

## Sawbones 131: Hydrogen Peroxide

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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. Welcome to Sawbones: A Marital Tour of Misguided Medicine. I am your cohost Justin McElroy, they call me.

### **Sydnee:**

And I'm Sydnee McElroy.

### **Justin:**

I mean that is my name.

### **Sydnee:**

I was going to say they call you that because that's your name.

### **Justin:**

That's my name.

### **Sydnee:**

Justin.

### **Justin:**

Sydnee. Sydster.

### **Sydnee:**

I picked a booger.

**Justin:**

Gross. Gross. You informed me of this. This is not a goof. You informed me of this yesterday and I didn't push too hard. You just looked at me and said, "I picked a booger." My initial response was, uh, I figured you meant out of Charlie's nose which, like, congrats.

**Sydnee:**

[laughs] I did do that yesterday.

**Justin:**

Sure.

**Sydnee:**

I did that twice yesterday. That wasn't what I was referencing but, I mean—

**Justin:**

Probably, yeah. The day that ends in Y we probably do that.

**Sydnee:**

It's just, like, a mom/dad. That's a parent job.

**Justin:**

Yeah, picking boogs.

**Sydnee:**

No, I didn't mean an actual booger. I picked a metaphorical booger. I picked a... Have you never heard that expression?

**Justin:**

Never.

**Sydnee:**

That's a— We use that expression a lot, um, like in medicine if we think, like, somebody's getting all better and they look good and, like, everything's heading in the right direction. We think, like, in the hospital or something, like, yes.

Okay, this person's getting better. And then somebody thinks, like, randomly, like, why don't I order this strange test that has nothing to do with what's going on and I'll just order it.

And then it comes back and it's kind of abnormal and you have no idea why because it has nothing to do with anything else that's going on.

**Justin:**

Mm-hmm.

**Sydnee:**

We'll say, "Oh, you picked a booger," because now, like, we're going to chase down this lead, so to speak. And it may be nothing and it has nothing to do with anything else but now we've picked a booger and we can't just ignore it.

**Justin:**

It's on your finger.

**Sydnee:**

You can't just hold the booger on your finger. Like, you have to do something with it.

**Justin:**

Yeah.

**Sydnee:**

And in medicine you can't just wipe that booger under the table or, like, under your chair and pretend, like, it wasn't... Like, you have to handle the booger.

**Justin:**

Handle the booger. What is the proverbial booger we're discussing?

**Sydnee:**

The booger that I picked was hydrogen peroxide.

**Justin:**

Yeah, this is a big, um, we got a big response because you put— You kind of put hydrogen peroxide on blast, a little bit, because I was surprised. I mean that was not me acting. I mean I play dumb on this show a lot, but uh...

**Sydnee:**

He plays dumb.

**Justin:**

Plays dumb on this show a lot.

**Sydnee:**

This isn't, this is not, it's not a real thing.

**Justin:**

No.

**Sydnee:**

It's all acting.

**Justin:**

Sydnee and I are basically both, like, if you average it out we're each half a doctor. Um...

**Sydnee:**

Well—

**Justin:**

The hydrogen peroxide, I really did think... I mean, I have many memories of my parents pouring a cup— Uh, a bit of hydrogen peroxide on a um, a cut or something or, like, the one that I have done, like, even— Like, fairly recently even is, like, gargle with it for, uh, like, ulcers in my mouth and stuff like that.

**Sydnee:**

You gargle with it for ulcers in your mouth?

**Justin:**

Not to get them. What is that, like, why would I do that?

**Sydnee:**

Like, you treat ulcers with hydrogen peroxide?

**Justin:**

I mean from your reaction I'm betting I don't actually treat anything.

**Sydnee:**

Yeah, but you're attempting to do that?

**Justin:**

Yeah, I try to.

**Sydnee:**

Why did I not even know that you did this?

**Justin:**

I mean it hasn't been a long time. Honestly, now I just kind of live with them.

**Sydnee:**

Okay.

**Justin:**

I'm 35 so my list of things that don't feel good in my body, mouth ulcers are, like, kind of low now.

**Sydnee:**

[laughing].

**Justin:**

But um, when that used to bother me a lot more.

**Sydnee:**

I try to avoid orange juice and that pretty much does it for me.

**Justin:**

Yeah.

**Sydnee:**

Um, no. I mean I think we— I understand where you're coming from that, that ubiquitous brown bottle was in everybody's medicine cabinet, I think, growing up.

**Justin:**

And a lot of first aid kits.

**Sydnee:**

Yes. And it would get pulled out, I remember that when I'd have a cut or something, I— Oh, I have vivid memories of that at, like, my grandparents house of, like, knowing they're going to want to pour that on me and I hated that fizzy, bubbling... I hated that. But I thought it was necessary.

**Justin:**

Yep.

**Sydnee:**

So, I'm here to, kind of, I guess complete the job, the hit that I put out on hydrogen peroxide.

**Justin:**

Last time you just broke its legs. Now you're going to put a bullet in its brain.

