

## Sawbones 514: Can Doritos Make Skin See-Through?

Published October 8<sup>th</sup>, 2024

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**Clint:** *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 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 done kiddin' around, Syd. No more of these bloated intros. I'm ready to get right into the thick of it, Syd.

**Sydnee:** Okay.

**Justin:** I'm— We have been do—

**Sydnee:** That's intense.

**Justin:** I know. 'Cause we've been doing these medical questions episode for a long time now, and I feel like every time I mess up the pacing. And I end up having to do 'em faster at the end, 'cause I'm not good at timing 'em out.

**Sydnee:** Well and you know what's also hard is because you don't know the questions ahead of time and I do, you will try to skip sometimes, and I'm like "Wait wait wait, if we can't get to one, we should do this one."

**Justin:** Right.

**Sydnee:** "This is more pressing information and we can save the next one— that one til next time," and you don't know that.

**Justin:** Here's the important thing.

**Sydnee:** Right? Like that's— that— I know and you don't know.

**Justin:** So we don't need to waste a bunch of time with it. Here's the fo— Here's the pitch, folks. She's a doctor, I'm not, we're married. That's the whole podcast. We don't need to catch anybody up, that's the whole thing.

**Sydnee:** Yes, and this isn't advice, but we are gonna answer your questions, your weird medical questions.

**Justin:** Right, just in a non-binding—

**Sydnee:** For just general information.

**Justin:** [chuckles]

**Sydnee:** Yeah, just—

**Justin:** In a non-binding way.

**Sydnee:** Which— Exactly, just general information. Which you can always email us your questions. When I'm gonna put together one of these episodes, I just— If you put "weird medical question" in the subject line—

**Justin:** Yeah.

**Sydnee:** — that's what I search.

**Justin:** Yes.

**Sydnee:** In our email, and then I read and try to put together as many of those as I can.

**Justin:** Yeah.

**Sydnee:** So feel free to always email us with those, and I am the one who reads your emails. I— We have— I always think it's interesting—

**Justin:** I am the one who reads your emails.

**Sydnee:** Well Justin, you don't, and I always think it's interesting because it is— I love how many people assume that I have help in doing— A lot of people write saying like "Whoever answers these emails or whatever assistant or whoever's job it is."

**Justin:** Yeah.

**Sydnee:** And it's me!

**Justin:** It's Sydnee.

**Sydnee:** It's me.

**Justin:** Yeah.

**Sydnee:** So. And thank you, I love your emails.

**Justin:** Yeah.

**Sydnee:** I try to read them all, I really do.

**Justin:** Mm-hmm. So, let's get into it.

"Sydnee, is shy bladder a real thing? I've just left an airport restroom where it took me approximately three minutes to pee! Every time I thought I'd finished, I'd start right back up. I don't have a prostate or an infection, and I've only ever experienced this prolonged bathroom trip in public.

Am I just shy? Is there some way to overcome this performance anxiety? Would Kegels help? Love the show. Thanks, Haley." I'll just say, Kegels always help. [chuckles] With whatever you might be facing in your day-to-day life.

**Sydnee:** I don't know, I— We just did an episode on Kegels if you haven't listened to it, but I will say that I got several emails saying that it is very important not to just ran—

Don't just go wild trying to do Kegels for everything, 'cause there is a right way and a wrong way, and you actually wanna strengthen your pelvic floor. And if you have other problems you don't wanna just—

It's the same old same old. You don't wanna just do Kegels and assume it's a cure all, right? Go seek help from a medical professional who can give you the best advice for your problem. So thank you to everyone who emailed [chuckles] concerned about starting a Kegel craze.

**Justin:** [chuckles]

**Sydnee:** With *Sawbones*. So, Justin I appreciate that you made sure to use the right inflection for the exclamation point on "three minutes to pee."

**Justin:** Yes.

**Sydnee:** "To pee!"

**Justin:** "To pee!"

**Sydnee:** What you are experiencing has a name. Paruresis.

**Justin:** Paruresis. A—

**Sydnee:** It's when you—

**Justin:** A paralysis of the ureter.

**Sydnee:** Basically. Bas— I mean it's not— And it is not as you— That sounds like it is a— like it will never— Like paralysis is something that you can't necessarily consciously overcome, but it is. Like this is something that is related to anxiety, so.

**Justin:** A momentary paralysis.

**Sydnee:** It is— So it is I mean a shy bladder or nervous bladder or whatever, that is kind of— You're using probably accurate terminology to describe what is happening which is— it is usually a public restroom phenomenon.

**Justin:** Mm-hmm.

**Sydnee:** Or some other place where there are people around. Certainly I am someone who like I go into a stall and sit to pee, so I don't usually have people looking at me while I pee, but I understand Justin you may be in a situation where you're standing next to someone.

**Justin:** Yes.

**Sydnee:** While you're peeing.

**Justin:** Yes.

**Sydnee:** So I wonder. I did not find a discrepancy depending on what type of genitalia you have, like who is it more common in.

**Justin:** Mm.

**Sydnee:** But I would— It would be very hard for me to pee with someone looking at me.

**Justin:** Well you try not to look at other folks.

**Sydnee:** [chuckles] But it—

**Justin:** While you're—

**Sydnee:** It must happen, right?

**Justin:** You really, really, really try not to.

**Sydnee:** [chuckles]

**Justin:** I mean you really try not to. Yeah, you really try not to. With the urinals, the law is that if there's like a one through five, the first person goes to one and the second person goes in would go to five, right?

**Sydnee:** And then if there's another one, it's three.

**Justin:** Three.

**Sydnee:** I got that.

**Justin:** And another person comes in.

**Sydnee:** Then you just—

**Justin:** Floor. [chuckles] Just piss on the floor. That is the—

**Sydnee:** Floor? You wait. You wait.

**Justin:** Just on the floor. You wait, and actually, it's a really— the one bathroom thing that you do not have to contend with in your bathrooms that I will say is the separate lines.

