

Athena: [00:00:04](#) Have you been zombified by addiction?

Dave: [00:00:08](#) I mean, maybe? I've got some tea downstairs that, uh, I made earlier and as we were talking about the addiction podcast, I thought I should go get that tea. [Athena laughs] And then I didn't. And now I'm sort of thinking about that tea and I sort of do feel like a physical craving. I don't know if tea is maybe not the strongest thing, you know, like we might talk about in the podcast today. Some things that are a little more intense than tea, but, uh, but still-

Athena: [00:00:39](#) Depends how long you steep it though, really

Dave: [00:00:42](#) Uh oh, I mean, it's been steeping all day. [Athena and Dave laugh]

Athena: [00:00:46](#) So Dave you're actually right now at this moment, zombified by your addiction while we are recording an intro to a podcast episode about addiction.

Dave: [00:00:58](#) Laurel I think I, yeah. And I actually think throughout most of our episodes, I do, I actually feel this like really strong, like pretty much caffeine is the only like drug I consume. And, uh, I think about it, like when I'm not consuming it, it's like, it's crazy

Athena: [00:01:16](#) Kind of like you're in love except it's not a person.

Dave: [00:01:19](#) Yeah. It was like, I can't get enough. I write it little letters and things like that. [Both laugh]

Athena: [00:01:24](#) That's very romantic Dave.

Dave: [00:01:28](#) And then, and then when I finally get it, I'm happy. And so my world is full. I'm like the skies fall, as long as I have you, tea [Both laugh].

Athena: [00:01:38](#) Well, welcome to the zombified podcast, your source for fresh brains. I'm your host Athena Aktipis, psychology professor at ASU and chair of the Zombie Apocalypse Medicine Alliance.

Dave: [00:01:50](#) And I'm your co-host Dave Lundberg-Kenrick, Media Outreach Program Manager here at ASU and caffeinated brain enthusiast.

Athena: [00:01:58](#) Yes. Brains are awesome.

Dave: [00:02:00](#) They are.

Athena: [00:02:00](#) I'm kind of addicted to brains.

Dave: [00:02:03](#) Well, we've got, we, we have some brains on today's show. We have a great brain.

Athena: [00:02:08](#) Yeah. We have an awesome brain today. We are talking to Matt Meier, who is a psychology professor at ASU, and he's also a licensed clinical psychologist and he's worked in many community mental health and substance abuse treatment centers. So he knows both the academic side of addiction, um, and he knows the practical side of it. And so we get a really great nuanced perspective from him and kind of diverse perspective. I mean, everything from, you know, like the, the serious side of addiction to, um, you know, a, a nice journey through drugs that make people behave like zombies. So we have quite a diversity in this episode [Both laugh].

Dave: [00:02:53](#) Yeah, yeah, no, I mean going yeah. Ranging from sort of, yeah, just moderate, like my current caffeine zombification to just the outright bizarre like bath salts and things like this, that, uh, yeah. So it's, uh, but it it's really interesting. And I also think like, he's, you know, he's studied this stuff it's and it's really informative. I think it's a really useful thing for people to listen to. [Athena: Agreed. Yes.] So grab a, grab a big pot of tea and, uh- [Athena and Dave laugh]

Athena: [00:03:26](#) Sit down for this one. Yeah. And before, before we get started, if you are interested in learning more about what we're doing in October for the zombie apocalypse medicine meeting, we will talk about that after this episode. Um, you could also go to zombie med dot - zombiemed.org to read more, but yeah, stay tuned.

Dave: [00:03:47](#) Yeah, It's a great place for brain addicts. We've got a, we've got a prime batch. So- [Athena and Dave laugh]

Athena: [00:03:55](#) Speaking of wonderfully delicious, fresh brains, let's hear from this week's fresh brain, Matt Meier.

Intro: [00:04:05](#) [Psychological by Lemi]

Athena: [00:04:41](#) Matt, thank you so much for joining us for Zombified.

Matt: [00:04:45](#) Thank you for having me.

Athena: [00:04:46](#) Would you introduce yourself in your own words for all of us, please?

Matt: [00:04:50](#) My name is Matt Meier. I'm a licensed psychologist and assistant clinical professor here in the department of psychology.

Athena: [00:04:56](#) So you're like an actual psychologist, as opposed to like me where I'm like a professor. People are like, oh you're a psychologist. You're analyzing me right now, aren't you?

Matt: [00:05:06](#) Only if you pay me. [Athena laughs] Um, but yes. So I have spent a lot of my career working in community mental health, substance abuse treatment centers, uh, uh, still see a client here and there. Um, but now the majority of my time is spent in our training clinic for the PhD program in clinical psychology, supervising our grad students.

Athena: [00:05:29](#) Awesome. So you really have seen the full gamut of human life in this context?

Matt: [00:05:36](#) I have. I've worked in psychiatric hospitals, um, with kids, adults, um, and just about every mental disorder there is.

Athena: [00:05:46](#) Wow. Wow. So what, what drew you to that initially? What got you into the field?

Matt: [00:05:53](#) Well, so when I, uh, I started out in engineering, um, did engineering physics then aerospace engineering.

Athena: [00:06:01](#) Wait, how do you get from that to mental health and addiction?

Matt: [00:06:08](#) Uh, so I was not happy. Um, calculus kicked my butt and, um, uh, decided, I didn't know if I wanted to just be, um, working at a desk all day, uh, and went through the course catalog. And the only thing that sounded interesting was psychology. Um, my dad was a school psychologist. Um, so had some exposure from a young age, but-

Athena: [00:06:34](#) So you were like trying to not follow in your dad's footsteps and then there you were, following in Dad's footsteps? [Athena laughs]

Matt: [00:06:42](#) Well, I always liked the science and math, but um, still missed the human interaction. [Athena: Yeah.]

Matt: [00:06:48](#) And, uh, so went to grad school, um, and, uh, started in a substance abuse lab. And, uh, I, I loved that you still saw every other aspect of every other problem and, and improvement and decline. And it was just, you saw everything through the lens of substance abuse.

Athena: [00:07:08](#) Yeah. Well, and that kind of brings us to the topic for today of addiction and how addiction and substances can actually take over our brains and zombify us, right? They can have this powerful influence on human behavior.

Matt: [00:07:26](#) Well, and I think I've got kind of the, one of the easiest topics to bring to this program. Um, are you guys into the slow zombies or fast zombies?

Athena: [00:07:36](#) Oh, just bring whatever you got, bring it. [laughter]

Matt: [00:07:41](#) Uh, well, so before we talk about the seriousness of addiction and how that really can control people, um, if you look over the past few years, we've seen, um, some of the new synthetic drugs that create behaviors that look just like zombies. I mean, it's, it's crazy.

Athena: [00:08:00](#) Like, like what?

Matt: [00:08:00](#) So, um, I don't know if you remember in 2016 in Brooklyn, New York, uh, there were 33 people that got the same batch of, of the, it was called AK-47. Um, and it's a synthetic, um, cannabinoid and they were slow to respond, have these shuffling movements, there was a lot of moaning and groaning.

Athena: [00:08:28](#) Seriously? [Matt: Yeah, yeah.] So how did they, I, I don't know that much about drugs. How do people take a synthetic cannabis? Is it like different ways they can take it? Are they oral or like they eat it or.

Matt: [00:08:40](#) Uh, I believe these were pills. Um, [Athena: Okay.] But you can also smoke some and [Athena: Right.] I mean, there's, there's any number of ways of actually using them. It's just how they're made.

