

## Sawbones 70: Diabetes

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**Clint:**

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

[theme music plays]

**Justin:**

Hello, everybody, and welcome to Sawbones, a marital tour of misguided medicine. I'm your cohost, Justin McElroy.

**Sydnee:**

And I'm Sydnee McElroy.

**Justin:**

Sydnee, it's a new year, and that means a new me.

**Sydnee:**

A new you?

**Justin:**

A new me.

**Sydnee:**

That's exciting.

**Justin:**

I'm gonna keep many of the classic features that people like yourself have come to know and love about—

**Sydnee:**

Like being, being married to me? Will you keep that one?

**Justin:**

That one's there. But, like, I'm also gonna keep my demeanor, my sparkling personality, my—

**Sydnee:**

Your hair. Will you pl—

**Justin:**

The hair.

**Sydnee:**

I love your hair.

**Justin:**

Yeah. The hair is definitely staying.

**Sydnee:**

Okay. Good.

**Justin:**

But I got to get, I got to tell you, this year, I'm gonna get blasted. I wanna blast my core.

**Sydnee:**

Does that mean drunk?

**Justin:**

No.

**Sydnee:**

Is that like getting crunk? Is that what getting crunk is?

**Justin:**

No. That's not what getting crunk is. What I'm talking about is a full, uh, re-spec of my physical visage. Basically—

**Sydnee:**

Okay.

**Justin:**

... blasting my core. I'm gonna take my glutes. I'm gonna take them out to the work shed. I'm gonna shred them.

**Sydnee:**

I don't really think you know what glutes are.

**Justin:**

I'm gonna shred my glutes. I'm gonna take my, uh, pecs, my quads, and I'm just gonna put them in the muscle cannon and blast them.

**Sydnee:**

Why do you wanna, um, get in the muscle—

**Justin:**

Well—

**Sydnee:**

... blasting cannon? What—

**Justin:**

... there's—

**Sydnee:**

... you know, this thing that you're saying?

**Justin:**

... there's a ... Really, Sydnee, um, it, it on— There's only one good reason to get healthy and get fit.

**Sydnee:**

[laughs] Oh, okay. There's only one.

**Justin:**

There's only one good reason to get healthy.

**Sydnee:**

I'd love to hear what it is. Tell me, please.

**Justin:**

B—b—b—b—babes. But—

**Sydnee:**

For babes?

**Justin:**

Yeah. But, like, not to get babes.

**Sydnee:**

Okay. That's good. You're backing up from this.

**Justin:**

But to, like—

**Sydnee:**

Okay. Walk it back.

**Justin:**

... so they are like, "How you doing?"

**Sydnee:**

Just for your own self-confidence? For your own self-esteem?

**Justin:**

Just for my own self-confidence.

**Sydnee:**

So you feel good about your glutes and—

**Justin:**

So when I walk past—

**Sydnee:**

... pecs and—

**Justin:**

... babes—

**Sydnee:**

Right.

**Justin:**

... they lower their sunglasses and are like, "Oh, yeah. Chicka chicka."

**Sydnee:**

[laughs] Do you do a lot of walking past babes when you're working out of the house every day?

**Justin:**

Not now.

**Sydnee:**

[laughs]

**Justin:**

Now I cross the street to avoid babes. I don't have my look right. But that is the one good reason, I think, to get—

**Sydnee:**

Well—

**Justin:**

... shredded.

**Sydnee:**

... I actually—

**Justin:**

... this year.

**Sydnee:**

... I would have to argue that there probably are a lot of good reasons—

**Justin:**

Name—

**Sydnee:**

... to get healthy.

**Justin:**

... name... Nope.

**Sydnee:**

Um—

**Justin:**

Name one.

**Sydnee:**

Okay. One that I think is worthy of talking about would be, like, so you don't get diabetes.

**Justin:**

Mmm. How do babes feel about diabetes right now?

**Sydnee:**

Well, I mean, I don't ... [laughs] I don't know that—

**Justin:**

I'm not up on, uh— I'm—

**Sydnee:**

... I don't know that, like, babes, as a, like, as a unit of babe, like all of us feel a certain way about... Like, I don't know if we're attracted or unattracted to diabetes. I don't know that that's a—

**Justin:**

But you probably speak in—

**Sydnee:**

... like, is that on your Match.com profile? Like, do you have to put that, like—

**Justin:**

As a corps, you probably would prefer people didn't have diabetes.

**Sydnee:**

Well, I certainly would, because m— I'm a doctor, and I want everybody to be healthy.

**Justin:**

Yes. Me, too. Uh, we both have a history of diabetes in our family.

**Sydnee:**

Exactly.

**Justin:**

Um—

**Sydnee:**

... which is why we should be worried about it and be healthier.

**Justin:**

But there aren't a lot of people in my family who are shredded and blasted, so correlation? Uh, I don't know. I'll get the research, uh, I— lit out and maybe hit the books—

**Sydnee:**

Well—

**Justin:**

... while I'm hitting the gym.

**Sydnee:**

[laughs] Why don't we talk about diabetes first?

**Justin:**

Okay, sounds good. And then I'll go shred.