**Sydnee:** Ah.

**Justin:** The separate lines is—

**Sydnee:** We should declare your intentions. [laughs]

**Justin:** Which declare— “Just so everybody knows. Let there be no confusion. No no no, you help yourself to that urinal, I've got other plans.”

**Sydnee:** [chuckles] So, 25% of people are estimated to experience paruresis to some extent, and obviously there's a wide range of that. F

or some people it's you go to pee and it kinda takes a few seconds, or maybe you need to wait until someone leaves and then you can pee, that kinda thing. All the way to the extent that some people cannot pee.

**Justin:** Right.

**Sydnee:** In a public restroom, they just— If there are people around, the anxiety is too great and they can't do it.

**Justin:** The original star of *Homicide: Life on the Street* got fired from the show by Steven Boshko 'cause he couldn't use the toilet at work. At his used the one at home, and it made him late for work every day.

**Sydnee:** Oh, that's very unfortunate.

**Justin:** I know.

**Sydnee:** Because 80% of people who experience paruresis, and I'm assuming these are people who are experiencing it to a degree of severity that they sought treatment, right? 'Cause like if it's just that it takes you a couple minutes to pee when you're in a public restaurant— restroom, you might not go talk to a professional about that.

**Justin:** Sure.

**Sydnee:** But if it is something where you cannot do it, you know, you're going your entire workday or school day or whatever and not peeing, that could be detrimental to your health and safety.

**Justin:** Yeah.

**Sydnee:** And so they do seek treatment, 80% improve with things like cognitive behavioral therapy and exposure therapy, so it's a anxiety-related condition.

**Justin:** Mm-hmm.

**Sydnee:** So the same sorts of treatments that we might use for other anxiety conditions, we can use for this as well. So if this is interfering with your life, talk to your own healthcare professional about it, there may be some treatments available to help you out.

**Justin:** Is there a reverse of this condition, where every time you enter a new public place, you feel like you need to use the bathroom right away? So you mark it, like some sort of territorial fox.

**Sydnee:** Uh, If there is, you have it.

**Justin:** Okay.

**Sydnee:** I don't know what it is, but I'm gonna call it Justin Syndrome.

**Justin:** Justinitis.

**Sydnee:** I just assumed you like to know where the bathroom was, so that in case a bathroom emergency happened at some point during... I

mean usually it's at a restaurant. During our meal, that you would like have a quick...

**Justin:** Mm-hmm.

**Sydnee:** You would know the fastest route.

**Justin:** Not a bad thing to know. "If you inhaled a small item, is it possible to get it all the way [chuckles] down your trachea and into your lungs?" This is a really good question.

"And just— you just have a blob of stuff sittin' in your lungs forever? Or would your body never let that happen, and force you to cough it out, especially if it was a small enough item to not completely block your windpipe so you didn't lose air?" What's up?

**Sydnee:** It can be really helpful when I'm talking about this if you like— Well, I mean, if you like to look at pictures of anatomy. I'm meaning just diagrams, I don't mean actual pictures of the inside of you trachea and lungs, and the bronchi and all that little tubes that go into your lungs.

But if you look at a picture— So if something goes into your trachea, so you've inhaled it, and as you may imagine, this does happen. Much more frequently to younger people, especially one and two-year-olds. The vast majority of foreign objects getting lodged somewhere in the respiratory system, whether we're talking trachea, bronchus, deeper into lung tissue—

**Justin:** Mm-hmm.

**Sydnee:** — are in people under three.

**Justin:** Okay.

**Sydnee:** So that is the most common reason it happens. Obviously if you have problems with breathing, swallowing, any sort of anatomical differences, it can happen any time in your life. And then as we get older, there also is a higher risk for aspirating things as well.



But most of the time when stuff gets in there, if it is too large, it's just gonna stick right in your main windpipe, right, the trachea. That's bad. That's a bad thing.

**Justin:** Yeah, we don't want that.

**Sydnee:** 'Cause you can't breathe, so that's bad. If it's smaller though it will fall down, and if you look at the angle. So the— your trachea splits in two, to go to the right and left lungs.

**Justin:** Okay.

**Sydnee:** If you look at the angle there, it's easier for it to fall to the right, and that just has to do with how the windpipe is constructed at the bottom.

**Justin:** Okay.

**Sydnee:** It is wider and a more obtuse angle, so it can fall into the right main stem bronchus, so the right main windpipe there.

**Justin:** Okay.

**Sydnee:** Windtube easier than into the left. So most things tend to fall to the right, and then that divides further, and it tends to fall into the lower one because it's lower, gravity, you know, for reasons that make sense to us.

**Justin:** Yeah.

**Sydnee:** So that is most foreign bodies, if they get— if they fall into your trachea and keep falling, that is where they end up, the highest percentage. They can go other places of course, we're not, you know, there's not a one size fits all. But that is usually where things go.

**Justin:** Where?

**Sydnee:** Down to the bottom part of the right main stem bronchus.

**Justin:** Bottom right, okay.

**Sydnee:** Bottom right lower lung.

**Justin:** Right lower lung, that's what I was trying to—

**Sydnee:** Mm-hmm, yeah.

**Justin:** The bronchus is part of the lung. Okay, right lower lung.

**Sydnee:** It's the tubes.

**Justin:** Got it.

**Sydnee:** Those are the— There's the— There's all your bronchial tubes, those are the tubes that go into the lung tissue.

