Sawbones 236: Ozone

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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 cohost, Justin McElroy!

Sydnee: And I'm Sydnee McElroy.

Justin: Sydnee, welcome to the program.

Sydnee: Thank you, Justin. That was… polite of you, I suppose.

Justin: Um… I have an embarrassing admission to make to you. I realized this week that I myself have participated in, uh, an alternative medicine that does not have, I think, a huge grounding in reality.

Sydnee: This does not surprise me, but please continue.

Justin: I went to an oxygen bar. They used to have an oxygen bar in the Huntington arcade—

Sydnee: Mm-hmm?

Justin: —and I was covering it for a story, but I went and, like, checked it out. And they actually had one, if memory serves, in the mall? They had, like, a bunch of different scented oxygens; like, pure oxygen. You could just, like—

Sydnee: You could just—

Justin: —check out.

Sydnee: —inhale it?

Justin: Yeah, Sydnee. Like you do with oxygen. What are you gonna do, *eat* it?

Sydnee: Well, we—we're not usually inhaling pure oxygen.

Justin: Yeah. This is, like, the good stuff.

Sydnee: Right. Well, you—

Justin: Pure O2.

Sydnee: —you don't want too much. There's a limit.

Justin: When you said you were gonna do ozone therapy this week, I got really embarrassed—like, and nervous. 'Cause I—I didn't want to be caught in your proverbial crosshairs.

Sydnee: Well, Justin… [snorts quietly] This is—you're gonna think this is nerdy, but this is the show. Uh, ozone is actually different than oxygen. They're two different things, because oxygen—the form that we usually are—you know, have delivered—like, let's say that you're someone who needs oxygen therapy… for real, not… at a bar at the mall. But, like, for real.

Justin: Yeah.

Sydnee: Um, it's O2, two atoms of oxygen, right?

Justin: Got it.

Sydnee: Uh, ozone is O3.

Justin: Okay.

Sydnee: So, three oxygen atoms together.

Justin: Three oxygens.

Sydnee: You would think it wouldn't make a big difference, but if you—

Justin: It's just more oxygen!

Sydnee: Right. If you know anything about chemistry, then you know it *really* does.

Justin: So if you had… two… two of… two units of, uh, O… 3—

Sydnee: Yes.

Justin: —or three units of O2, that would be the same thing.

Sydnee: Nope.

Justin: That's six O's.

Sydnee: No, no, different. Different things.

Justin: [hums doubtfully]

Sydnee: They're very different substances.

Justin: [hums doubtfully] That's six O's.

Sydnee: [laughs quietly]

Justin: No matter which way you slice it.

Sydnee: No. N—no. That is not how… chemistry… of any kind works.

Justin: So we're talking about a molecule, right?

Sydnee: Yes.

Justin: A molecule of O3 has three O's.

Sydnee: It has three O's.

Justin: Okay. And a molecule of O2 has two O's.

Sydnee: Yes. Sure. Yeah.

Justin: So… three molecules of O2—

Sydnee: No, okay—

Justin: —and two molecules of O3—that's six O's, no matter which way you slice it, science!

Sydnee: We're gonna stop with the O's and we're gonna talk about why—why has—what is ozone, and why am I talking about it on a medical podcast? You—

Justin: It's an incredible layer that protects our Earth like sunscreen.

Sydnee: Y—yeah, it does that. But did you know, Justin, [holding back laughter] that it has been mistaken for medicine for a while?

Justin: No. It *is* medicine in that it's sunscreen. [wheeze-laughs] I guess? It's—

Sydnee: Yeah.

Justin: —it's a medical application—

Sydnee: Sort of.

Justin: —in that there's a big layer of it that protects us from the rays of the sun.

Sydnee: Thank you to everybody who recommended this topic. Luke and Ceridwen and Jenny and Sophie and Christina and Seth. Uh, I didn't—

Justin: Ceridwen? Ceridwen?

Sydnee: Yes, I believe that was the name.

Justin: That's a lovely name. I've never heard Ceridwen.

Sydnee: Uh, I may be pronouncing it wrong.

Justin: Either way.

Sydnee: I read it.

Justin: It's close—it's—it's nice.

Sydnee: Yeah.

Justin: It's a nice name.

Sydnee: Yeah. Uh, so I was not familiar with this as a—as an alternative medical therapy. I know what the ozone layer is. I'm familiar with the concept of ozone, 'cause I took chemistry, but that was about it. Um, so ozone is—it's an unstable molecule. It's usually in a gas form. It's very, uh, pungent, its odor. You would know it.

It's the odor of—you know right after lightning strikes?

Justin: Yeah!

Sydnee: That's ozone.

Justin: Oh, cool.

