

Sawbones 268: Broken Heart Syndrome

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

[theme music plays]

Justin: Hello, everybody, and welcome to Sawbones: a Marital Tour of Misguided Medicine. I'm your co-host, Justin McElroy!

Sydnee: And I'm Sydnee McElroy!

Justin: And this is, Syd, I think it's fair to say, a very special episode of The Bones.

Sydnee: The Bones, no!

Justin: I've been thinkin' about callin' it The Bones.

Sydnee: No, I don't... hmm. No.

Justin: Not good? Not lovin' it?

Sydnee: No. Don't like that.

Justin: [McDonald's jingle] You're lukewarm on it!

Sydnee: Mm-hmm. Just Sawbones. I mean, like, you're not—you realize you're not like, losing any syllables.

Justin: Saving any syllables.

Sydnee: Yeah, by saying "The Bones." It's Sawbones.

Justin: Uh, it's Max Fun Drive! It is the 2019 Max Fun Drive, the time that we come to you once a year and say "Hey, if you've enjoyed what you've heard in our show, please consider supporting it financially!"

Sydnee: Yes! Become a member of our Maximum Fun family, with a monthly donation to our, uh... to our show.

Justin: It's, uh—

Sydnee: All of our shows.

Justin: Your donations—

Sydnee: Collectively, all the shows that you enjoy.

Justin: Uh, your donations over the years, in addition to feeding and clothing us and putting a roof over our heads, have also allowed us—uh, allowed Syd to spend more time on the show. They allow us to improve our equipment and help us pay for hosting and music and all that good stuff.

Sydnee: Which has allowed us to do other things that we hope, if you're listeners of the show, you also enjoy, like write our book.

Justin: Yes! Absolutely.

Sydnee: Uh, and tour more. Do more live shows. Go out there and... 'cause I'm not at work.

Justin: We'll talk more about it in the middle of the show, but the real quick pitch is this: there's donation levels from \$5 a month all the way up to \$200 a month, if you're an eccentric billionaire that loves to toss around their cash on podcasts, we appreciate that.

Uh, if you go to Maximumfun.org/donate, I just wanna tell you real quick about a couple of membership levels. At \$5 a month, you're going to get hundreds of hours. Over 225 hours, I think, of bonus content from all of the Max Fun shows, from all the years. The whole archive will be open to you.

At \$10 a month, there is a... you get to choose a pin, in addition to all the bonus content. \$10 a month you get a pin, and the one from Sawbones is super cool. It

says "Pro-vax" on it. It looks awesome. It was designed by Megan Lynn Kott. You can pick your favorite, but you should probably pick that one.

Sydnee: It's the best.

Justin: It's the best.

Sydnee: I'm sorry.

Justin: Sorry, folks. It's the best.

Sydnee: It's the best.

Justin: Uh, and your donation goes directly to the shows that you listen to. About 75% of it goes directly to creators who... you say you listen to their shows, you choose the shows you like, and that's who gets the money. So—

Sydnee: So please choose our show, if you're listening!

Justin: Yes, please!

Sydnee: 'Cause you're a listener.

Justin: 'Cause you're a listener! If you're listening to this, you're a listener!

Sydnee: Yeah! By default, you're a listener.

Justin: Maximumfun.org/donate. And now, on with the show!

Sydnee: So, this is a joint effort this week.

Justin: Yes! It's a crossover event.

Sydnee: It is! Uh—

Justin: Not like Armchair Expert and Goop, Dax Shepard. Very disappointed in you, Dax.

Sydnee: What?

Justin: Yes. Dax did a crossover episode with Goop! I just saw it on iTunes!

Sydnee: Oh, no...

Justin: Such a disappointment, Dax!

Sydnee: That... I love Dax!

Justin: Such a disappointment, Dax.

Sydnee: Why?

Justin: I'm very disappointed in you, Dax.

Sydnee: No! Don't—

Justin: Very disappointed. Don't elevate anti-science loons. Anyway.

Sydnee: No. Also, if you work for Delta... [laughs]

Justin: If you work for Delta, you have the Goop podcasts.

Sydnee: Yeah, you have a selection of podcasts that people can listen to, and some are quite good. Like, Doctor Death is on there. Some are quite good, but then also Goop is on there.

Justin: Come on, Delta.

Sydnee: Why are you spreading that misinformation, that anti-science junk, on your planes?

Justin: This is a cross—we're so bad at pledge drive episodes. We just get angry and start complaining about anti-science people. Anyway. Anyway, this is a crossover episode with Shmanners.

Sydnee: Yes.

Justin: A podcast about etiquette, created by Teresa McElroy and her husband... Trevor something.

Sydnee: [laughs]

Justin: Um, and, uh, we are talking this week about heartbreak. Why? Well, if you listen to our show and don't donate, it breaks our heart.

Sydnee: Is that your—

Justin: That's my thing.

Sydnee: That's your thing?

Justin: That's what I'm going with.

Sydnee: Also, Travis texted us and said, "Hey! This is what we wanna do!" And I said, "Ah, that would be a good episode of Sawbones, too! And good idea!"

Justin: And also it breaks our heart when you don't donate.

Sydnee: Also that.

Justin: Why won't you let me have my theme?

Sydnee: [quietly] Okay, sorry.

Justin: Let me have a theme.

Sydnee: You had a look on your face like, "I know this is dumb, but I'm gonna try to go with it."

Justin: I've never had that look on my face in my entire life.

Sydnee: Oh, that look is on your face like, 50% of the time we're recording.
[laughs]

Justin: Sydnee... unless I am confused, I don't think having a broken heart is a medical condition, right?