**Justin:** Okay.

**Sydnee:** Where all the little air sacks are. Okay?

**Justin:** The bronchi.

**Sydnee:** The alveoli are the air sacks. Okay. So, generally speaking, it is not good to have a foreign body [chuckles] in your lung, for multiple reasons. One, it's blocking something. But even if it's just a teeny, little bit of lung, that lung— you're not getting airflow there, that's bad.

**Justin:** It's self-explanatory I feel like. I think even the layman.

**Sydnee:** Well, also it's like— it can be— It's dirty, probably, right? It probably is not a sterile object that you've aspirated into your lungs.

**Justin:** Probably not.

**Sydnee:** So infection. So inflammation, infection, it's blocking things, it's not good to leave it there. When it is an actual foreign body, like an object from the earth.

I'm not talking about like something that you ate, a little bit of a drink of something that actually went do— that accidentally went down your windpipe or something, I'm talking about a foreign body, an object. Like a *Monopoly* piece. We—

**Justin:** What a specific pull.

**Sydnee:** [chuckles] I don't know why that.

**Justin:** You just had to pull something that's just like a wild like—

**Sydnee:** That's what—

**Justin:** Did you flashback to some childhood memory or something?

**Sydnee:** No, I just— A top hat is what was in my head.

**Justin:** [chuckles]

**Sydnee:** I was thinking like a tiny top hat.

**Justin:** Perfect!

**Sydnee:** I don't know why that's—

**Justin:** It's so esophageally shaped. [giggles]

**Sydnee:** But a tiny hat.

**Justin:** "The perfect cylinder."

**Sydnee:** We will—

**Justin:** "Nature's killer."

**Sydnee:** [chuckles] We can go in and get it out. That is usually what we have to do is use bronchoscopy, so we would—

Don't worry, we give you medicine that makes you sleepy and you don't know what's happening, and then we go down into your windpipe and we use something very tiny with a camera, and we pull that sucker right back out of there, 'cause it's not good to leave it in there.

**Justin:** Yeah.

**Sydnee:** So generally speaking, that is the treatment, and if you think— Obviously if you think your child has aspirated something, please take them to the closest emergency room immediately, and have them evaluated for that. Now, if you're talking about like—

**Justin:** Now, wait.

**Sydnee:** Sometimes you kinda—

**Justin:** Hold on, hold on. Before you move on, are they gonna clean the piece and give it back to me? Or am I buying a new top hat at this point? 'Cause I don't wanna have to go get a whole new *Monopoly* set.

**Sydnee:** I don't see any reason they couldn't clean it and give it back to you.

**Justin:** Okay. It wouldn't be a biohazard or anything?

**Sydnee:** I mean, you can just sterilize it.

**Justin:** Okay, good.

**Sydnee:** Yeah.

**Justin:** Alright, I'll thank them.

**Sydnee:** No, I mean really it's— I mean it was dirtier than where it ended up, if you wanna know the truth.

**Justin:** Yeah, okay.

**Sydnee:** Like, so—

**Justin:** Cool.

**Sydnee:** Well, but I guess like yes, it does have bodily fluids on it, but you can just clean it. No, I mean I would say you can clean it.

**Justin:** Okay.

**Sydnee:** But yeah, so most of the time we need to get the foreign body out. Now I'm not gonna get into the specifics of like when you aspirate like let's say a— It's a rough situation where somebody has like vomited and then some of that—

**Justin:** Mm-hmm.

**Sydnee:** — materially has gone into their airway, and then— Like we don't necessarily go in and clean the lungs out every time that happens, right?

So there are other situations where we might treat you with like antibiotics for any possible infectious, and then let your body resorb whatever other materials. But when we're talkin' about like foreign bodies, fomites, objects... We generally speaking are gonna need to go in and get that out.

**Justin:** "Sometimes after I shave my armpits, it looks like there are two strands of hair growing out of the same pore in my skin. Is this because one strand of hair has broken in half? Or is it possible that two hairs are growing out of the same pore? Is two the upper limit, [chuckles] or can even more hairs grow? Thanks for resolving this hairy question. Anonymous."

**Sydnee:** Pillai multigemini is what that's called.

**Justin:** Okay.

**Sydnee:** When you ha— I know, it's a— there's a whole name for it. I will— Can I— Let me confess something to you. If anyone in a medical school class ever taught me that, I do not remember. [chuckles]

**Justin:** [laughs]

**Sydnee:** I had to look up like "Well I know that can happen, but I don't know if there's a name for it." There is a name for it. There are names for more things than they tell us about because something— And I mean I think in this case, most of the time it doesn't really matter.

**Justin:** Yeah.

**Sydnee:** Having two hairs grow from a single hair follicle is not—

**Justin:** Not that important. [chuckles] Like you don't need to keep it at hand, right? It's just—

**Sydnee:** Right? I mean like just—

**Justin:** You can go searching for that info.

**Sydnee:** I guess it could cause problems if we're talking about like ingrown hairs and stuff, and there's two of them or whatever. But I mean generally speaking, it doesn't really matter, it's just kind of an interesting thing that happens in your body. It's usually seen in two places, either facial hair, like especially thick facial hair, or on little kid heads. Scalps of a kid.

**Justin:** Hm.

**Sydnee:** Those are the two places you most commonly will see that sort of occur. It can happen anywhere though. I have seen one on my leg once, so I know it has happened to me.

**Justin:** Wow.

**Sydnee:** Yeah.

**Justin:** I had no idea.

**Sydnee:** I know.

**Justin:** I'm learning so much about you.

**Sydnee:** It generally is not anything to be concerned about, or... to treat in any specific way.

**Justin:** Sure.

**Sydnee:** I don't—

**Justin:** Okay.

**Sydnee:** Like I shaved my legs, so I shaved mine. But that— I was gonna do that anyway.

**Justin:** Uh-huh.

**Sydnee:** Not because there was two hairs. Anyway, there you go. Now you have a name for it.

**Justin:** There you go.

“I currently have a bruise on my inner arm from some recent blood work. Today I was outside and I got bitten by a mosquito right on top of the bruise. Weirdly, now the small bump from the mosquito bite no longer looks bruised at all, it’s just a small circle of normal colored skin in the middle of a pretty dark bruise.