Sydnee: That's what that smell is. Um, it's pale blue, if you're curious. The name "ozone" actually comes from the Greek verb "to smell."

Justin: Hm.

Sydnee: "To smell." Because of its odor, because its got that very strong kind of—I think we associate it with, like, clean, fresh—you know what I mean?

Justin: Mm-hmm.

Sydnee: That smell. That's ozone. Ozone is an oxidant. It oxidizes things, as opposed to an antioxidant, I suppose. And it has a lot of industrial applications. Um, but that also makes it damaging to human tissue, especially mucus membranes or the respiratory tract, and we'll kind of get into what it can cause.

So it is a—as far as the human body goes, you could consider it kind of a toxic gas.

Justin: Okay.

Sydnee: So of course…

Justin: Gotta put it in there.

Sydnee: We gotta find a way to use it for medicine. In 1839 was when it was first isolated. Christian Freidrich Schönbein isolated the gas. He named it "ozone" because of the smell, and he noticed that it was the same smell after lightning struck. He was, like, running electric currents through water. That's how he found it. And then soon after, they figured out the formula, two—uh, three oxygen atoms.

And from the jump, people started associating it with health. I mean, from its discovery. This is 1839. By the late 1800's, people were already trying to find ways to use it as medicine. Why? Because it smells kind of clean, maybe?

Justin: It sm—it has a clean smell, so they think that's—it must be cleaning out my… my body?

Sydnee: Something, cleaning something? People, um—people used to believe that lightning somehow cleansed the air, and so the smell came after lightning, so there was maybe an association there?

It had three oxygens instead of regular old two, so it's… 50% better? I don't know. For whatever reason, from the beginning—

Justin: I think also, though, wasn't this sort of—this era, like, electricity probably would've been associated with health. Like, where we're starting to understand that electricity has a part in the human body, right? 'Cause this is right around, um, galvanization and Mary Shelley and that kind of—*Frankenstein* and that kind of research. Like—

Sydnee: You could—you could see—

Justin: You could see how culturally we would think, like, "Oh, electricity. That's—"

Sydnee: And we were also—as electricity became a thing, we were also using too for various medical applications. So if we thought this had something to do with lightning, I could see that being health—

Justin: Lightning, energy, yeah.

Sydnee: —we think it was healthy. Um, people started to believe that areas of higher elevation were healthier because of the—you were closer to the ozone the was in the atmosphere.

Justin: Hmm!

Sydnee: Yeah. You're just closer.

Justin: It—it is healthier though, right?

Sydnee: Why?

Justin: 'Cause of the—the oxygen is thinner, so it means you… use less oxygen, so if you come down below you're like Superman.

Sydnee: Not—it doesn't quite work that way. There's some issues when you go from lower to higher elevation, but you're not—

Justin: You're gonna—good issues, 'cause it makes you—

Sydnee: You're talking about, like, athletic training at higher elevations—

Justin: Yeah, yeah-yeah-yeah-yeah! [through laughter] Yeah, yeah, yeah. Thank you, Sydnee. Thank you.

Sydnee: Yeah, but, I mean, if—if your plan is just to move on top of a mountain to be healthy, that's not a good plan.

Justin: But when you come down from the mountain, your lungs are used to processing thin air, and you get that good *thick* air and you're just like, "Let me run!"

Sydnee: I say that as a—as a hill dweller, here in West Virginia, so.

Justin: [high pitched] A high dweller? [laughs] Sure, okay!

Sydnee: I don't live in the hollers. I live up on the hills. Um, nothin' wrong with hollers, though.

Justin: Nothin' wrong with hollers. It's just different elevations.

Sydnee: It's just different elevation. Um, like, for instance Beaumont, California started calling itself "The Zone of Ozone" to try and draw in a lot of crunchy type tourists, you know. Crunchier than me. I'm a little crunchy. Not that crunchy. Um—

Justin: You know they make crunchy style cookie butter now? Saw that this week.

Sydnee: Oh, really?

Justin: I'm very excited about that.

Sydnee: I only believe in *real* crunchy things. Uh, I know—and this is—this is weird. All of this is very weird to me, because simultaneously with us discovering that ozone was a thing and deciding that it must be healthy, we also figured out pretty quickly that it was, in fact, *not* healthy, and—

Justin: [laughs]

Sydnee: —very dangerous to living creatures. They did early experiments with ozone on frogs and birds and rabbits, and it showed a lot of damage to their respiratory tract.

Um, the guy—Christian Freidrich Schönbein—bine, whatever—

Justin: Sean Bean.

Sydnee: Schönbein, who—who isolated it said, like, "It actually—you know, it will make your chest hurt, and difficult to breathe, and—"

Justin: Yeah.

