

## **Sawbones 003: Bloodletting**

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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. My name is Justin McElroy.

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

**Justin:** Sydnee, I wanted to say happy anniversary, my love.

**Sydnee:** Well thank you Justin.

**Justin:** When you're listening to this... Not when you're listening to it, when we're recording it, it is-

**Sydnee:** Well, we record live obviously. I mean, obviously this is live to you directly. You can tell because we hired an intern to sit in the room and go "beep" every time we accidentally use profanity.

**Justin:** Yeah, he's probably overpaid. That's his only job.

**Sydnee:** Are you bored back there, Jerry?

**Justin:** "Beep!" No, he's fine.

**Sydnee:** No, he's good.

**Justin:** Sounds like he's fine.

**Sydnee:** He's good.

**Justin:** Happy anniversary sweetie.

**Sydnee:** Well thank you, happy anniversary to you. I'm glad you brought that up, because of course it is tomorrow our seven year anniversary.

**Justin:** Wow.

**Sydnee:** So I got you a present.

**Justin:** Oh gosh. That is too sweet.

**Sydnee:** Yeah, I want to share it with you here, live, on the air.

**Justin:** I thought we weren't getting each other anything, you said...

**Sydnee:** I know, but you know, I've been thinking. Seven years we've been married now and I mean, let's be honest honey, it's--

**Justin:** The magic's gone.

**Sydnee:** No.

**Justin:** Oh.

**Sydnee:** But it's starting to show on you, a little bit, right?

**Justin:** Oh, okay.

**Sydnee:** You know? I mean, you look seven years older. I think that's fair to say.

**Justin:** Huh, interesting. Okay.

**Sydnee:** Don't you think you do?

**Justin:** Huh. No. Huh. Good to know.

**Sydnee:** Would you say that I do?

**Justin:** No. Not at all. I would never... I would never say that in a million, bajillion years.

**Sydnee:** That would be a good thing to say.

**Justin:** No, I think it would actually be, considering that you are my wife and I love you very much, I think it would be inadvisable for me to say that.

**Sydnee:** No, it would be good for you to... No, it's good for you to say exactly what you said.

**Justin:** Correct.

**Sydnee:** Right.

**Justin:** Okay, I did good. Did it good. Justin did good.

**Sydnee:** But I bet you've been wondering, that's probably not just a line, you've probably just wondered how I've kept my youthful glow for so long.

**Justin:** I assumed witchcraft.

**Sydnee:** No. It's a secret much older.

**Justin:** Tell me.

**Sydnee:** Well here it is, let me give it to you. Open this box.

**Justin:** Okay. Let me just... Gosh. It's leeches.

**Sydnee:** That's right.

**Justin:** This is a box of leeches.

**Sydnee:** You're welcome.

**Justin:** I don't... What am I going to do with a box of leeches? How does that have any bearing on what we're talking about?

**Sydnee:** Well, much as what I imagine is the basis for, you know, that hit film, "Death Becomes Her."

**Justin:** Right. Hit classic. Classic, you may see it on the AFI Best Movies to Watch list.

**Sydnee:** Exactly. What you didn't know is that the original script for that movie was just a bunch of women applying leeches to themselves. But everybody thought that would be kind of gross.

**Justin:** No, an assortment.

**Sydnee:** Because leeches, which obviously, you know, suck your blood. There are many people who believe that using leeches periodically to, you know, remove some blood and... Well, really just blood.

**Justin:** Just blood.

**Sydnee:** And whatever's in the blood. Might improve your youthfulness, your vigor. Make you look more beautiful and young.

**Justin:** Leeches?

**Sydnee:** Yes. Leeches. Leech therapy. I think, actually maybe even Winona Ryder tried this at one point.

**Justin:** That explains it. Because she still looks Lydia fresh.

**Sydnee:** She is youthful.

**Justin:** She is youthful.

**Sydnee:** She is youthful.

**Justin:** Eternally youthful.

**Sydnee:** Right.

**Justin:** She's like the Dick Clark of... But alive, obviously.

**Sydnee:** So I thought that would be a good... Well, one, a good present for you, and two I thought that would be a good thing for us to talk about.

**Justin:** So leeches are... This is an old thing, right? This is not like a new invention that you and the other ladies in your leech circle invented?