My question; surely the mosquito didn’t suck up some of the bruised blood.” Gross. “From under my skin, right? Like that can’t be how it works, but is it? I have to know.” Skeeters Drinking in South Carolina.

**Sydnee:** Okay. It occurred to me as I was reading this that I didn’t actually know— I think key to answering this question is when a mosquito bites you.

**Justin:** Right.

**Sydnee:** And by “bite” I mean it sticks it little needle-like apparatus—

**Justin:** Proboscis, proboscis?

**Sydnee:** Proboscis into your skin and sucks blood out of you, is it accessing a blood vessel? I mean it must be, right?

**Justin:** Presumably.

**Sydnee:** I had never really thought about that.

**Justin:** Okay.

**Sydnee:** It is.

**Justin:** Okay.

**Sydnee:** So a bruise is blood that's just sort of collected in the interstitium, it's just in the tissue, right?

**Justin:** Right.

**Sydnee:** This blood is just in there. And so you couldn't really suck it out. I mean, you could— Like even if you stuck a straw right into the middle of it, it wouldn't all like suck up into the straw. You know what I mean?

**Justin:** Yes, this is not a— [chuckles] There— It's not a wat—

**Sydnee:** It's just sort of diffused—

**Justin:** You're—

**Sydnee:** — in the tissue.

**Justin:** You're not a water balloon. [chuckles]

**Sydnee:** Yes.

**Justin:** Like there is not a—

**Sydnee:** Yes.

**Justin:** There is not a thin layer protecting a gooshy pocket.

**Sydnee:** It's like a sponge. If you stick a straw—

**Justin:** That's a good metaphor.

**Sydnee:** — into a sponge.

**Justin:** Yeah.

**Sydnee:** You can't suck the sponge dry, right?

**Justin:** Right. Yeah.



**Sydnee:** That's not how it works. Think about it that way. So no, the mosquito didn't do that, because mosquitoes when they bite you, they access a blood vessel and suck the blood out of a blood vessel, so they wouldn't just suck blood out of the interstitium and they probably wouldn't anyway.

So probably what happened in this case is that when they— when a mosquito bites you, you get some inflammation and swelling in the area, which will make the— like the skin stretch. And like it probably lifted the skin a little further away from the cl— from the pooled blood.

**Justin:** Mm.

**Sydnee:** And so the bruise was less noticeable.

**Justin:** Hm.

**Sydnee:** Now I will say the mosquito also releases an anticoagulant, something to make your blood thinner as it's biting you, to make it flow easier.

**Justin:** Huh.

**Sydnee:** So maybe it helped break the blood down a little faster?

**Justin:** Isn't that interesting.

**Sydnee:** I don't think it would, 'cause it would make the blood spread out. It would keep it from clotting, but I don't know. It was probably yes, the mosquito bite could make the bruise less noticeable, but not because it sucked out the blood.

I think this is fascinating by the way. I read this in-depth analysis. There are six needle-like parts in the proboscis of the mosquito when she's biting you. And there are like these two needles that have tiny teeth that saw through the skin, there's another set of needles, the mandibles, that hold the tissue apart while the mosquito is sawing into your skin.

There's a fifth needle called the labrum that actually pierces a blood vessel. And the way that they do that, they have receptors on the tip of

this labrum that responds to chemicals in our blood to seek out. It's like a needle that seeks out a blood vessel.

**Justin:** Mm-hmm.

**Sydnee:** That's— It's incredible. In order to— Like they can smell the blood, and then they pierce.

**Justin:** [whispers] That's wild.

**Sydnee:** It's like a vein finder.

**Justin:** Wild.

**Sydnee:** And then there's a sixth needle that drips the saliva into us, that's why we can get infections from mosquitoes, right. And then also why— also where the anticoagulant substance comes from.

Anyway, it's fascinating, but no. So it is not sucking blood out of a bruise because they're actually accessing a blood vessel, just like we would do when we're trying to like draw your blood, or put an IV in.

**Justin:** Quite— It's wild. [chuckles] Okay, listen, I wanna learn more, Sydnee, I wanna grow. But I first wanna take a quick break to head to the Billing Department.

**Sydnee:** Let's go.

[transition theme music plays]

[ad break]

**Justin:** Alright, Syd. "Can listening to noise cancelling headphones cause more hearing damage? Normal headphones just throw sound at your ears." I'm sure that's a technical description.

"But noise cancelling headphones modify the sound to remove background noises. But in order to remove a noise, you have to add an opposite noise to cancel it out.

So does that mean the soundwave is totally cancelled out, meaning noise soundwaves hits your ear, preventing damage? Or is the sound perceived as cancelled out, meaning both the noise and the anti-noise hits your ear, but the brain cancels out the effect?"

**Sydnee:** Justin.

**Justin:** So what do you think, Syd?

**Sydnee:** Well you were gonna answer this one for me.

**Justin:** I— Okay. I told you—

**Sydnee:** `Cause you wear noise cancelling headphones all the time.

**Justin:** I told you that I... told you that I would give it my best shot. With my brain, with what brain that I have, okay? And I— This— I hope this is one of those where we get a better explanation from somebody. Not— It doesn't need to be righter than this, `cause it's like I'm gonna get— I'm gonna try to get it as right as I can.

