—

**Sydnee:** Not from the part that's hot. Because it's a brain thing, right? Your brain is triggering this reaction, because it's a way of regulating your temperature.

**Justin:** [crosstalk]

**Sydnee:** Yeah. 'Cause all that water gets on your skin. Sweat's mostly water, it gets on your skin, and then it evaporates and it cools you.

**Justin:** Yes.

**Sydnee:** So it's a cooling technique that your body is using.

**Justin:** Right.

**Sydnee:** I thought this was very relevant, because we just did outdoor theater. And people were generating so much sweat that it was shorting out the mics.  
[laughs]

**Justin:** Yeah. Yes.

**Sydnee:** Did you know that was possible? I didn't know that was possible.

**Justin:** Yeah, we were *generating* a people liquid at that theater.

**Sydnee:** Mm-hmm.

**Justin:** You could've juiced them like Violet Beauregarde.

**Sydnee:** It made me— On a side note, do you know the maximum sweat rate of an adult?

**Justin:** No! Gosh, I wouldn't even know what the metric would be for that.

**Sydnee:** The maximum sweat rate of an adult is up to a gallon per hour.

**Justin:** That's— That's not nothing.

**Sydnee:** That's four liters...

**Justin:** That's not nothing, y'all.

**Sydnee:** ... for everyone outside of the US.

**Justin:** Think about that, and then you wonder, "How much sap is in a tree?"

**Sydnee:** That can be up to 14 liters, or 3.5 gallons a day.

**Justin:** Now, okay, I will say—

**Sydnee:** Now, I'm not saying that's how much everyone sweats. But it could be up to that much sweat in a day.

**Justin:** Can I make an anecdotal point?

**Sydnee:** Yes.

**Justin:** If you are in a situation where part of your body's getting hotter, right?

**Sydnee:** Mm-hmm.

**Justin:** And the other part isn't. That part of your body is also not exposed to air. It is trapped, right?

**Sydnee:** Mm-hmm.

**Justin:** So you would probably, from an experiential standpoint, have much more of a sense of that part of your body being wet. Because the other part of the body would be able to evaporate.

**Sydnee:** Hmm!

**Justin:** So you can't do the cooling thing that you're talking about, with the sweat evaporating from your body, you can't do that when it's trapped. Right? So that's why your pits, for example, part of the reason that's so notable is because that sweat can't get anywhere. Right?

**Sydnee:** That's true.

**Justin:** So in the hotter part of your body, like you're lying on the side of the bed or whatever... It is gonna be sweatier, just because it can't evaporate. You know what I mean?

**Sydnee:** So I guess observationally, it would seem like only that part's sweating.

**Justin:** Yeah. I'm saying, yeah, it might seem like that.

**Sydnee:** Even though—

**Justin:** It may seem, like, sweatier.

**Sydnee:** Yeah. Even the sweating is just— Yeah.

**Justin:** Mm-hmm.

**Sydnee:** It's an all-over. And I mean, obviously, everybody has different... I don't know, densities of sweat glands in different places, maybe. And so some people sweat more in their armpits, or I don't know, running down their face. You know, we're all different. Everybody's different, and some people sweat more than others! I'm not a particularly big sweater.

**Justin:** Now, Sydnee, on the second question here— Thank you, Mark. On the second question here, I think there might be a typographical error in the first sentence. Because it says, "Why am I more tolerant to some days, but not others?" And Max, can I just say? I hear ya.

**Sydnee:** [laughs]

**Justin:** Can I just say, Max, I am with you. I don't know what your question is actually about, but I am more tolerant to some days, but not others. 100 percent. [laughs]

**Sydnee:** It has to do with spicy food.

**Justin:** Okay. [chuckles]

**Sydnee:** Yeah. Capsaicin is what we're getting to.

**Justin:** Alright.

**Sydnee:** Max frequently gets the same ready-made chana masala, and, "Sometimes it has me down for the count, and other times it's perfectly tolerable." So what I would say— I thought this was interesting, because there isn't necessarily a difference— You're not gonna have days where your capsaicin receptors would be necessarily more of them, or you'd be more sensi— You know what I mean?

**Justin:** Alright.

**Sydnee:** That part doesn't change. You *can*, over time, sort of build up a tolerance.

**Justin:** Mm-hmm.

**Sydnee:** There could also just be different amounts. Capsaicin, in a specific pepper type, is— Like, there's a predictable range. But unless you test each individual pepper, you don't know exactly how much is in there. Right?

And so if we're talking about a certain kind of hot pepper that has capsaicin, which is the stuff that makes it spicy... If you've got a serrano, there's a range of what that Scoville unit is gonna be.

**Justin:** Right.

**Sydnee:** Right, not a definitive number. So it could just be that sometimes, your chana masala is just spicier than it is other times.