Athena: [00:08:51](#) Okay. So, so they were, you know, thinking that they were going to have a nice relaxed experience-

Matt: [00:08:58](#) It was supposed to be like getting high on pot, um, that kind of euphoria, relaxation, maybe a pleasant bit of hallucination, but, um, either the dose was too high or there were too many toxins in it and-

Athena: [00:09:11](#) So instead they were like wandering around Brooklyn, like literally, [zombie moans].

New Speaker: [00:09:18](#) Yes, literally. And, and, I mean, that was-

New Speaker: [00:09:18](#) [moaning] Where's my coffee? [Athena laughs] Where's my artisan bespoke coffee? [Athena laughs]

Matt: [00:09:24](#) That was the news story is like the zombie apocalypse is upon us. [Athena: Huh.] Um, so that was, that was from, uh, the synthetic, um, cannabinoids. And then if you want the fast zombies [Dave: Yes. Dave laughs], um, I don't like those. I'm more of a Shaun of the dead kind of guy. [Athena: Yeah, yeah.] Um, but so, uh, with the fast zombies, those are what you get from the synthetic stimulants. Um, so, uh, bath salts of the

Athena: [00:09:55](#) Yeah. So tell us about the bath salts thing. [Athena laughs] Cause I, I learned from, uh, from Foster Olive, like what bath salts, where my mind was blown. That like, there's actually, like people actually will sell the drugs called and they call them bath salts, but they're not actually,

Matt: [00:10:14](#) [Athena laughs] So they, it's a way of getting around the laws. So, um, with all of the synthetic drugs that are being created, you tweak the chemical makeup just a tiny bit, and then that's no longer covered in any of the laws that say it's illegal. Um, and then they also get around it by saying this isn't a drug for human consumption, it's bath salts or incense. And so you could sell them in convenience stores and just go in and buy it as a bath salt. Yeah. I'm going to add this to my bath. No, it was a drug that they were going to take.

Athena: [00:10:45](#) So be careful when you're buying bath salts, if they seem more expensive than they should be. Okay.

Matt: [00:10:51](#) [Matt and Dave laugh] Well, I think if you're planning on using them as bath salts, then you're going to be fine. [All laugh]

Dave: [00:10:56](#) Would that be effective as bath salts if somebody would've -

Matt: [00:10:57](#) I have no idea. I think that would have considered a big waste to dump their drugs into the bath because you're not going to get high from that.

Athena: [00:11:04](#) I imagine you might absorb some of it through your skin, right? I mean, cause.

Dave: [00:11:07](#) Um, we're-

Athena: [00:11:07](#) I'm just speculating now.

Dave: [00:11:09](#) I was just, like, what're, normally if I'm, if I'm not buying bath salts for drugs, is it [Athena laughs] just to like make the bath smell nice. Right?

Athena: [00:11:17](#) No no, you actually absorb the minerals and stuff in your skin. [Dave: Oh, okay.] Like if you're like really, um, sore from like skiing or something and you put Epsom salts in your bath, like, I don't know, it helps like [Dave: Oh, interesting.] Yeah, actually absorb some of it in your skin.

Matt: [00:11:31](#) Yeah, I, I, don't know that anybody was administering it that way and getting high [Athena and Dave laugh] from taking their hot bath but-

Athena: [00:11:39](#) It's a satirical question though. [All laugh]

Matt: [00:11:43](#) Um, but so with, with the, the name of, of one type of bath salt that was really causing problems was called Flakka. [Athena: Okay.] Um, and that with an overdose. I mean, if it were taken at, uh, the ideal dose, I guess, is it's that stimulant. So you're lots of energy, motivated, running all around. Um, so like if you were doing cocaine or meth, um, but again, with these being made up in home labs, um, there were some toxins are just too high of dose and it caused aggression and irritability and anger. Um, this is, there was a story coming out of Florida where a guy was biting a homeless man. Um, and it took three or four people to, to restrain him. And so it was just lots of aggression, lots of, um, hostility and violence and, and um,

Athena: [00:12:46](#) How often is biting like a side effect of drug use?

Matt: [00:12:49](#) So I, after that came out, I was looking into that and, and, they weren't even sure, um, what all else he had taken. It was, it was the assumption. [Athena: Or if that was just his thing]. I mean, maybe [Athena: Maybe he was just a biter.] he was just a big fan. Right. So, so I, I've not heard of many instances of, of biting as a side effect.

Athena: [00:13:14](#) Maybe he was at preschooler who was like getting kicked out for [Matt: For biting?] biting [Dave: Right.] and it just like came back. Yeah.

Matt: [00:13:21](#) Just kind of fit in with that.

Athena: [00:13:21](#) Right. [Athena laughs]

Dave: [00:13:22](#) I remember when this hit the news though, like this was a big thing, like just attacks this guy and starts eating him [Athena laughs].

Matt: [00:13:29](#) And, and it was out of, was non-responsive to people just, just was trying to eat people. [Matt and Athena laugh]

Dave: [00:13:36](#) So now, and, now these bath salts things, they're not like, who, are they hallucinogenic? Like-

Matt: [00:13:43](#) So some are, I mean, um, the, the synthetic cannabinoids are, um, do cause delusions and hallucinations. Um, [Dave: Okay] and sometimes that's the goal. I mean, if you, if you people like taking LSD, some people like taking LSD, um, for the hallucinations. So, um, that, that is a goal for some people.

Dave: [00:14:06](#) Sure. I just wasn't, when you were saying it was like synthetic cocaine or methamphetamine, I was thinking like hallucinations.

Matt: [00:14:14](#) Yeah. That's, that is one of the effects. [Dave: Is it?] Um, for the, um, cannabinoids sometimes for the stimulants, um, but not always.

Athena: [00:14:27](#) And it really makes me think about kind of how fragile our perception of the world is. If you can just take some substances and it makes you see things that are not really there and do things that you wouldn't do and be unresponsive to other people around you. Like, you know, and not just our perception, but our sense, even of our own autonomy is really fragile if you could just pop some pills and, or [Matt: Well] some bath salts--

Matt: [00:14:54](#) It, it really all lies on a continuum. I mean, we have hallucinations every day. How many times do you reach for your phone and thinking it vibrated [Athena and Dave laugh] and it didn't, [Dave: Sure] um, or you thought somebody said your name? Um, I mean, it happens all the time, but it's not causing problems for us. But you go to the other extreme with schizophrenia or with the acute effects of drugs or lasting effects of drugs. Um, you get that where you lose touch with reality.

Athena: [00:15:26](#) Yeah. I mean, it blows my mind though, because I, I think, I mean, I, at least going through my everyday life have this intuition and this feeling like I can trust my senses. And also that I am like a volitional entity interacting with my environment. And when I hear these stories, you know, I, I think like, I mean one way to think of it as like, Oh, that's just something crazy that happens. And another way to think about it as like, Oh, Hey, all

of us are actually vulnerable to having our perception of the world transformed, right? I mean, like if you got kidnapped and someone drugged you like, right? You're, then you don't have the same. [Matt: Lose control.] Yeah, exactly.