**Sydnee:** Mm-hmm.

**Justin:** But if I'm wrong—

**Sydnee:** Sure, yeah.

**Justin:** — please let me know. [wheezes]

**Sydnee:** Yeah, no. Go for it.

**Justin:** So, the way I understand noise cancelling it that there's a microphone on the outside of the headphones, and it is listening to the sounds that are around you, right?

**Sydnee:** Mm-hmm.

**Justin:** And then it is— As those sound come into your ear, it is playing the— All sound is just waves, right? So it's playing the inverse wave of the sound that it's picking up.

But from my understanding, you can't have negative sound, right? So you're not— It's not like you've removed amplitude at any point in the signal, you're not like removing this— the volume that would damage your ears.

**Sydnee:** Right, right.

**Justin:** You're not removing decibels, you're changing the wave... and how it's perceived by your brain, right?

**Sydnee:** Right.

**Justin:** So it's altering the signal that's getting sent to your ear to remove that sound before it gets to your ear. So as I understand it, it's changing rather than— 'Cause I don't see how you could add sound in a way that would damage your hearing. But like you can't have more volume that way.

**Sydnee:** Right.

**Justin:** I think. That's my best guess.

**Sydnee:** And I will say, I just did— I had— I did a quick— After we talked about it, I did a quick search to see if I found any literature suggesting that noise cancelling headphones were damaging hearing. Just like is— are people looking into that. I didn't see any evidence. I saw this conversation is happening all over the internet.

**Justin:** [chuckles]

**Sydnee:** This exact fear is out there. But as far as I can tell, there's nobody who thinks that noise cancelling headphones are going to increase the risk of hearing damage. Hearing damage occurs over a certain decibel level. I guess can you turn up the noise cancelling sound on your headphones?

**Justin:** There's certain— There's different levels of how much sound you're allowing in. But I actually don't know if that is— Oh man, now we're getting really weird, but I think that that signal is actually a not just what you're hearing on the outside, but it rather a blend of that

microphone signal that is picking up the exterior noises and what you are listening to.

**Sydnee:** I think what they— what I found were several people like kind of making the caveat that if you can turn up the active sound cancelling past the, you know, 75 decibels or 80 decibels that it takes to damage, like past that level, you can get damage to your hearing. Any sound turned up higher than that can damage hearing.

**Justin:** Yeah.

**Sydnee:** But that's not how they're programmed to work.

**Justin:** This is fascinating.

**Sydnee:** Yes.

**Justin:** I think we're outside of our—

**Sydnee:** I know, we're ge— Once we start getting into soundwaves, I'm so...

**Justin:** Yeah but anyway, I think it's what— I think it's really interesting.

**Sydnee:** I'm so out of my depth. Again, gooshy sciences, that's my specialty. I think it's a fascinating question. I could not find any evidence that noise cancelling ear— headphones were more dangerous for your hearing.

I did not find any studies that suggested that. I found several studies supporting their use to protect hearing. But I think this is an interesting, and I wonder if that exact... I wonder if anybody's answered that exact question in a very satisfactory way yet.

**Justin:** Mm. "I looked up tar and feathering while reading a book, *The Dead Don't Need Any Reminding* by Julian Randall, recommended, and I've found quite a bit about the history/roots of the awful custom, but very little about what the medical ramifications were or how such a patient would be treated. With thanks, Car."

**Sydnee:** Okay, first of all, I had to look up— When they said “tar and feathering,” which we’ve done I guess at various points all throughout history.

**Justin:** Sure.

**Sydnee:** I— The— I was looking at like 18<sup>th</sup> century tar and feathering. [chuckles] For a lot of my reference point. I guess it got really popular again then, so that’s where a lot of the information I was getting. Like what is the tar? That was my first question.

**Justin:** Yes.

**Sydnee:** What is the tar? Because when I think tar, I think of like asphalt and tar. And it’s like that stuff’s like 300 degrees or something.

**Justin:** Yeah, that—

**Sydnee:** Like it’s super hot, right? And so my first thought is if you dump hot tar on somebody, you’ll kill them.

**Justin:** Yeah.

**Sydnee:** You’ll boil them.

**Justin:** Yeah, it’s—

**Sydnee:** And so I don’t even know what the feathering’s all about at that point. The tar that they would’ve used though is not that, it probably would’ve been like pine tar, like tree tar.

**Justin:** Mm-hmm.

**Sydnee:** And so it— you can make that like liquid and sticky at much lower temperatures. So it probably would not have been boiling hot.

**Justin:** Mm.

**Sydnee:** It would have been hot, but I don’t know, I saw people estimating like “You know, more like 140 degrees.” I don’t know. [chuckles]

**Justin:** Still quite bad. Still quite a bad feeling, I think.

**Sydnee:** Well hot, but not like you're not gonna die.

**Justin:** Right.

**Sydnee:** It's not gonna kill you.

**Justin:** Right.

**Sydnee:** And so— 'Cause that was my first question was like well did they just dump hot tar on people and kill them?

**Justin:** Right.

**Sydnee:** And throw on the feathers for...

**Justin:** For rudeness?

**Sydnee:** To be mean?

**Justin:** Yeah, I don't know.

**Sydnee:** No, probab— Like you could. If you— Obviously, if you heated it up enough, you could kill someone with it.

**Justin:** Right.

**Sydnee:** That was not the goal, was not to kill you, it was to punish you and humiliate you. There were probably some burn initially from it, 'cause it was hot, or at least there could have been some burns.

**Justin:** Mm-hmm.

**Sydnee:** And then the bigger problem is getting it back off your skin. And so that was probably where most of the damage was like what solvents were you using?