**Sydnee:**

Okay. Then you can shred after this. Um... [laughs] I want to thank a couple people, Kate, Rachel, Paul have all suggested this topic. A lot of people have, probably even before that, um, and we just hadn't got around to talking about it yet. But it's an important one, because a lot people have diabetes, and as Justin mentioned, both of us could get it—

**Justin:**

Mm-hmm.

**Sydnee:**

... as we get older, so we definitely want to talk about it.

**Justin:**

Well, educate me.

**Sydnee:**

So first of all, do you know what diabetes is? I thought before I talk about the history—

**Justin:**

I have no earthly idea.

**Sydnee:**

... okay. I figured. I think a lot of people understand that it has something to do with sugar—

**Justin:**

Yes, right.

**Sydnee:**

... uh, because a lot of people will tell me they have the sugar diabetes, which is not, I mean, that's not really a thing, per se.

**Justin:**

That's not a thing. Right.

**Sydnee:**

There's not a different kind. But, um, it does have something to do with sugar, or glucose is probably what I'm gonna say a lot, so that's what I'm talking about, sugar.

**Justin:**

Okay.

**Sydnee:**

So there are two types of diabetes.

**Justin:**

Type 1 and type 2.

**Sydnee:**

[laughs] Very good.

**Justin:**

[makes an explosion noise] Blew it up.

**Sydnee:**

And—

**Justin:**

Student's become the master.

**Sydnee:**

[laughs] In general, the idea is that your body is not using glucose the way that it's supposed to.

**Justin:**



Mm-hmm.

**Sydnee:**

The difference—

**Justin:**

That... okay. Before you get into this explanation, this is what has always confused me, right? Like, and as a, I'm speaking as a complete layman here, is sometimes people with diabetes have to avoid sugar, but then there's like that bit in Steel Magnolias where they have to get her, like, orange juice or candy or something because she needs sugar.

**Sydnee:**

Right.

**Justin:**

That's always, from a young age, this has been very confusing to me.

**Sydnee:**

So, okay.

**Justin:**

I'm an idiot. I'm sorry.

**Sydnee:**

No, no, that's okay. I'm gonna explain it. So your body doesn't use glucose the way it's supposed to. In type 1 diabetics, the reason is that you don't make insulin, which is, uh, the hormone in your body that helps you use glucose.

**Justin:**

Mm-hmm.

**Sydnee:**

So that's why we treat diabetics, especially type 1s, with insulin. We give it to them so that they can use, they can use that to use the sugar, right?

**Justin:**

Got it.

**Sydnee:**

If, let's say that took your insulin like you're supposed to, but then you didn't eat that day...

**Justin:**

Then what would happen?

**Sydnee:**

Well, then your sugar would go too low, hence Julia Roberts needing orange juice when she's in the beauty shop in Steel Magnolias.

**Justin:**

Okay.

**Sydnee:**

So if you, if your glucose gets too low, that's, that's what that's really for. Diabetics don't naturally have low sugar, it's the treatments that give them low sugar.

**Justin:**

Okay. Well, that makes sense.

**Sydnee:**

Now that's as opposed to, that's actually very, the, the, a very small percentage of diabetics are type 1. It's like 5% are type 1. The majority of them are type 2, which is the kind we worry about in our family because it has a high f—like, genetic disposition. Um, and this is, you, you make insulin. Your pancreas is still producing insulin, but it's not using it well. It's kind of like, um, so insulin... Think about it this way. Let's say you're trying to get into a hot club.

**Justin:**

Okay.

**Sydnee:**

The cells in your body are a hot club that you're trying to get into.

**Justin:**

Okay.

**Sydnee:**

You're glucose.

**Justin:**

I am?

**Sydnee:**

Okay. So in order to get into the hot club you take insulin with you. She's like a really fly babe.

**Justin:**

A fly babe.

**Sydnee:**

She's a fly babe.

**Justin:**

Okay.

**Sydnee:**

So if you're—

**Justin:**

A lot of cool terminology—

**Sydnee:**

[laughs]

**Justin:**

... in this week's episode.

**Sydnee:**

If you're a type 1 diabetic, you don't have any fly babes to help you get into the cool club.

**Justin:**

Mm-hmm.

**Sydnee:**

Right? It's just not there, so you just circulate through the bloodstream trying to get into cool clubs and they won't let you in—

**Justin:**

Can I just fly—

**Sydnee:**

... 'cause there's no fly babe.

**Justin:**

Is, can I just say a fly girl, like the backup dancers on In Living Color?

**Sydnee:**

Exactly. You don't—

**Justin:**

So I'm trying to get into the club with a fly girl from In Living Color.

**Sydnee:**

And you don't have JLo.

**Justin:**

Got it.

**Sydnee:**

Uh, if, if you're type 2 diabetic, you got JLo.

**Justin:**

Okay.

**Sydnee:**

Okay, so you're there. You've got the fly babe with you. You get to the cool club, they still won't let you in the door because the bouncer is... I don't know, he's just, maybe, you know what?

**Justin:**

He was more of a MADtv fan.

**Sydnee:**

Exactly.

**Justin:**

Okay.

**Sydnee:**

Or he's not into the ladies.

**Justin:**

Got it.

**Sydnee:**

And he's just, he's having none of it, so...

**Justin:**

Okay.

**Sydnee:**

So, does that make sense?

**Justin:**

Yes. I'm on board.