- Matt: [00:16:13](#) Can't think can't, can't make your own decisions. Any of that.
- Athena: [00:16:16](#) Yeah. Yeah. So, and there's a, I think there's the whole issue of just our, you know, how vulnerable we are to having these, you know, changes in our, like our very sense of who we are just consuming something. Right? It's like down the rabbit hole- [Athena and Dave laugh]
- Matt: [00:16:38](#) But sometimes that's the goal is escape. I mean, that's [Athena: Right.] Drugs are great at letting you escape from your current situation [Athena: Yeah], whether it's to relax or to sedate yourself or to create different emotions, being euphoric and excited and lots of energy or, or actually with the goal of hallucinating and experiencing a different perspective on the world.
- Athena: [00:17:04](#) Right. So maybe partially we zombify ourselves to escape.
- Dave: [00:17:08](#) Well, I also, I mean, cause my drug of choice these days is caffeine [Athena: Yeah] far away and I've just sort of [Athena: It's a good drug. Laughs.] Allowed myself
- Matt: [00:17:15](#) As I just took a sip of my soda. Yeah. [laughter]
- Dave: [00:17:19](#) I just didn't like, all right, I'm just going to be addicted, right? And I feel like it's almost the opposite where it's like, if I don't have that caffeine, [Athena: Then you're a zombie.] Then I start to, yeah. Then I, also my sort of ability to actually tell what's going on around me is not necessarily- [Athena: Ooohh]
- Matt: [00:17:36](#) You're sluggish and out of it and [Athena laughs] just like irritable,
- Dave: [00:17:40](#) Yeah, I'm just like sitting at the computer and I'll be like, what am I doing? You know,
- Athena: [00:17:44](#) And, and I'll hear you across the hall and you're like- [Zombie moans]
- Dave: [00:17:51](#) Yeah, exactly. That's me until I get that. [Athena laughs]
- Matt: [00:17:53](#) The right dose of caffeine. [Dave: Yeah. So, that uh]

Athena: [00:17:59](#) So is like what's your view as an addiction expert about caffeine addiction?

Matt: [00:18:04](#) Well, so caffeine doesn't fall under a substance use disorder, um, diagnosis [Athena laughs] because, um, you don't typically have negative consequences. So for most mental disorders, there has to be a problem caused from it. I mean, if we look at depression, everybody gets depressed at times, everybody gets anxious at times, it's not diagnosable, it's not a disorder. It's only when it's to an extreme level and it's causing impaired functioning. Um, and so with caffeine, you're, it's not causing problems. Um, now there, there's probably some long-term health issues. Um, but it's not to the level of severity. Well, if you take tobacco, I mean, there's no immediate consequences from smoking other than shame at this point. Um, but it's the long-term kills [Dave: Sure.] more people than any other drug, but um, in the immediate aspect, it it's, it's not causing impairment.

Athena: [00:19:05](#) So like the worst thing that can happen if you have a caffeine addiction is depleting your savings account at Starbucks with all those oatmilk lattes?

Matt: [00:19:13](#) Yeah. I mean, [Dave: Inaudible. Athena laughs.] it's hard to, it's hard to fund your addiction there. [All laugh] Yeah. But you don't see too many people stealing and um, [Athena: Right] assaulting people to get money , to go to Starbucks. [All laugh]

Athena: [00:19:32](#) Thankfully, otherwise ASU would not be a pleasant campus, look at the lines at Starbucks. [Laughter]

Matt: [00:19:39](#) So I'm not too worried about caffeine. Um, but I mean, there's a little bit of evidence that says you don't want to start kids on it is it can stunt some growths and cause a little bit of problems. But-

Athena: [00:19:52](#) So if you want to keep your kids small [Matt and Dave laugh], start feeding them coffee, at age seven. [Athena laughs]

Matt: [00:19:59](#) So batten down the hatches. [Athena laughs]

Dave: [00:20:01](#) When should kids start? [Matt and Athena laugh] Cause I mean, I don't mind, well, my kids would like to start on soda.

Matt: [00:20:07](#) I don't, I don't know, um, what the research is on that is as far as, is there a safe window? I mean, I think it's, you worry just as much about the sugar and obesity, [Dave: Yeah]

Athena: [00:20:20](#) It's when they're the right size for you. [All laugh]

Matt: [00:20:24](#) I'm tired of buying new clothes and shoes so [All laugh]

Dave: [00:20:26](#) Alright, I'll just buy the outfits. Alright. Now, here you go. Now we're just going to spend all your money on Starbucks. [All laugh] Now what about things that are worse than caffeine? I think we've talked about

Athena: [00:20:45](#) Yeah, well, well maybe, maybe, I can kind of like lead us in by asking about just like more generally, are there like particular systems that are sort of always involved in addiction, like mechanisms of addiction or is it pretty different? [Matt: Right] Like different drugs really are targeting different systems. Like what are the mechanisms underlying addictions?

Matt: [00:21:07](#) So typically from a science perspective, we still don't call addiction a disease because we don't have an identified pathway, um, that, that, a model that fits everyone that then results in predicted symptoms that then responds to, um, an effective treatment. Um, there are so many different pathways to developing addiction. Um, and so we, we call it a disorder, we call it an illness, but it's, it's not an F- it doesn't fit the criteria for a disease because we don't know- we have a good idea of lots of different things, but people can take different pathways. So NIDA, National Institute of Drug Abuse has really pushed the brain disease, um, idea for addiction and that, that drugs hijack the brain. And, and there is a component to that, that, that you start changing the, the learning mechanisms of, of how people are reinforced and rewarded for doing specific behaviors. But it's not just that, it's also environmental influences, it's genetic influences. Um, it's, uh, just willful behaviors that you engage in. If, if you, no matter how much liability you have, um, like everybody in your family is addicted to something. And, um, if you've never used alcohol or drugs, then you're never going to become dependent upon it. So, um, sometimes it's just the behavior of, of actually engaging in it.

Athena: [00:22:47](#) I remember reading somewhere recently that one of the things that's often in, in common, like across human studies and animal studies of addiction is that, um, if you have social isolation, so if, you know, like the rats are housed without other rats, or if, you know, humans are, are lonely, then like that seriously increases the likelihood of, um, having addictive behavior. Is that-

Matt: [00:23:16](#) Right. So, um, so that's the case in some situations. [Athena: Okay.] So, um, you can, you can design a, an environment for a rat that they will overdose themselves and die on, um, opiates and stimulants. Now you cannot get a rat to use marijuana that,

they just, they will not use it. There's, there's nothing you can do to, to get them to, to self administer. Um, but the others, if you, um, don't give them anything else, then sometimes they'll go to the extreme where they're not, they're choosing to use the drugs instead of eating. Now, um, I think it was in the seventies or eighties, there was this big study called the rat park, um, I think [Athena agrees], and unfortunately the, the research methods were pretty poor and the [Athena groans], the study itself was kind of debunked, but the idea was fascinating and it was if you provide a rich environment for the rats, so there's other rats that they can interact with, there's food and water and, and activities to engage in, then they won't self administer drugs to themselves because their environment is enriched enough. And so there's something to that. The, the science, wasn't the best on it.

- Athena: [00:24:42](#) Is, I mean, I really want that to be true. [Matt: Right.] [Laughter]
- Matt: [00:24:46](#) But we can, we can look at humans for that. [Athena: Yeah] Um-
- Athena: [00:24:50](#) So there haven't been good follow-ups or?
- Matt: [00:24:52](#) Not that I've seen and it's, it's a shame, but [Athena: Yeah.], Um, I don't know why that hasn't been further pursued.
- Athena: [00:24:59](#) Yeah. But you say we can see it in humans?
- Matt: [00:25:02](#) Absolutely. [Athena: Yeah.] I mean, so we tend to think of, of, we have this, the opiate crisis right now, that's, everybody's talking about. We see opiates as the most severe drug, right? Um, but really all drugs are pretty much the same as far as, um, the number of people that become dependent upon them. [Athena: Really?] There was a great study after the Vietnam war that looked at, so, almost all of the soldiers in, in Vietnam were, were abusing opiates and heavily. This was an awful experience, awful environment. And they could escape by, by using opioids. And when they came back to the U.S., only about 10% remained dependent. Um, the, the rest came back into a supportive environment, got jobs, went about with their families and, and just quit using. No treatment, no problems, they just, that was a very situation specific problem. [Athena: Hmm.] And, but there's about 10% and that's, that's pretty much seen across all drugs is about 10% of the population has a liability to become dependent regardless [Athena: Oh] of the drug. Now there's, there's some difference. Um, you see that, uh, if you, if you looking at just the first time you use, um, so if I use tobacco, one in six, people become dependent, eventually become dependent. And it's about one in six that try opiates that

become dependent. Um, but again, versus alcohols, like one in 10, marijuana is like one in 15 or 20. Um, so there are different, I mean the drug itself can be more or less addictive. [Athena: Okay] Um, but the people that continue to have long-term problems and consequences and develop substance use disorder, it's only about six to 10 to 12%.