Sydnee: Well, actually, Justin, there is something called broken heart syndrome. I'm not gonna answer that question directly, 'cause like, your heart isn't... I don't know. Like, it didn't physi—like, it's not broken in half the way that we picture a broken heart.

Justin: Yeah. You could almost say that I was trying to open a door for you to introduce the topic and discuss it rather than correct specifically—

Sydnee: Did you see I put a quote from The Wizard of Oz in the notes? Because it's a crossover with Travis and Teresa, and Teresa loves The Wizard of Oz.

Justin: Aw, that's nice.

Sydnee: You can read it if you want.

Justin: I'm opening it as we speak.

Sydnee: Oh. You don't have the notes?

Justin: I was so mad about Dax.

Sydnee: That's where your pledge break is.

Justin: I was so mad about Dax.

Sydnee: Hearts will never be made practical until they are made unbreakable.

Justin: Wizard of Oz. Yeah. Now, if enough force... first you have to freeze it, a heart, like Sub-Zero.

Sydnee: [laughs]

Justin: And then, one punch I imagine can shatter a heart, uh, once you're in that state. Is that what we're discussing today?

Sydnee: No, that is not what we're discussing. You've heard the phrase that someone died of a broken heart.

Justin: Yes.

Sydnee: And most of the time, that's more of like, a euphemistic kind of thing. Like, they didn't literally have some sort of cardiac event that led to their death. But, but, could you? Could you conceivably die of a broken heart? Science says "Yes," and we're gonna talk about that.

Justin: Okay!

Sydnee: Now, before I get into what the actual cardiac syndrome that is sometimes colloquially—colloquilly—

Justin: Cl—clololo—

Sydnee: I hate saying that word!

Justin: Yeah, it's a hard one. Collo—

Sydnee: It's a hard one. [laughs]

Justin: [indistinctly] Colloquial...

Sydnee: [laughing] I have a problem saying colloquially!

Justin: You sound like Dr. Zoidberg. [Dr. Zoidberg impression] "Colloquially."

Sydnee: [laughs] Anyway, the, um—in layman's terms, it's sometimes—

Justin: [Dr. Zoidberg impression] "In lay man's terms—"

Sydnee: —called broken heart syndrome. Before we get into that, uh, we've had ancient remedies, a lot of them, like, herbal or folk remedies for a broken heart. Things that you supposedly could do to get—to help you get through a broken heart, which I think is interesting that we tried to come up with substances to—I mean, that just—

Justin: Well, you know, it can feel like a ph—like, any kind of intense emotional thing, like, that can feel physical, right?

Sydnee: Mm-hmm. That's true.

Justin: Like, I could see how you would think that it would be—you know, you get the pit of your stomach ache and the, you know, [laughing] the feeling like crap all over your body, flu-like, uh—

Sydnee: Yeah, but—

Justin: —lethargy.

Sydnee: But these remedies are aimed specifically at getting through the broken heart. So I mean, like, it's with a knowledge that it's not necessarily physical in origin. That it is an emotional thing. Um, which I guess maybe they are sort of overtures, like, old, without knowing, overtures at trying to help with maybe mental illness, or maybe just what we would call more like a grief reaction, that kind of thing.

And some of that can be like, a normal grief reaction. It's not necessarily pathologic. If something bad happens, you should feel sad and cry. That's normal. Um, but anyway, some of these have been—like, balm of Gilead buds are popular.

Justin: Sounds romantic.

Sydnee: You hold them close to your heart. You can put 'em under your pillow. I don't know what that would do, but it sounds—I mean, it does, maybe like a Dumbo and feather kind of thing

Justin: Yeah, sure.

Sydnee: Uh, you could carry around some dried Amaranth. That's been known. One of my favorite was, uh, drink a wine glass of tomato juice three times a day.

Justin: I mean, it sounds healthy. [wheezes]

Sydnee: Not for me! Like, the reflux from that...

Justin: Yeah, that would give you, uh—take you from broken heart to heartburn.

Sydnee: Hey, there you go.

Justin: That's not helping anything.

Sydnee: Proud of that one?

Justin: Um, I'm 50/50, honestly.

Sydnee: There are some herbs, like, cyclamen was one I found that will like—

Justin: Cyclamen, notorious Dr. Who enemy, the cyclamen.

Sydnee: [laughs] That will both heal your broken heart and protect you from evil.

Justin: [laughs] There you go!

Sydnee: So there you go.

Justin: Works on the Cyclamen.

Sydnee: Knotweed. Hold knotweed—

Justin: No, pass!

Sydnee: —in the hand—

Justin: Anything that's not weed? No way! [laughs]

Sydnee: [laughs]

Justin: If it is not weed—[wheezes]

Sydnee: ku-notweed.

Justin: Okay. ku-notweed.

Sydnee: Like knuffle bunny.

Justin: Knuff—[laughs]

Sydnee: Ku-notweed. Um, so you hold it in the hand you write with, and it absorbs all your pain. You have to imagine that, though. You have to imagine that your—

Justin: A lot of most effective medical cures require imagination.

Sydnee: [laughs]

Justin: Imagining them working.

Sydnee: Uh, and then this was my favorite. Pomegranate. Cut a pomegranate in half, write your first name on a piece of clean, white paper, fold it, place it between the two halves, tie it back together, and bury it.

Justin: Kinda like a cootie catcher. [wheezes] Same principle.

Sydnee: That is not how a cootie catcher works.

Justin: [quietly] I know it's not! It's—it was literary! I took a literary license.