**Justin:** It could be— Or maybe just like Cheetos. That's one of nature's favorite jokes. I love those! That's hysterical.

**Sydnee:** That—

**Justin:** Like, one out of every 30?

**Sydnee:** Yeah. Mm-hmm.

**Justin:** Right? Is hot? That's great.

**Sydnee:** Yeah.

**Justin:** [amused] That's so funny.

**Sydnee:** That's great. I grow shishitos, and we play shishito roulette here where we cook up a big thing of 'em.

**Justin:** [laughing]

**Sydnee:** And then collectively, as a family, we sit there, eating shishitos.

**Justin:** Oh, my God. Last night, we made a spice bag with some shishitos that Sydnee had grown herself. And I made the chips in the fryer. Oh, my God. Oh, my— Oh, my God, that spice bag. I've been involving my spice bag mix to now, I couldn't even replicate it if I wanted to.

**Sydnee:** It's—

**Justin:** That's how down.

**Sydnee:** It's so good, though. And my curry sauce was good last night.

**Justin:** Oh, gosh! It was a good curry sauce, Syd. Anyway.

**Sydnee:** Well, what I was gonna say is, I thought it was interesting. I was reading more about eating spicy food. There are other— Like, how tolerant you are to spicy food. There's cultural factors. There's psychological factors. There is like... We build up a lot of belief about spicy food, too. That's part of it.

**Justin:** Mm-hmm.



**Sydnee:** Like, it's tied in with being like, tough or risk-taking, sometimes.

**Justin:** Right.

**Sydnee:** The idea that people who are more risk-taking— They've actually studied this to see, "Can you tie in eating spicy food with, you know, 'I like to jump out of airplanes'?" You know what I mean? That sort of risk-taking, adrenaline seeking.

And not necessarily. They said it's different. People who eat spicy foods are sensation-seeking.

**Justin:** Mm.

**Sydnee:** Which is a whole other kind of risk-taking.

**Justin:** They just wanna *feel*!

**Sydnee:** Yeah!

**Justin:** They just wanna *feel* something.

**Sydnee:** Well, and it doesn't necessarily tie in with engaging in dangerous sporting activities, or something like that. I don't know.

**Justin:** It's kind of how you like wasabi, right? You just don't like how the hot hangs with you for so long.

**Sydnee:** Yes.

**Justin:** And makes your tum-tum hurt. 'Cause that's very—

**Sydnee:** And those are different receptors.

**Justin:** I also don't know, off the top of my head, what these would be. But I also know that there are foods that can worsen the feeling of capsaicin.

**Sydnee:** Mm-hmm.

**Justin:** Like, there's certain things that dull it, obviously. And I know there's other things that heighten it. I know— I remember hearing alcohol, for one, can be a bad choice for a spicy food. 'Cause it can make it actually worsen.

**Sydnee:** That might also answer the chana masala question. Maybe what you're eating with the chana masala— Or drinking, whatever other things you're putting in your body at that moment could change your sensitivity to it.

But it is a multifactorial experience. It is not as simple as, "Capsaicin binds to the receptor, and we have a predictable, uniform response." Every human experiences it a little differently, depending on your own sensation-seeking ability— It can be tied to a kind of macho thing.

**Justin:** Mm-hmm.

**Sydnee:** I think there's masculinity tied, in some areas, to eating spicy things.

**Justin:** Oh, 100%. Mm-hmm.

**Sydnee:** And so tolerance can be because you feel it has to be— You know? I mean, it's really fascinating, if you read about spicy food and [crosstalk].

**Justin:** Or there's the Observer. Let's not forget about the Observer who, in his senses, because of his presence from the other dimension, his senses were different in our world. And he needed extreme spicy flavors to even taste it. As played by Huntington's own Michael Cerveris. Hi, Michael. [laughs] I'm sure he's a fan.

**Sydnee:** I'm sure he listens. I'm sure he does.

**Justin:** I'm sure he does. Sure he does.

PS, do you want to get Nawab for lunch? [laughs] Because now— I've been talking about chana masala so much that I definitely, definitely want chana masala from [laughs] Nawab.

**Sydnee:** Absolutely. Absolutely, I do.

**Justin:** Okay. Fantastic.

**Sydnee:** Justin, the last interesting note I want to make about capsaicin: There's only one other animal, other than the human animal, that seems to seek out capsaicin.

**Justin:** What's that?

**Sydnee:** That's the tree shrew.

**Justin:** Oh, just—

**Sydnee:** Which has been observed to also eat increasingly spicy foods.

**Justin:** Go figure.

**Sydnee:** I know! That's some tree shrews.

**Justin:** Alright. Next up, my weird medical question is: "If your stomach and intestines can expand and grow in capacity from chronic overstuffing and the like, why doesn't the bladder do the same thing? Or perhaps it does, and we're just unaware? I'd love to train my bladder volume to increase for the reasons you'd expect.