**Sydnee:**

So you've got the insulin, it's just not working the way it's supposed to.

**Justin:**

Okay.

**Sydnee:**

Okay? Which is why we treat that differently. We can give you insulin if you're a type 2, but we can also give you medicines that will make your cells more receptive to the sugar—

**Justin:**

Mm-hmm.

**Sydnee:**

... and the insulin.

**Justin:**

Got it.

**Sydnee:**

You got it now? And over ter— over a long term it does a lot of damage to different body systems, to your kidneys, to your eyes, to, uh, your nerves, your blood vessels, that kind of thing. So—

**Justin:**

So take me back to the beginning now.

**Sydnee:**

So diabetes is one of the first diseases ever described, uh. If you go back to the ancient Egyptians, they wrote about some sort of s— wasting syndrome where somebody would, uh, pee a whole lot.

**Justin:**

Okay.

**Sydnee:**

And that was probably diabetes. Actually probably describing type 1 diabetes at the time.

**Justin:**

Yeah. I would imagine that type 2 diabetes was not super common back then. Is that—

**Sydnee:**

Probably not. And then the other part of that is that it would be a lot harder to tell that it was one disease.

**Justin:**

Mm-hmm.

**Sydnee:**

Because when you think about it, the things that show up that are really, um, you know, easy to spot with type 2 diabetes are the complications that result from it. People go blind, people get sores on their feet and lose their toes or feet, that kind of thing. But with type 1 diabetes, it tends to present pretty dramatically.

**Justin:**

Okay.

**Sydnee:**

You get it as a kid, uh... You get really sick. You lose a whole bunch of weight, and you can go into something called diabetic ketoacidosis, which basically means, like, your blood sugar's super high and you're breaking down all of your fats, like, ketosis like you try to go into on Atkins.

**Justin:**

Yeah.

**Sydnee:**

You're breaking down all your fats to try to use something to keep your body going.

**Justin:**

Mm-hmm.

**Sydnee:**

You get really sick and, and you can die of that. So that was probably what they noticed as a syndrome, 'cause it was so dramatic.

**Justin:**

Right.

**Sydnee:**

Um, around the same era, Indian physicians also were describing this, probably the same thing, diabetes, only they called it honey urine.

**Justin:**

Honey urine? Why is that?

**Sydnee:**

Because they noticed that the urine of a diabetic patient would attract ants, just like honey did.

**Justin:**

If they're in ketosis, it also has a, a smell, a distinct smell.

**Sydnee:**

How do you know that, Justin?

**Justin:**

'Cause I was in ketosis when I was on Atkins, and it was not pleasant.

**Sydnee:**

Yeah. I don't... See, I have a problem with any diet that encourages you to go into ketosis. Especially if you are a diabetic, I really don't like that. But anyway, uh. So your urine would have sugar in it so it would attract ants like honey did, and of course both of these were associated with weight loss.

Um, the Greeks also noted diabetes. They came up the name diabetes, which means "to pass through"—

**Justin:**

Mm-hmm.

**Sydnee:**

... because of all the urine that you're passing.

**Justin:**

Oh.

**Sydnee:**

Because diabetics tend to pee a lot. You can think of high blood sugar as kind of dehydrating you from the inside out. It makes you just pee non-stop, so you're thirsty, you're hungry, and you pee like crazy.

**Justin:**

Okay.

**Sydnee:**

That's the, those are the three things we ask people about with diabetes a lot. Um, we didn't add the follow-up term, diabetes mellitus, if you ever heard—

**Justin:**

Mm-hmm.

**Sydnee:**

... that's the, that's the other part of the—

**Justin:**

This is like, formal name.

**Sydnee:**

... the term. Mm-hmm.

**Justin:**

If you don't know diabetes very well.

**Sydnee:**

No.



**Justin:**

You have to call it diabetes mellitus.

**Sydnee:**

Exactly. And that was added in the 1600s, m— mellitus meaning "from honey", and it was to distinguish it from a different col— kind of diabetes called diabetes insipidus, and we don't need to get into what that is, 'cause that's a whole other thing.

**Justin:**

Okay.

**Sydnee:**

But again it was just noting the fact that we didn't really know much about what was causing diabetes. We knew people lost weight. We knew they peed a lot. We knew their urine was sweet, and we knew that because by this time we were using water tasters, which were people who drank pee [laughs]—

**Justin:**

Cool gig.

**Sydnee:**

... to tell you if you had diabetes.

**Justin:**

Cool.

**Sydnee:**

Well, you know, if you had whatever the—

**Justin:**

Cool gig. Reach for the stars, I guess. Stay in school and maybe you, too, can be a water taster.

**Sydnee:**

Don't be fooled. It's not water.

**Justin:**

He's the best there is. If you want your urine tasted by the best—

**Sydnee:**

[laughs]

**Justin:**

... you got to go to this one guy.

**Sydnee:**

And this was probably, incidentally, how they figured out that there was another type of diabetes, because people would have the syndrome they recognized as diabetes, uh, when they were young, and then they would taste their pee and it would be sweet and they'd go, "Uh oh, you've got that thing" that at the time, probably was gonna kill you pretty soon. But then they also, because they tasted everybody's pee for every reason—

**Justin:**

Mm-hmm.