Sydnee: Yeah. Um, and I mean, if any of these sort of like, rituals make you feel better, I don't find—other than the like, drinking tomato juice. They're not intrinsically harmful, I suppose.

Justin: Mm-hmm.

Sydnee: Um, sometimes some sort of like, ceremonial letting go of emotions is important.

Justin: It—we're in weird territory, right? Because normally we wouldn't be giving this much of a pass to like, stuff that like, just doesn't work. But we're in like... right now we're actually talking about an emotional state, right?

Sydnee: This isn't—I mean, this is the crossover. Like, for a long time a broken heart is just—I mean, it's just that, right? It's an emotional thing that happened. It's not a medical condition of any stripe, necessarily. I mean, a lot of people go through heartbreak and don't necessarily need any sort of medical help.

I'm not gonna say that it's impossible you would, but most of the time you don't. And so, these are just sort of like... I don't know. I mean, it's like—they're ancient equivalents to "Eat some ice cream and hang out with your friends," right? Like, it's the same idea.

Justin: Right.

Sydnee: They're just—

Justin: It's just if you don't have friends but you do have a lot of tomatoes—

Sydnee: And you don't have ice cream, I guess.

Justin: Yeah.

Sydnee: I found a broken heart tea recipe.

Justin: Delicious!

Sydnee: Yeah, I liked that idea. "Here's some tea that will fix your broken heart." It has rose hips and basil and burdock root—

Justin: Holy basil, says here.

Sydnee: Mm-hmm. And then something that I assume they sell. I'm not gonna give 'em any—it's another—

Justin: No, no plug.

Sydnee: —it's some sort of—yeah, I'm not gonna give 'em a plug. Some sort of herbal additive that they sell, and then some sugar.

Justin: Mm—the recipe doesn't say sugar. It says "Raw sugar or raw honey," so that kind of tells you what kind of recipe we're talking about here.

Sydnee: So there's some tea that will—and here's the thing. I think that if we're talking about the emotional thing, whatever, as long as it's not harmful and you're not losing any money on it, I mean...

Justin: Go for it. Whatever makes you feel better.

Sydnee: Get a pomegranate, [crosstalk]—

Justin: There are—

Sydnee: I would—I would advocate, though, if you're gonna buy a pomegranate, like, eat it. They're expensive!

Justin: Yeah.

Sydnee: They're not cheap!

Justin: The tea thing sound like it could help. Man, just like, sitting with a cup of tea.

Sydnee: Yeah!

Justin: Just like, enjoying some tea. That sounds like it could actually be very useful for a broken heart.

Sydnee: Sure. Whatever tea.

Justin: A metaphorical broken heart.

Sydnee: A metaphorical.

Justin: Not Sub-Zero shattered broken heart. There's very little that can be done for that.

Sydnee: But can you actually get sick from a broken heart? Can you actually have a medical condition that is called a broken heart? Yes.

Justin: Why are you asking me—oh, thank you for answering. Before you waited for me to answer.

Sydnee: Yes, it was rhetorical.

Justin: Yes, I figured. [laughs]

Sydnee: Uh, this is not an old diagnosis.

Justin: Hm!

Sydnee: No. Most of the things we talk about on the show are very ancient, uh, but—and certainly this could've been happening for hundreds of years—

Justin: One would assume it was, right?

Sydnee: Right, but we didn't know.

Justin: Especially since people back in the olden days beefed it constantly. It was probably happening even more.

Sydnee: But we didn't know that it was a distinct entity until the 90s. In 1991 there was a paper published in Japan. There were some researchers who detailed

what was called Takotsubo's cardiomyopathy. So basically, someone will have some sort of extreme, emotional, stressful event. Something will happen to them or around them, and as a result—or some physical stress. It doesn't have to be emotional. It could be physical stress, but emotional is what I think captured the public's imagination.

Because it could also be a physical stress, something like a severe sepsis. You got a really bad infection, and so now your heart is under a physical stress. You know what I mean?

Justin: There's nothing romantic about that notion.

Sydnee: No. Like, I mean, I don't think it's a big leap to think if you're very sick, it could tax your heart more. I think that's kind of obvious. Or like a trauma, like a physical trauma, that kind of thing.

But emotional trauma was a little more interesting, and patients would come to the emergency room and it would sound like they were having a heart attack. They were presenting with the symptoms of a heart attack. "I'm having chest pain. I'm having shortness of breath. I feel dizzy. I feel nauseous. I'm sweaty."

Just the usual stuff that when we hear we go, "Uh-oh! Could be a heart attack, let's do the heart attack stuff. The things we do, the labs we do, the tests we do. Let's figure out if this is a heart attack."

And they will have... somebody asked us this recently, what's the difference between symptoms and signs. Symptoms are things that you, the patient, tell me. Like, "I'm dizzy, I'm sweaty." You now, that kind of thing, although sweating could be a sign, too.

Signs are things I observe. So like, you're not gonna tell me that you're tachycardic.

Justin: Right. You would observe that.

Sydnee: I would observe that.

Justin: Huh!

Sydnee: But you're gonna tell me that you have chest pain. That's a symptom.

Justin: I didn't realize there was a delineation.

Sydnee: So anyway, we would also find diagnostic indications that a patient could be having a heart attack. So, for instance, we do an EKG, electrical tracing of their heart, and find some changes on it that look like a heart attack. We check for something called cardiac enzymes. Usually now it's just something called troponin, which is like, something that is in your heart muscle, and if your heart muscle's being damaged it will get released into your bloodstream.