**Sydnee:**

I'm going to finish it off. Um, I do want to thank Andy for suggesting this topic, as well as everybody on Twitter who totally freaked out when I mentioned that maybe hydrogen peroxide doesn't work.

**Justin:**

Yeah.

**Sydnee:**

Um, because the, you know, like I said, now I've got to tackle the subject.

**Justin:**

So Syd, where does— Where do we start with hydrogen peroxide? Where does it come from aside... I feel like somebody just found one of those brown bottles on day and was, like, "Oh, wow, cool. Okay."

**Sydnee:**

No, no. It was actually, uh, isolated by chemists, by scientists. So, um, you know, the, back in, especially, like, in the 1800s there was a lot— Like, chemistry was a blossoming field where we were trying to figure out all these different um, compounds and what do they do and, you know, different molecular structures, we're kind of figuring out all this, like, how does changing, adding a hydrogen here, whatever.

What does that do to something? And so, uh, hydrogen peroxide was first isolated by a French scientist, uh, Louis Jacques Thenard, in 1818. Um, but initially he thought it was, uh, so unstable that it couldn't be extracted from water. That hydrogen peroxide was always in a solution of water.

**Justin:**

Hmm. Okay.

**Sydnee:**

And you couldn't separate it out into its own thing. It was hard to do.

**Justin:**

You mean, like, mixed in?

**Sydnee:**

Yeah, like, mixed in with water.

**Justin:**

Okay.

**Sydnee:**

Um, but then in 1894 a scientist, a chemist named Wolfenstein—

**Justin:**

What?

**Sydnee:**

A chemist named Wolfenstein. Dr. Wolfenstein.

**Justin:**

As in Return to Castle Wolfenstein?

**Sydnee:**

Well no, I don't think there's any association but the name is the same.

**Justin:**

That's true. Well, I mean yeah. I don't think he had a secret Nazi castle that also the devil. But like—

**Sydnee:**

I just really like Wolfenstein.

**Justin:**

Yeah.

**Sydnee:**

That's a great name. Uh, he was able to—

**Justin:**

Now, he was in the occult, right?

**Sydnee:**

No.

**Justin:**

Deeply, deeply into the occult, pentagrams and stuff?

**Sydnee:**

No, he's just into chemistry.

**Justin:**

Got it. Okay. Cool.



**Sydnee:**

And he was able to extract it.

**Justin:**

Now, he was the one who... He extracted it but he also made a mech suit for Hitler. That Wolfenstein? Is that the one?

**Sydnee:**

No, he just was a chemist who did some stuff with hydrogen peroxide.

**Justin:**

Okay, well vidya games lied to me again. Great. Thanks, guys.

**Sydnee:**

Sorry. It was probably a different one.

**Justin:**

A different—

**Sydnee:**

It's a really common name, Wolfenstein, so I'm sure there's more than one.

**Justin:**

Sure. Sure, probably. Yeah.

**Sydnee:**

So, the chemical structure, to kind of give you a reference point for this... And Justin, this is— Don't worry. I know this sounds, like, really boring. I mean the chemical structure of hydrogen peroxide, but it's pretty easy to understand.

It's HOOH. Now, or you could abbreviate it and that's kind of the way that it's laid out, the molecule is laid out with the two oxygens bonded together and then a hydrogen kind of sticking off each end. It's H<sub>2</sub>O<sub>2</sub>.

**Justin:**

Okay.

**Sydnee:**

Now, what does that sound a lot like?

**Justin:**

Uh, well H<sub>2</sub>O or hydrogen dioxide.

**Sydnee:**

No.

**Justin:**

Hydrogen oxide.

**Sydnee:**

[laughing].

**Justin:**

Hydrogen ox—

**Sydnee:**

Dihydrogen.

**Justin:**

Dihydrogen oxene.

**Sydnee:**

Mono oxide.

**Justin:**

Mono oxide.

**Sydnee:**

Nobody calls it that. It's water. It's H<sub>2</sub>O.

**Justin:**

Okay.

**Sydnee:**

Yes, but hydrogen peroxide, of course, is not water.

**Justin:**

Right.

**Sydnee:**

It's H<sub>2</sub>O<sub>2</sub>. There's another oxygen in there. That oxygen bond is actually kind of unstable inherently so one major difference... Because it—

This idea that hydrogen peroxide is sort of like water, but with more oxygen. Because when you sell it like that it sounds, like, it's this great thing, right? It's just like water, only even more oxygen. It reminds me of that episode of Parks & Rec when they're putting fluoride in the water.

**Justin:**

Yeah.

**Sydnee:**

And you have to sell it as—

**Justin:**

H<sub>2</sub> Flow.

**Sydnee:**

Yes. It sounds like that. Like, oh, this is, "Oh, it's so pure it's water and extra oxygen." But it's not really water-like. One really important difference is, uh, let's say that you heat a pot of water to boiling. What happens?

**Justin:**

Uh, it boils?

**Sydnee:**

Right. So that you could cook an egg in it or something, right?