**Sydnee:**

... tasted adults' pee who were there for something completely different and they'd go, "Now your pee tastes like sugar, too, but you didn't die when you were a kid. I don't know what's going on with you."

**Justin:**

You maybe just, uh, have delicious pee.

**Sydnee:**

[laughs]

**Justin:**

And that's just an genetic benefit of being you.

**Sydnee:**

And they didn't know what to do about any of this, I should note.

**Justin:**

'Cause they didn't have carbonation. What are you gonna, or how are you gonna drink flat pee? That's no good. That's how Mountain Dew was invented. [laughs] Did you guys know that? That's true.

**Sydnee:**

Uh, personally I would believe that. I don't like Mountain Dew.

**Justin:**

Yeah.

**Sydnee:**

That's just me. Um—

**Justin:**

Speaking of diabetes.

**Sydnee:**

[laughs] Yeah. Aretaeus of Cappadocia, which I really like that name, he first described, uh, diabetes as the melting down of flesh and limbs to urine.

**Justin:**

Cool. Wow.

**Sydnee:**

He was Greek.

**Justin:**

Getting very graphic.

**Sydnee:**

Mm-hmm. Hippocrates, uh, largely ignored diabetes. He knew it existed but he really didn't talk about it, and that was because there really wasn't a treatment. There definitely wasn't a cure. So, I, and that's a, kind of a th— like, I find that with Hippocrates, like, that's his thing. If there's nothing to do about it, he usually doesn't talk [laughs] about an illness.

**Justin:**

Just t— yeah, moves on.

**Sydnee:**

But there's just no sense, uh—

**Justin:**

That's probably a healthy approach, though. Live in the now.

**Sydnee:**

Yeah.

**Justin:**

Focus on things you can't control.

**Sydnee:**

Yeah. I have no reason to talk about this 'cause I have no idea what to do about it. And, and that was pretty much the attitude of most of the Greek physicians of the time. I don't know, exercise? Maybe it'll make you pee less?

**Justin:**

Maybe exercise?

**Sydnee:**

It was thought that horseback riding would make you pee less. [laughs]

**Justin:**

Oh, just take it a shot, maybe?

**Sydnee:**

Which I, I just think if you're out riding a horse for a long time you probably can't stop and pee much.

**Justin:**

No. I would think once you get off the horse it's like, yes.

**Sydnee:**

I've got to pee now.

**Justin:**

Time to pee.

**Sydnee:**

Maybe they just thought you'd be too respectful to pee on the horse.

**Justin:**

Probably, but not back then 'cause they got real. They got dirty.

**Sydnee:**

[laughs] Uh, Galen only ever commented on two cases, ever, so...

**Justin:**

Who's he?

**Sydnee:**

Oh, he was another one of those famous old Roman physicians—

**Justin:**

Got it.

**Sydnee:**

... that we talk about all the time.

**Justin:**

Got it.

**Sydnee:**

That has a bunch of stuff named for him.

**Justin:**

I remember, of course.

**Sydnee:**

[laughs] Uh, a Persian physician, Avicenna, described it as well, and he did come up with a treatment for it. This is around the same time period. He recommended that you take some different herbs, fenugreek, lupine, and zedoary seed, and that that would help. And actually, this is interesting, fenugreek does lower your blood sugar somewhat.

**Justin:**

Well, there you go.

**Sydnee:**

Yeah.

**Justin:**

He nailed it.

**Sydnee:**

So that, that is still something that you'll see people, like herbalists, use today as a holistic treatment for diabetes.

**Justin:**

Nice job, man. You got it in one.

**Sydnee:**

Um, Pliny, of course, had something to say about this.

**Justin:**

We know Pliny got a way in.

**Sydnee:**

Oh, uh, Pliny the Elder, one of our favorite, our favorite characters here on [laughs] Sawbones, uh, said exercise as well, also rubbing.

**Justin:**

Ooh.

**Sydnee:**

I don't know what that means.

**Justin:**

Rubbing.

**Sydnee:**

Rubbing, especially in front of a fire?

**Justin:**

Okay.

**Sydnee:**

I don't know what rubbing means. It's, I mean—

**Justin:**

Just kind of love yourself. Just kind of put your hands all over—

**Sydnee:**

You should rub yourself?

**Justin:**

... just like, rub, whatever.

**Sydnee:**

Do some jumping jacks and rub yourself.

**Justin:**

Whatever.

**Sydnee:**

Ooh, uh, careful.

**Justin:**

Uh, my diabetes is gone.

**Sydnee:**

Also—

**Justin:**

Taste my urine.

**Sydnee:**

... also bathe, but seldom.

**Justin:**

Okay.

**Sydnee:**

Don't bathe too much, but do bathe. And then you should drink small amounts of dry wine that is either lukewarm if it's winter or cool if it's summer.

**Justin:**

Okay.

**Sydnee:**

Uh, but only enough [laughs] until you're not thirsty.

**Justin:**

I'm suspicious of anybody in this point of history who has like five things you could do for a thing. "Oh, yeah, I've got the way, way down."

**Sydnee:**

[laughs]

**Justin:**

"Here's five different things that I know will work."

**Sydnee:**

Yeah. Also enemas.

**Justin:**

Sure. Well, of course.

**Sydnee:**

Yeah. Why not?