Sydnee: "—I think it's—I think it might be dangerous." We figured out pretty quickly it would cause pulmonary edema, so, like, fluid accumulating in the tissue

of the lungs, if you inhaled too much. And we knew it could kill small mammals… if they inhaled it. So—

Justin: Yeah. So… n—it's not—I mean, it's not great, folks!

Sydnee: So we knew. And this is all—like, from its beginning, we figured out what it was. We thought it was really healthy. We knew it wasn't healthy. You'd think that would be the end of the story.

Justin: *I* wouldn't think that.

Sydnee: But if you listen to our show, then you know it never is.

Justin: Never give up.

Sydnee: One of the first to use it for medicinal purposes in the US was Dr. John Kellogg. Um, you may remember Dr. John Kellogg—

Justin: Battle Creek's own!

Sydnee: —yes, from our previous episode on Dr. Kellogg. He was a fan of a lot of things that didn't work as medicine. Um, and a lot of really bad stuff too.

Justin: Especially if it hurt! [laughs]

Sydnee: And, uh, he—he started, um, using ozone saunas for diphtheria patients at Battle Creek.

Justin: [simultaneously] Sowna.

Sydnee: [laughs quietly] Yes, honey. A sauna.

Justin: A sowna.

Sydnee: Yeah. Um—

Justin: You guys ever seen *The Apple*? There's this—

Sydnee: [sighs]

Justin: —anyway. Track down *The Apple*. It's such a good—it—I—I'm—I'm now making—

Sydnee: It's a wild movie.

Justin: —*The Apple* references just to entertain my wife.

Sydnee: [laughs quietly]

Justin: Uh, and she wasn't even that entertained by it! So my audience of one is [crosstalk]—

Sydnee: I'm doing a—I'm doing a business—this is—

Justin: Oh, sorry!

Sydnee: —this is important business!

Justin: [deep voice] Sorry, Dr. McElroy.

Sydnee: Important business. So it was—it was very quickly adopted by a lot of different medical professionals. Definitely naturopaths, but also physicians.

Um, in 1892 it was described as a possible treatment for tuberculosis in *The Lancet*, in the journal *The Lancet*.

Justin: Hm!

Sydnee: So—so it was getting mainstream medical use.

Justin: Do things probably get listed in medical journals as possible a lot? Is that a common thing—

Sydnee: No.

Justin: —where it's like, "Maybe? Iunno."

Sydnee: No.

Justin: Okay.

Sydnee: I mean, not today.

Justin: Yeah.

Sydnee: Maybe back in 1892.

Justin: Well, we were all just throwin' spaghetti at the wall back then.

Sydnee: Let me say this. Yes, of course there are articles that suggest that, like, we found this really interesting correlation, this could be a big breakthrough, but we don't—we can't prove causation just yet, or that it definitely works like this. Yes, but they have a lot more evidence than would've been needed for this back in the 1800's. Does that—

Justin: Fair, okay.

Sydnee: —does that make sense?

Justin: Yeah.

Sydnee: Uh, now the thing that really, I think, made it explode—you could kind of blame Nikola Tesla for it.

Justin: He did so much good.

Sydnee: This is—and if you read about people who are proponents of ozone therapy today, they cite Nikola Tesla as, like, "This is why you know it's legit: Tesla was into it."

Um, as if, like, we can blame poor Tesla for all of this.

Justin: I mean, Tesla was doin' a lot of stuff. A lot of it great, but come on!

Sydnee: In the late 1800's, Tesla was trying to make wireless electric power for JP Morgan. He had been contracted to do so. He promised him. He was given a bunch of money. He was failing to provide this, this—this service for JP Morgan. So he went to JP Morgan and he was like—there's this very eloquent, like, request he made about, you know, how its taking longer than he thought but, like, you

can't put a time limit on this stuff, and, like, discovery, and blah blah blah. And basically he was saying, "Please give me more money. I can make this happen."

And Morgan just responded "No. [laughs] No more cash for you, Tesla."

So Tesla said, "I need to make something commercial so that I can start selling something and make money to fund this real thing that I'm working on."

Uh, so he got into the ozone business. He had already made an ozone generator, a machine that would make ozone, um, and so he started selling them. He patented a corona discharge ozone generator in 1896, and then he formed the Tesla Ozone Company, and he began selling these generators to doctors and naturopaths to use at their office to… give ozone therapy to patients. He would also create, like, a—a product—like, a medicinal product, by bubbling ozone gas through olive oil.

Justin: Mm-hmm.

Sydnee: And if you do that long enough—you can do that with all kinds of different oils, honestly. And if you do that, it will eventually create, like, a solid compound, and then you can sell that, and it's like—I don't know. Ozonated… olive oil.