We shouldn't find a lot of it in your bloodstream. If we do, we know there is some heart muscle damage going on, so we'll test your blood for that and we'll find it, and it all looks like a heart attack, right?

Justin: Mm-hmm.

Sydnee: So they found these patients that presented just like a heart attack, but the difference is that when they did the stuff to figure out like, "Oh, where's the blockage?"

'Cause that usually we think is happening, right? One of the arteries that feed blood into the heart is blocked off. That's a heart attack, 'cause the heart muscle is then being damaged. They would do a cath, cardiac catheterization, inject dye to look in the blood vessels and see where is the blockage, and they wouldn't find anything.

Justin: Hmm.

Sydnee: They wouldn't find any evidence of a blockage, and that was weird because it looked like they had one in all other, you know. And so then they started doing—

Justin: It's good they checked, though, before they started digging around in there.

Sydnee: Well, and that's key, and I'm gonna say this multiple times in the show, but that is a very key point about this. Even if you, at some point in your life, and hopefully you don't, experience what you think might be quote unquote "broken heart syndrome," it's still more likely that it's a heart attack, and you should go the ER and tell them immediately, and the ER doctor will do everything that they normally do for a heart attack, which is right and good, because most of the time it's not this.

Justin: So if you're thinking to yourself, "Go—well, my chest really hurts, and I have been really sad about the McRib going away—"

Sydnee: [laughs]

Justin: "—because I eat so many McRibs all the time constantly," it might actually still be a heart attack.

Sydnee: Yes. I would... [laughs] actually, the McRibs.

Justin: That was kind of my...

Sydnee: Uh-huh. I gotcha!

Justin: It worked on a couple different—

Sydnee: I followed.

Justin: Maximumfun.org/donate. [laughs] That's the kind of thing you can reward.

Sydnee: Uh, anyway, so they're gonna do all the stuff that they would do for a heart attack, which is good. That is what we should do. That is the protocol, because most of the time, it is.

But in these cases, they don't find a blockage, so then they started doing, in this particular report, they started doing echoes, echocardiograms on these patients, which is like an ultrasound of your heart. They put some jelly on your chest, and then they put a little ultrasound wand around and look at your heart while it's beating. They watch it. They watch it beat.

And what they found is that the hearts were doing—all these patients were doing—had a very similar appearance of their heart on the echo, and it was an unusual appearance. The left ventricle, which is the part of your heart, the bottom part of your heart that's very muscular and squeezes the blood out to your body, so it's gotta be a big, tough muscle, and it squeezes really hard and pumps the blood everywhere out your body, right?

Justin: Mm-hmm.

Sydnee: Very important. This part of the heart in these patients, the bottom of it was ballooning out in a strange fashion. It was not squeezing like a big, thick muscle should. It was like, floppy and weak and ballooning out.

And it was a very distinct appearance that they found in these hearts. So the heart wasn't squeezing like it was supposed to, and then you would get all those symptoms that we talked about.

Uh, and they started calling it Takotsubo's, because the appearance of the heart... this is where this name comes from. I thought this was a fascinating—

Justin: I assumed it was someone's name, so I'm on pins and needles.

Sydnee: It is not someone's name. It is based on the appearance of the ventricle. You'd almost have to look up a picture of this to—'cause I have never seen this thing. It is named for a Japanese octopus pot.

Justin: Okay.

Sydnee: It is a kind of pot—I guess it's like a trap that you can like, lower, and it looks—like, from the diagrams it looks like the octopus just swims into it. [laughs]

Justin: Got 'em.

Sydnee: And it's a pot. And anyway, it resembled this octopus pot, and so the name Takotsubo is "octopus pot."

Justin: Hm!

Sydnee: 'Cause that's the appearance of the heart on this imaging study on an echo. It looks like an octopus pot.

Justin: So how do they sort of get to the bottom of the whole disorder?

Sydnee: Well, I'm gonna tell about that, Justin.

Justin: Oh yes?

Sydnee: After our break.

Justin: Our break? Oh, that's right! There's no billing department this week!

Sydnee: There's no billing department this time.

Justin: We're just talking about the Maximum Fun Drive, Maximumfun.org/donate is where you can go. We have a goal this year of 25,000 new and upgrading members, and we are asking that if you enjoy the stuff that we make on the network, you will do your part.

As of this recording, uh, we are currently as a network sitting at 7,560 donors, so we need you. We are—

Sydnee: We're counting on you.

Justin: We're counting on you. We are not at pace to hit our goal, and it would really mean a lot to keep all our shows going, and it would really mean a lot for you to vote for the kind of content you would like to see in the world.

To tell you about some of the other gifts, 'cause that's what we're all really excited about, right? That's what we're all here for, Syd.

Sydnee: Yeah, I mean, becoming a member will give you that—every time you listen to the shows that you love, you'll get that warm fuzzy feeling that you helped make this. You are part of the reason this continues to exist in the world and that we're able to do it, and hopefully continue to do it better, and do more of the stuff you love. But there's also gifts.

Justin: There's also gifts. So we talked about the \$5 a month level. That's gonna get you the bonus content. For \$10 a month, you can get a pin of your choice plus the bonus content. If we do hit that 25,000, those pins will go on sale with profits going to charity, so you can get the other ones if you would like.

At \$20 a month, there is a 550 piece Maximum Fun puzzle specifically for our members. It's a lovely piece that details the view out of the Maximum Fun offices, and you also get the pin and the bonus content.

