

## Sawbones 138: Kombucha

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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 am your cohost, Justin McElroy.

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

**Justin:** Boy, Sydster, we had a scary moment today, didn't we?

**Sydnee:** Yeah, we did. Our daughter Charlie has been getting— she's— she's more and more mobile. I mean, that's a good thing, like I'm not complaining. I don't want her to get less mobile.

**Justin:** Yeah.

**Sydnee:** Like, I'm glad she's more mobile but a lot comes with that. Like, a lot of things that weren't treacherous before, all of a sudden are things— I mean, like I don't— is there a way to really childproof a house?

**Justin:** You can't. You just gotta hope for the best.

**Sydnee:** If you just remove everything from it and pad the walls.

**Justin:** Yeah, right.

**Sydnee:** She'd still find some way to hurt herself—

**Justin:** Yeah.

**Sydnee:** — but like, you can't have a kitchen table. You can't have chairs next to the table.

**Justin:** Because she cli— we left the room for like 30 seconds, she climbed right up there. And we came back in the room and there she is sitting at the tea set and just pounding—

**Sydnee:** She was sitting cross legged—

**Justin:** Cross legged—

**Sydnee:** — like just in the middle—

**Justin:** — on the table.

**Sydnee:** — of the table. I don't know—

**Justin:** Pounding sugar cubes.

**Sydnee:** — how she got up there that fast.

**Justin:** Just like, pounding them.

**Sydnee:** [chuckles] We have— we have a tea set set up there, which is, again shortsighted of us. We really need to move past that. But in the— Justin likes sugar cubes in the little tea bowl, like little sugar bowl.

**Justin:** I just think it's cute. I don't know.

**Sydnee:** It is— it is adorable. It is— he's a h— he even has a little like tea tray of a— like, for little cakes.

**Justin:** Yeah.

**Sydnee:** And like cupcakes that go with it.

**Justin:** That's— that's not ger—

**Sydnee:** It's all very like—

**Justin:** That's not germane.

**Sydnee:** It's— it's all lovely.

**Justin:** It's not germane.

**Sydnee:** But anyway, it's all set up and— and Charlie likes— she knows there's sugar cubes up there and so there she is sitting there just eating sugar cubes. It was terrifying.

**Justin:** Yeah, it was terrifying.

**Sydnee:** 'Cause she's sitting on the table.

**Justin:** But that kid loves tea, huh?

**Sydnee:** She does.

**Justin:** She loves tea. She's obsessed with it.

**Sydnee:** Yeah. Charlie's obsessed with tea. She'll have tea parties. A lot of it just has to do with like the ability to eat sugar.

**Justin:** Yeah.

**Sydnee:** Like, eat straight sugar.

**Justin:** It's a nice— a nice... perk of tea parties.

**Sydnee:** And dump. And dump. And dump things.

**Justin:** Oh yeah, and dump everything over.

**Sydnee:** She loves to dump.

**Justin:** Yeah, she loves tea. She loves tea.

**Sydnee:** But tea's really hot, you know? Like, it's a really trendy—

**Justin:** Tea is hot. Or it can be cold, Sydnee.

[Sydnee chuckles]

**Justin:** It— pretty much any way you wanna serve tea— is— is— is okay by me.

**Sydnee:** This is our tea cast.

**Justin:** Tea cast. Welcome to *The Tea Spot*.

**Sydnee:** You know, one popular tea, Justin, that we hear a lot about—

**Justin:** Let me try again. Welcome to *Tea Party*. I'm your buddy Justin Earl Gray McElroy.

**Sydnee:** No, not the tea party.

**Justin:** But it's like—

**Sydnee:** Not that tea party.

**Justin:** But it's like... I meant the good one. The dope one we all still feel okay about.

**Sydnee:** Like, you— you just mean like a tea party, like when you sit down with your friends and have a cuppa— cuppa tea.

**Justin:** Yeah.

**Sydnee:** Like, that kind of— like that tea party is the “dope” party.

**Justin:** Well, I was specifically—

**Sydnee:** The dope one that we all feel good about.

**Justin:** No, the Boston one where he's like, "Freedom." You know?

**Sydnee:** Oh. That tea party.

**Justin:** Like, the one that they were into before— Yeah, tea's hot. Tea's popular right now.

**Sydnee:** Right. You know one tea that's really popular?

**Justin:** What's that?

**Sydnee:** Kombucha.

**Justin:** I've heard the name but I don't know pretty much anything about it.

**Sydnee:** You've had it. Do you remember having it?

**Justin:** ... No.

**Sydnee:** No. We tried it once. There was only one time that I ever remember having kombucha.

**Justin:** Okay.

**Sydnee:** So there you go. So there's my disclaimer. Like, I'm clearly not a fan, I mean, I'm not saying I'm against it but this is not a—

**Justin:** Not a 'buch head at all.

**Sydnee:** — not a regular part of my existence. Taylor had it on tap at her— at the bar she worked at, remember?

**Justin:** Oh, yeah. I liked— it was pretty good. Yeah, it tasted good.

**Sydnee:** Remember? Yeah. That's a p— it's a popular thing that you'll see on tap at different— at different like... I don't wanna say like hipster bars? But... hipster bars.