"Is the limiting factor that the sphincter holding in your pee would give in long before the actual bladder tissues start stretching? Or is it too restrained inside the pelvis? Thanks, from an increasingly frequent peer—" pee-er, not peer, "pee-er [laughs] and cautious hydrater?" And that's K. Wolf from Ireland.

**Sydnee:** So you can train your bladder. That's actually what it's called, bladder training.

**Justin:** Nice.

**Sydnee:** You can— And I say this with, like— There are definitely some people who have overactive bladders, would be the common term for it. Meaning that they pee more frequently than average humans do. And so...

**Justin:** And I don't wanna brag. I don't wanna brag, but uh, I pee quite a bit.

**Sydnee:** You do pee a lot. You can— There are techniques, and you can read about them. A number of medical websites can give you advice. Or actually, I would probably talk to a provider, if you're really interested in this.

'Cause there is a "too far." So if you hold it for too long, you can overstretch your bladder. And that can result in a loss of bladder tone, and that can be hard to then empty. And we have to fix that. We need to retrain your bladder to not be so stretched. It can get too stretched out and floppy, and then it doesn't empty properly after that.

So it is not a good idea to just as drink as much as you can, hold it for as long as you can, and see what happens. That's not a good idea. The sphincter's not gonna give out, but you can damage your bladder that way. So it's important that, if you're trying to train your bladder— Which is much less exciting than training your dragon, I feel like. [laughs]

**Justin:** [laughs] Just as dangerous!

**Sydnee:** If you wanna train your bladder, you are trying to increase the length of time between pees gradually. Don't go pee the second you feel it.

**Justin:** Yeah.

**Sydnee:** But give yourself another ten minutes, and *then*— You know what I mean? There are techniques like that.

**Justin:** So I've been doing the opposite of this, I fear. I think that maybe I have trained my bladder to be *hyperaware*. For *any* opportunity to use the bathroom. My bladder has become hydrophobic to an extent that would rival Diatomaceous clay. Any scrap of moisture there is gonna send me right to the bathroom. I am on full alert at all times.

**Sydnee:** I would say that if your concern is, "I pee too much, and it's taking up too much of my time," or it's inconvenient, or you can't always find a bathroom or

whatever, and you are interested in increasing the length of time between your pees... I would not recommend going to the bathroom.

Even if you're like, "I don't really have to go, but I'll try anyway." Although, man, we say that to our kids every time we're at a gas station. [laughs]

**Justin:** Here's my question for you. "Why is a horrible rash an option as an immune response? I am super allergic to poison ivy. I know most people are, but I get it really easily for some reason. And the rash is a total nightmare every time. I understand the body's immune response to other things serves a purpose..."

So this is the question from Jasper here.

**Sydnee:** "Why a rash?"

**Justin:** Why a rash?

**Sydnee:** So it's interesting, because it's part of a broader question that we still don't have a definitive answer to, which is why allergies.

**Justin:** Mm.

**Sydnee:** Why are allergies? There's a lot of theories— We've talked about 'em before on the show. There's the hygiene hypothesis that allergies are increasing because we're too clean. But that doesn't really answer why we have allergies in the first place. There's a toxic kind of theory that it's to help us avoid toxins, this allergic thing we've developed.

There are theories that have to do with parasites, that it stems from when we used to have parasites in us much more frequently, and this was our response. It's the same sort of pathway. The immune response to a parasite is very similar to an allergic response.

So did it develop from how we used to always have parasites in us? We don't really know. There's lots of theories. There's evidence for different ones. But one way or the other, the reason we have the symptoms we have from an allergy, we believe, is to show us that there was something dangerous.

**Justin:** Hmm.

**Sydnee:** So your body is doing something that you will observe, that you will know is happening very clearly, to tell you, "Ah! That was bad! Whatever you just put in me is bad." Now, when it's an allergic response, it might not be bad. Right? 'Cause you could have that response to a peanut. And that's not *bad*.

Poison ivy isn't inherently *bad*, right? You're just reacting to it.

**Justin:** Right.

**Sydnee:** So an allergic response is not always helpful. But that is where it comes from, is your body thinks you have ingested or come in contact with a dangerous substance. And so it is sending your signs: "Watch out! Danger!"

And you have to imagine, from an evolutionary perspective, since we are social animals, it is helpful to other people if you have a rash. Because what it says is, "I don't know what..."

**Justin:** "That was, but yeah."

**Sydnee:** "I don't know what *you* just ate."

**Justin:** "You did, but I'm not doing that."

**Sydnee:** "But look at you. And so I'm not gonna eat what you just ate, because look at *you*."

**Justin:** You can also make the argument that if you have a topical— Not topical. That's not the term I'm thinking of. Like an outside...