Justin: Ozonated is not an appetizing word.

Sydnee: And, uh—and he would sell that to doctors, to then prescribe to their patients. Um, he also sold that process through the Sears catalog.

Justin: [laughs]

Sydnee: So you could go to your Sears catalog and order, like, ozonated eucalyptus or pine or spearmint oil, or something like that.

Justin: Mm-hmm.

Sydnee: To use for… whatever.

Justin: [simultaneously] Whatever, yeah.

Sydnee: Whatever.

Justin: Whatever you wanted to guess that it was good for.

Sydnee: A lot of early therapies had to do with, like, disinfecting wounds with, like—the thought was ozone gas in a lab killed bacteria and viruses sometimes, and fungi and things like that, and so maybe we can do that in the human body.

Um, so much so that actually during World War I it was—they tried that to disinfect wounds. You would just direct ozone gas at a wound to try to kill all of the stuff that's in it in order to allow the wound to heal—

Justin: [holding back laughter] Just, like, "Let me blaze this gas at you?"

Sydnee: Yes. The instructions were "Apply until the tissue is glazed."

Justin: [retches]

Sydnee: Glazed.

Justin: That's so grody! It's the grodiest word they could've chosen!

Sydnee: Like a donut.

Justin: Eww, Sydnee, no!

Sydnee: Glazed. Uh, this obviously would create a great deal of tissue damage as well. So, like, yes you might kill some germs, but you're also going to kill the human tissue that you're directing the gas at. So while this may have been an okay option in a time where we didn't have a lot of other great antiseptics, you can see how this was quickly outpaced by everything else that could be used to clean and disinfect tissue, that, you know, didn't also destroy it.

Justin: Mm-hmm.

Sydnee: So until the 30's, a lot of doctors and naturopaths got really into trying ozone for everything, because the human pu—or the—the public was already—the human public? I don't know why I said that like I'm from outer space.

Justin: [laughs quietly]

Sydnee: The public was already way into this idea that ozone was medicine, and so doctors and naturopaths were happy to fulfill that need by saying, "Yeah! We can—we can definitely administer ozone to you in a variety of ways. Let's come up with some new ones!

So a gas can be hard, sometimes, to apply onto a human, into a human, onto a human. So let's add to other gases or liquids or something, so that we can give you injections of it maybe."

Justin: Oh, good! Yeah, yeah, yeah.

Sydnee: "Maybe in the muscle, maybe under your skin. Maybe we could administer it vaginally?"

Justin: Oh, sure! Cool!

Sydnee: "Or rectally?"

Justin: Oh yeah!

Sydnee: "Or give you an IV infusion!"

Justin: [deep voice] Nice.

Sydnee: Uh, they also came up with a process called autohemotherapy where they would take blood out of you—

Justin: Put it into a car.

Sydnee: —[holding back laughter] expose it to ozone. No, no. Not that kind of auto.

Justin: Got it.

Sydnee: Auto meaning, like, from your body to your body.

Justin: Right.

Sydnee: Autohemotherapy. So they would take it out of you, expose it to ozone, and then put it back in you… to get all that ozone-y goodness right in you. Um,

you could also buy products like Liquozone which was, like, a patent medicine kind of thing that was supposed to be just liquid ozone.

Justin: Hmm.

Sydnee: Now, I think it's—it's worth noting that this is fraudulent on many levels.

Justin: [laughs]

Sydnee: Not only would ozone not work anyway, you could not be—it could not liquid ozone. Ozone exists at a—it is liquid form at a temperature of about -170 degrees Fahrenheit. For all you Celsius fans, that -112 degrees Celsius. That's quite cold. [holding back laughter] You could not ingest this.

Justin: No. This would not be… no. That would not be a liquid that you could ingest.

Sydnee: No. you could not ingest this liquid. Um, so—so that was a lie on several levels.

Justin: Um… [laughs quietly]

Sydnee: But this was—[laughs] this—this ozone craze—we're about to—we're about to—there's always a tipping point, right? Where things start to fall off, or people start to change their minds? Don't worry. We're almost there.

Justin: Oh, thank goodness.

Sydnee: But before we do that, let's head to the billing department.

Justin: Let's go!

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[theme music plays]

[ad break]

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Justin: Now, we were at something of a tipping point for ozone, Sydnee.

Sydnee: That's right. So, ozone at this point—and this is—we're in the early 1900's. We're just—we're—we're careening towards the 1930's.

Justin: Okay.