**Justin:** Okay. Got it.

**Sydnee:** Yeah. Anyway, so do you know much about kombucha?

**Justin:** Again, I think— I feel like I've been pretty upfront about how much I know about kombucha.

**Sydnee:** So, nothing?

**Justin:** Yeah.

**Sydnee:** Okay. The— the reason I wanna talk about it is because yes, it's a tea, but it— it is touted as having all kinds of health benefits.

**Justin:** Oh, nice. Wow, that's great.

**Sydnee:** So—

**Justin:** That's cool, 'cause it's like good to drink and also is really good for me.

**Sydnee:** Well, hold on.

**Justin:** Imagine my— imagine my excitement.

**Sydnee:** Hold on. So— so I think that it—

**Justin:** Let me get a kombucha over here. Garcon? Garcon? Another kombucha, please.

**Sydnee:** We don't have anybody who brings us kombucha in our house.

**Justin:** No. That'd be nice though.

**Sydnee:** Yeah. But a lot of people also wanted us to talk about this topic. Thank you Anthony, John, Bridget and Denaë. And I think that it has also been suggested multiple times on Twitter and— and on Facebook too. But again, if you want me to say your name when you suggest the topic—

**Justin:** Yeah.

**Sydnee:** — you gotta send it to me in an email 'cause it's searchable.

**Justin:** Don't wanna get that heat over.

**Sydnee:** Exactly.

**Justin:** Sawbones@maximumfun.org.

**Sydnee:** [chuckles] So thank you guys for suggesting this topic. So, kombucha is a fermented tea.

**Justin:** Now, what is that— the... well I— I know what fermented means, but—

**Sydnee:** You know what fermented means, you know what tea is.

**Justin:** Yeah.

**Sydnee:** You could probably piece this one together.

**Justin:** So, it's an alcoholic tea.

**Sydnee:** Yes. Very slightly alcoholic. It has a very low but present alcohol content. It's like 0.5 to 1% alcohol.

**Justin:** Like, could you still buy it at the CVS?

**Sydnee:** It is— it is regulated as— as an alcoholic beverage.

**Justin:** Okay.

**Sydnee:** Yeah. That's actually one of the things we'll get into. It is— it is alcoholic, barely though, I mean it— but it is.

**Justin:** But if you worked at it.

**Sydnee:** [laughs] If you worked at it. If you'd— you'd have to drink a lot of kombucha, I think, to get a buzz. So the way that you make it is you take something that's— You need to understand this. It's something that's called a “scoby”.

**Justin:** Okay.

**Sydnee:** S-C-O-B-Y. It is a symbiotic colony of bacteria and yeast.

**Justin:** Okay. Got it.

**Sydnee:** Does that make sense?

**Justin:** Scoby. I'm with you.

**Sydnee:** So, bacteria and yeast living together.

**Justin:** Mass hysteria.

**Sydnee:** Like, helping each other out. [chuckles] Symbiosis. So, what this looks like, this scoby, because you need to visualize this. Like what are— what are you gonna do with it? You're gonna take a scoby and you're gonna put it in some tea. Okay?

**Justin:** [quietly] All right. Yeah.

**Sydnee:** A scoby looks like— a lot of people describe it as a pancake. It's like this little rubbery, beige disc.

**Justin:** Okay.

**Sydnee:** Okay? And it's got living things in it, right? Bacteria and yeast.

**Justin:** Okay.

**Sydnee:** And you're gonna take that and you're gonna put that into green tea or black tea or whatever kind of tea you want.

**Justin:** Like, I am at home? Or is this happening like in a facility probably?

**Sydnee:** Both.

**Justin:** Wow.

**Sydnee:** There are— there are— there's commercial kombucha available, but there are lots of people who home brew kombucha—

**Justin:** Mm-hmm.

**Sydnee:** That is a— that is a popular thing to do. So you would— you would take your scoby, you would put it in tea, and you also wanna add some sugar—

**Justin:** To—

**Sydnee & Justin:** [simultaneously] For the yeast to eat.



**Sydnee:** Exactly. Exactly. And you get something that is bubbly, fizzy, slightly alcoholic, and again, highly prized for having a lot of medicinal value. It— it sorta— That— um, that rubbery disc, the scoby? Think about it— you remember we talked about the “mother”, in the vinegar episode?

**Justin:** Yeah.

**Sydnee:** Vinegar mother? It's very similar idea.

**Justin:** Okay.

**Sydnee:** Except it's in this little— little rubbery disc, you can like share.

**Justin:** Perfect.

**Sydnee:** Give it to your friends.

**Justin:** Perfect. That makes perfect sense.

**Sydnee:** Pass them around. Kinda like the— like a sour— sourdough starter.

**Justin:** Okay. Got it.

**Sydnee:** So, it's not clear— Now, when we talk about like, where did this originate? Who first got the bright idea to start fermenting tea? This gets really dicey. You— you hear this same story repeated over and over again, if you search this on the internet, but I'm not really sure that this is true.