**Sydnee:** Topical. That's on the skin.

**Justin:** A topical reaction is something— You may save yourself from ingesting it.

**Sydnee:** Mm-hmm. Exactly.

**Justin:** Like maybe if you get a rash, and it's like, "Ooh, gosh. I shouldn't put that in my human body."

**Sydnee:** Yeah. So that is to be demonstrable, so that you *know* there's a problem. And perhaps so that creatures around you also know there's a problem.

**Justin:** Yeah.

**Sydnee:** Justin, I think before we tackle our next question...

**Justin:** Mm-hmm?

**Sydnee:** We need to head to the Billing Department.

**Justin:** Okay! Well, let's go.

[theme song, "Medicines" by The Taxpayers, plays]

[ad break]

**Justin:** "I've been getting the same \$15-dollar pair of glasses every time I update my script, for my entire adult life. I'm not a bells and whistles person. I always thought all those little extras were just an excuse to upcharge you, or to make you feel rich and fancy. But are there any merits to glasses extras?

"Things like transition lenses, blue light blocking, or the new UV blocking: do they work any better than regular sunglasses? Or infrared blocking, which sounds deeply fake? Am I taking worse care of my eyes by only buying two lenses in plastic and my base script, and nothing else?" That's from *Blind to the Possibilities* in Southeastern Ohio.

**Sydnee:** Now, Justin, I know you have very strong feelings on blue light blocking.

**Justin:** I don't have strong feelings; I have science.

**Sydnee:** [chuckles] There definitely are some benefits to different kinds of, I guess, fancy lenses, so to speak. Just to kind of take on one-at-a-time. And that doesn't mean that you necessarily need all these things, right? It kind of depends on your lifestyle, your job, your habits, your... everything else you do. Right?

**Justin:** Mm-hmm.

**Sydnee:** Like, Justin wears blue light blocking glasses, because he spends lots of time in front of screens.

**Justin:** Mm-hmm. And it gets down to eye strain. I used to get headaches a lot when I was looking at the screen. But now, I prevent some of that with blue light blocking.

**Sydnee:** Which there is science to support. But if you're someone who spends a lot of time looking at screens, there can be damage to your eyes that results from that. So blue light blocking could be beneficial to you. Now, if you don't ever look at screens...

**Justin:** Also good for—

**Sydnee:** ... I don't know what the point would be.

**Justin:** It's also why your screen does the night shift mode.

**Sydnee:** Mm-hmm.

**Justin:** Or shifts into a different color spectrum. Because you do not want the blue light before you're going to bed. 'Cause not only is it emitted by smartphones or whatever, it's the same spectrum as is emitted by the sun.

**Sydnee:** Well, I don't do that, 'cause I don't like it.

**Justin:** Say again?

**Sydnee:** My phone doesn't do that, 'cause I turned it off.



**Justin:** Yes, you turned it all off.

**Sydnee:** But the other things, I will say, like, transition lenses for instance can be— I would say are more of a convenience. If you wear your glasses a ton, and you like that they turn into sunglasses when you go outside, but not— You know what I mean? I wear contacts all the time, so for me, it wouldn't necessarily be very helpful.

So UV blocking. So I had never been upsold on UV blocking, so I looked into it. If sunglasses are appropriately made, they do the same thing. So it's your glasses doing what sunglasses do. So you're out in the sun, they will block your light from UV rays, just like sunglasses will. Assuming that you're buying appropriate sunglasses. So not necessarily better, just another option of that.

The infrared blocking... Man, I was really trying to dig into this. [sighs]

**Justin:** That's what "Rowdy" Roddy Piper wears in *They Live* that lets him see all the zombies. [laughs] It's the infrared-blocking glasses.

**Sydnee:** Well, [laughs] that's what— I was trying to think, I had this moment of, "When am I coming into contact with a lot of infrared light?" Other than the sun. I mean, the sun is infrared radiation. But do we need infrared blocking? And—

**Justin:** Listen, if you've got a Kinect in your home, it's just blasting you with IR waves all the time. You're getting blasted with IR, constantly.

**Sydnee:** But not to a degree that it would be damaging to you.

**Justin:** No, of course not! [laughs] No, no, no! I didn't say that.

**Sydnee:** There are places where you might work, in your job or industrial situations, where you could come in contact with very strong infrared light.

**Justin:** Mm-hmm.

**Sydnee:** Or radiation. [laughs] And then certainly, I imagine there's a lot of

important gear to wear in those situations, beyond glasses. But the sources of infrared light that we come into contact with on a regular, daily basis...