Sydnee: And ozone is being tried by everybody for pretty much everything. I mentioned tuberculosis. We're talking anemia, whooping cough, asthma, bronchitis, insomnia, diabetes, gout, syphilis—

Justin: Ohh, that's a lot of cures, Sydnee!

Sydnee: —any—any kinda cancer you got! Trench foot, gangrene, any kind of dentistry problems—dentists were trying it out. Um, you could—as I said, you could put it in every orifice. You could inject it in every way you wanna inject in every way you inject things—

Justin: [simultaneously] Don't tell me what orifices I can put it into!

Sydnee: —you could inha—

Justin: You don't know my will! My determination!

Sydnee: —inhale it through oils, sit in saunas… ozone was everywhere, and everybody was into it.

Justin: Mm-hmm.

Sydnee: But was it helping?

Justin: No!

Sydnee: No. It wasn't. After—

Justin: [laughs quietly]

Sydnee: [laughs] A couple of—

Justin: It can’t help.

Sydnee: —a couple of things led to its downfall. I mean, other than the fact that—I would love to say it was 'cause it didn't work. That doesn't always stop us.

Justin: No! No, no. That—

Sydnee: It *helped* that it was fake. It helped. Um, the FDA… started to crack down on it. That was part of it. The AMA also, in the 30's, started to say "You know what? Like, we've got real stuff that works. Maybe not with the fake so much?"

Justin: "The poison gas?"

Sydnee: Um—[laughs quietly]

Justin: "The S—the Smilex?"

Sydnee: "—maybe not with the poison gas?"

Justin: "That you people feel determined to ingest?"

Sydnee: Uh, the—the rise of modern antiseptics was a big part of this, because we found—I mean, when you clean a wound, if you can avoid destroying all of the human tissue, that would be preferable.

Justin: Okay. Not turning it into a glaze, for example.

Sydnee: Not glazing it. [laughs quietly] So—so as we found ways of doing that, ozone became, you know, less favorable. Um—

Justin: Yeah, it must be—it must be so… such a disappointment when you find things that *do* work, and you're like, "Oh, okay. This is actually what working looks like. [holding back laughter] We were kinda—it's not glaze, everybody. Pack it in. Okay, this is actually medicine."

Sydnee: Um, as it began to fall out of favor in the US, it still persisted throughout the world. There were still a lot of places that were—that were working on it. Specifically there was a lot of work being done in Germany using ozone treatments. Um, some of that was—was tried in Canada as well. Um, in the

US it—it was mainly falling to, like, naturopathic and homeopathic practitioners, but, um—but actual medical people weren't really using it quite as much.

And, uh, by the 50's, the FDA was straight up seizing ozone generators from doctors' offices and places and saying, "This is not… okay. This is not a thing. You can't do this."

It's actually been a big problem, even currently, for, like, the Federal Trade Commission to crack down on all of the false claims made by people who sell these ozone generators, 'cause they're still being sold, by the way.

Justin: Oh, good.

Sydnee: Um, and it—this has been a persistent problem because, uh, there's so much misinformation out there about ozone, which is—I mean, like, they can't, but it's not stopping anybody.

Um, now as—as it became obvious that there were better ways to clean tissue, and the things that it was kind of being used for it was not the best treatment for. And I think you see this with a lot of these, um, kind of woo medicine things.

Justin: Mm-hmm.

Sydnee: People began proposing it for things that are harder to treat. Or maybe can't be cured yet. Um, and I—I think that the reason that people try that is, one, desperation—but I think the other thing is that it's hard to disprove.

Justin: Yeah.

Sydnee: So at this point you start to see instead of, like, saying, "Hey, use it on, you know, that ulcer on your foot." "Why don't you try it for your cancer? Why don't we try it as a therapy for HIV? Maybe it's a good treatment for multiple sclerosis or, uh, arthritis or heart disease or Alzheimer's or dementia or… Lyme disease, and various forms of things that maybe weren't really Lyme disease."

Um, things that are a little more complex, and therefore, uh, it's easier—I think it's also a little easier to trick people.

Justin: So the—the ozone generators that are being marketed as air purifiers. Are they, like, on the le—I mean… is that on the level?

Sydnee: What are you—I mean, what is it trying to do?

Justin: Um…

Sydnee: It's not gonna—no. I mean, ozone… you can release ozone into the air, I suppose, but…

Justin: They remove odors by producing—this is from somebody who's selling one of these. "Unlike air fresheners that only mask odors, ozone generators remove odors by producing large/concentrated amounts of O3, which oxidize and break down residual odor compounds in the surrounding air. Because the O3 is so highly concentrated, it is recommended that rooms be unoccupied during treatment. Once the air treatment is finished, though, the O3 quickly converts back to O2, and the room is left with a fresh air smell."