**Sydnee:** In my leech circle, yeah. We sit around, we do hot yoga, and then we leech each other. That sounded terrible.

No, leeches are probably the oldest bloodletting... I shouldn't say leeches. Obviously, leeches are a way of bloodletting. But bloodletting, the concept of getting rid of blood in order to improve your health in some way, is one of the oldest medical practices, for probably 2,000 years.

**Justin:** Wow.

**Sydnee:** And it continued until the 1900s, and I'm even going to clue you in on some ways that it's still used today.

**Justin:** So let's go back to the beginning though. I find a leech. I put it on me. Who am I? Where am I? When am I?

**Sydnee:** Well, you could be anywhere. Literally anywhere in time or in the world. The Mesopotamians practiced bloodletting. The Egyptians, the Greeks, the Aztecs. The Mayans. Everybody.

All over the world, ancient civilizations practiced bloodletting. The idea, when you start looking at who wrote about it and talked about why they did it, if you look back to like 5<sup>th</sup> century Greece, Hypocrates probably started this idea.

Basically the idea is that people would have plethoras.

**Justin:** A plethora.

**Sydnee:** A plethora. Which we thought meant they had too much blood.

**Justin:** Oh, okay. So it's a fake thing, not a real thing.

**Sydnee:** Yes, it's a fake thing.

**Justin:** Okay.

**Sydnee:** So we thought people had too much blood-

**Justin:** I won't learn it then. I won't commit it to memory if it's fake.

**Sydnee:** Do you commit any of this to memory?

**Justin:** No ma'am.

**Sydnee:** Okay.

**Justin:** Who are you again?

**Sydnee:** Exactly. So people had too much blood and they would have all kinds of symptoms because of it. I mean, and really, we thought people had too much blood so they'd get what we would now call a fever. Or they'd have a headache. Or they would have a stroke.

We don't know. Any of these things we thought, well, there's probably just too much blood.

**Justin:** And it's not like a completely crazy thing, right? You can see where someone might come to that conclusion, because, for example, when you have an inflammation somewhere, that's the blood rushing to that area.

So it would make sense that they might think "Oh, well they have too much blood", because they would see so much of it amass in one place.

**Sydnee:** That's a very good point and I'm really impressed you know what inflammation is.

**Justin:** Wooo!

**Sydnee:** Yeah. I just gave you credit for that.

**Justin:** I'm doing my R. Kelly dance, if you could see at home. You can't see it, but man, it's good.

**Sydnee:** It's pretty hot.

**Justin:** It is good.

**Sydnee:** So no, you're right, absolutely right. It does make sense that somebody would be... Say they have a fever and they look flushed and sweaty and their head's hurting and you think, "Ah, they've got a bunch of extra blood up there!"

And it made sense too, if you consider-

**Justin:** "Hey, I know what your problem is!"

**Sydnee:** When you go back, one of the predominant medical theories, well, if you can even call it a medical theory. It's just random guesses as to how our bodies work, were the whole four humors theory.

**Justin:** Okay, I know a little bit about these. The four humors. What are they? Recap for me.

**Sydnee:** Well, why don't you tell me what you think the four humors are?

**Justin:** Well, the four humors are Mel Brooks, Jerry Seinfeld, Syd Caesar, and Carl Reiner.

**Sydnee:** Okay. [laughs] That was good. I like how timely that joke was too. [still laughing]

**Justin:** Yeah, I have some... Well, it's a mixture of old and new.

**Sydnee:** I like how current it was. You're really aiming at like the 18 to 24 year old demographic there with that one, aren't you?

**Justin:** I'm right in the middle of the demo. I think that's true.

**Sydnee:** Okay. No, those aren't the four humors.

**Justin:** Fair enough.

**Sydnee:** So they were blood, black bile, yellow bile, and phlegm.

**Justin:** Now, black bile and yellow bile. Are those real? Are those real things?

**Sydnee:** I mean they're... Well, I mean, there's bile, there's blood, there's phlegm, all those things are real. But not in the sense that they thought... Not in the way that they thought they were real.

**Justin:** So how might we try to balance those out if they get a little awry, a little askew?

**Sydnee:** So they're all responsible for different bodily functions. In all honesty, I don't know all of the things that we thought these different things did.