**Justin:**

It goes without saying.

**Sydnee:**

If all else fails, enemas. Um, it, it's interesting if you go back to a Chinese physician, Weng Tao, in 1752 AD, he advised that you eat pork pancreas to treat diabetes.

**Justin:**

Well, sure. I bet that's just delicious.

**Sydnee:**

Which is fascinating... Well, no, think about it. The pancreas, I mentioned that, makes insulin.

**Justin:**

Wow. So that was a good call.

**Sydnee:**

Yeah. I don't know how he would have... I, I have no... And this is not me suggesting that he knew that, but it was a good guess if he didn't know something.

**Justin:**

Yeah. Nicely done.

**Sydnee:**

But in general, you know, I mentioned some treatments. Unfortunately, at this time, it was kind of considered a death sentence, you know. When you recognized this syndrome in a, in a kid or young adult, you pretty much just knew they, they weren't gonna last very long. And, and for adults who were actually having type 2 diabetes, which they only vaguely understood as an entity unto itself, uh, they were probably gonna die of some of the terrible complications.



**Justin:**

Ugh.

**Sydnee:**

So...

**Justin:**

Syd, my spirits are down now. Pick me up. Tell me about some more crazy treatments.

**Sydnee:**

Well, I'm gonna do that in just a second, but real quick, I— why don't we head on down to the billing department?

**Justin:**

Let's go.

[theme music plays]

[ad break]

**Justin:**

Okay, Syd, so other treatments, hit me.

**Sydnee:**

Okay. So like everything else we've ever talked about, bleeding was tried for diabetes.

**Justin:**

You got to get it out.

**Sydnee:**

Yeah. I mean, why not? We have, when... What is it? When all you have a hammer, everything looks like a nail?

**Justin:**

There you go. Yeah.

**Sydnee:**

Yeah. So cut everybody. Um—

**Justin:**

When all you have is a razor, you w— cut people, I guess.

**Sydnee:**

That's a good... you should write that down.

**Justin:**

It's a different—

**Sydnee:**

To make sure nobody steals it from you—

**Justin:**

Yeah. Wa—

**Sydnee:**

... so that you get credit for it.

**Justin:**

... watch your back, Poor Richard. I'm onto you.

**Sydnee:**

Um, in the 1700s it's interesting, they actually started to advise, uh, dietary changes, specifically a connection was made between that there's sugar in food, uh. They figured out that the thing that made urine taste sweet was sugar, and so maybe if we reduced—

**Justin:**

Let's not... let's, okay. Let's not go overboard with the back-patting on this one. I mean, the urine was sweet and the sugar was sweet and they made a connection. Uh, they, they don't get a medal for this one.

**Sydnee:**

Well, eventually we had to make up a, like a test that actually said there was sugar in the urine, you know.

**Justin:**

There is a, you, what are you gonna say? The si— the siperoo? The sip.

**Sydnee:**

We didn't know anything.

**Justin:**

We knew if pee tasted sweet.

**Sydnee:**

We didn't know there was sugar in it.

**Justin:**

We knew that sugar tasted sweet. What other, like, explanation could we have cooked up? We didn't have Stevia.

**Sydnee:**

That's not very scientific, yeah. [laughs]

**Justin:**

We didn't have Equal.

**Sydnee:**

That's not very scientific.

**Justin:**

Okay. Fair enough.

[Charlie coughs in the background]

**Sydnee:**

Um, you'll get your turn in a second.

**Justin:**

Pipe down. Sheesh.

**Sydnee:**

[laughs] Uh, in the— so, anyway, they, they told people to eat less sugar, eat less carbs, which was actually, probably a pretty good idea. Um, what's funny, though, is that in the next century, the next hundred years, a French physician flipped it on its ear and said, "You know, people are still dying of this diabetes. Maybe, maybe we should eat [laughs] lots of sugar."

**Justin:**

Excellent. Good job.

**Sydnee:**

"Try that instead. Just eat a whole bunch of sugar."

**Justin:**

They never saw that one coming.

**Sydnee:**

Uh, that really didn't work. In the 1900s, as we enter, like, the heroic era of medicine, you, of course there were like, a million different treatments for it, you know, 'cause everybody was trying something. So—

**Justin:**

Right. Probably all based around cocaine.

**Sydnee:**

Yeah. Well, there definitely, opium was a popular treatment, so why not, um. I'm sure cocaine was tried 'cause, I mean, I mean, it's cocaine. Probably made you feel good.

**Justin:**

Yeah. It's good for what ails you.

**Sydnee:**

Uh, there were a lot of different dietary cures, so one was called the oat cure. So you mix eight ounces of oatmeal and eight ounces of butter and eat it every two hours.

**Justin:**

That's called the Wilford Brimley diet.

**Sydnee:**

[laughs]

**Justin:**

You wonder why R— Wilford Brimley has the diabetes, that's why.

**Sydnee:**

Uh, there was also the milk diet, which I presume was, you know, drinking milk.

**Justin:**

That's actually not great, 'cause milk has a surprising amount of sugar in it.

**Sydnee:**

Yeah, milk, no. That's not a good diet. Also there was the rice cure. I like that they, they went, they were like, w— everybody's, you know, oatmeal diet, milk diet. Let's call it the rice cure. No, still doesn't work.