Sydnee: I mean, what you're really—you're just putting ozone in a room.

Justin: And then it kills all the—the stink—

Sydnee: Not necessarily, no. I don't think—I don't think there's good science to say it's gonna do that. I mean, it *is* going to decompose into O2, so that is true. Like, so—and so—I mean, I guess that's okay if you wanna fill a room with ozone and then it will go away, and then the room will smell like ozone.

Justin: Sydnee, here's what I'm gonna say to you.

Sydnee: That's fine. It's told you, it has a clean smell.

Justin: 2369 customer reviews, four and a half stars, cannot be wrong. You are just one person, Sydnee.

Sydnee: Mm-hmm. Mm-hmm.

Justin: These are *2000* reviews.

Sydnee: So, throughout… [laughs quietly] as we—as we go—

Justin: I've bought toothbrushes with fewer reviews than that, and those go in my mouth daily! Sometimes twice!

Sydnee: As we go to more recent—more recent years, like the 80's and the 90's—which is fairly recent. Feels recent. Um—

Justin: In the—in the scope of *Sawbones*, it's very recent!

Sydnee: You see-you see it being used for all—like I said, these kind of harder to treat conditions and things that we didn't necessarily have, especially with HIV at first, any way to treat it at first.

And so, um… all these things are being tried. So, uh, you see studies where they're, like, mixing it with water and swallowing it for stomach cancer, wash—like, doing, like, an enema of it for colon cancer. Um, that was—that was popular throughout the 80's. Um, the HIV research really came to fruition in the 80's, where they were trying to—like, they were putting HIV in a lab under ozone and seeing that it, like, inactivated the virus, and so then theoretically, like, oh, well then we'll—can we just put it in the human body and it'll kill the virus?

But, like, there are a lot of things that we can dump on bacteria and viruses in a lab and kill them—

Justin: Bleach!

Sydnee: —and you don't—[laughs quietly] and you don't necessarily want to, like, ingest or inject your veins or whatever. I mean, we can't do that. If curing disease was that simple… there would be none.

Justin: We'd just be put—puttin' bleach in there all the time!

Sydnee: Well, right. I mean, there's a—we can't just willy nilly go injecting every toxic substance into our body to kill things.

Justin: Right.

Sydnee: Uh, we have to—if we're going to use something toxic, it has to be in a controlled, you know—

Justin: Precise.

Sydnee: —way. I mean, 'cause, you know, chemotherapy can be toxic to the human body but, like, that's why we're very careful and we know which compounds to use. Um, not everything can work that way.

So there was a lot of—a lot of study done on that, but none of it really came to fruition in terms of in vivo, meaning "in the body." So in vitro things looked like, "Well, maybe this'll help." In vivo things showed that it didn't.

Um, they tried a lot of autohemotherapy specifically for HIV in the 80's. Um, a lot of trials out of Germany where they would take HIV patients and take their blood and expose it to ozone and put it back in and… it didn't work.

Um, and this—this therapy, like I said, was still persisting, even in the US. Um, in 2010 there were 77 ozone generators seized in California. They were mainly used by alternative medicine practitioners.

I mean, these are—these—this was, like, I think, $80,000 worth of medical equipment. And, I mean, these practitioners would charge patients hundreds, thousands of dollars to come get these ozone treatments. And, I mean—and you can buy—like, these ozone generators… probably do generate ozone. I mean, I'm not gonna vouch for everyone out there but, like, they probably do that.

The problem is that that—that ozone they're generating, one, can be toxic, and two, isn't going to help you. In 2015, um, two Las Vegas homeopathic doctors used an ozone generator to fill a syringe with ozone and… something. They injected it into a patient, and the patient died.

Justin: Great.

Sydnee: So the doctors were charged with second degree murder.

Justin: Jeez. And they—and—mm.

Sydnee: So this is—a lot of these alternative medicine therapies—my concern with them is usually that people will seek this out *instead* of traditional medicine that may be helpful.

Um, with ozone, you have the added threat that it could actually kill you. It could be directly toxic. And even as I was reading, like, people who were proponents of this—and you will—you will find a lot of them—

Justin: Yeah.

Sydnee: —um, out there—

Justin: 2300—[laughs quietly] however many.

Sydnee: Um, but, like, even as I was reading proponents of this talk about how effective it is, I read in one—one person noted, "And you'll see that the side effect rate is very low," and they cited a number. And they said, "And there have only been four fatalities."

And what's problematic about that for me is that it doesn't work. So then you're just killing people. That doesn't mean that "Oops, sometimes medicine goes wrong and you kill someone."

It means, "This is something that doesn't work, there's no evidence for it, and also, we killed four people with it. Oops."