Athena: [00:27:05](#) And do you know if it's that same six to 12% across different types? Like are people who are more susceptible to getting addicted to alcohol, also more likely to get addicted to opiates and cigarettes? And-

Matt: [00:27:19](#) There, there's some of that, it's just, um, we used to call it polysubstance dependence. So it was just like, whatever's in front of me, I'm going to use. And there were some people that just are in all categories, uh, but lots of people have their drug of choice. [Athena: Yeah] Um, I like alcohol, right? Like marijuana. I mean, when you look at, um, the heavy cannabis users, um, now they don't drink very much. Their drug of choice is marijuana. They don't, it's not really a gateway drug. They're not going on to other subs. That's, that's what they like. They like the experience of, of using pot. Um, and just aren't as interested in the others.

Athena: [00:27:59](#) So that, that then can't really help address the question of if it's the same underlying mechanisms, right? Cause it was like, Oh, 10% of people are likely to get addicted and if you present them whatever you present them with, they're likely to get addicted. Then that would suggest that it's maybe of similar or shared mechanisms [Matt: Right] underlying it, but-

Matt: [00:28:21](#) Well, there, there are shared mechanisms. Um, it's just the, the pathway, um, that a person takes, um, is can't really be defined by a single model. And so if, when we're talking about addictive substances, if you use enough long enough, you're going to become, uh, the very least physiologically dependent, meaning you'll, you'll develop tolerance. So it takes more of the drug to get the same high or low, whatever the effect is. Um, and then you also experienced withdrawal. So when you stop having the drug in your system, you experienced negative, um, symptoms.

Dave: [00:29:01](#) And that will happen for pot or like-

Matt: [00:29:04](#) Right. So, so lots of people argue, um, with marijuana that it's, it's not, um, physiologically dependent, but it is if you get somebody that's using every day and then they stop, they're irritable, they're cranky. I mean, it's not to the same level of severity as some other drugs, but there is a physiological

dependence. Um, there's also the psychological dependence. So I use when I'm in this situation or I use when I want to change my current emotional state, there's there's, I want to use this as coping strategy. Um, but there's also the physical, just the cravings. I mean, with opiates, uh, it goes from seeking a high to just avoiding the withdrawal.

Athena: [00:29:54](#) Right? Yeah. Yeah. So what happens with the reward system in all of this? You know, how is it getting hijacked by the drugs?

Matt: [00:30:03](#) So you are pumping in all kinds of, of extra, um, neurotransmitters that are, that are stimulating your brain and they're rewarding this behavior. So if I, um, am playing, uh, uh, playing catch with my son, and this is a fun experience, then there's some, our brain rewards us for that behavior. Our brain rewards us for, um, eating [laughs]. Um, there's all kinds of just natural mechanisms that occur when we start putting in drugs into our body, that's adding in all kinds of extra dopamine that makes it super rewarding. Okay. And so that becomes- feeling that good can only be created by using drugs again. Um, so it's this, and so that minimizes how rewarding these other natural behaviors are.

Dave: [00:31:07](#) I have a question. So like, just say someone drinks a glass of wine, right. And so then the alcohol, it gets into their blood and then does the alcohol itself have like things that set off the dopamine when it gets into the brain? Or is there something else that happens that causes that dopamine release? You know what I mean in-

Matt: [00:31:27](#) Yes. And, um, remember I'm a treatment provider [Athena laughs], not a researcher. So when we get into [laughs] neuroanatomy, I'm [Dave: Sure] I'm not the expert. Um, but so when you start, when you drink the alcohol, it's, um, there's a couple of steps of conversion, um, that, and unfortunately we've now reached the peak of, um, how I can explain this, but, um, the, those chemicals are broken down, uh, to get to the point where you have the, the molecules that then mimic other neurotransmitters and will lock into the, the neuron receptors to stimulate your brain. Um, so-

Athena: [00:32:17](#) It makes me think about like, you know, so if we think from an evolutionary perspective, right, we have all these different kinds of motivations, right? Like parental care, right. We're playing catch up, uh, finding mates, keeping mates, acquiring resources, getting status, right? All, all of these kinds of motivations. And I wonder, and I'm completely speculating here, but if you might be able to predict what drugs would be most addictive for

people based on what motivations, um, are most important for them at their sort of life stage or, you know, so like if you're at a stage where the most important thing is like social connectedness, then maybe you'll [Matt: inaudible] be more susceptible to opiates because they provide that. Versus if you're like in a resource acquisition mode, then maybe, you know, methamphetamines that like make you really productive will be more likely to make you addicted because they're tapping into those motivations that your evolved brain is like, this is what I should be doing right now.

Matt: [00:33:16](#) So it's addressing an unmet need. If, if I'm always anxious and high-strung, and wired, then I want a sedative to bring me down. Um, if I'm depressed and, and can't get going and need that energy, then yes a stimulant, cocaine. Um, so the drugs do the-, it's a coping mechanism. It's what can I do artificially to help me function? The problem is, and so it's an interesting question. I don't, I don't, I haven't seen anything on predicting different, like who uses what drugs [Athena: Yeah.], Because I mean, you can't do that experimentally. Um, so it's all self-report, [Athena: Right.] But you get the full range of, of symptomatology that leads to all the different drugs. [Athena: Yeah.] Um, sometimes it's just access. Um, kids are more likely to start with tobacco and, and now vaping [Athena agrees] because it's easier to get than other substances. Um, although marijuana is getting easier and easier to get as well. So, um, we're seeing an uptick in that again.

Dave: [00:34:33](#) Yeah. I mean, if you think about the sort of stereotypes [Athena: Yeah], I don't know that these are scientifically backed, you know, but he felt like the wall street person on cocaine, I guess cocaine's expensive, but it's like the person, you know, it sorta [Athena: They're resource-driven.] fits your idea.

Dave: [00:34:46](#) Yeah.

Athena: [00:34:46](#) Yeah.

Dave: [00:34:46](#) And then people at a party-

Matt: [00:34:49](#) And it was accepted. Like, I mean, it was just dismissed and the, the legal charges were much less than doing crack, which was much cheaper, but it was the same drug. Um, it was just, but that was lower SES. People were more likely to use crack and the sentencing was out of whack on that. Yeah. [Athena: That's crazy.] Yeah. [Athena and Matt laugh]

Athena: [00:35:14](#) Yeah. Well, so maybe we can kind of talk about the, this question of like, you know, our, our autonomy and like the, what, you know, when we think about people who are addicted to substances, like, you know, what, what is your opinion from having seen people in all, at all levels of this? Like, you know, is that something that is really sort of hijacking and zombifying them? Or how much control [Matt: Right.] do people have over that? What, what is going on with people's autonomy during addiction?