**Justin:** Mm-hmm.

**Sydnee:** I couldn't find good evidence that we *need* to be blocking them.

**Justin:** Yeah. But the blue blocking ones, you feel good about, and you think look cool.

**Sydnee:** Yeah. I will say, the next time I'm at my eye doctor, I'm gonna ask about the infrared. 'Cause that was a new one. I've heard of all this other stuff. I understand the value, and I think it's just a personal choice. "Do you want this stuff or not, depending on your lifestyle?"

But the infrared blocking, that was a weird one. And I couldn't find a definitive answer from an actual ophthalmologist optometrist or someone who would know online, so I'm gonna ask my eye doctor next time I go.

**Justin:** "Here's my question. If I dropped you, Sydnee, into medieval Europe, what would you put in your first aid kit?" That's from Pink Plague Nurse Club in Southeast Ohio. Our second Southeast Ohio contribution in these many questions.

**Sydnee:** You know what's tough is that I thought about this question. 'Cause it's a fun exercise to think about. Like, am I being dropped from out of time?

**Justin:** No.

**Sydnee:** Can I bring stuff from now?

**Justin:** Yeah. I think so, because I don't think it's realistic to expect you to know what medical technology you have on hand then. Because you wouldn't necessarily be better-equipped. Like, if you had to fill a first aid kit... I mean, would it be any different?

**Sydnee:** Well, I mean... I guess if I'm being dropped into medieval Europe, I

would want to bring antibiotics that cure the plague. And then I would be, like, a hero. Then I could rule Europe basically, right?

**Justin:** So you would go back with despotic intent.

**Sydnee:** [through laughter] No!

**Justin:** You would wanna reshape the...

**Sydnee:** No, I don't really wanna rule. What I mean is, everybody would like me.

**Justin:** Everybody [laughs] already likes you, so what's the difference?

**Sydnee:** [laughs] I could— No—

**Justin:** You want to go back in time, and abandon me.

**Sydnee:** I mean, if I was going back to that time period, stuff that would be the most impactful... You know, some azithromycin and some penicillin. I'd cure everybody's syphilis, and I would be—

**Justin:** Do you have the know-how to say, "Alright. You medieval dumdums figured out booze production. Take my hand; I'm going to walk you to antibacterial. Like, I'm gonna take you there." The people did it during COVID. We're gonna figure it out. We're gonna make antibacterial...

**Sydnee:** Antibiotics, you mean?

**Justin:** Antibiotics.

**Sydnee:** I don't know that I could make... I mean, I took chemistry classes, but I don't think I could formulate pharmaceuticals on my own. I was not trained to do that.

**Justin:** And why would you? You're not *going* back in time.

**Sydnee:** Well, I'm going back in time, I'm gonna take it with me! I'm gonna take all these antibiotics. I'm gonna take...

**Justin:** A book about how to make more antibiotics, is what I would recommend.

**Sydnee:** What time, exactly, is it? Do we have microscopes yet?

**Justin:** It's 8:30 in the morning.

**Sydnee:** 'Cause I could take back a microscope, and really...

**Justin:** It's 8:30 in the morning. So you need coffee...

**Sydnee:** [laughs] I could really impress people. But I feel like the things that would make a major difference would be like water purification tablets. Like, if I could share the idea of clean water... of washing hands.

**Justin:** But okay, I—

**Sydnee:** Those are the things that would transform medical care at that time.

**Justin:** For a week!

**Sydnee:** It's like sanitation.

**Justin:** For a week, though. You've gotta stop relying on these tablets and these kids. You gotta learn how to make, like, these things from bare essentials. You gotta figure out how to get...

**Sydnee:** Okay. Well, I mean—

**Justin:** They're gonna use water purification tablets. They're gonna celebrate you as their new queen for *a week*.

**Sydnee:** Mm-hmm.

**Justin:** And then they're gonna be like, "Purify some more water, O... Witchress." You know, "Warlock," whatever. And you're like, "Um, didn't bring enough tabs. Sorry." And they're like, "Did you bring a book about making more tabs?" You're like, "That would've made, actually... Dang it! Yeah, shoot!"

**Sydnee:** But those are the things— Like, for first aid, I'd imagine there are lots of the similar... Lots of injuries that we would face today. So if we're talking about out in the field, first aid, cuts and bruises and things... Like—

**Justin:** Okay. The number one thing that you should—

**Sydnee:** A tourniquet would be big. That would save a lot of lives.

**Justin:** Here's what I will tell you. The number one thing you should put in your first aid kit: a multitool. I'm serious! There's a lot of tools that we will not have developed for centuries, if not millennia at this point, right? I mean, *thousands* of years before we come up with the pliers.