**Justin:** Mm.

**Sydnee:** And how safe were they to like—?

**Justin:** Yeah, a lot of really toxic substances back then.

**Sydnee:** Right, and so you probably had a lot of just like superficial cuts and scrapes and abrasions and burns. You know, first, second, maybe even some third-degree burns, depending on how hot the tar was.

And then they would've treated that with sort of like your certain— your typical range of poultices made of like animal fats, with some honey thrown in there for good measure a lot of the time. I did look up— It was interesting 'cause I said like what would you take tar— Like we know now how to take tar off our hands.

**Justin:** Mm-hmm.

**Sydnee:** And alcohol was the number one. Like just ethanol, like rubbing al— Or—

**Justin:** Yeah.

**Sydnee:** Or rubbing alcohol, some kind of alcohol would be like a great way to remove tar. But it was interesting to see how many different recommendation to get pine tar off your hands there were.

**Justin:** Oh, yeah.

**Sydnee:** Like everybody had their own thing, and some of them were contradictory. But—

**Justin:** A lot of woodworkers maybe.

**Sydnee:** Yeah. But yeah, but a lot of it would come down to the abrasive substances they probably would've use that would've been more caustic to try to remove the tar from their skin. And then you've already got cuts and scrapes, and so you— then you probably get an infection. And we didn't know how to treat infection back then, so.

**Justin:** Mm.

**Sydnee:** All that stuff was probably more dangerous than the tar itself.



**Justin:** “I’ve recently learned there’s a compound in Dorito dust that when applied in a certain concentration will mou— make mouse skin see-through.” That’s good. “I think they’re studying it to see if they can use it on people.” Why wouldn’t you?

**Sydnee:** Mm-hmm.

**Justin:** “What are your thoughts on being smeared in Dorito to have your spleen looked at?” That’s from Christie.

**Sydnee:** I think this is fascinating, I looked up this study. This was at Stanford, it came out in the *Journal of Science*, on September 6<sup>th</sup>.

Tartrazine is the— is what you’re talking about. That’s the substance that’s in— It’s a dye that they use in lots of different orange-colored foods, okay. And basically, the dye’s molecules absorb blue and ultraviolet light.

And so it is easier for light to pass through the skin. Because of how— It’s like it— it’s just physics. But it feels like magic. When you put this dye on a mouse, you can see through its skin.

**Justin:** That’s wild.

**Sydnee:** That’s wild.

**Justin:** Why?

**Sydnee:** I’m sorry that mice are involved in this.

**Justin:** It’s life.

**Sydnee:** So they rubbed the solution onto the skulls and abdomens of mice.

**Justin:** Good. That’s—

**Sydnee:** And—

**Justin:** I mean why wouldn’t you?

**Sydnee:** After a few minutes when it was absorbed, they could see quote “the skin, muscle, and connective tissues transparent in live rodents.”

**Justin:** Perfecto. Perfecto. And what a sight it would’ve been.

**Sydnee:** Fascinating. Fascinating.

**Justin:** Indeed, indeed, Dr. McElroy.

**Sydnee:** So obviously the question would be could we use this tartar— Which— And tartrazine is safe, we ingest it. It has been graded safe because it— we put it in our bodies.

**Justin:** It’s in Doritos.

**Sydnee:** And— [chuckles]

**Justin:** And kidding aside, if it wasn’t safe, it couldn’t be in Doritos.

**Sydnee:** So.

**Justin:** We haven’t fallen that far as a nation, our Doritos are still safe.

**Sydnee:** Now I’m a child who— Now, listen.

**Justin:** Perfectly safe. [chuckles]

**Sydnee:** I grew up in the ‘90s. Do you know how many Doritos I’ve ingested? [chuckles]

**Justin:** Yeah, we’re fine. Look at us.

**Sydnee:** I’m fine.

**Justin:** [chuckles] Look at—

**Sydnee:** No, but I mean it is safe. I mean it’s in food, it’s a safe thing. We don’t really think there’s any like smearing it on our skin would be any more dangerous than eating it, certainly. Obviously they haven’t done

studies smearing it on human skin. For one thing is it would take a lot more because our skin is thicker.

**Justin:** Yeah.

**Sydnee:** A lot thicker than a mouse's skin. And so we don't know if we could do this to humans right now, we don't know, and they would wanna do studies on like "Okay, but how much tartrazine can you put in a human or on a human and it still be safe?"

So obviously they would check for safety before they would coat us in Dorito dust and try to look through our skin, but I don't know. Maybe some day they will.

**Justin:** [sighs] Here's hopin'.

**Sydnee:** [chuckles]

**Justin:** "In the sport of fencing, people with breasts are required to wear pres— plastic chest protectors covering their breasts. Reason given for this is that getting hit hard with a pokey object to the breast tissue can cause... a lump of fa— called 'fat necrosis'.

I know that people without breasts still have breast tissue, they can get breast cancer and can lactate under certain circumstances, so why do they not need to be protected from the fat necrosis? Can people without breasts still have this happen? Liz."

**Sydnee:** You can get fat necrosis anywhere you have fat. And so I would say that probably a better rule of thumb, and obviously I don't make any rules for fencing.

**Justin:** Right.

**Sydnee:** I've never fenced, I know— I mean, I understand it conceptually, but I don't really know much about the rules of fencing. Anyone who has fatty tissue in their chest— well in their breasts would be at risk for fat necrosis.

So probably like a fairer way to apply that standard instead of some sort of like gender... delineation would be if you have a lot of fat tissue in your breasts, you could get fat necrosis.

**Justin:** Right.

**Sydnee:** And that would be a risk for you. If you don't have a lot of fat tissue in your breasts, so— And generally speaking, estrogen is what causes a lot more fat deposition.

**Justin:** Mm-hmm.

**Sydnee:** In the breast tissue, and so that's probably why they kind of used this like crude gender guideline. Assuming that women would have higher estrogen and would have breast tissue— More fat tissue there that would get necrosis, and men would not.