Matt: [00:35:49](#) So, that's a great question. And unfortunately, psychology has, the field of psychology was, is really behind on addiction. And over the last couple of decades, they've caught up as far as treatment goes. But, um, if we go back to the, the thirties, if, if you had an addict or a, or uh, alcoholic, um, and it, it was this horrible thing and there was no treating it. It was either they were going to be homeless or get locked up or, um, or hospitalized. And that was it. And so finally Alcoholics Anonymous came out, um, and said, okay, well, we're just going to try to support each other. And that was the only available option for so long, other than just being hospitalized or being pushed off to the side. Um, and I mean, physicians, uh, psychologists just didn't want to touch it cause they didn't know how to effectively treat it. Okay. Um, and so AA is amazing. It works for many people. It doesn't work for, for many people as well though. There need to be other options. Um, I forgot your question- [Matt laughs]

Athena: [00:37:00](#) Autonomy. Like, do you think-

Matt: [00:37:03](#) Okay, so, if we think about the number of people that become dependent on substances, like I said, it's about 10%. I mean, that's a rough estimate. Um, if we just collapse all the drugs together about 10% become dependent at some point. Um, and most of them recover on their own. Okay. [Athena: Huh.] Um, you look at, uh, alcohol use, especially for college students and it shoots so high during college, um, for a chunk of people. But then when you have to start going to job, um, going to work from eight to five every day and, um, start having a family and have all these additional responsibilities, um, for most people, their alcohol use drops off. There's only a small percentage, about 10% that keep going and, and start having problems because of that. So most, and most people recover on their own. So it's only the subset that really develop problems. And those are the people that we need treatment for. Those are the ones that, that lose their autonomy that get pulled into, um, chasing the high, or just avoiding the withdrawal and, and give up their choice. [Athena: Yeah.] It's I'm, because, and that's,

there's this stigma against addiction that, well, I see you grabbing your beer, um, even though, you know, it's going to cause problems and I see you going out after drugs. So it's really hard to have any sympathy when they are engaging in a behavior that they know is going to cause problems, but that's, that's where the brain gets hijacked. It's um, I'm not doing this because I want to cause problems, it's this is the only way that I can cope and get by and function. It's all I have.

- Athena: [00:38:53](#) Yeah. It's like the, the country song, you know, alcohol in a problem, it's a solution at least chemically speaking. [Athena and Dave laugh]
- Matt: [00:39:02](#) And, and, they're, they're locked into having these blinders and can't see another option, um, on how to, to solve any problems, to function, to do. They're not- Nobody's saying, they're trying to cause additional problems for themselves, for others. It's just, this is their only option that they see is to keep using these substances.
- Athena: [00:39:23](#) And so you sort of used this analogy of the blinders. Like they're- is it that they're not seeing the other possibilities or it's [Matt: Right.] just like, they can't access those other possibilities somehow?
- Matt: [00:39:35](#) It's that either they don't have the social support that they need. Um, I mean, in psychology, we do all this talk therapy, um, that doesn't help if somebody is homeless and doesn't have a job. I can't talk about here's some skills to help you feel better. Um, well, you're going to still have to figure out getting a job and a house. I can't help you with that. That's social work. [Matt laughs.] That's just, it's such a stupid way of looking at it. Um, if we don't meet their basic needs, they're not gonna function at a higher level. And so with addiction being used, drugs being used as a coping mechanism, we need to give them alternative coping mechanisms. So rather than drinking to relax, it's, let's teach you mindfulness. Let's teach you, um, how to engage in, um, hobbies. Let's figure out a way for you to relax, to calm down, to, to regulate your emotions without, depending on substances.
- Athena: [00:40:36](#) Um, so the substances really kind of become a way of doing that self-regulation [Matt: Yes.] Where there aren't other options for the self-regulation
- Matt: [00:40:45](#) For any problem, drugs are the solution. Okay. If it's I'm stressed or I'm worried, or I'm depressed, or I'm, um, in a fight with

somebody or I'm feeling hopeless and, and, or I don't see how to solve my problems, it's escape, it's just getting away from it.

Athena: [00:41:06](#) Right. So it's you get that escape, but then you're back,

Matt: [00:41:10](#) You're back and-

Athena: [00:41:11](#) And-

Matt: [00:41:11](#) you've probably caused some additional problems-

Athena: [00:41:12](#) Yeah.

Matt: [00:41:12](#) So it's just gotten worse. But again, you don't have the tools or the skills to try to start digging your way out of it. Plus all of these cognitive behavioral skills that we teach, take time.
[Athena: Yeah.] You have to, you have to work at it. You have to practice to get better before it starts to be effective. And it's this persistent effort over time that you see change versus drugs
[Athena: Instant. Just like that.] go into effect immediately.
[Athena: Yeah] Yes, it's that immediate gratification. It's nothing works as fast as drugs.

Athena: [00:41:46](#) Right. And they're tapping into the reward system. And I mean, evolutionarily speaking, we have this reward system to help us, you know, do the things that are gonna benefit us, right? And so like, we're actually fighting against the very biology that's in place, supposedly [Matt: Absolutely.] to help us to do things that will be in our best interests.

Matt: [00:42:05](#) Well and, what really come, um, what really intensifies the problem is when you've got co-morbidity. Um, meaning let's say you've got depression and substance use disorder. Um, if you don't also treat the depression, um, people are gonna relapse. So I'm, I'm drinking so that I'm don't have to deal with this depression. Okay I've gotten sent to treatment now I've stopped drinking, but now I'm even more depressed. I don't have any alternative skills to address the depression and I'm actually going to be more depressed than I was previously because the drugs have rewired everything so nothing is as enjoyable as it used to be. Nothing is as satisfying. And so I'm even more depressed. I'm not drinking, but I'm miserable. So I, I can't live like this, I might as well go back to drinking, right.

Dave: [00:43:00](#) So, so what can people do instead?

Matt: [00:43:03](#) So the the thing is, is treatment works. Now the way traditionally substance abuse treatment has been set up has shot everybody in their own foot. When we say it's abstinence or nothing. Um, if, if you're not abstinent, then treatment didn't work. Um, or if you relapse, then you've failed. And that's just such a stupid way of thinking. We don't treat other any other illness that way. Um, if you look at type two diabetes, um, that has a behavioral component and a physical component, um, you have about the same relapse rates as you do with addiction treatment. Um, people don't always stick to their diet for type two diabetes. They aren't maintaining the exercise. They aren't doing the things that they need to do to treat their symptoms, um, at times. [Dave: Sure.] And so that then they tend to relapse. Then they go back in to see the doctor and they get back on track and start doing better again. With substance abuse treatment, we've said, okay, go away for 30 days. There's your treatment. Now you should be all better. And if you start drinking again, then you're a failure. And so combating that is, is the biggest task. That relapse is a part of this illness. It's expected. We need to plan for it. And you're not a failure when you relapse. It's just part of the process you learned from that relapse. You add some things to, to be more successful and you move on.

Athena: [00:44:31](#) This reminds me of, when we talked with Mary Davis about mindfulness [Matt: Uh huh.] and how like adding meditation practice, adding loving kindness practice, like all of those things, you know, you won't be perfect. There will be days when you don't do it. Maybe you'll go a week or two weeks and you don't do it. Um, but that's not failing. It's just part of the process.

Matt: [00:44:55](#) It's an unrealistic expectation [Athena: Yeah.] To think that anybody's going to be perfect from here on out.