**Sydnee:** Mm-hmm.

**Justin:** Tens of thousands, maybe. So if you have a multitool, you can go back, and you can really throw them on their head. You're gonna show 'em scissors. They're going to *flip*. You know what I mean? You're gonna—

**Sydnee:** Do you know when scissors were invented?

**Justin:** Like, 150 years ago! British people probably, or something.

**Sydnee:** You have no idea.

**Justin:** Alright, fine...

**Sydnee:** No, I mean, I think it's weird.

**Justin:** [grumbling crosstalk]

**Sydnee:** 'Cause if you really wanted to make the biggest impact...

**Justin:** They didn't have Philips heads. [wheeze-laughs]

**Sydnee:** ... you'd focus on [through laughter] sanitation. Those are the things we didn't have. But if you're talking, like, pie-in-the-sky, can I bring all my

antibiotics? Can I bring vaccines? Can I show people *vaccines* in medieval Europe?

**Justin:** Okay, they— Okay, okay—

**Sydnee:** That would be very exciting!

**Justin:** Okay, they date back to [amused] 1,500 BC. But Philips heads...

**Sydnee:** I figured scissors are pretty old.

**Justin:** If you had pliers— Like, if you had a hex wrench, [through laughter] if you go back in time...

Here's another question. "Hi, Sydnee and Justin. I got my ears pierced a few weeks ago. One of the things to take care of my piercings is to clean them with saline, not disinfectant. I have two questions. One, why not disinfectant? And two, I cry a lot. Is it possible to use human tears as a saline solution, either for cleaning piercings or something else, assuming they didn't get gunky from running down your face? Thanks, Dee."

Dee? Two *completely* normal questions. The two most obvious questions...

**Sydnee:** [laughs]

**Justin:** ... that would spring to *anyone's* mind. "Why not disinfectant?" and "Can I use my tears?" [laughs] [singing] "I chimed in with a, [through laughter] 'Haven't you people ever...?'"

**Sydnee:** [laughs]

**Justin:** I wanna read more goth emails. Thank you.

**Sydnee:** So the, "Why not disinfectant?" was a little easier. Generally speaking, I think we all tend to overuse things like hydrogen peroxide, or even antibiotic ointments over the counter. We all tend to use those constantly for any kind of open wound, for fear of infection and to prevent infection. And we probably don't need to.

You know, we talked about on a recent episode with antibiotic ointment, there's some evidence that maybe, even, it's detrimental to constantly put that on wounds, as opposed to just petroleum jelly.

**Justin:** Okay.

**Sydnee:** When it comes to other sorts of disinfectants, one of the things I always tell people about hydrogen peroxide specifically – and I don't know exactly, but if it's alcohol-based or hydrogen peroxide, something like that that has a drying element to it, you're actually also damaging the good tissue.

So you can slow down healing if you just keep dumping that on a wound, day after day after day. Whereas all you really need to do to prevent a wound from getting infected, *most* of the time, is keep it clean.

**Justin:** Right.

**Sydnee:** So that's why a plain saline solution to just keep it clean *should* be sufficient. Now, certainly, if for some reason you come in contact with something contaminated or dirty, or you're worried that somehow bacteria has gotten into a wound, then there may be a role for a disinfectant. But generally speaking, just keep it clean.

So the question, "Could you use human tears as saline solution?" I mean, definitely there's saline in there. But I think the other important thing to remember is that there's a lot of other stuff in tears. And they're different, depending on why you're crying. [chuckles] I love that about tears.

**Justin:** Yeah.

**Sydnee:** So whether you're crying 'cause you're sad, or you're crying because— You're constantly producing tears. They're not always running down your face, but your eyeballs are wet, right? [laughs] They should be. Are they reflex tears, because of something spicy, or something irritated your eye? So those are all made up of different things.

They have other stuff in them, along with— I mean, if you— The list of stuff that tears contain: mucin, and lipids, and enzymes, and glucose, and

immunoglobulins, and... So they got all kinds of other stuff in there that you probably don't need.

**Justin:** This is maybe the most important question that we've had on *Sawbones*.

"I recently discovered flushable wipes, and like using them when I feel like my booty could use a little cleanliness boost. However, after wrestling with a stomach bug, I'm wondering if there's a downside, or even just a limit we should be aware of when using these suckers. Kind of like how we discovered we've overdone it with antibiotics, and now we have supergerms. I'm more curious about the effects this could happen on the vagina, with all of its wonders and mysteries."

That's from Katie L. in New Hampshire.

**Sydnee:** I think if you're talking about a standard wipe— There's two things I wanna say. One, if we're talking about just the regular wipes that don't have any sort of disinfectants or—

'Cause there are wipes out there specifically aimed at people with vaginas, and their whole messaging is, "This will make you smell better down there." And that is not necessary. That is not necessary; the vagina cleans itself. You do not need to do something to it with a wipe to make it smell better, or to clean it better.