**Justin:** Okay.

**Sydnee:** Because there are just as many people who refute this as the origin of kombucha as claim that absolutely it is.

**Justin:** All right. So, wh—

**Sydnee:** So I don't know its mysterious origins.

**Justin:** So here it is, folks, s— [snorts] maybe some nonsense. [snorts]

**Sydnee:** [chuckles] So, it could be that kombucha dates back as far as 221 BCE wh— during the Chinese dynasty, the Qin dynasty. And its— there are references to something called the “tea of immortality”. And the thought is that what they're talking about is some sort of fermented beverage that has to do with tea, and that this is where... these are the roots of this.

And certainly, if you're looking at one of the sites that kind of tout kombucha for its health benefits and for all of its almost— almost magical qualities. Like you get— you know, of course anything like this, you'll have some people who are real zealots for it.

**Justin:** Sure.

**Sydnee:** And so, they're going to say that this is where this came from, that these are— this is like an ancient Chinese secret.

**Justin:** Ancient Chinese secret, aye?

**Sydnee:** Exactly. Fermented tea. And— and from that tea of immortality, you get— I have to mention, so many other crazy names for kombucha.

**Justin:** The fa—

**Sydnee:** As if “kombucha” isn't— isn't crazy enough.

**Justin:** The fact that we don't have anyone around who can tell us if that's the— if kombucha was actually started as the tea of immortality speaks to the fact that that may be a slightly specious title.

[Sydnee laughs]

**Justin:** For the tea itself.

**Sydnee:** Yeah, you'd think if it was somebody—

**Justin:** Apparently not.

**Sydnee:** — from 221 BCE and they cr— and they found the tea of im— immortality, I could have interviewed them for our podcast.

**Justin:** Yeah, they— we coulda had a guest.

**Sydnee:** So, some other things that it has been known— other names that it's been known by maybe since then, I don't know, maybe since more recently; sea treasure, stomach treasure, sea mushroom, miracle fungus. All of this related to the fact that this is like a— you know, a fermented fungus mushroomy tea beverage.

**Justin:** Okay.

**Sydnee:** You know, magical fungus. I— I like some of these. Japanese sponge, Mongolian wine and Indian wine, vulgar spring, Tibetan mushroom. It sounds very like...

**Justin:** Yeah.

**Sydnee:** Mysterious, doesn't it.

**Justin:** I'm very plugged into this.

**Sydnee:** Yeah.

**Justin:** A lot of ancient wisdom in this kombucha.

**Sydnee:** There is, there is. There's some other names that we see. It moved— it actually, as I'll talk about, became really popular in Russia and we get these names, ke— tea— tea kvass.

**Justin:** Tea kvass?

**Sydnee:** Yeah.

**Justin:** All right.

**Sydnee:** There is another legend that it— that the name may have come from Japan.

**Justin:** Mm-hmm.

**Sydnee:** So this is a competing theory. Where there was a physician named Kombu...

**Justin:** Okay.

**Sydnee:** You can see where this is headed, who treated—

**Justin:** And they were like, "Did you make this tea?" And he's like "Cha!"

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

**Justin:** Yeah?

**Sydnee:** So, there was a physician named Kombu who treated the emperor for— who was having some digestive problems. And he treated him with some sort of tea, and "cha" is the Chinese word for tea, so—

**Justin:** Probably—

**Sydnee:** — Kombu's cha.

**Justin:** — related to chai, right?

**Sydnee:** Probably. Yeah, sure.

**Justin:** Well, same roots, why not?

**Sydnee:** Yeah, probably.

**Justin:** Yeah.

**Sydnee:** So, Kombu's cha.

**Justin:** Kombu's cha.

**Sydnee:** Kombucha.

**Justin:** Kombucha.

**Sydnee:** There you go.

**Justin:** Got it.

**Sydnee:** His tea. And that's where it comes from. But there are also references to it— to the word kombucha not really coming from a physician's name and cha, but coming from different words that mean mushroom tea and fungus tea and different references like that. But cha definitely is the word for tea.

**Justin:** Got it.

**Sydnee:** So we know that's— that's part of it. There's also this legend that— that it was— it came from the samurai warriors who knew that there was this special tea beverage that made you really strong and gave you a lot of energy, and so they carried it into battle with them.

There's been rumors that maybe it was popular among Japanese geishas who would use it to keep their complexion great.

**Justin:** Man.

**Sydnee:** Put it on their faces and drink it to maintain their figure. And that also it was thought to turn gray hair back to its original color.

**Justin:** Wow! Man, I am getting so excited about kombucha right now. I tell ya!

**Sydnee:** It— it's also said that it was believed to be a cure for food poisoning, in ancient Japan.

**Justin:** [astounded] What can't this stuff do?

**Sydnee:** There may— there are also records that indicate Genghis Khan may have carried kombucha with him at all times. That's unclear. I also read in that same article that he invented barbecue.