I mean, I know what blood actually does, but—

**Justin:** That's because it's made up. It's not real. You don't want to learn that.

**Sydnee:** But the idea was that you had to keep them in balance. And if something was... If you had too much of something, or too little of something else, the way to get your stuff back in order was to get rid of something.



**Justin:** Okay.

**Sydnee:** So you either threw up, so we gave you an emetic, you know, ipecac or something herbal like that. Or we gave you a diuretic.

We did know of certain plants that you could create decoctions out of, basically boil them down and drink something. It would make you pee a lot. Or make you have like massive diarrhea, that too.

**Justin:** Like earth-shattering diarrhea.

**Sydnee:** Earth-shattering diarrhea, like the greatest diarrhea you've ever had.

**Justin:** Echo down through the ages, your ancestors are still talking about this diarrhea.

**Sydnee:** Or, if you had too much blood, you, you know, bleed yourself.

**Justin:** Put a leech on it.

**Sydnee:** Get rid of it.

**Justin:** Put a leech on it.

**Sydnee:** You could put a leech on it, absolutely. You could also exercise a lot, I don't think I said that.

**Justin:** That gets the sweat out?

**Sydnee:** That gets the sweat out. You could sweat out... I don't know, I think you probably sweat out black or yellow bile, maybe? I don't know.

**Justin:** That seems... Okay.

**Sydnee:** I don't think you sweat... I don't know what they thought you could sweat out, but they thought you could sweat out something.

**Justin:** That's like the grossest.

**Sydnee:** Yeah. I mean, it is pretty... It's pretty gross.

**Justin:** How did they not know... I mean, can't you just look at somebody who's been exercising and know that they haven't sweated out any black bile? Or yellow bile? Or any bile, really?

**Sydnee:** I don't know that they knew exactly what black or yellow bile was. I imagine that fluids came out of peoples' bodies and they went, "Well, that's yellow."

**Justin:** That's bile.

**Sydnee:** And I mean-

**Justin:** What you got there is bile.

**Sydnee:** And people would get really angry, and so they'd be like, "Well, it's bile. Because they're really angry, so bile makes you angry."

**Justin:** It's bile.

**Sydnee:** I think bile was supposed to like, "Grrr."

**Justin:** So let's focus, let's drill down, on bloodletting specifically as balancing the four humors.

**Sydnee:** Okay, so the idea was, you know, we know all these other ways to get rid of the various biles and phlegm, how can we get rid of blood?

**Justin:** Okay, I know one. Stabs.

**Sydnee:** Stabs. That's a great one.

**Justin:** Stabs are good.

**Sydnee:** That's a great way. That's a great way. But-

**Justin:** Nosebleeds.

**Sydnee:** They wanted to be... It's like, if you're going to make up a medical theory-

**Justin:** Just try a bunch. This only works for vampires.

**Sydnee:** [laughs] That was a... I liked that.

**Justin:** Yeah.

**Sydnee:** That was good.

**Justin:** Topical humor.

**Sydnee:** Yeah.

**Justin:** I say topical humor because we just watched True Blood.

**Sydnee:** So there you go.

**Justin:** So it's topical for us, now.

**Sydnee:** So it's topical for two people in this room. Jerry doesn't watch True Blood.

If you're going to make up a medical theory, like the four humors, and then you're going to bleed people, you may as well make up a whole way to bleed people. Why not?

So Galen developed this entire system-

**Justin:** Who's Galen?

**Sydnee:** He's like an ancient physician guy. There's some-

**Justin:** Like a mummy?

**Sydnee:** You got some stuff in your body that's named for him, trust me.

**Justin:** Okay. Got it. I'll take your word for it. Wait, Galen's process? Is that a thing?

**Sydnee:** I don't know what you're talking about.

**Justin:** Xiphoid... Xiphoid...?

**Sydnee:** No, that's the xiphoid process. Galen's process?

**Justin:** Galen's process? Galen's.... sign? Is there a Galen's sign? Is there a Galen's... Galen's... hoedown?

**Sydnee:** You don't know any... [sarcastic] Yes, Galen's hoedown.

**Justin:** Where is my Galen's hoedown, in my body?

**Sydnee:** [laughing] You're not old enough to know yet.

**Justin:** Okay, maybe when I'm in my 40s.

**Sydnee:** Galen developed a whole system of what vein or artery to bleed depending on what your symptoms are and how much you should get rid of and all this.