At \$35 a month, you get a mug engraved with the Max Fun rocket ship logo, and the puzzle, and the pins, and the bonus content. And then they go up from there. There's a \$50 level with an engraved membership card, \$100 a month you get the inner circle, which is the monthly culture club of Max Fun where Max Fun hosts will send you an item once a month that is important to them, that they

love. We've done it once, haven't we? What'd we send out to people? Was it The Apple? We sent The Apple out?

Sydnee: I think we did.

Justin: I don't remember. Sorry if so. I'm not sorry, it's a great film.

Sydnee: Yeah, no, it's wonderful.

Justin: And then \$200 a month you get a free registration to Max Fun Con 2020, but the important thing here is not that you give \$200 a month. You're probably not gonna do that. But if you can kick in 5, 10 bucks a month, those donations really add up. It may not seem like a lot to you—or maybe it does, I don't know your financial situation, but it really does—it really does start to stack up, and if you can see your way to donating 5 bucks a month for the content that you listen to here on Maximumfun.org, it really does help us out.

Sydnee: Yeah. And that—again, the majority of that money goes directly to the shows that you listen to. To us, the people who make the shows that you listen to, so we can continue to make them and make them better and get better equipment and do all those things that hopefully improve the content that feeds back to you. It's just a feedback loop, we would say.

Justin: We would say that.

Sydnee: In science. Uh, and I cannot stress enough. The bonus content that you can get—you get all of it, first of all. I don't know if we made that clear. You get all the bonus content that we've created—

Justin: For all the years.

Sydnee: For all the years.

Justin: Okay, for Sawbones, what do we have? There's, uh—

Sydnee: Well, this year we did a Ask Us Anything That's Not Medical episode.

Justin: Yes.

Sydnee: Uh, we've done an ASMR episode—

Justin: Yes, there's an ASMR episode. There was a commentary track for the series finale of Two and a Half Men, inexplicably.

Sydnee: Yes.

Justin: Uh, last year we did a tour of a pharmacy—

Sydnee: Oh, that's right.

Justin: —and talked about what medicines worked and didn't work.

Sydnee: I forgot, yeah.

Justin: And got mad about homeopathy. That was our bonus—

Sydnee: Yeah, yelled about homeopathy in the aisle of Walmart.

Justin: Yeah. Uh...

Sydnee: But you don't just get the bonus content from Sawbones.

Justin: No! You get—

Sydnee: You get the bonus content from all the shows?

Justin: You wanna hear Sydnee play Dungeons and Dragons with her sisters and her mom? You can do that! That was the Still Buffering bonus this year.

Sydnee: It was really fun.

Justin: It was really fun. Um, there's all kinds of great stuff. There's videos, there's all kinds of radical content. Um, so please—I wanna close by saying, um, thank you if you've donated previously. Thank you so much for donating for the network. It really—you support our family by doing that. Like, you help keep our family afloat and clothed and fed and like, I don't know what could mean more to me than that, and Syd I know feels the same way.

Sydnee: Yes. Thank you, thank you to all of our current members, to all of our new members, everybody upgrading their membership, and if you're not in a position right now where you can do that but you wanna share that information, tweet about it, talk about it, put it on Facebook, whatever—MySpace, Livejournal.

Justin: [snorts]

Sydnee: Whatever you use. [laughs]

Justin: Whatever.

Sydnee: Just tell a friend at work over the water cooler.

Justin: On Woof, you could Woof it.

Sydnee: You could—[laughs] That helps us out, too, so thank you.

Justin: Woofing doesn't, but the other ones are good.

Sydnee: Woofing doesn't, but the real ones, the actual real ones do. [laughs]

Justin: Maximumfun.org/donate is the address. Don't wait, 'cause you'll forget. Please, go right now, pledge \$5, \$10, \$20 a month, and help keep our shows going! Um, and we really appreciate it.

So. Sydnee, we were—I feel like we were about to investigate a little deeper.

Sydnee: Let's talk more about Takotsubo's cardiomyopathy, also called stress cardiomyopathy, also called apical ballooning syndrome or stress-induced cardiomyopathy. All of these are names that a lot of us in the medical world would use. I—

Justin: You guys don't like the drama?

Sydnee: No. We don't like the drama. What caught people's attention from this initial report, which was only 5 patients, it was a pretty small report, but what captured everyone's attention was the idea that emotional stress could cause these symptoms.

And so the name "broken heart syndrome" grew from this.

Justin: Now, let me ask you a question, Syd, and I don't mean to derail you, but it's Max Fun Drive, so we can take a little longer. Uh, what differentiates this phenomena from—like, we know that emotional stimuli can have an effect on like—well, like hypertension for example, right?

Sydnee: Mm-hmm.

Justin: Can be affected by your emotional state, right? So why is it surprising that an emotional state like heartbreak would have a physical effect, since there are other emotional states that can have physical effects?

Sydnee: The acuity was the thing that surprised people, because what we tend to think about is that a high stress, like an emotional state, a high stress emotional state, long term is not good for you. Like, in a chronic sense is not good for you.

But the idea that an acute emotional event would lead to something that looked like an acute cardiac event like a heart attack—

Justin: Like the idea of being scared to death, right?

Sydnee: Exactly. It's the—

Justin: Like, that that could happen.

Sydnee: It's the all at once thing, I think. That was really the surprising part. The idea that chronic stress causes chronic illness—I mean, this is not new. Like, we've investigated this for a long time.

But there was never a belief before this that you could all at once become so sad or angry or overwhelmed or stressed or scared or frustrated or whatever, that you could actually have a heart attack and maybe actually die. Not—not usually, certainly, but possibly.