Obviously if you're someone with a lot of fat tissue in your breasts, if you have larger breasts, you are at higher risk. Period. No matter what your gender is. The— You can get fat necrosis other places. You can get it in your thighs, your stomach, your butt.

I saw a lot— As I was reading more about fat necrosis, like what are common causes of it, 'cause I didn't know fencing was a concern. Although any trauma can cause it. If you have an injury or trauma to anywhere it can. The Brazilian butt lifts, I saw a lot of articles about BBL induced fat necrosis.

**Justin:** No.

**Sydnee:** So if they're done improperly.

**Justin:** Is nothing—

**Sydnee:** You can get fat necrosis in your butt.

**Justin:** Is nothing sacred? [pause] Is nothing safe?

**Sydnee:** Not even butts.

**Justin:** Not even BBLs.

**Sydnee:** Yes. So I— But yes, you can get fat necrosis anywhere. I don't want to share another person's medical story on our show, 'cause it is their private medical story, but Justin you will know who I'm referencing, who did get fat necrosis on their butt once that we know.

**Justin:** Mm, yes.

**Sydnee:** And causing a dent in that area for a time period.

**Justin:** Ah yes.

**Sydnee:** Yes.

**Justin:** Yes.

**Sydnee:** And that can happen, and it can be a lump or a dent or an area that's irregular.

**Justin:** Yes.

**Sydnee:** And then over time, it's just fat cells dying.

**Justin:** Yeah.

**Sydnee:** Usually from trauma.

**Justin:** "Hi Dr. Sydnee and Justin, I love *Sawbones*, thanks for your dedication to it. So about a week ago I listened to your episode on urine, great episode. In it learned that urea is one of the key components of pee. Then a few days ago I went to my dermatologist for a regular appointment and my doctor told me about a skincare product that boasts a key ingredient of urea." And I saying that correctly?

**Sydnee:** Yeah, urea.

**Justin:** "I mentioned my concern about such an ingredient, and while we were both laughing, I'm still wondering, what the heck? Were they trying to sell me pee in a bottle? Or is urea good for skin somehow? Thank you again." Alexa.

**Sydnee:** Urea is in a lot of skincare products, it is good for your skin! I know, this is shocking. Urea acts in a couple of different ways, it's a great moisturize.

**Justin:** Mm-hmm.

**Sydnee:** So any kind of condition related to dried skin, they may recommend a urea containing cream or ointment. It's like a humectant, it can draw moisture from the deeper layers of tissue into your skin. It's also a keratolytic, or an exfoliant maybe an easier way to—

It can break down some of the proteins in the epidermis to help get rid of dead skin cells, slough off that dead layer and you get shiny new skin underneath. There are urea creams and ointments that are part of the World Health Organization's list of essential medications, so I'm just telling you that to let you know they're incredibly common.

And kind of essential for things like eczema, corns, callouses, athlete's foot, all kinds of itchy, dermatitis-y skin conditions. It is absolutely something we use. Here's the good news.

Their urea, unless— I don't know, maybe somebody's making it at home and then I can't vouch for that. But [chuckles] generally speaking, the urea you find in all of these skincare products that you might purchase or be prescribed to you by a doctor is synthesized in a lab. [chuckles]

**Justin:** Yeah.

**Sydnee:** While it is like the substance that we excrete in pee, it is not coming from pee.

**Justin:** Here's what I'll say.

**Sydnee:** It is being made in a lab.

**Justin:** To reframe the discussion. The number one ingredient in urine is the same as the number one ingredient in Pepsi Max, water.

**Sydnee:** So there you go.

**Justin:** So unless you're gonna be against water, you can't be against stuff that's in urine. [chuckles]

**Sydnee:** Now I will say this is probably why people put pee on their face. You know like their— We've talked about that, like there are people who have all these—

**Justin:** Yeah.

**Sydnee:** — beliefs about the benefits of urine.

**Justin:** Sure.

**Sydnee:** And drink it and put it on their skin and all that kind of stuff.

**Justin:** Yeah. Just let a machine make it.

**Sydnee:** And urea has been there, but I would rather use a product that has synthesized urea.

**Justin:** Yeah.

**Sydnee:** And also like smells nice, and is you know, is creamy and nice and in a jar or a tube, and not...

**Justin:** Pee.

**Sydnee:** Pee. Myself.

**Justin:** It's a hard degree.

**Sydnee:** That's what I would suggest.

**Justin:** "My wife is scheduled for relatively minor surgery requiring general anesthesia, and in the call to prepare and go over what we should and should not do, they said she could only wear powdered deodorant not gel. Why on earth would that be?"

**Sydnee:** It's from Andrew.

**Justin:** Andrew.

**Sydnee:** Andrew, I am going to be honest with you, I— My— Okay. At the institutions where I have worked, and when I did a quick Google to look at— 'Cause if you look at a lot of different surgery centres, they will tell you online what their recommendations before surgery are.

So you can look at like your local— Probably your local hospital, your local healthcare system, whatever. They probably have a webpage somewhere where you can look and they'll say "Now if you're having a surgery, here's what we would recommend you do before," okay?

**Justin:** Mm-hmm.

**Sydnee:** They all say don't use deodorant, period.

**Justin:** Huh.

**Sydnee:** I have never heard— I couldn't find— I hadn't heard personally and I could not find anywhere online where there was a group making a distinction between powder and gel deodorant. And I don't— I—

That part of the question— I can tell you why, generally speaking, we don't want you to wear any kind of cosmetics of any kinds. Perfumes, lotions, makeup, nail polish, deodorants, anything.