And he was actually the first one to discover that we have blood in our arteries. They used to think that we had blood in our veins and our arteries were just full of air. We were probably better off before we figured that out.

**Justin:** Yeah.

**Sydnee:** Because then he started cutting open arteries.

**Justin:** Oh man. Oh Galen.

**Sydnee:** And you could do this for anything. That was the idea, was you know, you used bloodletting to treat basically anything that was wrong with anybody, ever.

So acne. How about we bleed you? You had a stroke?

**Justin:** Yeah, I did.

**Sydnee:** Maybe a seizure?

**Justin:** Sure.

**Sydnee:** Maybe you've got the plague.

**Justin:** Mmm.

**Sydnee:** Maybe you've got tetanus. Maybe you've got tuberculosis. Whatever. We'll bleed you.

**Justin:** For all of that?

**Sydnee:** For all of that. Bloodletting was a cure... Well, thought to be a cure, for everything. In fact, it was thought to be a cure for... bleeding.

**Justin:** [laughs] Um, that sounds kind of ridiculous.

**Sydnee:** I know, and that was a thought. "Hey, is your wife menstruating too much? I got an idea."

**Justin:** This is actually an interesting lesson from past medicine that I'm starting to pick up on, a common theme. And we're seeing some of these emerge as we talk more about medical history.

If you want to know if something is made up, and I think this is probably applicable today, something you could keep in mind in your day to day life now. If something is a cure-all, and I mean literally like, "Oh, you got asthma? No problem. Bloodletting. Leprosy? Bloodletting. Scurvy? Bloodletting."

Like, this is a recurring theme. Mercury, where it's like, "Oh, you're too sad? Mercury. You angry? Mercury. Happy?"

**Sydnee:** You got syphilis?

**Justin:** Got syphilis? Put some mercury on it. I think that you should be suspect of any treatment that someone is like, "Anything. It's good for anything." Because then it's probably not good for anything, actually. Probably good for nothing.

Probably good for making me so sad that I almost lose the Civil War. Only applicable to Abraham Lincoln, but still.

**Sydnee:** That's absolutely true, because it really... Once it took hold, and it was great, because it was something that you could explain to people, based on the whole four humors theory.

And so it sounded really... I mean, that's a very simplistic theory. You've got to balance this stuff, we need to get rid of one of them.

**Justin:** Sure.

**Sydnee:** Very simple. You can explain it to the layman, you know?

**Justin:** See, I would have insisted. I would have been a real pioneer. I would have insisted that you just add more of the other three, until I become some sort of Superman. Some sort of like... So many humors that I just waddle around like the Michelin Man. My skin stretched...

**Sydnee:** Just sloshing with humors.

**Justin:** [laughing] Just sloshing with humors.

**Sydnee:** Yeah, do you want to be the first one to get extra phlegm?

**Justin:** [laughing] Just give me a phlegm injection.

**Sydnee:** Ew.

**Justin:** Put it right in my goiter.

**Sydnee:** The thing was that it was also easy to do. I mean, so it's easy to explain, and it's to do. You know, "So how are you going to do this?"

**Justin:** "Just cut him open."

**Sydnee:** "Man, just cut him open." I mean, you could do something easy, the phlebotomy or venesection, just cutting open a vein, using a phlebotome, which is just-

**Justin:** Sure.

**Sydnee:** Just a, you know, like a knife, a scalpel thing they used at the time.

You could do arteriotomy, which is like puncturing an artery. And they usually actually used your temporal arteries.

**Justin:** Whoa.

**Sydnee:** Those are on your temples, as you may imagine.

**Justin:** Those are bad ones, right?

**Sydnee:** On your head there.

**Justin:** Those are bleeders?

**Sydnee:** Yeah, well, I mean, arteries in general are bleeders. [laughs]

**Justin:** Well, you don't have to laugh at me. I mean, come on, it's our anniversary.

**Sydnee:** Yeah, those are bad ones. They're on your head.

**Justin:** Sure.

**Sydnee:** Try not to poke the arteries on your head.

**Justin:** You've gotta keep that head blood in place.

**Sydnee:** They had a tool called a scarificator, you could do scarification.

**Justin:** And what is that?

**Sydnee:** It's like this little spring-loaded box with a bunch of sharp blades in it. And you just hold them on your arm and you could make parallel cuts on your arm or leg or whatever, all at the same time.