Um, so there's been a lot of research done since those initial findings in '91, where we've tried to figure out like, how prevalent is this? Has this been happening for a long time? Are a lot of heart attacks, or what looks like heart attacks, really from this?

Initially the research suggested it was about 1%. There are some other studies who've argued that it might be a little higher, 2%, as high as 5, but most agree that it's probably a 1 or 2% of acute heart attacks are actually this. So not 1% of people, 1% of people who come and it looks like they have a heart attack are actually presenting with this Takotsubo's or broken heart syndrome.

Um, we also know a lot more about who is at risk for this. It turns out, depending on which series you look at, 80 to 90% of patients are women.

Justin: Hm!

Sydnee: So in some of the studies it was 100% a female problem. Um, and then the average age is somewhere between 61 and 76, so it seems to be the most likely to have this issue are older women. But it could be men, certainly, and it could be younger.

It was initially thought that it's always transient, meaning that you have these symptoms, your EKG looks like this, your echo looks like this, we find these things in your bloodstream and you get really sick, and then you get better, and then your heart goes back to normal, and then it pumps just fine.

That was our initial thought, is that it's kind of interesting in that you can have a broken heart and then it gets better and you're fine. And it seems that that is still usually the case.

However, what we have learned in—I mean, there are numerous studies that have been done on this phenomenon since then. I think in part because it's very interesting. It's captured a lot of imaginations.

Um, and then also because we don't understand it well yet, and so we gotta keep studying it til we know it better.

Justin: Sure.

Sydnee: But, uh, there are cases that have led to complications, severe complications, and then recurrence. We've seen it come back again later, so to speak. In some rare patients, it has resulted in death. There have been patients that go into cardiogenic shock. Basically, their heart just cannot pump, um, which is bad. Um, or have some sort of arrhythmia, some sort of abnormal heart rhythm that can result in death.

So while yes, it is possible that somebody can die of broken heart syndrome, so guess in... in... [snorts] your parlance, die of a broken heart.

Justin: Wow, that pained you!

Sydnee: Uh-huh. [laughs] Well, I don't wanna make it sound more sensational than it is! Most of the time, Takotsubo's cardiomyopathy is something that can get better. There's been some argument with what we should do long term for this. Like, do these patients need to be treated like a heart failure patient would? 'Cause somebody who's been diagnosed with heart failure we put on certain medications and they have to take them forever.

Some of the evidence has said yes, some of the evidence is still... maybe? We're not sure yet. Maybe not harmful, but we don't know if it helps.

Uh, we know that patients who, as a result of this, get clots and things should be treated with blood thinners, but the management is still very questionable, and in part it's because we don't know why. Why does it happen?

Justin: I dunno.

Sydnee: We still don't completely understand that. There's definitely what we would call sympathetic activation. Your sympathetic nervous system, which is responsible for the fight or flight response, definitely that's happening, right? You've been hit with some sort of intense emotion, and your body... I mean, it's the stuff that you would feel, like your heart speeds up and you breathe faster and you feel sweaty and anxious and like you need to run somewhere or punch somebody. All that stuff that happens.

And so we know that that's part of it, but like, there've been other studies that have said, maybe it's not just circulating stress hormones. Maybe it has something to do with inflammation. Um, there was one—there were some patients that looked like they were having multiple vessel spasms, meaning like, the coronary arteries, the arteries to your heart weren't blocked, but they were squeezing, like a muscle spasm. They were spasming shut temporarily, and then opening up.

Justin: Hm!

Sydnee: But multiple vessels, which is weird. So, there've been a lot of different, uh, studies to look at why, and nobody is 100% sure that we have a blanket reason for all cases yet.

Justin: Okay.

Sydnee: Um, there've been a lot of different sources of stress blamed, and it's mostly negative. I thought this was very interesting. Most of the cases where this happened, it was something negative that happened, like a—a lot of people either got bad news, like the death of a loved one is a very common event, precipitating event. But then there was one that said like, an earthquake happened and there were a lot of cases of this after, following this earthquake, so like a natural disaster. Something like that, that seems very obvious.

In rare cases, it seems that a happy event actually precipitated the Takotsubo's.

Justin: Really?

Sydnee: Yes. So, they have found—in 2016, the European Heart Journal published a study called "Happy Heart Syndrome: role of positive emotional stress and Takotsubo syndrome."

And basically their argument is, they went back and looked at tons of patients who presented with Takotsubo's cardiomyopathy. They narrowed it down to just the 485 that had, like, definable emotional triggers. Like, based on their record they could say, "This happened, and then these symptoms happened." They could name it.

And of those, 20 actually cited a positive event. Something happened to them that was a good thing. So then I had to know. I have a list of things that happened. There were only 20 patients, so I had to look.

Justin: Yes, please.

Sydnee: So, here are some examples: a birthday party. A wedding.

Justin: Okay.

Sydnee: A wedding was on there a couple times. Um, meeting friends from high school 50 years later. Wedding anniversaries, positive job interviews—

Justin: [laughs] Oh my God!

Sydnee: —favorite driver won a race car competition—

Justin: Sydnee! So you're—you're trying to freak people out about being too happy?!

Sydnee: I'm not trying to freak 'em out! I just thought this was very interesting!

Justin: What are you doin'?

Sydnee: Surprise parties are on here. A lot of birthday parties.

Justin: So you're saying we want the drive to go good, but not too good.

Sydnee: Celebration of normal PET CT scan.

Justin: Oh my God, Sydnee!

Sydnee: Uh, visiting with your grandchildren. Your favorite rugby team won.