Justin: And, like, I'm still looking at, like… [sighs] Sorry, I'm, like—ozone—I'm looking at one—another one on Amazon, uh, that says—literally says—remember you were just talking about, like, that dumb garbage about how you could buy water and—

The—the Aqua-6 comes with everything you need to start *ozonating* now! It's talking about purifying your tap water, and increasing the shelf life of fruits and vegetables by putting this next to—[laughs quietly] [inhales loudly]

Sydnee: You can find, um—you can find—even though—sorry, in April of 2016, the FDA prohibited the medical use of ozone in any medical—this is a quote—"in any medical condition for which there is no proof of safety and effectiveness.

Ozone is a toxic gas with no known useful medical application in specific, adjunctive, or preventive therapy. In order for ozone to be effective as a germicide, it must be present in a concentration far greater than that which can be safely tolerated by man and animals."

So that's pretty definitive.

Justin: Right. It not… it's not medicine.

Sydnee: It's not medicine, and it's toxic. I love that it's—it's a toxic gas. Please don't use it as medicine, folks. It's a toxic gas.

This has not stopped everyone, though, of course.

Justin: And this is from the—this is from April 2016, when the FDA was still—[wheezes]

Sydnee: Yeah.

Justin: [through laughter] G—when government organizations could [wheezily] still be trusted.

Sydnee: Um… you will find people who still will tell you should use it. Uh, there are still naturopaths who prescribe it and homeopaths that are—

Justin: Of course there are!

Sydnee: I found—I found—this was great. It was a list of 24 different ways to put ozone in your body. Um, it was just this whole list. It was like, "You can do some of these at home." For instance, you could put it in your ear right at home, or in your drinking water. But if you, uh, wanna try autohemotherapy or IV injection, you would need to go to a doctor.

Now, vaginal insufflation or rectal insufflation, just blowin' it up there? You can do that right at home if you want to. Um, if you wanna inject it into a tumor, you should probably go somewhere where they can do that. Or, if you wanna do external limb bagging… where they put a bag around your limb and then fill it with ozone—or maybe just, you know, bag your whole self. Like, you can put your whole self in plastic bags—

Justin: [simultaneously] In a bag!

Sydnee: —and fill it with… ozone. Uh, you could breathe it through some olive oil. That's old fashioned. We love that kind of thing.

Justin: [simultaneously] Ooh, fancy.

Sydnee: You could insufflate your bladder. That would be a little… or your uterus. Um, steam cabinets. They've got ozonated olive oil massage that you can try. Um, an ozonated water enema. And they'll sell you the specific bags you need for that.

Um, you can find all this online. And I—I found, if you want a, um… ozone… sauna? Justin, I have a link there that you can click on, too.

Justin: Okay.

Sydnee: It's a synergy ozonated steam sauna.

Justin: Ooh!

Sydnee: It's, like, portable. You can take it wherever. It has a nice little briefcase you can put it in and you just hook that up and sit inside some ozone, I guess—

Justin: Oh my God.

Sydnee: —for over a thousand dollars. You can find that at [holding back laughter] the Real Truth Behind Cancer Store.

Justin: The Real Truth Behind Cancer Store! And it's got a lil detective on there and everything.

Sydnee: I found—I found that, um, some suggestions—

Justin: "[loudly] Good URL, guys! How'd you ever get www.thetruthbehindcancerstore.com?"

Sydnee: [laughs quietly] Uh, it also supposedly works better with magnet therapy?

Justin: Uh, natch.

Sydnee: Mm-hmm.

Justin: Of course. 'Cause it attracts all the best part of it.

Sydnee: And I also found some suggestions that we should all just be using it to prevent to disease.

Justin: [quietly] Of course!

Sydnee: So just drink…

Justin: [quietly] Drink it!

Sydnee: … water with ozone, which is called Ozona.

Justin: [soft voice] Ozona.

Sydnee: [soft voice] Ozona. [normal voice] Doesn't that sound so much better than just regular old *water*?

Justin: Blegh! I can't even—

Sydnee: You don't want *water*.

Justin: —I can't even with regular old *water* anymore, Syd.

Sydnee: Um, so this is all still out there, and I find a lot of people proposing it—it's a… it gets linked in with chronic Lyme disease, which we've done a whole episode on Lyme disease. It's a complex issue, and I've talked about it. Um, I would say there is something called post Lyme disease treatment syndrome, not chronic Lyme as an entity in itself, but there's a whole episode on that.

But you'll find it linked in with that. And, I mean, you can see, there are places where you can go and get, like, IV infusions of… ozone, or whatever they're—I don't know what they're putting in you. Ozone and something. Um, what is it good for, really? Like, cleaning things in some hospitals and, like, dental offices. It's good for cleaning tools. Like, it's a toxic gas. You wouldn't want to put it on a human, but you could put it on, like, some surgical equipment. That would be fine.