**Justin:** Okay, no, I've seen this. You have to put your hand in it to get the key out, because it's the only thing that can unlock you, but then by pulling the key out you fire up a chainsaw that kills your friend.

Yeah, I saw Saw, I know how these things go.

**Sydnee:** That's exactly what it was. That was the impetus for Saw, the Saw movies.

**Justin:** That's how the Saw movies were invented.

**Sydnee:** Thank you. Now we have shared with you the origin story of the Saw movies.

**Justin:** [As Jigsaw] "The problem you have, is too much blood, and also phlegm."

**Sydnee:** [laughs]

**Justin:** [As Jigsaw] "To your right you'll see more phlegm. Your friend is a little low on phlegm. Top him off."

That's my Jigsaw impression.

**Sydnee:** I think that was a good Jigsaw impression.



**Justin:** Thank you, Sydnee.

**Sydnee:** Jerry's terrified.

**Justin:** Look at him over there. He's just quivering.

**Sydnee:** So that was... Those were the main ways that you did bloodletting, that was the main thing to do. And it was pretty popular until about 1163 when the Church, actually, because you know, the...

And when I'm talking about the Church, I'm really talking about the Catholic Church at the time, was obviously full of religious people. But they were also learned men. And they read a lot, and they realized that bleeding people was probably not working very well.

There was no evidence that it was helping, most of the time. If it helped, by the way, if it helped to do anything, the only thing we thought, in theory, it may have helped with, was hypertension. Because if you have less blood...

**Justin:** Sure, right.

**Sydnee:** You have less blood pressure. Now, that's not a treatment for hypertension. I would not advise that. But there you go.

**Justin:** Right. So the Church turned against it in 1163.

**Sydnee:** Uh-huh.

**Justin:** Now the only time the Church will bleed you dry is when the collection plate is passed around.

**Sydnee:** [sarcastic] Good one.

**Justin:** What is up? On the edge.

**Sydnee:** Ooh.

**Justin:** George Carlin, pushing the envelope.

**Sydnee:** [still sarcastic] Edgy.

So at that point, of course, who's going to pick up that, you know, that torch, who's going to keep carrying it? Well, barbers.

**Justin:** Oh, sure. Right.

**Sydnee:** Obviously.

**Justin:** They already had sharp things lying around, they figured, why not?

**Sydnee:** [sarcastic] History's rebels. Barbers.

**Justin:** [sarcastic] The bad boys of medicine.

**Sydnee:** [sarcastic] The bad boys of medicine. Barber-surgeons.

So they started bleeding patients. And they would... Actually, barbers did all kinds of stuff. They'd do, you know, bleeding. They would do tooth extractions. They would do amputations. Presumably they'd cut your hair. Offer you a shave.

**Justin:** Yeah. As long as you were in there.

**Sydnee:** So a physician would see you and write you a prescription for bleeding, and then you'd go to a barber and they'd cut you up.

**Justin:** Could they write a prescription for a haircut too? "Also while you're in there, you need 10ccs of a trim."

**Sydnee:** "Also, while you're in there, that mullet, it's not working."

**Justin:** "I know the walrus moustache is very popular right now, but it is not working for your face."

**Sydnee:** "It is 1520, what are you doing?" So, and they continued to do that as late as 1923. Sir William Osler published *The Principles and Practices of Medicine*. And he was still talking about bloodletting. 1923!

**Justin:** Dude, get the `net. It's over.

**Sydnee:** What you're probably wondering is, where did the leeches come in?

**Justin:** Yeah. Right. I'm ready.

**Sydnee:** Right? So everybody's getting bled all the time. And most of the time they're just cutting people open. But then, in the 1800s, they got the idea that, you know what? Let's take a more natural approach to this.

**Justin:** Homeopathy.

**Sydnee:** Homeopathic approach. And that's where hirudotherapy, which comes from the *hirudo medicinalis* which is the latin name for leeches. Hirudotherapy became popular, where you just...