**Justin:**

Yeah, yeah.

**Sydnee:**

Like it boils. Like you put your Ramen in there or whatever. Cool. Um, if you did that, if you heated uh, pure hydrogen peroxide to boiling it would explode so that's a big difference, you know.

**Justin:**

Right.

**Sydnee:**

Between it and water. Um, it is in a pure solution of just hydrogen peroxide, it is a colorless... It would maybe look like water. It's a little more viscous than water, but I do not think comparing it to water is completely fair. And that's important to know when we get into some of like the health claims for it.

**Justin:**

Okay.

**Sydnee:**

But it's not just, like, fancy water.

**Justin:**

We react to it differently. You couldn't drink it.

**Sydnee:**

No. I wouldn't advise you to drinking— No.

**Justin:**

You could drink it.

**Sydnee:**

Well, I mean you can. You can drink anything, Justin.

**Justin:**

Fair. That's true. I mean not anything but all right.

**Sydnee:**

Uh, it's used in we're, uh, you know, it's used in things other than medicine just to kind of, you know, throw that out there. It is used in bleaching. It is

used as an oxidizer for different chemical reactions. It's used, uh, as a propellant for rockets.

**Justin:**

Mm-hmm.

**Sydnee:**

Like rocket fuel. So, you know, combustible. Uh, but that's not what we're going to talk about... We're going to talk about the medical uses, or not, of hydrogen peroxide.

Now, when you think about that brown bottle that you had in your medicine cabinet or may have or in your first aid kit, it is a solution of hydrogen peroxide. So, it's not hydrogen peroxide.

**Justin:**

Okay.

**Sydnee:**

It is not just a bottle filled with H<sub>2</sub>O<sub>2</sub>.

**Justin:**

Okay.

**Sydnee:**

It is—

**Justin:**

Hydrogen, which would... So, that wouldn't be hydrogen... Wouldn't that be dihydrogen dioxide?

**Sydnee:**

It's different because peroxide is a certain kind of oxygen bond is what they're referencing there. It's not so much the number of oxygens—

**Justin:**

So they were using—

**Sydnee:**

It's the, it's the bond that we're referencing.

**Justin:**

So, do they have that name maybe before we started using that nomenclature? Like it was hydrogen peroxide before we started calling things di and like using that sort of formula?

**Sydnee:**

No, it's just, it's just referencing that specific—

**Justin:**

Okay.

**Sydnee:**

It's more complex than that when you get into chemistry that, it's not always just mono and di. Like there are different—

**Justin:**

Okay.

**Sydnee:**

There are other reasons you would call something. But we're, it's in reference to that oxygen bond.

**Justin:**

Got it.

**Sydnee:**

So, the stuff that's in the brown bottle is a solution. It's the  $H_2O_2$  in  $H_2O$ , in water.

**Justin:**

Okay.

**Sydnee:**

So, it's not just hydrogen peroxide. It's a lot of water with a little hydrogen peroxide.

**Justin:**

Like what's the blend would you guess?

**Sydnee:**

Uh, most are like 3% to 6% hydrogen peroxide.

**Justin:**

Okay. All right.

**Sydnee:**

So, not a lot, right.

**Justin:**

Yeah.

**Sydnee:**

Um, and of course it's not, you know, it's not a— Because they are similar it's a lot of hydrogens and oxygens floating around in there and kind of bonding and unbonding, too. But in general it's 3% to 6% depending on which bottle you have. Most are like 3%, honestly.

**Justin:**

Okay.

**Sydnee:**

Hydrogen peroxide solution. Um, you can find slightly higher... Sometimes you can find even up to 10% and then slightly higher formulations in some places in Europe. But in the U.S. most of what you're going to buy is around 3%.

**Justin:**

But that, but the most effective stuff is the 6%, right? Like, it's really going to help you.

**Sydnee:**

Well, see it gets tricky. Most effective, but maybe not and most dangerous, maybe so.

**Justin:**

Okay.

**Sydnee:**

So, it's not that straightforward.

**Justin:**

Okay.

**Sydnee:**

So, when we go back to, uh, we've isolated this compound. We're using it in rocket fuel. Well, whoever decided that we should use it for medicinal purposes? So, the story goes back to, uh, first a Dr. Rosneau.

**Justin:**

Okay.

**Sydnee:**

Dr. Rosenau was a scientist studying at Mayo. A doctor and a scientist who was looking for some sort of substance that could be used to kill various microorganisms. Bacteria, fungi, viruses, everything.

**Justin:**

Okay.

**Sydnee:**

He was kind of looking for, like, a silver bullet.

**Justin:**

Listerine.

**Sydnee:**

And he started... Not that far off with hydrogen peroxide. He started, um, thinking about using hydrogen peroxide for this purpose and started doing some sort of small scale experiments to see if it would work that way in a



laboratory setting. But unfortunately, he died before he was able to really complete this work.

**Justin:**

Okay.