**Justin:**

Nope.

**Sydnee:**

There's potato therapy—

**Justin:**

[laughs]

**Sydnee:**

... which I will say, I like potato therapy when I'm like, down and it's a rainy day.

**Justin:**

Right. I read a story about it in Cosmo. Potato therapy is the hottest thing.

**Sydnee:**

[laughs] I need some mashed potatoes or some french fries, mmm. Uh, there was also overfeeding. So i— a lot of type 1 diabetics tend to lose weight right as they're, you know, entering into the—

**Justin:**

Right.

**Sydnee:**

... becoming a diabetic, uh, lose a lot of weight. It can be pretty dramatic, and especially if they're untreated and suffering from diabetes, so they thought, well, I don't know, maybe we just feed them a whole lot?

**Justin:**

Maybe?

**Sydnee:**

Just eat as much as you can. Um, the, by 1915, though, there was a Dr. Allen out of the Rockefeller Center i— who was the Rockefeller Institute who was studying diabetes a lot, and he said he thought actually, the, the, all

these ideas about different foods to eat and eating too much, that this was the opposite, and that what we really needed to do was starve people.

**Justin:**

Okay. Well, there, that's an option we can certainly try.

**Sydnee:**

So he would admit people to the hospital to, 'cause this was an intensive therapy, so you, you have to start it off in the hospital.

**Justin:**

Right. Clear your schedule.

**Sydnee:**

Admit them to the hospital and give them black coffee with whiskey every two hours.

**Justin:**

All right, this is the best treatment we've ever had.

**Sydnee:**

Uh, now if you don't drink, you did have the option of drinking clear broth every two hours.

**Justin:**

That's how you know, uh, that a cure is legit if they have a, uh, a, an option for teetotalers. Like, "Oh, I don't know, man, you don't want to do that, we can do this other thing."

**Sydnee:**

Maybe this other thing. I mean, that, that'll work too. I don't know, something.

**Justin:**

Fine.

**Sydnee:**

Just do it every two hours, that's the important thing.

**Justin:**

Got a vegan option. Just do something every two hours.

**Sydnee:**

Uh, and you do this until— and you keep testing the, the urine for sugar, and once the urine no longer has sugar in it then you—

**Justin:**

'Cause it's just coffee and whiskey.

**Sydnee:**

... then you [laughs] fix the diabetes. It takes, it usually took about five days, um, and then at that point he would put them on like, a super strict diet that mainly involved just not eating much.

**Justin:**

Mm-hmm.

**Sydnee:**

Um, the scary thing about this is that for type 1s especially who were just, you know, who had been diagnosed and were still untreated and a little bit of time had passed, um, they would probably have starved to death with this treatment.

**Justin:**

Oh, gosh.

**Sydnee:**

Um—

**Justin:**

Not great.

**Sydnee:**

... no, no. So not a good, not a good therapy, I'd say.

**Justin:**

No.

**Sydnee:**

So around all this time, uh, in the late 1800s and 1920s, we were making great strides into understanding, you know, what, what was diabetes and what— what could we do about it, uh, and some really interesting things that happened were, a couple doctors, von Mering and Minkowski, were trying to

figure out, what does this organ, the pancreas, do? Now at this point they didn't know it was related to diabetes yet.

**Justin:**

Mm-hmm.

**Sydnee:**

But they didn't know what the pancreas did. And so Justin, if you had an organ and you wanted to figure out what it did, what would you do?

**Justin:**

I would take it out and see how I felt.

**Sydnee:**

Okay. Maybe not of yourself.

**Justin:**

Okay, take it out of somebody I hated.

**Sydnee:**

Okay, that's illegal.

**Justin:**

Okay. I'm out of ideas.

**Sydnee:**

Well, but you're close. So they, so they, they pretty much did that. They sa— they were debating what does the pancreas do, and they said, "Hey, why don't we get some dogs, take out their pancreases [laughs]—"

**Justin:**

Ah, sorry, dogs.

**Sydnee:**

... yeah. Sorry, em, to all you dog lovers.

**Justin:**

But hey, on the bright side, considering all of medical history, at least they didn't do it on, um, uh, developmentally delayed people. So that's good.

**Sydnee:**

That's true, and they didn't do it on women—



**Justin:**

Hey, that's great.

**Sydnee:**

... who were hysterical.

**Justin:**

And tha— they didn't do it on homosexuals, so hey. I think it's a big win for everybody.

**Sydnee:**

Yes.

**Justin:**

Good job, medicine—

**Sydnee:**

Right.

**Justin:**

... and sorry to PETA. [laughs]

**Sydnee:**

[laughs] So the, so they took out some dogs' pancreases and the dogs basically just started peeing everywhere, um. They checked the urine of the dog and they found glucose. I don't think they were tasting it at this point. We had, we had a test.

**Justin:**

Let's hope they weren't drinking dog pee.

**Sydnee:**

Yeah.

**Justin:**

Let's hope we were past that point.

**Sydnee:**

And so they were like, "Well, hey, we gave these dogs diabetes. Clearly there's something in the pancreas—

**Justin:**

Mm-hmm.