Athena: [00:45:00](#) Yeah. For anything [Matt: Right.], For anything, right. Like there has to be room to not always be perfect and then be able to get back in there and, and try again. And-

Matt: [00:45:13](#) And, and, unfortunately that's that abstinence or failure is still a big part of substance abuse treatment today. Um-

Dave: [00:45:21](#) The, the counting days basically.

Matt: [00:45:23](#) Right. I, I, I've got two years of recovery. Oh, I just drank now I'm back at day one. You can't take away that [Athena: Yeah.] two years of, of recovery and where you were doing well, it, that's not wiped clean. And so that mentality is what sabotages, so many people's recovery is that, well, I just screwed up, might as

well make it a good one. Um, everybody's going to see me as a failure. So I'm going to just, um, put the pedal to the metal.

- Athena: [00:45:55](#) I don't know if this is actually true, but one of my colleagues told me yesterday that the Dalai Lama is a vegetarian on alternate days.
- Matt: [00:46:02](#) Really?
- Athena: [00:46:03](#) I don't know if it's actually true [Matt laughs.], But it seems relevant to this conversation, right? [Athena laughs]
- Dave: [00:46:08](#) I mean, well, it's a good metaphor because I've heard that with decreasing your meat consumption where they're like, look, even if you're not going to go vegan, even if you're not going to go vegetarian, if you just have vegetables today, that still helps. Right. That's still-
- Matt: [00:46:20](#) I mean, so much of it's about moderation, right? [Athena: Yeah] With, with substances as well. Most people use substances and have no problems. With opiates, I mean, people are prescribed opiates to treat pain if they do it as prescribed, knowing that your body's going to get used to it. So sometimes for chronic pain, you have to up the dose over time, the vast majority of people don't abuse it. Okay. It's a small subset. And the, what has resulted with the opioid crisis is that people die when they relapse. I mean, people don't die when they relapse on marijuana. It's, it's, so there's not the same level of severity. Um, but.
- Dave: [00:46:57](#) Do they- what about with alcohol?
- Matt: [00:46:57](#) Only in extreme cases. You're usually not going to die. It's, it's more of, uh, the withdrawal when you come off. If, if it's really severe, you can have seizures going to, um, [Athena: Really.] Uh, DTs, which is, um,
- Athena: [00:47:15](#) What's DTs?
- Matt: [00:47:15](#) Uh, yeah, delirium tremens. [Athena: Okay.] Um, so it's, it's the shakes. It's some cognitive problems. You drink long enough and you completely, um, permanently damage your brain. [Athena: Yeah] Uh, and so, uh, but, but if you relapse on alcohol, you're not gonna die. Okay. Um, opiates are the worst because you have to build up your tolerance over time. But most people, when they've been clean for a while now, their, their tolerances dropped. And, [Athena: Oh] but they go back out and use the

same amount they did the last time they were using, and it's too much for their body to handle [Athena: Yeah] and they end up dying.

- Athena: [00:47:56](#) Hmm. Hmm. Well, I mean, now that we're talking about, you know, morbidity and mortality, maybe it's a time for us to transition to the question that we often ask at the end. We always ask at the end.
- Dave: [00:48:10](#) Uh, Yeah. [Athena: inaudible] But before that I have one more. I'm curious, because, so we're talking about sort of, we were talking about this sort of problems with the sort of counting days sort of thing. Is there a better- let's say there was somebody out there actually I have two questions. One would be, how do people know if they're addicted? What should they do if they're addicted and then it's-
- Athena: [00:48:31](#) That's three.
- Matt: [00:48:31](#) Okay, that's three, [Athena and Matt laugh.] I know, figure come up. And then other than sort of the, sort of all or nothing abstinence idea, is there a better sort of version of goal setting?
- Matt: [00:48:43](#) Okay. So, all right. Uh, what was the first one? [Matt laughs]
- Dave: [00:48:47](#) Well, the first one is how, how [Athena: Oh, yeah.] Can somebody tell if somebody gets there?
- Athena: [00:48:51](#) Or if someone else is addicted or just you?
- Dave: [00:48:55](#) Um, well I guess either way,
- Matt: [00:48:57](#) Either way. Um, is it causing problems? Okay. Is it causing problems for you? So you're, you're having trouble getting up the next day and, and completing all of your responsibilities or you're spending too much money or you're doing something illegal and have the potential of, of getting arrested for it. I mean that-
- Athena: [00:49:15](#) But what if you have all of those things, but you're not doing any substances? [Athena laughs] [Matt: So that's-] Asking for a friend. [All laugh].
- Matt: [00:49:24](#) Yeah. A friend. [Athena laughs] For your friend, substance abuse has put, been put off into this separate category, different than everything else. And it's not the case. Um, substance use disorder is just another mental disorder with, along with all the

others. Um, and, and doesn't need to be treated differently. It's this, the same skills that we work with for somebody with PTSD or anxiety or depression and the same skills we're teaching them for substance use disorder. And so if it's not substances, but you're having problems, there's something there to address [Athena: Yeah.]. And, and, um, there are fixes for that.

Athena: [00:50:04](#) Right.

Matt: [00:50:04](#) So-

Dave: [00:50:05](#) I'll actually, I'll tell you-

Athena: [00:50:06](#) Like getting off the tenure track, for example? [All laugh]

Matt: [00:50:10](#) There's, there's a lot of jobs that don't have the same level of pressure [Athena laughs] and dread and [Athena laughs]-

Dave: [00:50:18](#) Well, I know, so I, I quit, I totally stopped drinking like two and a half years ago. And I would like read these sort of like online things about people who're like, ever since I stopped drinking, I get up early, I have all this energy. And I was like, where is this energy? [Athena laughs] You know? Like for me, I never got. I was just like, Oh, I just, I just don't like to wake up early. And so- [Athena and Dave laugh] But it, that was, it was a frustrating thing because I'd heard all these things. It's like, Oh, once you quit drinking all of a sudden, and I don't know [Athena laughs] if it was just then that I realized no, most of the, most of the things that were my, my issues are just my issues. [Athena laughs]

Matt: [00:50:50](#) Right. And so a lot of the people that become dependent on substances have other problems going on, just, just like all the problems we face, everyone faces every day. You have to work to be able to effectively deal with all the crap, right? [Athena laughs. Dave: Sure.] And so just because you stopped substances, you still have to deal with everything else. And if you, if you stopped drinking as the solution, you're probably going to be disappointed. It's what do I need to do to address these specific problems? Alcohol wasn't wasn't working. I can't just take that away. I've got to find something else that will work.

Dave: [00:51:31](#) Yeah. I did find, I did find for a long time, I was just stressed. I was just like, Oh my gosh. [Matt: Right] Now I'm just more stressed about all the stuff that I was stressed about.

Matt: [00:51:39](#) You no longer have that temporary escape of getting a little buzzed [Dave: Yeah.] and having the depressant so you have to find, so that was working for you somewhat. But maybe it was also causing problems or just wasn't healthy. And, and so you still have to deal with the original problem of stress.

Dave: [00:51:57](#) Right, so- [Dave and Athena laugh.]

Matt: [00:52:01](#) So, and so back to your question of how do you know if you're addicted it's is it causing problems for you or is it causing problems for other people? I mean, the biggest sign is have other people expressed their concern about your drinking or drug use? If somebody else in your family or that you're close to, or that cares about you says I'm worried about this, then that's really something you should be taking a step back and looking at rather than just, um, getting defensive. Like, "Piss off, this works for me and it's not causing any problems., I'm fine." If somebody else is, that cares about you, is saying they're concerned about this, that's a pretty good indication that there's something going on. So it's really about, is it causing problems for you or for those that you care about?