**Sydnee:**

His good buddy, though, Father Richard Wilhelm, continued on kind of in his footsteps. So he was a Catholic priest. He was also familiar enough with the scientific world and chemistry to be able to understand this and to kind of continue the work of his friend, you know, Dr. Rosenau.

So, he founded the Educational Concern for Hydrogen Peroxide which was basically, like, a, you know, research organization group to understand and experiment with hydrogen peroxide to see what else he could do.

**Justin:**

Okay.

**Sydnee:**

And it was based on his strong belief that his friend was absolutely right that hydrogen peroxide kills all of these microorganisms and so therefore, probably is the key to treating a lot of diseases.

Uh, and so as he begins to study, he writes about this, and some of these are from his own words as his explanation why he thought this worked so well. So, he wrote that he had learned that bacteria can gnaw at the joints.

**Justin:**

Okay.

**Sydnee:**

And cause inflammatory arthritis. So what this is showing is he thinks arthritis is caused by bacteria. It gives off calcium waste that cements bones together. It lodges in the liver and kidneys and forms stones.

Uh, it leaves hard deposits on all those arteries, short circuit the energy in the brain, and cut off blood supply to cells and causes a loss of oxidative

metabolism. And he felt like this which was sort of a hypothesis of this doctor from Mayo was the root. He decided this was kind of the root of all disease.

**Justin:**

Mm-hmm.

**Sydnee:**

And so basically, any kind of illness doesn't like oxygen, and so more oxygen is going to help treat it. Bacteria don't like oxygen. He believed cancer doesn't like oxygen. More oxygen equals health.

And hydrogen peroxide was a molecule that had— That was like water, but with this extra oxygen that it donates freely when in contact with other substances. Like, it gives the oxygen. It oxidizes. You've heard of oxidizing.

**Justin:**

Right, yeah. Resting.

**Sydnee:**

Gives the oxygen.

**Justin:**

Okay.

**Sydnee:**

The molecule hydrogen peroxide will give the oxygen to other molecules. So if you put it on tissue it will oxidize it.

**Justin:**

Okay.

**Sydnee:**

If you put it on bacteria it will oxidize it.

**Justin:**

Give it oxygen.

**Sydnee:**

Right. So, he thought it would kill it.

**Justin:**

Like happens to apples when they turn brown when exposed to oxygen.

**Sydnee:**

Yes.

**Justin:**

Sure, same thing.

**Sydnee:**

There you go.

**Justin:**

Basically.

**Sydnee:**

But, like, yeah, when an apple turns brown, nobody thinks that it's healed of all diseases.

**Justin:**

Sydnee, it's just a metaphor.

**Sydnee:**

I'm just saying. Uh, he uh, he called hydrogen peroxide God's given immune system.

**Justin:**

And he pulled that out of his butt. I mean base— And he based that on nothing.

**Sydnee:**

And there were, now to be fair, you know, I'm going to get into some of the actual research on it.

**Justin:**

God's given him— Like, that's so wild to me that this dude would go, like, zero to 60, like, oh my God, this is— Thank you, thank you for hydrogen peroxide. It's so effective, I bet.

**Sydnee:**

The— To be fair, like, let me just clarify a few things. As they were studying hydrogen peroxide in labs. And I'm going to get into the actual research on all this stuff up to date. But, the general findings were that if you took hydrogen peroxide at high concentrations and, you know, exposed bacteria and viruses and stuff to it, they would die.

**Justin:**

Mm-hmm.

**Sydnee:**

Like you can kill things with hydrogen peroxide. I'm not saying you can't. It has some bactericidal activity. Now, what concentration and how long do you have to keep it on a bacteria to kill it?

Probably not as long as you were pouring it on your cut, but they did find some evidence in a lab that you could kill things with hydrogen peroxide. So these weren't like completely wacky ideas. But then taking it to that next level that maybe then it could cure cancer, uh, well, obviously that was a stretch.

**Justin:**

Mm-hmm.

**Sydnee:**

Uh, a real turning point for Father Wilhelm was when he met Walter Grotz, a retired postal employee who he happened to run into on a cruise in 1982. Uh, Grotz complained that he had terrible arthritis and that nobody had ever really been able to help him with it.

So, Father Wilhelm suggested that why don't you try hydrogen peroxide because he believed that that would kill all those nasty bacteria that cause arthritis.

**Justin:**

Arthritis, sure.

**Sydnee:**

Uh, so for several weeks he drank between one and seven glasses of water with a few drops of a stronger form of hydrogen peroxide, one that you wouldn't be able to just, you know, buy in a brown bottle. It's a 35% hydrogen peroxide, food grade.

**Justin:**

Mm-hmm.

**Sydnee:**

Hydrogen peroxide. Because it can be used to, like, help disinfect food.

**Justin:**

Yeah, what, and just so I'm clear, one to seven glasses?

**Sydnee:**

Yes.

**Justin:**

Hey folks—

**Sydnee:**

One to seven.