**Sydnee:**

... "that keeps you from getting diabetes." But they had to figure out which part of the pancreas that was, 'cause initially they tried to treat it. Um, they didn't, but years later people who followed up on this research tried to treat it by just taking, like, pancreas and grinding it up and injecting it into dogs that had had their pancreas removed—

**Justin:**

Mm-hmm.

**Sydnee:**

... you know, to try to replace it, and you're also giving them all kinds of other things that the pancreas does that, well, aren't very helpful when injected in this manner.

**Justin:**

Right.

**Sydnee:**

Um, so there were a lot of bad side effects to that treatment. Throughout these years in a lot of scientific research that you probably wouldn't find very interesting, to be honest—

**Justin:**

Okay. Well, that's a little judgy—

**Sydnee:**

... we figured out—

**Justin:**

... but that's fine.

**Sydnee:**

... well, I'm just, you know. Do, do you want me to go into how we isolated the islets of Langerhans—

**Justin:**

No, no, no, no, no, no. You were, you were right.

**Sydnee:**

... and, and insulin, and—

**Justin:**

You were dead on the first time.

**Sydnee:**

... anyway. We figured out that, that there was a part of the pancreas specifically, the islets of Langerhans that produced insulin, and the insulin was the thing that, that did most of the work, so that if you could take insulin out, inject it back into the dogs, they'd get better. Um, there were lots of people who were, who were working on this research, lots of people who did it be— different parts of it, uh, but the two main guys who get a lot of credit are Frederick Banting and Charles Best. Um, from this research, they actually developed insulin therapy, uh. They figured out that, you know, there was this molecule we could isolate, uh. They mainly did this in, in pigs, um, also cows, and you could inject into humans and it would lower glucose.

And when you read the stories of like, the first patients that they treated this way, it's pretty amazing. I mean, these were largely t— kids, like, like, teenagers, like 14-year-olds who were hospitalized, dying from type 1 diabetes. Nobody knew what to do. They were starving these kids to death. They came in, gave them insulin, and gave them, I mean, just totally turned their lives around, gave them many, many more years, um. It wasn't a perfect therapy at the time, of course. There was a lot more to do, but, you know, it, it, they saved lives.

**Justin:**

Can I ask a, a dumb question, kind of a stupid, stupid question about, uh, uh, insulin? So we figured out that, uh, uh, insulin is the thing that makes your diabetes, uh, th— that was like, the treatment, right, that th— it was an insulin issue, right?

**Sydnee:**

Yes.

**Justin:**

So ho— how do we get... uh, this, uh, again, I, I feel so stupid. Ho— how do you get more insulin, like, especially in these times? Like, where does it, it... Was it synthesized? Is it like, it's in a—

**Sydnee:**

Now it is.

**Justin:**

Now it is.

**Sydnee:**

Now it's synthesized. Then they were, like I said, they were getting it from pigs and cows.

**Justin:**

Okay. I'm with you now.

**Sydnee:**

But, but now they, now they have b— you know, biosynthetic insulin that, that, that they use. Um, and this worked really well. Now for, for type 2 diabetics this would not have been as good. I mean, it does work. I mean, of course we use in some for type 2 diabetics, but like I said, it's the sensitivity. It's how well your body uses the insulin.

**Justin:**

Mm-hmm.

**Sydnee:**

For type 1 diabetics this was, this was definitely revolutionary. Um, the really cool thing about this is that they developed the therapy and they made it freely available for, for companies to produce and use.

**Justin:**

They didn't trademark it?

**Sydnee:**

Patent it. No. No, they, yeah.

**Justin:**

Patent it, sorry.

**Sydnee:**

No, they didn't. They didn't, they didn't want to control commercial production, they wanted it to spread as quickly as possible. And as a result,

they probably saved a heck of a lot more lives because then, you know, of course it was cheap.

**Justin:**

Good on you all.

**Sydnee:**

Yeah. Yeah. Now, now of course we have many different insulins and a lot of them are brand names, and that largely has to do with not the insulin molecule itself, but how it's, um—

**Justin:**

Flavored.

**Sydnee:**

... yes, how it's flavored, which if you sh— strawberry insulin or vanilla insulin.

**Justin:**

Why, and why are they always sweetening it?

**Sydnee:**

[laughs]

**Justin:**

That seems like, so counter-productive.

**Sydnee:**

[laughs] No, it's, it's a... It has to do with how long-acting it is, how quickly it's released in your system, that kind of thing.

**Justin:**

Right on.

**Sydnee:**

Um, after that, you know, after the insulin therapy, which was really the, the big breakthrough, then we began to develop other medications that worked on different parts of the, the glucose process. So there came medications that, called sulfonylureas that stimulated the pancreas. There were, uh, later Metformin, which is like the mainstay of type 2 diabetes therapy now.

**Justin:**

Right. I heard about that one.

**Sydnee:**

Um, it's funny 'cause we're developing all these diabetes medicines, we're understanding diabetes so much more as we move through the 1900s, but in the 1950s we were still [laughs] advising diabetics not to get married to each other.

**Justin:**

Yikes, really?

**Sydnee:**

Yeah. [laughs] Because the, we didn't want them to give diabetes to their kids.

**Justin:**

Right.

**Sydnee:**

Which also it, you know, it took us a while to understand that it's really type 2 that has such a high genetic component, which seems weird, I know, because type 1 is the kind that kids get.