[Justin snorts]

**Sydnee:** Justin, I have a question for you.

**Justin:** Yeah?

**Sydnee:** Did Genghis Khan invent barbecue? [chuckles]

**Justin:** Did Genghis Khan invent barbecue? Well, Sydnee.

**Sydnee:** This has nothing to do with kombucha or tea or medicine or anything we talk about, I'm just kinda curious.

**Justin:** It's time, once again, for our—

[Sydnee chuckles]

**Justin:** — hot new segment on *Sawbones*, "Justin Googled It".

[quiet keyboard typing in the background]

**Sydnee:** So— well, I'm gonna tell you a little bit more. I'll move forward, I'll tell you a little bit more about kombucha while you tell me if Genghis Khan invented barbecue. Okay?

**Justin:** Got it.

**Sydnee:** So, as I kind of alluded to, the— this important turning point for kombucha is where we see it show up in the late 1880's in Russia. Now, there are many people who would argue this is where it comes from.

That all this other like legend about coming from China and from Japan, that all of that isn't really true, that it was really a product of Russia in the late 1800's. And it became very popular there and in Germany and places where they were already familiar with fermented foods.

**Justin:** Okay.

**Sydnee:** You know, like things like sauerkraut, for instance. Like you see people who are— are already kind of like, have a palate for that or adopting this fermented tea beverage.

**Justin:** So, let's talk about Genghis Khan super quick. What you're actually sort of like talking about is quote unquote "Mongolian barbecue", which is neither Mongolian nor barbecue. It's served on a big round s— iron griddles, you know?

**Sydnee:** Yeah, yeah.

**Justin:** Okay. So, it's really only kind of loosely related to barbecue. The first Mongolian barbecue restaurant was called "Genghis Khan Mongo—Mongolian BBQ".

[Sydnee chuckles]

**Justin:** And it was located in downtown Taipei, Taiwan. So, that's the— that's the— the— how the whole thing came together.

**Sydnee:** And now you know.

**Justin:** And now you know. Genghis— my boy Genghis Khan did not have anything to do with Mongolian barbecue.

**Sydnee:** And perhaps nothing to do with kombucha as well.

**Justin:** Maybe not.

**Sydnee:** Who knows?

**Justin:** Y— you know, I've heard a lot of things about kombucha. I can't imagine any of— most of them are true.

**Sydnee:** But we definitely know that it became very popular in Russia at this point in time, and it probably would have grown in popularity then except for World War II actually kind of put a stop to it, largely due to the— the inavailability of things like sugar and tea.

**Justin:** Right.

**Sydnee:** Right? So after World War II, we start to see a revival as people are able to access these things again easily, in Italy and Germany.

And then there was a lot of research done by Soviet researchers who were trying to figure out why there was this specific region of Perm on the Kama River that had been contaminated with a lot of things like lead and mercury and asbestos, but for some reason the people who lived in this particular region were not getting cancer from these different, you know, environmental toxins like a lot of other people in that area were. And so—

**Justin:** It's gotta be the 'buch.

**Sydnee:** Well, they interviewed all these people and somehow arrived at the conclusion that it was because they drank so much kombucha that they were not getting cancer. And so, from here we start to see this theory emerge that maybe kombucha is a secret cure for cancer.

**Justin:** Okay.

**Sydnee:** So, this is— this is starting— There are whispers of this, it's kind of a folk remedy. You see a lot of people who are drinking it although not formerly proposing this, like in the medical literature, until we start to see a— like a— several different doctors—

One in particular, a German doctor named Rudolph Sklenar who used kombucha as well as probiotics in general, meaning like good bacteria, to treat cancer as well as basically anything, but mainly cancer. And he would go on to write a book about this that a lot of people still cite today as kind of like one of the most important—

**Justin:** Dumb.

[Sydnee laughs]

**Justin:** Fake.

**Sydnee:** One of the most important kombucha works.

**Justin:** [in an intellectual tone] “When I'm listing some of my fakest, dumbest books I know about, the number one is the guy who says kombucha tea cures cancer.”

**Sydnee:** First— so let me— let me kind of walk you through his process, just you kind of know. Like, let's say— let's say that you're— you're gonna go see—

**Justin:** Take me inside the mind of this thug. Yeah, for sure.

**Sydnee:** You're gonna go see the good Doctor Rudolph and you're gonna a— you know, ask him to cure your cancer with kombucha. And the first thing he's gonna do is a blood stain that he invented. There was a specific kind of staining process, I— I'm not sure exactly what it was, but he was



the one who created it. And he would look at your blood and he could tell you—

See, he— he'd— he thought he had identified the agent that caused cancer. That there was something that he saw in the blood that was the cause of cancer and he could divide you into four stages basically. And there were pre-cancer stages and then cancer stages, but four of them altogether. And he could look at that agent in your blood and tell you where you were on the cancer spectrum.

**Justin:** Yeah, how convenient— the— this thing he came up with.

**Sydnee:** He could then, to add to the— the stain, for more information sort of, another diagnostic study, he would look at your irises. This is called iridology, people who study irises for— like, of your eye.

**Justin:** Is it real?

**Sydnee:** No.

**Justin:** Okay.

**Sydnee:** To look for different markers. I mean, certainly yes, it is important to look at someone irises— someone's irises if you're going to examine them or do an a— appropriate eye exam. But no, this that I'm talking about is not.