**Justin:**

It's your old buddy Justin McElroy here. Uh, if you're ever wondering if a treatment is legit or not, when you ask the doctor how many and he says, "I don't know, one or seven." It's probably not particularly effective. Like, you could have one of them. That could work or maybe seven of them also is a number that can work. That's a few more than that. So, I don't know. One or seven or somewhere between there would be effective.

**Sydnee:**

Just try it out and see what works for you.

**Justin:**

How many Advil do you want, Justin? I don't know, one would be helpful but maybe seven. That would be much better, wouldn't it? But never eight. Oh, no. I ODED on hydrogen peroxide.

**Sydnee:**

I like that. It gives you a little wiggle room, so if they come back in and they're like, "It didn't work."

**Justin:**

Sure.

**Sydnee:**

"Well, how many did you take?"

"Six."

**Justin:**

"Well."

**Sydnee:**

"You needed seven."

**Justin:**

"You needed seven. That's your problem."

**Sydnee:**

So, uh, for whatever reason this worked for Mr. Grotz and he became a disciple. Uh, he was instantly converted to the Church of Hydrogen Peroxide. Uh, he believed, he wrote that it, "hydrogen peroxide joyfully relieves asthma, arthritis, multiple sclerosis, emphysema, cancer, the common cold, herpes, candidiasis, angina, malaria, gingivitis, tumors, warts, lupus, psoriasis, moles, amoebiasis and hemorrhoids."

**Justin:**

Ah. Oh, no.

**Sydnee:**

Yep.

**Justin:**

Wow, Sydnee, that sounds suspiciously to me like a cure all and as we've said many times on Sawbones, cure alls cure nothing.

**Sydnee:**

Cure nothing. So, they both traveled the countryside spreading the gospel of hydrogen peroxide so to speak. Um, and people started listening as they were writing and there are always doctors and scientists who are going to jump on board with this stuff no matter what it is or how strange it sounds.

You're always going to find some people who will buy into anything. And they started advising using it for everything that not just for all of these illnesses that you could joyfully have relieved.

**Justin:**

Sure.

**Sydnee:**

With hydrogen peroxide, you can use it to clean your plants or your aquariums or feed it to your pets or your livestock or clean your vegetables and crops with it. Um, people starting using it, was a very popular treatment for typhoid fever, for cholera, for ulcers, for asthma, for whooping cough, TB, syphilis.

**Justin:**

It was like the Brawndo of its day. You spread it on plants, you drink it.

**Sydnee:**

It was everything.

**Justin:**

It was everything.

**Sydnee:**

It had electrolytes.

**Justin:**

It's got what plants crave.

**Sydnee:**

[laughing] It doesn't have electrolytes. I wasn't saying that.

**Justin:**

No.

**Sydnee:**

Um, it, it was not only advised that you drink it. Uh, you could drink it. That's great. You could put drops of it just, like, in one to seven glasses of water. Uh, you could also swish with it, swish around in your mouth like Justin does. You could brush your teeth with it.

**Justin:**

Did, did, did. Past tense.

**Sydnee:**

Did. You could brush your teeth with it. Uh, like, a paste that you could make out of it. You could douche with it. It was recommended for douching. Which we don't recommend douching or hydrogen peroxide douches either.

**Justin:**

Mm-hmm.

**Sydnee:**

As long, just not, none of it. Don't do any of that.

**Justin:**

Many, many leading scientists today aren't even 100% sure what douching is.

**Sydnee:**

Do you not know what douching is?

**Justin:**



Many leading scientists, not myself, aren't even... We can't get on a sidebar here, Syd.

**Sydnee:**

Do you want me to tell you real quick what douching is?

**Justin:**

We're running long.

**Sydnee:**

I know but do you want me to tell you.

**Justin:**

After the show maybe.

**Sydnee:**

Okay.

**Justin:**

Fill me in.

**Sydnee:**

Okay. You could also use it with enemas. It was also recommended that you could do a hydrogen peroxide enema. Um, there's a recipe to make it into a nasal spray if you're having any kind of runny nose or nose problems. Again, you can put it in your pet's bowl. You could soak in a tub of water mixed with a pint of hydrogen peroxide.

**Justin:**

Great.

**Sydnee:**

Spray 3% all over you at least three times a day. Just put it in a spray bottle, spray it all over you. Mix it with aloe for a nice moisturizer or if you just can't drink it, you just can't stand that taste of hydrogen peroxide, you could turn it into a powder, mix it with stuff. Turn it into a powder, put it in capsules and take capsules of hydrogen peroxide.

**Justin:**

So Syd, people were actually doing this?

**Sydnee:**

Yes, they were and there's more. But first, why don't you follow me to the billing department.

**Justin:**

Let's go.

[theme music plays]

[ad break]

**Justin:**

So, Syd, we, uh, you were going to tell me about some other devotees.

**Sydnee:**

So, this work that had already been the groundwork that was already laid by Father Wilhelm and, uh, Grotz was, uh, expanded upon in the '80s and '90s by a Dr. Charles Farr. He believed that because of this action of hydrogen peroxide oxidizing things that it could be used for all kinds of stuff, but he advised infusions.