If you're talking about just your standard flushable wipes, if it just makes you feel cleaner, kind of as a bidet substitute, to wipe with something that has some moisture to it... It's probably not inherently harmful. I mean, I'm assuming you're not inserting them; that would be a whole other thing. But just to wipe the external area with a wipe, I don't know of any real harm to it.

Is it necessary? Mm, no, not necessarily, no. I don't think you need to. Don't flush it.

**Justin:** Don't flush your wipes!

**Sydnee:** That's the other thing.

**Justin:** Please! I've been dying.



**Sydnee:** They're not flushable.

**Justin:** Don't flush flushable wipes, people. It's the biggest lie that you've been sold by corporate America. Do not flush these freaking wipes, guys!

**Sydnee:** Yes.

**Justin:** Use them and throw 'em in the trash can. Don't flush these wipes! And if you have them near the toilet, people are gonna be like, "Ooh, la la!" They're gonna use 'em, and they're gonna flush 'em. Don't leave these bad boys—

[whispering] I had these in a locked drawer. I had them in a drawer— Not locked. I had them in a drawer. So I could take 'em out, 'cause only I knew where they were. 'Cause if I need a little freshness, I know *I'm* not gonna flush it out the toilet! You know what I mean?

**Sydnee:** Yeah.

**Justin:** But I can't have 'em in plain view!

**Sydnee:** No.

**Justin:** 'Cause people will flush them. And guys, these things don't flush.

**Sydnee:** They're not—

**Justin:** They're gonna get stuck in your pipes. They're gonna mess you up, bad. I can't curse on *Sawbones*. This is the most I've ever wanted to curse on *Sawbones*.

**Sydnee:** We've talked about it. They create fatbergs.

**Justin:** It's not just fatbergs! It's literally in your pipes. Like, they will just clog your pipes!

**Sydnee:** Yes. I know they say they're flushable; they're not.

**Justin:** They're not flushable.

**Sydnee:** They do not degrade at a rate that makes them safe for plumbing. Don't flush flushable wipes.

**Justin:** It doesn't matter if you have a septic system. It does not matter. Like, it doesn't matter. Nobody should be flushing these things. Nobody.

**Sydnee:** And anything that's ever scented, or alcohol-based, or drying in any way, I would be very careful using on a sensitive area like your genitalia. Just because it could irritate your skin, and feel bad.

**Justin:** Okay. Let's see. We gotta hurry, Sydnee, but these are important.

**Sydnee:** Yeah.

**Justin:** "I recently saw an interview with a doctor who published a study that claimed saffron is as effective as SSRIs for treating depression." That's from Sabrina.

**Sydnee:** I looked through that. I thought it was really interesting. This is an area of research where they are studying whether or not saffron, at appropriate doses, works as well. And they've compared it to— I was looking through the different—

They compared it to fluoxetine, also known as Prozac. They've compared it to placebo. They've compared it to— Imipramine is another antidepressant. And in some of the studies, they haven't really seen any difference between the saffron group or, in one, the sertraline, which is Zoloft group. So there are some out there that have, you know, maybe— Maybe.

It's possible these are not the giant studies that you would need to say. It could be the standard of care. If somebody wants to take saffron in addition to working with a healthcare professional on their mood, I don't see a downside. *Other than* the one thing that I wondered about all this, is the cost of saffron.

**Justin:** Yeah, y'all! [wheeze-laughs] It's probably cheaper to buy the pills, [through laughter] honestly!

**Sydnee:** Well, I mean, that was kind of where— So saffron supplements... Hold on, I found the prices. There are online retailers who sell it for \$120 dollars per ounce. \$26 dollars per month is what that would come out to, basically.

And that's not crazy expensive, \$26 dollars per month I guess, for a lot of people that— There are certainly medications out there that cost thousands and thousands of dollars. So to say that in the pharmaceutical world, \$26 dollars a month is wildly out of price, is not fair.

**Justin:** Well, and like with anything that's high price like saffron, people will— It is a luxury item people will continue to charge, increasingly.

**Sydnee:** They can charge more.

**Justin:** Like, insane amounts.

**Sydnee:** It is not regulated the same way medications are, so you don't know if the saffron supplement contains saffron, or how much saffron, or if it's really— So you can't control that in the same way.

And the other thing is, obviously saffron is not gonna be covered by your insurance. So if you rely on your insurance to cover the price of your antidepressant perhaps, you probably are paying less than \$26 dollars a month for your antidepressant.

**Justin:** That's true.

**Sydnee:** And you might not be. But many people are, so it still may be pricier than what you're already getting. And if they're equal, and you're not having a *problem* with your antidepressant, I think— I would never use switching to a quote, unquote "natural alternative..."