But he could tell you about like your general health and wellbeing by seeing different pigments in your eyes. And then thought he could judge whether or not he was successful in curing you as to whether or not they went away after he gave you his treatment.

**Justin:** Kombucha tea.

**Sydnee:** Yes. So— and this also, by the way, applied to people who were pre-cancer.

**Justin:** Sure, right.

**Sydnee:** So, if you came to him and he couldn't find evidence that you had cancer, but he thought maybe you were pre-cancer.

**Justin:** Slightly nihilistic way of seeing people, but sure.

**Sydnee:** Yeah, then he also had a treatment for you. It's the same treatment. There's a little sneak peek. It's the same treatment, it just depends on how much of it you're supposed to drink.

**Justin:** Sure, right.

**Sydnee:** So he had a homemade kombucha preparation as well as a— I see him refer to it again and again as “coli” or “colee”, I don't know how they're pronouncing, “coli” would be appropriate. Coli compounds, which— which are just E. Coli, like the bacteria.

**Justin:** Okay.

**Sydnee:** Like, E. Coli.

**Justin:** Some E. Coli. Right.

**Sydnee:** Right. So, some E. Coli and some kombucha. If you are pre-cancer, you'd drink a quarter liter of this a day. If you are current cancer, you would drink a whole liter of this a day. Other things that he would advise, in addition to drinking your coli compounds and kombucha, is don't worry, feel shock or fear because these emotions make cancer worse.

**Justin:** It's funny because I'm treating my cancer with tea, so I do feel a considerable amount of fear.

[Sydnee chuckles]

**Justin:** That's so funny that I'm not supposed to feel that. It seems counterintuitive.

**Sydnee:** Yeah. This seems like a worry-inducing situation to me.

**Justin:** Yeah. Yeah, yeah.

**Sydnee:** And it made me a little shock when I heard that was the treatment. But in four to six months your cancer will be gone and—

**Justin:** Oh, dunk. Well, s— Man, I feel bad for talking a bunch of yay about this guy now!

**Sydnee:** And he knew for sure that it was gone because he repeated the blood stain that he created—

**Justin:** The fake—

**Sydnee:** — and looked in your irises again.

**Justin:** Right. Okay, yeah.

**Sydnee:** And he could tell that it was gone at this point.

**Justin:** Okay, great. Well, that's convenient.

**Sydnee:** So publishing these findings and then the book that would follow this was part of— This is only just— there are many, many stories like this but there were— there were a lot of doctors who popularized it at this point in time. And more and more followed this literature and it became a cure all of sorts.

**Justin:** Hmm. Now, what do we know about cure all's from this show, Syd?

**Sydnee & Justin:** [simultaneously] Cure all's cure nothing.

**Justin:** Except thirst, in a case of kombucha. This episode has been brought to you by kombucha.

**Sydnee:** No, it hasn't.

**Justin:** It hasn't.

**Sydnee:** No.

**Justin:** That would un— uncomfortable I think.

**Sydnee:** No, but if you wanna know who this episode is brought to you by... Justin, why don't you follow me to the Billing Department.

**Justin:** Let's go.

[theme music plays]

**Justin:** So Syd, you were right in the middle of telling me about how refreshing and... cancer curing kombucha is.

**Sydnee:** Well, no. Let me— Let me—

**Justin:** I've got like eight empty kombucha glasses—

**Sydnee:** Uh-huh.

**Justin:** — lined up next to me. I've been pounding it through the whole show. Pretty sure I'm okay on the cancer front forever with as much kombucha as I've been drinking.

[Sydnee makes a high-pitched skeptical noise]

**Justin:** But I just wanna know exactly how much I needa drink to keep from ever getting cancer.

**Sydnee:** Okay. But— well, I'm— I'm gonna get into some of the why's people think this is true and whether or not it is. You probably already know where this is going. I don't think anybody's gonna be shocked. But before I do, let me just— let me just clarify. This was not— at this point in time, you know, as we're moving into the later 1900's, we're not thinking of kombucha just as a cancer cure.

**Justin:** Okay.

**Sydnee:** No. It is being claimed to treat basically anything.

**Justin:** A panacea—

**Sydnee:** Yes.

**Justin:** — I believe is the term.

**Sydnee:** Exactly. Fatigue, hypertension, allerg— allergies, it's a— that's a big claim.

**Justin:** Bad butt. If you have a bad butt, it can fix it.

**Sydnee:** It d— well, yeah. Digestive issues, hemorrhoids.

**Justin:** Sure.

**Sydnee:** It's claimed for hemorrhoids. For headaches, for atherosclerosis.

**Justin:** Sure.

**Sydnee:** So for like heart disease, to lower your cholesterol, metabolic disorders, arthritis. Some things that— like candidal infections, and when I read that I'm not even sure if p— they necessarily mean like real candidal infections. There's—