**Justin:**

Now how do you mean?

**Sydnee:**

Like injecting it.

**Justin:**

Into your body.

**Sydnee:**

Like into your veins.

**Justin:**

Into your human body.

**Sydnee:**

Like hooking yourself up to like a hydrogen peroxide IV, basically.

**Justin:**

Okay.

**Sydnee:**

Um, solution. Not straight hydrogen peroxide, but a solution of it. And again, he continued the same theme of that it could cure anything adding even more things uh, that he thought it could cure. So, um, everything we mentioned before plus, uh, cardiovascular disease.

Uh, if you have cerebrovascular disease meaning, like, you're prone to strokes. If you have heart arrhythmias. He was a big fan of it for things like emphysema or COPD or asthma, those kinds of lung diseases. Um, he studied that, um, as well as for cancer.

Um, that was one of his big themes as well that it was definitely something that could, that was like the secret treatment that nobody had figured out yet for cancer. Um, one of the things he would advise specifically, kind of a novel use so far— You think we would have used hydrogen peroxide every way we could.

**Justin:**

Sure. Yeah, it seemed pretty exhaustive.

**Sydnee:**

But, he also advised putting an ounce of the, that 35% food grade hydrogen peroxide into a gallon of water and put that in a vaporizer at night for emphysema. Now, what's interesting about that is that I did, as I was kind of trying to read what good studies have been done on hydrogen peroxide. I found a case study where somebody was cleaning their uh, nebulizer which they take albuterol treatments with, their nebulizer.

**Justin:**

Mm-hmm.

**Sydnee:**

Uh, with hydrogen peroxide and they didn't rinse it all out completely. And so they did basically this with a nebulizer and actually damaged their lungs from it. This was just a case report but, uh, I don't know. Um, the evidence would say from that one case report maybe don't do that.

Uh, he also recommended an IV treatment for emphysema so you would hook yourself up to a hydrogen peroxide IV. Um, and he said that what it did was what he referred to as the Alka-Seltzer effect in your lungs.

**Justin:**

Okay, great.

**Sydnee:**

So, he thought patients with emphysema had all this extra mu— They do, have all this extra mucous that builds up in the little air sacs in their lungs called alveoli, and that if you got an IV treatment of hydrogen peroxide, that all this extra oxygen will kind of bubble up between the little air sacs lining and the mucous.

**Justin:**

Uh-huh.

**Sydnee:**

And, like, push the mucous away and up and out and then you can cough up all the mucous.

**Justin:**

Excellent. Sure, that'll work.

**Sydnee:**

It just works that way.

**Justin:**

Sure.

**Sydnee:**

Um, he also used it—

**Justin:**

Is that what Alka-Seltzer's doing by the way?

**Sydnee:**

No.

**Justin:**

Okay, good.

**Sydnee:**

He also used it for trigger point injections so if you have a place that hurts, like, a place that's causing you a lot of pain he would just, like, get a little syringe full of hydrogen peroxide and stick it in there, like, in your back or whatever.

**Justin:**

Mm-hmm.

**Sydnee:**

Um, he used it for treatment of the flu. He did a— There was a small paper that, where he used it for treatment of the flu. Um, he founded both the International Bio-Oxidative Medical Foundation and the International Oxidative Medical Association. They sound pretty fricking similar.

**Justin:**

And either, well the first group needed another group to play in softball, so—

**Sydnee:**

Um, eventually both of these groups have become part of the American College for Advancement in Medicine, uh, under the healing oxidative medicine. That's actually where those groups kind of ended up which still exists today. Uh, he did also, by the way, found a company that sells a lot of alternative medicines.

**Justin:**

Hmm.

**Sydnee:**

Just on a side note.

**Justin:**

Weird.

**Sydnee:**

Um, he also declared... I think this is interesting because if you look at some of the studies that were done, it's funny, I was trying to find the original studies and I found, like, commentaries on, like, people who tried to repeat them and could never make them happen again.

Um, because there are these studies that have been done that said, like, "We injected hydrogen peroxide into rats with cancer and their cancer vanished." And then there are people who have followed up and said, like, "We tried to do that and we couldn't make that happen?"

**Justin:**

It seems like if it worked, we'd have heard something by now.

**Sydnee:**

Well, that's a big thing about, um, using the scientific method. Things have to be reproducible. So, you can't do it one time and then say, "I don't know. It's never worked again, but I know it worked because it worked that one time."

**Justin:**

Right.

**Sydnee:**

That's not science.

**Justin:**

Right.

**Sydnee:**

Um, but he declared that, I don't know if this— I don't know if this was in response to some of these questionable studies, but he declared that you— That, "no longer is the double blind study the gold standard in medicine."

**Justin:**

Just by saying it, he made it true.

**Sydnee:**

No longer. I would say because it's not working for me, but what he said actually was, "because alternative treatment protocols can significantly improve the health status of a group of chronically ill patients in a time span of only six months," so we don't need to do a double blind study because just do this and six months later you'll be healed.