**Justin:** [incredulously] It doesn't ma— It's saffron! It's saffron, though.

**Sydnee:** Right.

**Justin:** You could switch to a natural alternative that doesn't cost *more than gold*. Literally more than— Like, an ounce costs more than an ounce of gold.

**Sydnee:** And it is not inherently better because it's saffron.

**Justin:** Right.

**Sydnee:** If it works for you, okay. But it is not inherently better, because it wasn't synthesized in a lab. And I think we really have to move away from that.

**Justin:** "I recently came across this article—" This is our last question. "I recently came across this article about a connection between— It's like a 2.25x chance of developing Parkinson's if you live in the area of a golf course, as compared to those living more than six miles away. At first, it seems alarming.

"And then I started noticing things like how their study was only 5,500 people in two states, and how several variables weren't controlled. So here's my opinion: with studies like this, where there seems to be a high association, but not enough data to prove causation, how much weight do you put into that? Thanks, Ross."

**Sydnee:** So I think it's really important to, one, if you are so inclined to read the whole article, and find out what the authors, what conclusions they would draw from it— 'Cause a well-done study will point out its own limitations. It will say at the end, "Here are the reasons why we can't conclusively say anything."

I found the study. They looked at 139 golf courses in Southern Minnesota and Western Wisconsin. There were 419 cases of Parkinson's, and 5,113 controls. They matched them for age, and sex, and adjusted for some variables. Income, and whether the location of the golf course was urban or rural.

But they say very clearly, they cannot say causation. Yes, there was this association. The hypothesis is that it has something to do with pesticide exposure from the golf courses. That's why they did this.

I guess my first question is, "Why are they looking at golf courses and Parkinson's?" Because they are worried that pesticide, using it on golf courses could contaminate local groundwater, and then drinking water. And there are

some links between certain pesticides and Parkinson's, so is a golf course a problem?

The study did not assess lots of other things. Occupation, so what other exposures might these people have. The amount of time they spend there at the golf course, around the golf course, or...

**Justin:** Can you control for whether or not they live near the golf course because they wanna play more golf, or whether they live near the golf course just because?

**Sydnee:** [laughs] No, I mean, none of that.

**Justin:** 'Cause I think if you're just looking at people who live near a golf course, I bet there's also a 2.25x chance of them watching *Blue Bloods*. [amused] You know what I mean? But I don't know when we're gonna get that in a study.

**Sydnee:** They didn't assess genetic predisposition, or other risk factors for Parkinson's. They didn't assess things like head trauma. There's a lot of stuff that is not included in matching, if you're gonna match your control and your variable group...

**Justin:** Yeah.

**Sydnee:** ... that they did include. So I would say, we all need to be concerned about contaminated water for pesticides.

**Justin:** We all need to be concerned about—

**Sydnee:** I mean, that is a concern. I don't know that golf courses right now would move to the top of the list...

**Justin:** Yeah, but they're also an environmental nightmare. So if you're gonna do bad science, at least do it in service of taking a swipe at golf courses. You know what I mean?

**Sydnee:** I mean, I think that's fine.

**Justin:** [laughs]

**Sydnee:** 'Cause that's a giant field of monoculture that sucks up water, and pesticides...

**Justin:** Yeah!

**Sydnee:** I don't— Man...

**Justin:** Hey, listen. If everybody else is gonna—

**Sydnee:** We're gonna make golfers mad, now.

**Justin:** If everybody else is gonna do bad science, why can't we use bad science to get rid of golf courses!? Environmental science is good; the other stuff, I don't know.

Hey, thank you so much for listening to our podcast. We hope you've enjoyed yourself, and you've learned a little something. And keep those medical questions coming again: [sawbones@maximumfun.org](mailto:sawbones@maximumfun.org).

**Sydnee:** And just put "medical questions" in the subject line, 'cause that's how I search for them.

**Justin:** Thanks to The Taxpayers for the use of their song "Medicines" as the intro and outro of our program. Thank you to the Max Fun Network for having us as a part of their extended podcasting family.

You know, if you like that theme song, and you'd like to check out more of The Taxpayers, you can go to [thetaxpayersband.com](http://thetaxpayersband.com). They are out there— They're doing shows! July 29th, they're gonna be in Sacramento with Walter Mitty and His Makeshift Orchestra Wednesday the 30th— I mean, San Francisco. 31st, gonna be in San Jose. So check 'em out! [thetaxpayersband.com/shows](http://thetaxpayersband.com/shows) for tickets, or whatever. Go buy stuff; they're great.

That's gonna do it for us. Until next time, my name is Justin McElroy.

**Sydnee:** I'm Sydnee McElroy.

**Justin:** And as always, don't drill a hole in your head!

[theme music, "Medicines" by The Taxpayers, plays]

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