**Justin:** What could that be?

**Sydnee:** Well, there— there's also this concept of people being invaded with candida.

**Justin:** What?

**Sydnee:** With yeast.

**Justin:** With Canada?

**Sydnee:** Yeah. The— people have these— I don't wanna get in— That's a whole thing.

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

**Sydnee:** Anyway—

**Justin:** The country?!

**Sydnee:** No, candid— yeast.

**Justin:** What?

**Sydnee:** Candida.

**Justin:** [laughs] Okay. You need to pump the brakes.

**Sydnee:** It's yeast.

**Justin:** Stop saying Canada at me like I don't—

**Sydnee:** Can-di-da.

**Justin:** Okay. L— See— check the Raffi tune, it's C-A-N-A-D-A.

**Sydnee:** No, C-A-N-D-I-D-A. Candida.

**Justin:** Okay, I don't why you keep saying Canada at me—

[Sydnee laughs]

**Justin:** — like I'm some sort of m— idiot child. Okay? I know what Canada is.

**Sydnee:** Not— not the country, not “Oh, Canada”.

**Justin:** Why is Canada invading? That's the part—

**Sydnee:** Like, candidal.

**Justin:** — the worst Michael Moore movie, *Canadian Bacon*.

[Sydnee chuckles]

**Justin:** Like, I saw it. It was not very good. And now you're just shouting Canada at me.

**Sydnee:** Candida. It's yeast. It's a word for yeast.

**Justin:** [in a strained voice] It's a country, Sydnee.

**Sydnee:** Not— not Canada. Candida. I quit. Anyway, in addition to that, it was a— it— it came— it became a popular “folk treatment”, if we can use that word for it, for HIV. That thing we see—

**Justin:** That— that charming colloquialism.

**Sydnee:** Yeah, “folk cure” for HIV, when we think about like the '80s when we began to start to understand what was happening with HIV. There were a lot of people who were... told, or led to believe that kombucha would help them cure their HIV. And of course, cancer already mentioned. It's— and th— this is not just to drink, like it was also advised that you wash your hair with kombucha, that you—

**Justin:** Let me guess.

**Sydnee:** If you have any kind of wounds on your skin, you just kind of rub kombucha all over it.

**Justin:** Enema? Enema? Enema?

**Sydnee:** Sure, kombucha enemas. Yeah, because there's good— there's good stuff in there you need in your guts, so why not deliver it direct— direct to sender. [chuckles]

**Justin:** Direct. Take the— take the— [laughs] Take the on-ramp— expressway.

**Sydnee:** And also that it will reverse aging and make you live longer.

**Justin:** [whispers loudly] I am so excited about kombucha. [normal] And you know what, listener at home? I know this is normally the part of the show where you'd continue listening for the rest of it, but why don't you just— why don't you and me, why don't we just... [clicks his tongue twice] Why don't you and I just get off here. What do you think? We've heard a lot of great things.

**Sydnee:** Drink some kombucha.

**Justin:** We can go live our lives pounding kombucha together. We can just get off right here.

**Sydnee:** It— you see— you see some claims throughout the 1900's, like there was a Dr Melinda in the '20s who was talking about angina, which is like heart pain, pain that comes from the heart, especially when it's—

**Justin:** Mm-hmm.

**Sydnee:** — when it's not getting appropriate blood flow and oxygen. “in the case of angina, especially when there is a coating of the tonsils.” Can't make those work but, “the drink should not merely be used for gargling but for drinking and that, for the destruction of bacteria. Such gargling in angina brings fast recovery”. I I— I just love the idea of gargling something to relieve your angina.

**Justin:** Mm-hmm.

**Sydnee:** That's not what we recommend. We still recommend the ER for that.

**Justin:** Sure, yeah.

**Sydnee:** When your heart hurts. One of the oldest brands commercially available, I think it was actually the first commercially available in the US, th— Um, I think so, is GT Kombucha. Very widely known.

And it's based on a story. And we see this, we've talked about this before with a lot of like health foods and supplements and things like that, that they're based on a story of someone who was cured miraculously—

**Justin:** Sure, yeah.

**Sydnee:** — by it. And the story behind GT Kombucha is that his mother had an aggressive breast cancer that never spread and the doctor's credited it to...

**Justin:** Kombucha.

**Sydnee:** To drinking kombucha. They already drank kombucha before that. So why do people think it has all these health benefits? So if you start reading like, the rationale, like wh— it's a fermented tea. Like, we know what— we know what fermentation is, we know what tea is.



**Justin:** Right.

**Sydnee:** Nobody's claiming that all fermented beverages cure everything or that all teas cure everything. So why, when you put them together, is this magic happening?

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

**Sydnee:** There are several reasons people will cite. One, it has a lot of acids in it. This is a very strange reasoning to me, but I have seen this, that it has a lot of organic acids, lactic acid, acetic acid, malic acid, glucuronic acid.

And they say that these acids do lots of things in your body. They kill bacteria, they detoxify you, that mystical thing that acids do, they— that many health foods do.

**Justin:** Detox— detoxifying. Yeah.

**Sydnee:** They detoxify you. They lubricate your joints, they kill viruses, they give you energy. They also say that they help you regulate your blood pH. Just on a side note, no they don't.

[Justin snorts]

**Sydnee:** No foods that you— No, that's not. You're— you know what does? Your lungs and your kidneys regulate your blood pH.