Justin: [laughs]

Sydnee: Anyway, so there were these—[laughs]

Justin: [laughs]

Sydnee: These events that were—that are pleasant, happy events—

Justin: [strained and high pitched voice] Yeah, they just gave—they just broke people—they ruined their hearts!

Sydnee: But they came in with...

Justin: [wheezes]

Sydnee: Yes, with stress-induced cardiomyopathy.

Justin: [strained and high pitched voice] Sydnee... what have you done?

Sydnee: I'm sorry! It's just—it's not me, science said it. It's just true!

Justin: Keep it—she—the—

Sydnee: It's just the human body. Any—this makes it—we've always kind of thought that positive emotions—like, we have all these studies that say like, a positive outlook is associated with longer life and decreased mortality. Like, we

have some evidence that being happy and having good things, like, is associated with good health outcomes. But then this sort of made sense, because the authors of the study pointed out that there is something that we can use to rate stressful life events. Did you know there was a scale of stressful life events?

Justin: I did know this, actually, but just because I've had to do that for like, therapy and stuff before.

Sydnee: And so they have the—

Justin: Moving is very—changing jobs, death of a loved one, stuff like that. It's all very...

Sydnee: In 1967, two researchers went through tons of records. Thomas Holmes and Richard Rahe, and found that there was a correlation between negative health outcomes and very stressful life events. They came up with a list of the most stressful life events and like, gave them each a score, and then you could add up your score. "Did any of these happen to you in the last year? Add up your score." And if it was so high, they could predict that you're probably gonna end up in the hospital in the next year with some sort of medical problem, right?

Justin: Right.

Sydnee: The Social Readjustment Rating Scale. It's interesting, if you wanna check it out. It's an interesting thing to look at.

But, among the most stressful events that can occur to you are—number 10 on the list is retirement, which is not—I mean, like it—

Justin: Seems like it should be—

Sydnee: —seems like it should be—overall, I know there are negatives, but overall a good thing. And number 7 is actually a mar—like, your marriage. Which...

Justin: Like, marriage.

Sydnee: Marriage. Getting married is the number 7 most stressful life event. Um, and if you go further down the list you'll still find positive events, like vacation is on the list of a stressful life event.

Justin: Oh my Go—well, it can be stressful, I guess, preparing for that.

Sydnee: Christmas coming soon was a stressful life event, and outstanding personal achievement—

Justin: Oh, good.

Sydnee: —was a stressful life event.

Justin: Great!

Sydnee: So if you think about it, it makes sense that if stress causes illness, and good stress causes illness, that a really intense good thing might lead to Takotsubo's cardiomyopathy.

Justin: So everybody should just be shooting for like, the blandest life possible, right? Milquetoast.

Sydnee: No.

Justin: Nothing too good, nothing too bad, right down the middle.

Sydnee: There's still—so, how... I don't have—and I don't think any researcher at this point could give you an idea of like, how happy or how sad you can be before this happens. I don't think anybody could give you that, or to know... I mean, like I said, we know some risk. Um, like, there seems to be a gender discrepancy and an age discrepancy in terms of who's at risk. Obviously you would think people with prior cardiac problems are more at risk for this. It's not always necessarily true.

Justin: It could be anyone... at any time.

Sydnee: [laughs quietly]

Justin: Happy or sad.

Sydnee: It's extremely rare.

Justin: That's something.

Sydnee: It's extremely rare, yes. Uh, but I guess in the poetic sense, is it possible to die of a broken heart? Apparently, it is. It's extremely rare and unlikely.

Justin: Or getting—again, I just wanna clarify in case somebody missed the context. Possible to die of a broken heart, or from getting mildly happy about your pet's CT scan.

Sydnee: It... yes?

Justin: Or rugby team wining, or your favorite—Dick Trickle crosses the line first—

Sydnee: When I said PET—

Justin: —and I'm dying 'cause I'm so happy. I died 'cause I'm so happy about Dick Trickle winning the NASCAR race.

Sydnee: [laughing] I wanna clarify something. When I said PET CT scan, a P-E-T PET scan is a sort of—it's not your pet. Not like an animal.

Justin: Okay! All right, fair.

Sydnee: Sorry. I just wanted to clarify.

Justin: That was, I'm certain, confusing to literally everyone listening except the five medical nerds.

Sydnee: There's a CT scan, there's a PET scan. This was a PET CT combo. Anyway, this is a specific kind of scan, imaging study.

Justin: [loudly] But I'm right about Dick Trickle—

Sydnee: Yes, that one you're right.

Justin: —winning a race and it killing me 'cause I'm so thrilled.

Sydnee: Well, I don't know that it was Dick Trickle, but, you know. Again, even if you have this—

Justin: If I'm gonna name a specific NASCAR driver, it's always gonna be Dick Trickle, 100% of the time.

Sydnee: And again, even if you have this, it's very unlikely that you would die.

Justin: Good. Well, that's something. Good job, Sydnee. Good.

Sydnee: Uh, here would be my practical advice to you. It would be that if you have chest pain, go to the hospital immediately.

Justin: Sure. Easy.

Sydnee: Yeah. I mean, that would be the practical advice. And in the meantime, I did find that some scientists have researched how to cure a broken heart, an emotionally broken heart, like in the euphemistic broken heart—

Justin: Okay.

Sydnee: I found a study where they were trying to figure out, uh, if somebody is experiencing very negative emotions as a result of heartbreak, as a result of like, a lost relationship—some of it was like, grieving a lost loved one, but a lot of it had to do with like, a breakup.