Dave: [00:52:50](#) No, now I know in my personal situation, I thought I was like, Oh, I yell at my kids too much. I don't get out of bed. And then I quit drinking and I still yell at my kids too much [Athena laughs], and [Dave: Well, right.] I still don't get out of bed. [Matt agrees] And so-

Matt: [00:53:02](#) I can have a few drinks and then be cranky the next day. Is it because I had a few drinks or is it because I got less sleep or is it because of any other number of things? Maybe I'm just a jerk.

Dave: [00:53:15](#) Um, [All laugh] I've certainly wondered, I like, Oh, I see-

Matt: [00:53:18](#) About me being a jerk? [All laugh]

Dave: [00:53:18](#) Not about you, no, but I did wonder about myself and like, no, this is just me. Like, I'm just the guy screaming at his kids on the ski slope. Like, so [Athena laughs]-

Matt: [00:53:29](#) So what can I do regard, putting alcohol out of the picture? What can I do to be a better dad? And how can I be more supportive and engaging with my kids. That's, that has nothing to do with alcohol sometimes. So it's, what can I do to be more pleasant.

Dave: [00:53:45](#) Right. Yeah. Um, and so, so, but then going back to this idea of, for people who maybe have some substance, alcohol, tobacco, or whatever, that they want to stop [Matt: Right], and they have trouble with the idea of the, just the pure I'm just- [Matt: Abstinence. Right.] -Yeah, exactly.

Matt: [00:54:07](#) So, so I, my first job as a substance abuse counselor was in a 12 step model, 30 day treatment center where it was we're preaching abstinence to everyone, regardless of their situation or what got them there, it's, you have to stop using all drugs. [Dave: Uh huh.] Um, and for some people that's what they need. Uh, Bill Miller is, um, one of the developers of motivational interviewing, which is one of the most effective treatments for, um, addiction. He also did work on controlled drinking. And so that's that flies in the face of all the abstin-, um, pushers, abstinence pushers, um, that controlled drinking's an option and that's by the same guy that did motivational interviewing? But what they looked at was, it really depends on your level of severity. There's, there's a group of people that are able to say, you know what, this has become a problem I need to reign it in, and, and, I need to con-, just set some limits. I only get to drink this much. And I only get to drink this many times and they do great. There's another group that says, okay, I, I'm able to do the controlled drinking, but it's just a pain in the butt. I don't like having to count. I will always want to drink more. This sucks. So I'm either going to just go back to drinking a whole bunch and have problems, or I'm just going to quit drinking. And then there's a third group of people that are incapable of doing controlled drinking, that they, once they start, they can't stop. And that's where the, the, the idea of the brain being hijacked [Athena: Yeah.] comes into play is that-

Athena: [00:55:52](#) They are really just zombified by it, yeah.

Matt: [00:55:52](#) Yes, once that substance is now in you, and you're acutely intoxicated, you're not able to think rationally. You're not able to, um, make, um, appropriate decisions you have given up that control. You've become zombified. And so it's that group that has to, to be successful has to be abstinent. Now, the other key, though, in what you asked about about the, the relapsing is even if you need abstinence, you have to understand that relapse is probably gonna happen. Okay. Um, and so we plan for that. If you relapse, what do we do about it? What's your plan? Who are you going to call? Um, how do you, how do you get help and get back on track as opposed to, "Oh, you're a failure we give up on you."

Dave: [00:56:45](#) So how so? So for like someone who's listening in, I think the thing I'm trying to figure out is what should they, what should they do? Like if they're like, all right, I think I have a problem with alcohol, or I have a problem with tobacco or have a problem with opioids, right? [Matt: Right.] What, what is the step they should take? [Matt Sure.] Do they go to a clinic? Do they go to counseling?

Athena: [00:57:09](#) And, and, especially if they're interested in something more than just the, you know, abstain or that's it.

Matt: [00:57:10](#) Right, right, so, well, so-

Dave: [00:57:10](#) Or even if they don't know, if they're like, "I'm not sure", you know?

Matt: [00:57:14](#) I mean, I, I could take anybody that's struggling with substance use disorder and guarantee that they'd never use again. All I have to do is lock them up in a room for the rest of their life [Dave laughs] and make sure no drugs get in. Right? That's not realistic, but it proves that anybody can stop using. I just have to lock you up [Dave: Right.] And make sure nobody's smuggling in stuff.

Dave: [00:57:36](#) Which is sort of what they do in like the 30 day treatment centers, right?

Matt: [00:57:39](#) Yes.

Dave: [00:57:39](#) Sort of.

Matt: [00:57:39](#) It, it, It's, it's a controlled environment [Athena agrees] so that you have the chance to detox and be able to start thinking clearly again, [Athena agrees] to start making these decisions. But after that, it's the environment that you set up for yourself the support you have, the new skills you start working on to address all these other problems. Um, but, but like I said earlier is most people quit on their own. Um, we all know people that their doctor told them, uh, yeah, if you don't quit drinking, you're going to die. And they just say, okay, didn't realize it was that bad. I'm done drinking and they don't ever drink again. Um, for that severe subset, that's not the case. They, they can't just say, okay, I'm done and are successful with it. So for those that have tried to stop, I mean, first step is just to try to control it on your own.

Dave: [00:58:31](#) Okay.

Matt: [00:58:31](#) Just quit using so much. If you can do that. Awesome. And find the balance of where you use a little bit and get the benefits. And you don't use so much that it causes problems for you or others. If you can't do that, then the next step, lots of people go to AA, which is peer support. It's free. Um, they're everywhere. Um, that works for some people and it doesn't work for some people. If that doesn't work, then you go to treatment. Now, if it's really severe and life-threatening, and, go straight to treatment, straight to detox, go to the emergency room, um, like the governor's website, um, for Arizona and, or just SAMHSA Natio-, nationwide Substance Abuse and Mental Health Services Agency has a treatment finder, um, that you could just put in your address and they'll show you all the substance abuse treatment centers around you. So if it's severe and you're, you're worried, then go straight to treatment. Um-

Dave: [00:59:24](#) Also can I ask one other sort of clarifying? [Matt: Yeah.] Cause, cause AA, I think of as sort of the traditional thing that people go to for alcohol, would it also be, say somebody is like on opioids-

Matt: [00:59:34](#) So there's NA, Narcotics Anonymous, um, those are readily available in metropolitan areas that can sometimes be harder to find, but if it's a rural community, usually AA will bring in the drugs as well.

Dave: [00:59:48](#) And what about tobacco? Cause I know that's the other one I know of.

Matt: [00:59:50](#) So, uh, there's a lot of cigarette smoking that goes on at a lot of AA meetings. [Athena and Dave laugh.] Um, it's like the coffee they drink is sludge because they are dosing themselves with caffeine and they're smoking like chimneys, not all of them, but that's kind of the traditional [Dave laughs] AA meetings [Athena laughs], um, is you're trying to get through the clouds of smoke [Dave and Athena laugh.] To see who's talking about, um, so for tobacco, it's a little bit different that, um, lots of times treatment is done through your physician. Um, it's, it's still motivational interviewing. It's, it's helping you decide to make a decision to quit. Because with tobacco it's not, um, there's not a severe intoxication level. It's like opiates where you're dosing yourself so you don't experience withdrawal, as opposed to getting a high from it or something like that. Um, and so it's really just a matter of, um, making the decision to quit and then setting up your environment so that you can be successful. It means support from others. Sometimes people use the nicotine replacement, which can be beneficial. Works for some, doesn't

work for others, but there's options that you try, um, and, and see what works for you.

Dave: [01:01:07](#)

Okay. Cool.