**Justin:**

Okay.

**Sydnee:**

So stop studying this, okay, guys? Lay off.

**Justin:**

Just like they say at Nike, just do it. Or they will say at Nike in, like, a hundred years.

**Sydnee:**

I read some other places, um, because this is still kind of giving— Okay, so this is the direction we're going. This is still a big part of some people's practice of alternative medicine. Um, and this is not everybody. Not everybody practices complementary alternative medicine uses hydrogen peroxide, but there are some practitioners, uh, that you will find.

You will find a lot about this currently in practice, um, using hydrogen peroxide. I found recommendations that you should drink it in order to basically, like, cleanse your gut of all flora.

So, here we had our poop episode where we talked about how important all that good bacteria is. I read one recommendation, like, just keep drinking

hydrogen peroxide until all the bacteria and yeast and everything inside of you is gone and then you can replace it with yogurt.

**Justin:**

What a load of garbage. Like, uh, you know, like cavemen did. What?

**Sydnee:**

Um, there are lots of suggested protocols I found online, like, "If you want to start hydrogen peroxide therapy, use three drops in a glass of water three times a day. And then use four drops three times a day. And then you can use five drops four times a day."

**Justin:**

That would be so wildly diluted at that point. Are they still talking about food grade or are they—

**Sydnee:**

Yeah, that food grade 35% is what I found— Most of the time that's what people are recommending, the 35%. And then there was even, like, a weaning protocol, like, now if you want to stop it, you can't just stop. You have to wean yourself off the hydrogen peroxide water that you're drinking. Um, and you'll see things like people will mention, I said that about, like, "Oh, it's just like water but with more oxygen." As if that makes it safe.

**Justin:**

Or better.

**Sydnee:**

That is never how chemistry works, guys. Like, if you hear, like, "It's just like this but with a whole other oxygen or hydrogen or something attached to it." Like that changes the whole thing. The whole thing is different now.

You can't just... That's not how chemistry works. Um, but people will say that so that's, obviously it's natural, then or well, we found it in rainwater so it's the way that the earth cleanses itself. We found trace amounts of it—

**Justin:**

You're messing around.



**Sydnee:**

No, I'm not messing with you.

**Justin:**

Your contempt is showing a little bit, my dear.

**Sydnee:**

Uh, I found mentions that, "Oh, we've seen it in breast milk, so obviously if it's good for baby, it's good for everything else."

**Justin:**

Yeah.

**Sydnee:**

So, the reality is—

**Justin:**

You know what my baby eats sometimes? Lucky Charms. It doesn't make it good for humans.

**Sydnee:**

And it also doesn't cure cancer.

**Justin:**

Doesn't cure cancer. She just likes the marshmallows every once in a while.

**Sydnee:**

Um, the reality is that, you know, we haven't done giant studies on if hydrogen peroxide cures cancer. There you go. They're not out there. Uh, we really haven't even done huge studies on, like, pouring hydrogen peroxide on a cut to see if it works better than not.

We've done some studies. I'm not saying we haven't done any, but you're not going to find giant bodies of research on whether or not it should be in a first aid kit or not. Um, I don't know if that's just because in truth it's probably not that harmful so—

**Justin:**

Right.

**Sydnee:**

And it's cheap.

**Justin:**

It's so cheap that it's, like, not worth figuring it out.

**Sydnee:**

It's not worth figuring out, like, if— Because it's not really hurting anybody, but it might not be helping them either. It does, like I said, it does kill some bacteria in vitro, meaning in the lab. But in vivo meaning in real life, in your body, in humans, it's less convincing as to whether or not it really works.

Um, a lot of the problem has to do with time and concentration. So, when we kill things with hydrogen peroxide in a lab we might be using a stronger hydrogen peroxide and it may be, like, 10 minutes that we're exposing it to it, or 15 minutes or 20 minutes even.

**Justin:**

Which nobody does.

**Sydnee:**

Nobody does that with hydrogen peroxide. So that could be part of the problem.

**Justin:**

And even though you, even then you'd still be better with something, like, I don't know. Neosporin or something like that, right?

**Sydnee:**

Probably, yeah. Yeah. I mean depending on the situation but yeah. Um, it doesn't appear to— You know, one of the big concerns is does it slow wound healing. So, if you use it once, probably not. Um, repeated uses of it, they have seen some evidence that it can cause blisters to form so maybe it's not so good for new skin that's trying to grow back.

As I mentioned, that's why I tell people when they're healing a wound, don't

just keep dumping hydrogen peroxide on it. You could be slowing down that new skin formation. Um, but overall it doesn't— Maybe it doesn't slow the healing of a wound, but it also doesn't make it heal any faster. And they've never really proven that it decreases infection rate or the bacterial load inside a wound. So, what is it doing? Nothing really.

Um, and like I said, in some studies it caused blisters to form. It may be actually damaging some of the tissue, some of the cells. Um, it is, just on a side note, it is something that is naturally recurring in your body. So, when people say that they're not crazy. That's true.