**Justin:**

The one you get automatically.

**Sydnee:**

Yeah. Um, throughout these decades, a lot of natural treatments have been tried. I already mentioned, uh, the fenugreek, which, you know, does have some effect on blood glucose. But, uh, cayenne pepper, turmeric, ginseng, fish, dark chocolate, coconut oil, blueberries, red grapes, green tea.

**Justin:**

You name it.

**Sydnee:**

Any, any of these things, um. Some of them have been studied, some of them haven't. A lot of the time it's a, a, like a small study that was if, if it was done there was a small study done, it didn't have a lot of people in it, it wasn't very well-funded. And I think I've said this before, something like, you know, I don't know, buckwheat, or ginseng, or turmeric, were never

really gonna have the kind of high-powered study that you would for a brand name, you know, pharmaceutical.

**Justin:**

'Cause there's no money in it.

**Sydnee:**

Right, 'cause there's no money in it, so.

**Justin:**

Can't trademark buckwheat.

**Sydnee:**

Right.

**Justin:**

Unless you're the owner of the Little Rascals franchise, in which case I assume you have trademarked the character Buckwheat.

**Sydnee:**

Right. But he does not treat diabetes that I know of.

**Justin:**

That we know of. Again, the money's not gonna be there for that study.

**Sydnee:**

That I know [laughs] Nobody's gonna do that. So, so who knows. Some of these things have shown effects in small studies. Others have said, "Nah, this stuff doesn't work." Like, cinnamon's a big thing like that, like, "Eh, who knows." Uh, certainly doesn't hurt to eat some almonds or blueberries.

Um, now diabetes is a big issue in this country. 26 million Americans have diabetes, 79 million more are pre-diabetic, which means that they will develop diabetes within the next 10 years if they don't do exactly what you were gonna do, honey.

**Justin:**

To get shredded.

**Sydnee:**

Well, to get healthy. So, you know, take care of yourself.

**Justin:**

So listen, y'all—

**Sydnee:**

Oh, and I didn't mention, there are also insulin pumps now. These are really cool.

**Justin:**

Sure.

**Sydnee:**

So that it, like, it looks like an external pancreas, like it's a little pump you wear and it gives you, like, insulin all the time and then extra doses of insulin when you eat. It's really cool. And we're working on things like pancreatic transplants and stuff.

**Justin:**

I used to wear a fashion insulin pump. It's not functional, it just sort of accents all my outfits. So listen, Saw—

**Sydnee:**

Is that kind of like you used to want to wear glasses—

**Justin:**

Yeah, exactly—

**Sydnee:**

... same thing?

**Justin:**

... but this is different.

So listen, Sawboners, uh, from, it, it's me, Justin McElroy here. Let's take this opportunity, you and me and all of us who are in that pre-diabetic camp, to take this moment and say, hey, I'm gonna get healthy this year. You know, jokes about getting shredded aside, it's really about getting fit and sticking around for as long as you, uh, possibly can.

And remember, again, and I have to keep reminding myself of this all the time... If you're waiting for a weight loss miracle or the exact right diet, or nothing. The only way to lose weight is to make a, a dozen really hard



choices, uh, every single day. And that's the really grueling work of it. Anybody can stop eating carbs for a couple months. It's, it's, it's deciding every day that you're gonna do your best for yourself. But start today, right now.

**Sydnee:**

And also, a lot of diabetics don't know they're diabetic.

**Justin:**

Hmm.

**Sydnee:**

Pre-diabetics don't know they are, so it's a good thing to talk to your doctor about whether or not you need to be screened for it, because, um, you may not know.

**Justin:**

Thank you to Max Fun for having us as part of their family. Uh, we, we really appreciate it. There's a ton of other great shows for you to check out, uh. We've got a new one called the Adventure Zone that my brothers and I do with our dad where we play D&D and we record it and people seem to enjoy, it against all odds. Uh, there's Destination DIY, there's Baby Geniuses, there's a, a great pop culture show called Bullseye, uh, that you'll want to check out, um. There's a ton of great stuff on there, on the Maximum Fun Network.

**Sydnee:**

There's My Brother, My Brother and My Brother, My Brother.

**Justin:**

Whoa, you're just gonna throw some bonus brothers in there.

**Sydnee:**

Threw some extra brothers in.

**Justin:**

Bonus Jonas got in there.

**Sydnee:**

All right.

**Justin:**

It's all right. [laughs]

**Sydnee:**

And me.

**Justin:**

My brother, my brother, me, and me, uh, is, is also on the Max Fun Network so you can listen to that, it's a comedy advice show.

Um, thanks to the Taxpayers for letting us use their song Medicines. Thank you to you, most of all, for, uh, listening to our program. We have a new one almost every Tuesday, practically every Tuesday.

Thanks to people tweeting about the show, helping us spread the word, like Joe Leonard, Nick Bristow, Vanessa Val Alstyne... Vanessa Van Alstyne, excuse me, uh... That gentleman's name is just a mathematical formula, I'm not gonna try to pronounce that. Josh Marks, Michael Bosse, uh, Pacheca, uh, uh, Y, so many others. Thank you so much for tweeting about our show. We're @sawbones on Twitter, so you can check us out there. And, uh, that's gonna do it for us. Until next Tuesday, I'm 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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