**Justin:** Give it up for your lungs and your kidneys.

**Sydnee:** Yeah. Th— and they— it's— it's hard work and it's very complex to understand, and we spend a lot of time in medical school learning about it. Trust me. Kombucha's not regulating your blood pH for you. And lactic acid is something that we measure as a sign of sepsis, so not sure why... Anyway, so these acids are supposed to be good for you. Also, it has—

**Justin:** Your muscles make them though also, when you exercise. That's what gives you the burn.

**Sydnee:** Well, but—

**Justin:** If you think about it. That—

**Sydnee:** I mean, that's not like a— th— that's not like a good th— I mean, like yes, exercise is good for you, but it's not so that you can produce extra lactic acid to regulate your blood pH.

**Justin:** Okay. Got it.

**Sydnee:** No. Also it has probiotics, it's got good bacteria. We all know that that's a thing. And that's true. Good— We need more good bacteria in our gut. Antibiotics wipe that out. It's got lots of B vitamins. It has— I'll s— I always see this, a lot of enzymes. Guys, like just enzymes, that doesn't mean anything. Like we have enzymes. You have to have enzymes.

**Justin:** We're good on— we're good on enzymes.

**Sydnee:** If your enzyme— if you didn't have enzymes, well you wouldn't be listening to this podcast 'cause you'd be dead.

**Justin:** Okay. Well, let's g—

**Sydnee:** So, don't worry about that.

**Justin:** I definitely want some more of those and I think only kombucha's gonna get it for me.

**Sydnee:** [chuckles] No. No, they're just there. They're fine. Don't worry about your enzymes.

**Justin:** Okay.

**Sydnee:** Please don't worry about your enzymes. A lot of to do has been made about the possible presence of the specific acid glucuronic acid or glucaric acid. One of these two that might or might not be in kombucha, which is supposed to clean out your liver and clean bad stuff out of your body. I've read that it acidifies your body and that's why it works. I also read [chuckles] that it alkalinizes your body and that's why it works. You know, the opposite.

**Justin:** Y— Right.

**Sydnee:** Right. So, it does one of those two things and that's why it works. On a side note, because as I've mentioned, it is alcoholic, you're not allowed to take it to school. [chuckles]

**Justin:** Okay. I wasn't—

**Sydnee:** I read a report of some poor kid in California who brought a bottle of kombucha to school and got in trouble because...

**Justin:** Alcohol.

**Sydnee:** You know, it's alc— [chuckles] it's got alcohol in it.

**Justin:** Right.

**Sydnee:** You can't take alcohol to school.

**Justin:** I mean, it— this is... [sighs] I'm struggling with this because I know it's bad but like, it's— it's not that expensive I wouldn't imagine and it's not really hurting anybody, right?

**Sydnee:** Well, not necessarily. So, in that— in that question, it may have hurt people.

**Justin:** Okay.

**Sydnee:** In 1995, the CDC linked at least one and maybe two deaths to kombucha. Now, a large part of this is it's more of a— a factor of the home brewing than it is kombucha the beverage itself. Just like anything that you are going to ferment and make at home, if you're not using proper sterilization techniques, you can let bad bacteria get in there and you— people can get really sick. You can have byproducts that are created in the fermentation process. We know this from being beer home brewers.

**Justin:** Yeah.

**Sydnee:** You can make people really sick if you're not careful.

**Justin:** Or you can make a really low gravity beer that took like six weeks to make and it's like pointless to drink 'cause it doesn't taste that good.

**Sydnee:** [chuckles] You could do that too.

**Justin:** Dunno, I think that might have happened to you.

**Sydnee:** Yeah. D— and it's a horrible thing. I wouldn't wish that—

**Justin:** And you— and you're sort of like hate—

**Sydnee:** — on my worst enemy.

**Justin:** And you kind of like hate drink all 30 bottles of it even though you have no effect other than having to use the bathroom pretty bad. That could happen.

**Sydnee:** [laughs] either way, so— so after these two possible, and again, this was not— this was never completely certain, but after this— these two possible deaths were linked to kombucha consumption in 1995, the CDC basically came down on the side of saying like "Look, just don't drink it. Or at least, at the very least, if you're gonna drink, don't be drinking it for health benefits. If you just like it, kind of like you do— like you would drink alcohol. If you like alcohol and you wanna drink it, that's fine".

**Justin:** Mm-hmm.

**Sydnee:** "But don't pretend like you're drinking it to cure your cancer because it doesn't do that." and that is actually, so far, been the— the weight of the evidence has come down on that side that all of these health claims probably cannot be borne out by any sort of studies.

**Justin:** Yeah.

**Sydnee:** And again, this was— or, you know, further hampered by the fact that in 2010, it was— unpasteurized kombucha was regulated by the FDA as alcohol.