Inside some cells in your body, they have little compartments that house hydrogen peroxide. They're called peroxisomes, those little compartments. And they'll like take in... These cells are sneaky. They'll take in bacteria or viruses or something and then that little peroxisome will open up and kill it with hydrogen peroxide.

**Justin:**

Okay. Mm-hmm.

**Sydnee:**

And kill the cell, too. Um, so yes your body does use it. It also uses it to send some signals inside your body, um, to, like, call white blood cells to sites of infection or something. So, it is useful inside the human body in trace amounts but that doesn't necessarily mean we need to bathe in it. Um, it has been used, as people have mentioned, in dentistry for a long time to whiten teeth. And there are even like trays that you can put...

**Justin:**

Sure, yeah.

**Sydnee:**

...to fight periodontal disease, uh, of hydrogen peroxide where you can like put it up against your gums. But it holds it there for a while.

**Justin:**

Right.

**Sydnee:**

That's one thing to think about, to, like, kill bacteria-like films that can develop and stuff. Um, if you look at, like, what does the CDC recommend it for. It is an effective disinfectant when used on inanimate surfaces. So, if you want to wash your counter with it or whatever, that's fine.

And we used it in there not as much, um, in the U.S. maybe, in terms of medical equipment, like an operating room or something like that. But in a lot of other countries you still find that hydrogen peroxide is used to clean things, clean equipment.

But you've got to be really careful because if you're going to clean something that then is going to be used on the human body with hydrogen peroxide, you've got to wipe it all off because they've seen cases of, like, cleaning an endoscope that would, that's used for a colonoscopy, the camera that goes up inside the colon, cleaning it with hydrogen peroxide and then not rinsing it off well enough and it cause, like, a colitis, an inflammation.

**Justin:**

Great.

**Sydnee:**

Um, and then you should be careful using it inside your mouth because it can damage mucous membranes. That's why you shouldn't use it in your mouth. You shouldn't douche with it. You shouldn't use it as an enema. Um, I mean at least at home. If your dentist is using an appropriate solution of it, that's one thing, but you shouldn't just be, like, nonstop using hydrogen peroxide unsupervised.

**Justin:**

So, it— Let me know. I'm overgeneralizing here but, or I am generalizing I should say. But, I mean, it, it sounds like not that effective, but probably not that harmful, but again, just to reiterate, probably not that effective.

**Sydnee:**

Yeah.

**Justin:**

Like if I want to dump something in a cut there are worse things, but there are probably better things?

**Sydnee:**

Exactly. You're probably, I mean the thing is you're probably not doing much. I would say if you want to clean a cut out, you're better off, if you need to clean it out at all just wash it with soap and water. And if you need something that's actually bactericidal that kills bacteria, you are probably better off with something that actually has, like, an antibiotic in it, um, as opposed to hydrogen peroxide for one. Um, and two, if you want to use a mouthwash, use a mouthwash.

**Justin:**

Yeah.

**Sydnee:**

You know. And leave it to your dentist to put hydrogen peroxide in your mouth because they can do it safely.

**Justin:**

And, and anything beyond that the person's just uh, a jerk wad for saying it'll cure cancer.

**Sydnee:**

It's— [sighs] I said this before we started recording and I still don't understand. Please, I hope— Let me just say this. If doctors had some secret cure for cancer, especially something as cheap and easy to get as hydrogen peroxide, please believe me we'd tell you.

I mean I would love that. I love when there's some sort of cheap, easily available alternative that I can tell my patients to get as opposed to having to go through the prescribing and the paying for and the fighting with insurance companies.

There is no secret conspiracy. We're not hiding anything from anybody. And if a website is telling you that and that the secret has been hydrogen peroxide all along and your doctor doesn't want you to know, I'm sorry, that's crap.

**Justin:**

Hey, listen, y'all. Thank you so much for enjoying our show, or listening to our show. I hope you enjoyed it. Uh, I shouldn't make assumptions. If you want to follow us on Twitter we're @Sawbones. I'm @JustinMcElroy, M-C-E-L-R-O-Y.

**Sydnee:**

And I'm @SydneeMcElroy, S-Y-D-N-E-E.

**Justin:**

And, uh, if you could take a moment. If you like the show, uh, this seems like a general interest one. Uh, maybe share it on your Facebook or your tweetos and, uh, leave us a rating or review on iTunes. All that stuff really helps us out and helps to get the word out. And you can save someone else from the terrible fate of paying \$2.27 for a bottle of hydrogen peroxide. Sawbones has your back. [laughing]

**Sydnee:**

[laughing]

**Justin:**

Until next time that's going to do it for us. Oh, thanks to the Taxpayers for letting us use their song, Medicines, as the intro and outro of our program. Uh, um, go buy all their records. I don't know if they have records. They probably have records.

**Sydnee:**

Sure.

**Justin:**

Yeah, sure, they have records. All their songs, all their music.

**Sydnee:**

All their music.

**Justin:**

Uh, until next Wednesday, 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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