You know, we already have these creatures that suck your blood. And they actually release a natural anticoagulant, so to make your blood not clot, as they're sucking it, called hirudin.

And so it seemed like a really good idea. We'll just put leeches on people, apply until syncope, which means passing out. That was the general idea. Just put `em on there until you pass out and then take `em off.

**Justin:** [sarcastic] Perfect. Perfect. Perfect. No danger there. That seems all perfectly safe and reasonable.

**Sydnee:** [sarcastic] Doesn't that seem like a great idea?  
And do you know that in France it was really popular, they imported, in the 1830s, 40 million leeches a year, for medical uses.

**Justin:** Where are they all coming from?

**Sydnee:** I don't know.

**Justin:** Bogs, I guess?

**Sydnee:** I guess... Yeah. Leech bogs.

**Justin:** That bog from Stand by Me.

**Sydnee:** [sarcastic] All of them came from there.

**Justin:** [sarcastic] That's the only place you can find them naturally occurring.

**Sydnee:** I don't think that was a bog, I think it was a pond, honey.

**Justin:** It was something... What is the difference? You tell me. Look at me in the eye and tell me what the difference between a bog and a pond is, right now.

**Sydnee:** I am a medical doctor. I don't know.

**Justin:** I'm not a pond doctor!

**Sydnee:** Do you know that the modern word, "leech", is derived from a latin word for physician?

**Justin:** Yeah, well...

**Sydnee:** One of an old Latin one or something.

**Justin:** Tell me about it.

**Sydnee:** Hey!

**Justin:** Hey.

**Sydnee:** Hey. But that's how but that's how entwined leeches and medical practice became after that point, which I think is really interesting, that, you

know, it became the name for a doctor is a leech... You know, the name for a leech is derived from the name for a physician.

**Justin:** Are there famous people that got this?

**Sydnee:** There were a couple famous people who were bled. One, that you may have heard of, father of our country George Washington.

**Justin:** Okay, all right. That's what I was thinking of and I didn't want to embarrass myself by suggesting it. But yeah, he was bled, right?

**Sydnee:** Yeah. And that may actually have contributed to his death.

**Justin:** Oh no!

**Sydnee:** So he had a retropharyngeal abscess, so an abscess like in the back, back of his throat, like behind his throat kind of area.

**Justin:** Oh, they put a leech back there?

**Sydnee:** No, but they thought-

**Justin:** [sarcastic] Cool day!

**Sydnee:** You know, we didn't have antibiotics, let's just stick leeches on him.

**Justin:** Sure.

**Sydnee:** So they did. And then he died. But we don't know that it was because of leeches, but that can't have helped.

**Justin:** And you know what? Don't be too sad. He would be dead by now anyway. You would have never gotten to meet him.

**Sydnee:** That's fair.

**Justin:** If that's what you're worried about at home, that they robbed you of your chance, don't worry about it. He would be many years dead.

**Sydnee:** That's an excellent point.

**Justin:** That's what I think about.

**Sydnee:** He would be dead by now.

**Justin:** A lot of times if I get sad that a famous person got killed, a long time ago, what i really think about is, they would be dead anyway. So why try to alter... Don't cry over spilled dead people.

**Sydnee:** Exactly.

**Justin:** You couldn't have met them. They would be dead. No way.

**Sydnee:** Stop trying to build that TARDIS and get over it.

**Justin:** Just get over... Let that ship sail.

**Sydnee:** Marie Antoinette was also bled.

**Justin:** I could have met her. But I didn't.

**Sydnee:** Well, she didn't die though.

**Justin:** Oh, okay. Well, she-

**Sydnee:** I mean, she did die.

**Justin:** So she's still alive somewhere?

**Sydnee:** No, she's not alive now, as far as I know. She didn't die, but she was bled... It was actually not uncommon to bleed women prior to childbirth, or if they have any problems immediately afterwards, to bleed them. Which is a really terrible idea.

But she became very ill right after she gave birth. She was hurting, which makes sense, like, you should. So they bled her and then she passed out and woke up and felt better.