Um, what could you do? Is there a medicine for that?

Justin: Is there?

Sydnee: Well, so they did the studies on prairie voles, who were described in the article as being famously monogamous, which I feel—I feel very bad that I didn't know that prairie voles were famously monogamous, 'cause that seems like... like, I don't know what celebrities are dating who, or the YouTubers, but I feel like I should've known that prairie voles were famously monogamous.

Justin: Well, if they're famously monogamous, one would assume that we would know about this.

Sydnee: Prairie voles are famously monogamous, and what they did is they found that... 'cause they mate forever. They find a partner and they are with them until one of them dies, and then they grieve the death of the partner vole.

Justin: Okay.

Sydnee: And so they were able to make the voles drop their lifelong partner...

Justin: Okay?

Sydnee: And start kind of playing the field and dating other voles by blocking either dopamine or oxytocin chemicals in their brain. So they were able to use medications to block these hormones, and they kind of severed these lifelong attachments.

Justin: We are very pro-science here on Sawbones, but Sydnee, if I could just take a minute to interrupt your glee? Y'all are wild! These happy rats are just scootin' around together in their little tiny rocking chairs, and you're like, "I bet we could break 'em up with science!"

And another one's like, "Yes! Do it! Oh my God, it's the best idea I've heard all day! Let's break 'em up with science!"

Sydnee: Now, it's temporary, though, 'cause once you stop the medicine then it comes back.

Justin: Okay, it's temporary. Well, let's hope they don't have any trouble finding each other, 'cause they're little voles! They probably live for like, a week. Y'all are wild.

Sydnee: They also found that they could block another hormone, corticotropine releasing factor. The important thing is that they were able to stop grief in a vole who had lost its mate.

Justin: Because they broke it up with chemicals and it ran into a lawnmower.

Sydnee: No, this was in the case of like, the death of a mate. They were able to stop the grief that they felt. Like, in a sen—and the question was, could this be a cure for unrequited love, or for heartbreak?

Now, all the scientists who did this said, "We are not proposing we do any of this. It was more of a theoretical—"

Justin: "We had a weekend to kill, and a bunch of rats to break up."

Sydnee: [laughs] "What are the hormones responsible for lust, love, attachment, you know, heartbreak? Is there a way to—" I mean, it was more of a hypothetical thing, because you don't want to tamper too much with a lot of these, um—

Justin: Vole relationships.

Sydnee: Well, yeah, and also like, they made the point that if you tamper too much with oxytocin you might prevent somebody from forming any relationships.

Justin: They'd get—yeah.

Sydnee: I don't know. It all—it was a little *Eternal Sunshine of the Spotless Mind* for me.

Justin: Yeah, just a touch.

Sydnee: Yeah. And the scientists agreed with that, so nobody is proposing any of this, but I thought it was a very interesting effort to try to cure a broken heart. Right now, I don't think there is a better cure than time, exercise, drink a lot of water, get plenty of sleep. Spend time with the people you love, and get—get hugs.

Um, physical contact with other humans, like a nice pat on the back or handshake or hug, was found to be helpful in helping somebody heal from a heartbreak kind of thing. Um, and take care of yourself, and get back out there when you're ready. I mean, I think that still holds true as the best advice.

Justin: You know, one thing that I've always read is really good is, um, donating money to—

Sydnee: [laughs]

Justin: —organizations that you care about, uh, for getting over a broken heart. And what better organization than scientists: breaking up voles since the beginning of time. Just kidding. The Maximum Fun Network is the only—

Sydnee: Don't donate to the scientists. [laughs]

Justin: Don't donate to scientists, the—

Sydnee: Donate to this scientist!

Justin: Scientists of—this one specific scientist, who has never broken up voles in her entire life.

Sydnee: I've never done this. I wouldn't.

Justin: Uh, Maximumfun.org/donate is the address. This drive is only going for—this is the end of week one. Like I said, we're behind where we would like to be, and you could be the hero that turns that around for us. Um, please tweet at us with the Max Fun Drive hashtag if you're a new or upgrading donor, so somebody can thank you personally.

The, uh—I should've mentioned, those gifts are for new or upgrading donors. If you're currently a \$5 donor and you want the pins or the bonus content—well, the bonus content you have regardless. But if you want the pins, you gotta upgrade to \$10. If you're at \$10 and you want the pins, you gotta upgrade to \$20 so you get the puzzle and the pins and everything. That's just our way of thanking people who are increasing their goals and increasing their donations, and it really does mean so much to us.

Sydnee: And it is... uh, some people have asked, does a one time donation count, or does it have to be a recurring monthly donation, and it do—please join us and be a member, and a recurring donation is what we are asking for in order for you to get those cool, cool presents.

Justin: Cool presents. Cool network that really needs your help. Um, and it would just mean so much to us, so please, please, please. If you're a Sawbones listener and you've enjoyed the stuff that we've made, you know, you spend... you know, 13, 15 bucks a month on Netflix, whatever it is now, or Hulu, or magazines, or... probably not magazines, 'cause I mean, it's 2019, but you know. You spend money on other stuff. If you could spend money on our show, um, we would just really appreciate it.

Sydnee: We would really appreciate it, and we would also really appreciate that if you ever have chest pain, please go directly to a hospital.

Justin: [snorts] Great, perfect.

Sydnee: [laughs]

Justin: That is gonna do it for us for this week. Thanks to The Taxpayers for the use of their song Medicines as the intro and outro of our program, and thanks to you for listening! You're the tops, so. Uh, until next week, 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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