**Justin:** Aw, shucks.

**Sydnee:** So.

**Justin:** Man, science is always coming around to spoil the fun.

**Sydnee:** So that's the thing, I— I— I read a lot of studies on kombucha, 'cause there are people doing them. They're all very small, they're— they're extremely—

**Justin:** They're small people.

**Sydnee:** No, very small studies.

**Justin:** Oompa Loompa's are studying kombucha as we speak.

**Sydnee:** They're extremely small because, as people will tell you about anything like this, anything like a supplement or something herbal or natural, there's not a lot of money in it so you're not gonna get the big, giant, you know—

**Justin:** Yeah.

**Sydnee:** — double blind studies that you get for brand name pharmaceuticals that you see on TV. And that's a fair— that's a fair criticism, yes. That's true. Y— you're not going to.

But even in the small studies that I saw, there are just as many that said they didn't see an effect on whatever they were studying, high blood pressure, cholesterol, like that whole detoxifying thing, looking to see if they have any antioxidant property. There were many that said they did and then there were many that said they didn't. So, I would say inconclusive, not enough data to say for sure.

**Justin:** Okay.

**Sydnee:** Yes, there's probiotics in there. That's true. So, you know, just like we tell people to eat yogurt, drink kombucha.

**Justin:** Yeah, sure.

**Sydnee:** Yeah, I— I think that's fine. And I— I don't think that, as far as are they g— is it gonna kill you? I mean, probably not. I think it's the same risks as anything that's home brewed.

**Justin:** Sure.

**Sydnee:** You know, you can't regulate the equipment so, who knows? You know, it's a kind of a buyer beware thing at that point. Some of— one of the stranger studies I did see was that they had a bunch of rats. This is really— and I know you don't like rats, Justin, but this is— this is rough even for rats.

And they cut the rats, and then like half of the rats they then poured kombucha on and the other half they didn't. And they said that the rats that they poured kombucha on, the cuts they— they put on them healed faster than the rats that they did absolutely nothing for!

**Justin:** Who cares? Rats are the pits.

**Sydnee:** I still would not advocate pouring kombucha on a— on a wound.

**Justin:** I'll pour kombucha on a rat all day long.

**Sydnee:** Especially if it's homemade 'cause you don't know—

**Justin:** It's already a little freak, what's he gonna be—

**Sydnee:** — what other bacteria might be in— I just don't think— Well, just don't— just don't do that. And also this. So, I found this quote from a doctor who is a practitioner of oriental medicine. An Ayurvedic practitioner is what his— that is his degree that he claimed.

**Justin:** Mm-hmm.

**Sydnee:** And a quote was "Of all the food trends out there, I am most skeptical of kombucha. My personal opinion is that it is of little use, if not contraindicated". And then he goes into some— some different specifics of Ayurvedic medicine. "But as a yeast product, I would not suggest a daily lifestyle use of kombucha."

**Justin:** All right.

**Sydnee:** So if we have people who are already accepting of, kind of, alternative medicine, being highly critical of it, here's what I would say. If

you like kombucha and you know the kombucha you're drinking is safe and properly produced, you drink that kombucha. You go for it.

**Justin:** Go nuts.

**Sydnee:** I got no problem with it. I drank some. It was pretty tasty.

**Justin:** Tasted good.

**Sydnee:** And some people think it's a— a healthy alternative to soda 'cause it gives you that fizz that soda gives you.

**Justin:** Mm-hmm.

**Sydnee:** Without all the other stuff. And that's all well and good, that's fine. But again, like we always say, if you are sick, please don't drink kombucha. I mean, you can, but drink it on the way to the doctor.

**Justin:** [laughs] folks, that's gonna do it for us. We hope that you learned something today. And we're sorry this show's a little bit late. You know, life. Life. But we're here now. That's the important thing.

[Sydnee chuckles]

**Justin:** We're here with you.

**Sydnee:** We'll always be here for you, we just may be late.

**Justin:** That's— yeah, that's us. Thanks to The Taxpayers for letting us use their song “Medicines” as the intro and outro of our program. Thanks to the Maximum Fun network. Listen, we're—we're gonna be announcing a live show coming up on Monday or Tuesday next week. But it may be before— like tickets may go on sale before our next episode goes up. So, keep an eye on our Facebook group and our Twitter channels, for— for that so you won't miss out.

**Sydnee:** Yes.

**Justin:** And uh... thank you— by the way, thank you, thank you, thank you to everybody who donated to the Max Fun Drive. We just wanted to reiterate that. We really appreciate you and you're the best.

**Sydnee:** Yeah, thank— thank you for making it possible for us to keep doing this and— and it's wonderful, we really enjoy it and you guys make it all the better. And also if you have a second, we always appreciate if you like our show and you like what we do and you wanna spread the word, check out iTunes and review us there.

**Justin:** Ones like this show, like kombucha, are really good 'cause it's something people are talking about, so if you— if you think somebody might dig it or might be interested in it or you just want—

**Sydnee:** [chuckles] Or you wanna make somebody really angry.

**Justin:** Just wanna really tick somebody off, just please share this and— and review and— and— and put it on their Facebook wall. Okay. That's gonna do it for us, folks, until next Wednesday. [snorts] Sure.

**Sydnee:** Or thereabouts.

**Justin:** Thereabouts. [chuckles] My name is Justin McElroy.

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

**Justin:** And as always, don't drill a hole in your head.

[outro music plays]

[ukulele chord]

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