**Justin:** Oh, good.

**Sydnee:** And so-

**Justin:** And there we go, another case. Another evidence, that we can use in the case for leeches.

**Sydnee:** You know, I think that's my favorite idea, is that we used leeches, and we used bleeding therapy, for people who were bleeding. I think that's the most fascinating to me, is that-

**Justin:** Well, I mean-

**Sydnee:** Because it really flies in the face of the original theory, which is that we need to get... You have plethora, we need to get rid of blood. Well, you're getting rid of blood.

I mean, this is great. If they were going to amputate your leg, if they were going to cut off your leg, ahead of time, they would remove as much blood as they thought was in the leg.

**Justin:** Oh my god.

**Sydnee:** So they'd get rid of-

**Justin:** What are you doing?

**Sydnee:** Which you'd think, the first time you cut somebody's leg off and it bled, you'd go, "Well, I guess there's still blood in there. That's probably not a good idea."

**Justin:** "Yeah, I guess that didn't make any sense. I guess it goes through your whole body, maybe. Or something. I don't know. I'm not a scientist"

"You are a scientist! Just because it's in the 1800s doesn't mean you're not the best they have right then."

**Sydnee:** We knew about veins! We knew that.

**Justin:** We knew about all that stuff. We may have thought there was air in them, but we knew something was up.

**Sydnee:** We knew something!

**Justin:** Something about veins and stuff. Man, that makes... I mean, to be fair, if you do bleed someone with leeches, they will stop bleeding out of other holes. Just by process of elimination. I mean, eventually, the bleeding will stop. In their defense.

**Sydnee:** That's true. All bleeding stops eventually. [sarcasm] That's a good... We learn that rule early in medical school. All bleeding stops eventually.

**Justin:** Now, are there... This isn't still going on today, of course?

**Sydnee:** Bleeding?

**Justin:** Any of it.

**Sydnee:** Bloodletting? Yes.

**Justin:** Oh, no.

**Sydnee:** Yeah, absolutely. Actually, the most horrifying process, I think, if you consider cutting somebody's vein and a little scarificator and then leeches, leeches are still being used. Today.

**Justin:** Oh, you're kidding me?

**Sydnee:** No.

**Justin:** Really? Not... In developing nations and places where science isn't as far, sort of...

**Sydnee:** Nope. In the US of A.

**Justin:** You're kidding me?



**Sydnee:** Yeah, it's considered a... I don't want to say cutting edge, because that implies that it's a new idea, and it's an old idea, but it has had a renaissance, as it were.

So, here's the way we use it now. Let's say that... Well, let me cut your finger off.

**Justin:** Okay.

**Sydnee:** Can I cut your finger off?

**Justin:** Sure, one second. [cutting noise] Ahh!

**Sydnee:** Okay.

**Justin:** Cut off.

**Sydnee:** Now, let's say that I knew how to reattach it.

**Justin:** [laughs] Wonderful. We should have gone through this before.

**Sydnee:** I don't know how to reattach it. But if I did, if I were a surgeon who specialized in reattaching limbs. And specifically microsurgery, like fingers, then i would be really good at connecting all the arteries. because they're bigger. They're easier to see. You know where the arteries are.

So I'd be really good at sewing all the tissues together and connecting all those little muscles and tendons and arteries back together, right?

**Justin:** Okay.

**Sydnee:** The veins are so tiny that you can't reconnect them. you can't sew them on. you can't just piece them all back together and sew them back up. So what happens is, you know, arteries carry blood away from the heart to the body, and veins carry blood back to the heart.

**Justin:** Right.

**Sydnee:** You remember that?

**Justin:** Yeah, sure.

**Sydnee:** So, the arteries are taking the blood from your heart to the finger that's been reattached. But then all the little veins are broken, so they can't carry the blood back away from it. So it gets congested. Plethora, if you will.

**Justin:** Yeah.

**Sydnee:** It gets plethora. So it's all congested and you've got all this blood that can't return and it gets swollen and it's painful. And it can start damaging the structures and make tissue healing impossible.

So we need to get rid of some of that blood.

**Justin:** So leeches.

**Sydnee:** So we put a leech on it.

**Justin:** Now, isn't that a short-term fix though? I mean, wouldn't you continue to have these issues with the blood getting back to your body?

**Sydnee:** No, because eventually the veins will reattach. They'll heal. You'll develop what we call collateral circulation. So other new blood vessels will grow.