Justin: Or I could use it to—

Sydnee: You could use it to clean water. Like, if you're trying to—there are some systems that use this, like in different countries for—for cleaning water. It doesn't make your water ozonated. It just can clean some—it can kill, you know, some pathogens that might be in your water.

Justin: Which you don't need to do with your tap water, statistically speaking. Most areas of the country obviously tap water is very safe.

Sydnee: Yeah, and depending—

Justin: Good quality and you don't need to frickin' run a—a… [wheezes] ozonator through it.

Sydnee: No, and this won't work for the things like—I mean, if you want to talk about a place with a water problem, like in Flint, an ozonator is not what people need. They need, you know, money for infrastructure for new pipes to get the lead out of the water.

Justin: Right.

Sydnee: You know? So, um, there are—there are ways to fix that problem. Our government is not doing anything about it. But that—that has nothing to do with an ozonator. An ozonator will not solve any of these problems. Uh, and I—a lot of the—you can find ozonators commercially, by the way. You can buy your own ozone generator.

Justin: I'm l—I'm telling you—

Sydnee: Like, you can buy 'em for usually around a thousand bucks for the really nice ones.

Justin: You can get one for 70 bucks! Right now! On Amazon!

Sydnee: Who knows? And this is, I guess—

Justin: Don't!

Sydnee: No, don't. I guess—is this Tesla's *greatest* legacy?

Justin: Oh, boy. What a wonderful contribution that he made to—

Sydnee: No, Tesla. We won't pin that on you. I hate to—

Justin: You're cool, Tesla. You still have—you'd still have to have many, uh, high profile boners before you—[wheezes] you would get anywhere near Edison, so you're fine.

Sydnee: But this is important to remember. If you are someone who is, um—if you are a genius inventor… be really careful. You throw out these commercial products just to make some quick cash, and now forever we have people saying, "Well, it must work, 'cause Nikola Tesla invented an ozone generator!"

Justin: I'm looking at this—the ozone generator that I'm looking at on Amazon… has a label on it that says "Use in unoccued s—uh, use in unoccupied space only," because as we have discussed here, it's toxic, right?

Sydnee: Yeah.

Justin: And it's—it's a purifier and deodorizer, right?

Sydnee: Mm-hmm.

Justin: How much do you want your air to smell great where you're, like, gonna run—[wheezes] [through laughter] this poison gas machine so you have a great—hey, hey everybody? Why don't we just get some Febreze?! What do you think? Maybe we don't even need to spray your house with poison gas, you maniacs!

Sydnee: I don't… I don't know. I got nothin'! I got nothin'! I don't know! I understand—when stuff—

Justin: You know what I do? I have a nice essential oil defuser! Get some, uh—get some—

Sydnee: Well…

Justin: I'm not saying it's gonna cure my emphysema, Sydnee! [strained] It just smells nice!

Sydnee: Please refer—please let me refer you to our episode on essential oils if you like—

Justin: I'm not saying it's gonna, like—I'm not saying that it's gonna, uh, increase my fertility! I'm saying that it smells nice!

Sydnee: No. All it's going to do is irritate my—my nasal passages—

Justin: I'm not running it right now.

Sydnee: —because—yes, thank you.

Justin: You're welcome.

Sydnee: All of these smelly things. Anyway, don't buy an ozone generator and don't use ozone for anything. It's a toxic gas.

Justin: [snorts quietly]

Sydnee: It damages human tissue. It can kill you. It's dangerous. This one—this one's easy. There are so many things where it's like, "We really don't have evidence that—" no.

Justin: No. It's poison gas. Quit it.

Sydnee: It's—it's toxic gas. Please don't—please don't use it, and if somebody's tell you you should, please advise them otherwise and—I don't—refer them to any—I mean, any—there's no medical evidence that this works in the human body. There really isn't.

Justin: [sighs]

Sydnee: So, um, also it's in that layer that protects us from the sun. There's the other use for ozone. But you don't have to do anything about that. Just don't use chlorofluorocarbons, and everything is fine.

Justin: Alright, folks. That's gonna do it for us. Uh, thank you so much for listening. Thanks to the Maximum Fun Network as having us, uh—uh, us as a part of their extended podcasting family.

Thanks to The Taxpayers for letting us use their song "Medicines" as the intro and outro of our program, and, uh, thanks to you for listening! We always appreciate gettin' a little bit of your—your time, uh, every week, and we hope you will join us again next week.

[theme music begins in the background]

But until then, 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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