**Justin:** Mm-hmm.

**Sydnee:** Prior to a surgery, for a couple of reasons. One, it can leave residue on the skin, and we might be doing surgery on that skin, and we don't wanna get that residue mixed in with our, you know, the antiseptics we're using, and get it into your incision and all that kinda stuff.

**Justin:** Mm-hmm.

**Sydnee:** Part is that we need to observe your skin during the process, for like color changes, like are we worried that you're not getting enough oxygen.

**Justin:** Mm-hmm.



**Sydnee:** Are you overheated? Like we need to— Looking at your skin is part of how we assess your overall wellbeing, so we want your— We don't want any makeup.

Anything that might change the color of your lips or your nails, so that we can monitor your oxygen level, all those different things. So for very practical reasons. Also a lot of scented things contain alcohol.

**Justin:** That makes sense.

**Sydnee:** In the OR, we might be using cautery.

**Justin:** Mm, so if you burn a perfume, it could make it—

**Sydnee:** We worry about combustible.

**Justin:** Right.

**Sydnee:** We worry about alcohol in the presence of like a spark or something heated.

**Justin:** Or just a—

**Sydnee:** Very unlikely, but why take chances? You know, why wear perfume, right? So—

**Justin:** Or it could be a bad smell. It could just smell bad when you burn it, you know what I mean? That's possible too.

**Sydnee:** Well, ge— I don't wanna get into how it smells generally in an OR. I mean we're doing cautery on human flesh, so like you can...

**Justin:** Thank you, you've painted a beautiful picture, thank you.

**Sydnee:** But the point is, I don't know why... yes powder, no gel. At most of the places I read said "Do not wear deodorant period," and that is how it is, like I've said, in the institutions I've worked for. I saw a few that said if we're not making incisions in— specifically in your armpits.

**Justin:** Mm-hmm.

**Sydnee:** Then you can wear your deodorant if you'd like, and they did not make a distinction between what kinds of deodorant.

**Justin:** Okay.

**Sydnee:** I don't know, I was trying to make sense, like gel and heat and flammable and something, as opposed to powder. I can't make any of that work in my brain. I think I was sitting there saying like "I think does this have something to do with napalm?"

**Justin:** [chuckles]

**Sydnee:** "I don't think so." I don't know why.

**Justin:** [sighs] That's wild.

**Sydnee:** The— I would love— If you could ask.

**Justin:** If you've got any ideas, let us know.

**Sydnee:** I would love to know. 'Cause generally speaking, the rules are "Don't wear any of that stuff before surgery." That is— And that is if you are— if you're not sure, that's usually the best way to default.

**Justin:** I'll also say, by the way, if you got any kind of doctor's appointment or anything where people are gonna be in close proximity, don't— try to avoid using colognes or perfumes. They—

**Sydnee:** Mm.

**Justin:** A lot of people have pretty strong reactions to. I know I have one my dermatologist office always tells me specifically not to, 'cause my dermatologist has a real strong reaction to perfumes and stuff.

**Sydnee:** It— And I think another thing to know is that... Oh man, this is gonna be such a gross thing to say, but I'm just gonna be honest with you. One, if you have... body odor, or if, you know, if you're not wearing some sort of thing you normally wear and you're concerned about your smell.

**Justin:** We're—

**Sydnee:** I'm not noticing, let me tell you that for one. When I am assessing a patient, I am never thinking about that, I'm never thinking about if they smell good or bad.

**Justin:** Mm-hmm.

**Sydnee:** Now, if you do wear a very strong perfume or cologne, I might start sneezing 'cause I have a lot of allergic reaction to that, my eyes might start burning. But other than that, I'm not thinking about it.

And two, sometimes, especially I deal with a lot of infectious conditions, the way it smells can be very [chuckles] helpful to me, diagnostically. So... It's— It— Just let it smell bad. And let me know— Let me smell that, and then I might— it might help me in my diagnostic quest. [chuckles]

**Justin:** And you know that is so important, I think for all of our relationships.

**Sydnee:** [laughs]

**Justin:** Like if you have someone that you care about and you want 'em to know where you're at, you gotta just smell bad, and let 'em smell that you smell bad. And then they can help. They can't help you if they don't know you smell bad.

**Sydnee:** I don't like the word "bad" in this context. The—

**Justin:** But we all know what it means.

**Sydnee:** There are a variety of different smells, and there are smells that like...

**Justin:** Yeah.

**Sydnee:** I don't— There are cert— Oh gosh. I'm gonna get so gross here. I— Okay, there are certain wound infections that I don't think smell bad, because when I smell it, I go "Oh, I know what that is."

Like I recognize that smell, and then I get excited because I know exactly how I'm gonna be able to help this person and treat them, and they're gonna get better.

And I can target therapy just based on a smell, which makes me feel like I'm connected to this like— this tradition of healing that goes deeper than any healthcare system I could participate in. I don't know.

**Justin:** Alright.

**Sydnee:** So for me it is not a bad smell.

**Justin:** You're—

**Sydnee:** It is the smell of relief and success and healing. [laughs]

**Justin:** I feel so lucky to be married to you. And I don't— I'm— I feel so blessed to be in your life.

**Sydnee:** This is all true.

**Justin:** I know.

**Sydnee:** If you were worried you're stinky—

**Justin:** And so is mine.

**Sydnee:** — you can come see me, 'cause I will not think it. I will not judge you.

**Justin:** Thank you so much for listening to our podcast and thank you for your wonderful, incredible questions. Thank you for sharing [chuckles] them with us.

**Sydnee:** [chuckles]

**Justin:** Thank you to the Taxpayers for the use of their song "Medicines" as the intro and outro of our program, and thanks to you for listening.

[theme music fades in]

**Justin:** We really appreciate it. That's gonna do it for this week. 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 plays]

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