**Justin:** Huh.

**Sydnee:** So eventually you will get normal function in that finger. But in the meantime, to save that appendage, we can put a leech... And not all hospitals do this. Not all facilities offer this.

Like at the hospital where I work, I think if I tried to bring a leech into an operating room, people would freak out. But there are hospitals where they do this commonly, and with really good results.

**Justin:** Sydnee, if people want to read more about bloodletting, if they want to learn more, are there any resources online that they can go check out?

**Sydnee:** Do you mean real bloodletting or fake?

**Justin:** Either way.

**Sydnee:** So if you want to learn about real bloodletting, you can just look up hirudotherapy, leech therapy, bloodletting. I would type that into your search engine of choice.

**Justin:** Okay.

**Sydnee:** And read about it. And I-

**Justin:** Put it in into Dogpile, or AskJeeves about hirudotherapy.

**Sydnee:** Ask Jeeves about it. I think that's what everybody uses now, right? AskJeeves? If you want to know nothing about actual bloodletting but you do want to laugh, I would recommend [bloodletting.org](http://bloodletting.org).

**Justin:** Now what's [bloodletting.org](http://bloodletting.org)?

**Sydnee:** Well, [bloodletting.org](http://bloodletting.org), it really has to do with choosing your own destiny, and the limits of your imagination.

**Justin:** What are you talking about?

**Sydnee:** Well, it's basically an RPG fantasy world, where vampire slayers, werewolves, witches and angels interact, roleplay, fight and engage in war with each other.

**Justin:** Okay.

**Sydnee:** I just read that off of the website.

**Justin:** Off of [bloodletting.org](http://bloodletting.org)?

**Sydnee:** Off of bloodletting.org. I think it's some kind of game.

**Justin:** Nothing leech related, right?

**Sydnee:** There is nothing leech related. There is nothing scientific. Well, I don't want to say that. There might be science here. I don't see it when I look at the screen.

**Justin:** But it's possible that someone in here is a science person.

**Sydnee:** I do see, in the news and updates section, that there's a zombie threat.

**Justin:** Okay, good.

**Sydnee:** And there are some worm reviews.

**Justin:** What?

**Sydnee:** I don't know.

**Justin:** We don't understand any of this, but we are playing it every hour on the hour, so if you want to come join us in bloodletting.org-

**Sydnee:** We're not really playing it.

**Justin:** We don't actually. It is not bloodletting related, but we did stumble upon it during Sydnee's research and wanted to... I see they stole a picture of Kain from Legacy of Kain they're using in the logo there. Maybe have a case against them.

**Sydnee:** Ooh. Oh, now we've just exposed them. These poor guys.

**Justin:** These poor guys.

**Sydnee:** Why did we do that?

**Justin:** I don't know why we put them on blast like this.

Wanted to thank you so much, you at home, for listening to our program, Sawbones: A Marital Tour of Misguided Medicine. We've launched this show just recently, and your response has been so fantastic. If you can, please go to iTunes, search for our program, give us a subscription and a review if you have the time.

Follow us on Twitter, @sawbonesshow. Then make sure you go to maximumfun.org, and you can check out all the podcasts there. They've got a lot of great ones, like Judge John Hodgman and Stop Podcasting Yourself, all those guys.

**Sydnee:** And My Brother, My Brother and Me.

**Justin:** Oh, that's a classic.

**Sydnee:** He's not allowed to say it, he looks at me really hard and goes, "Come on."

**Justin:** Come on, do it!

**Sydnee:** "Mention my other podcast."

**Justin:** Please!

So go to maximumfun.org, check out those podcasts. Go to the forums, you can talk about our program and so much more.

**Sydnee:** You can all mention how I did not talk about hemochromatosis, which is a real disease that we use bloodletting for today.

**Justin:** Oh.

**Sydnee:** So now I've said it, doctors. All you medical students who're going to yell at me for it.

**Justin:** Back off.

**Sydnee:** I've said it. I know about that, it's just not as interesting because we don't use leeches.

**Justin:** So there.

**Sydnee:** What-ever.

**Justin:** Whatever.

And make sure you join us again next Friday, for Sawbones. As always, I'm Justin McElroy.

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

**Justin:** Don't put a hole in your head.

[theme music plays]

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