Athena: [01:01:08](#)

Yeah. Alright. So I want to know, kind of get us in back into the, the zombie zone. [Dave: Zombies.] Um, so you talked about how there's this portion of the population for whom, you know, once they start with the substance use, they kind of get hijacked, right? And they can't-

Matt: [01:01:26](#)

Right. [Athena: stop so-] So, so once they're actually, [Athena: Yeah.] once the chemical is in their body, they- it's hijacked.

Athena: [01:01:34](#)

Yeah. Yeah. So, so what if we, you know, rather than that, being a small portion of the population, that we're a overwhelmingly large proportion of the population that once they started consuming these substances, they're sort of would get hijacked by it, Then, so what is-

Matt: [01:01:54](#)

Well, but that, that kind of is the case. Anybody that drinks alcohol drinks enough alcohol is going to get drunk. [Athena agrees] Anybody that's, if they've never used before. Acutely, when you're, when you're on the substance, you are hijacked. [Athena agrees] Okay. [Athena: Yeah.] And for lots of people, that's the goal [Athena: Uh huh.]. And [Athena: Yeah.] then there aren't any consequences after they, um, come down or sober up or whatever.

Athena: [01:02:19](#)

Right, right. So then, so what would the zombie apocalypse of addiction be? So if people were even more vulnerable to getting hijacked by substances than they are now, what would that zombie apocalypse be like?

Matt: [01:02:37](#)

Everybody's always under the influence [Dave laughs.] of something,

Athena: [01:02:41](#)

But eventually we'd run out of [Matt: Why?] substances. Right?

Matt: [01:02:46](#)

No. I mean, um, this is big business. [All laugh.] I mean the, the medical marijuana company, like who is it? Coke or - I don't want to get in trouble - Coke or Pepsi or somebody like all these corporations are investing in medical marijuana. Um, gross. Um, because this is big business. That'll, all those drugs will be there. [Matt laughs]

Athena: [01:03:11](#) Okay. So, so say like 75% of the population is super vulnerable to getting addicted to [Matt: Okay.] anything and everything. Yeah.

Matt: [01:03:19](#) So the ongoing use causing problems, not just acutely high.

Athena: [01:03:23](#) Yeah. Yeah. And there's only like 25% of population that is, you know, kind of able to continue to have like a non-exec- addicted existence. [Matt: Right. Dave laughs.] Like, is that a sustainable world? If we have, you know, 75% of people just like hijacked all the time by either the substance they're on or the desire to get that substance

Matt: [01:03:51](#) In the picture that comes to my mind. Um, "Happy Death Day." No, what's the word [Athena laughs.] there's one day a year where he can break any crime there's so many movies-

Dave: [01:04:01](#) Oh, oh, "The Purge."

Matt: [01:04:02](#) Thank you. [Dave: Sure.] It's like that just be every day, it's like [Athena and Dave laugh.] You're either trying to get the money or the trying to get the drugs or using the drugs and you're out of it. [Dave laughs.] I mean, if everybody's constantly on drugs, it it'd be chaos.

Athena: [01:04:17](#) Yeah.

Dave: [01:04:17](#) I mean-

Athena: [01:04:17](#) So it would be as I'll be apocalypse.

Dave: [01:04:19](#) Yeah. I keep hear- [Matt: Absolutely] So there's like, cause there's like the opioid crisis and then so the opioid crisis and then like the meth. 'Cause I remember like a few years back I was in Hawaii and they had like a big meth problem. I don't know if that's-

Matt: [01:04:31](#) Well, meth is typically been in more rural areas. Um, it's cheap to make you occasionally, you blow up your house. Um, [Dave: Sure.] Uh, [Athena laughs.] but it, it tends to be in-

Athena: [01:04:46](#) Minor consequences.

Matt: [01:04:46](#) More rural areas, um, and it's still a problem. It just doesn't get the same play, um, in the media, [Dave: Okay.] But that's still a problem. Opioids has kind of taken over everything. I mean, um, but marijuana is this huge issue too now. I mean there's um, the majority of States, 38 I think, have passed medical marijuana.

Um, the, uh, legal recreational use is in the high teens now. Um, it's coming up on the Arizona ballot again. Um, but medical marijuana is a joke [Matt laughs] the way it's been done. Um, not to say that marijuana doesn't potentially have some medicinal benefits, but there's not been much research done on that. And what other medicine do we say take as much as you want, whenever you want [Dave laughs.], However you want. Uh, and it's just this free for all and that w- that's not medicine. [Matt laughs. Athena: Right.] Sure. So the way it's been done, it was, it was a push for recreational. Um, there are some benefits of marijuana, but there needs to be research done on it. We need to figure out what the dosing should be, what the, uh, [Athena agrees] how it should be administered to actually be effective.

Dave: [01:05:59](#) Now, now, is this idea of a sort of like outbreak of marijuana addiction to me that for some reason, hearing about like an opioid epidemic, [Matt: Right.] I imagine that sounds a lot worse than a-

Matt: [01:06:11](#) People don't typically die from pot. [Dave: Right.] Right. Um, now, um, driving under the influence, um, still happens, but yeah, you're, you're, you're just going to be sitting on your couch now. [Dave and Matt laugh] Now that's changed though, because of vaping. Um, you can now, so cannabis concentrates can come in a form of an oil or a, uh, fixed substance that you can vape and there's no odor to it. So you can now do this in public. [Athena agrees] Um, and so you can be high and not paying attention or hallucinating and, and really causing some problems. And we don't even really know the extent of how much it's being used. We know that people are self-reporting, uh, when we do surveys that, um, that they're using in public, um, vaping cannabis, concentrates, um, so that it's, it's becoming a bigger issue. It used to be, I'm going to smoke my bowl in my house and watch TV and have the munchies and really not an apocalypse coming out of that. It doesn't seem like other than a little bit less productivity. [Dave: Sure.] Um, but concentrates are really changing the game. Um, cause it's, it's ultra high potency. Um, if you, THC is the psychoactive substance in cannabis, um, it's typically 12% in the leaves and buds that you'd smoke. Um, it can be 80, 90% in cannabis, cannabis concentrates. And so you're getting this really high dose that we just don't know about, much about [Athena agrees], There's not been a lot of research on it.

Athena: [01:07:50](#) So the, the medical marijuana issue, actually it brings up, uh, a question maybe we can kind of end with, which is when can these sort of mechanisms of zombification that are involved

with drugs actually be used for, for good and how, right? So I know like opiates originally, you know, like it, like the, the intention in prescribing them was to relieve people of pain [Matt: Right.] Uh, had these unintended consequences and at least, you know, with medical marijuana, the idea behind it is to, um, have benefits for people [Matt: Right.]. So, so wha- you know, where are those benefits? How can we best take advantage of those, um, or enhance them and sort of minimize the negative effects?

Matt: [01:08:36](#) Right. Well, we don't know yet. No. Um, because of how marijuana is classified by the federal government, as a Schedule 1 drug, it says, Schedule 1 means there's no medicinal benefits. Um, and it means, so you can't research it, you can't, we can't administer marijuana in a controlled situation.

Athena: [01:08:57](#) Wait, the government says there's no medicinal benefit, but there's medical marijuana. I don't understand.

Matt: [01:09:03](#) At the state level. States have finally said-

Athena: [01:09:06](#) Oh I see,

Matt: [01:09:06](#) Um, we're-

Athena: [01:09:06](#) it's a government versus state issue?

Matt: [01:09:08](#) Right.

Athena: [01:09:08](#) Okay.

Matt: [01:09:10](#) The Feds have resisted rescheduling marijuana. So the states have finally gotten fed up- People have finally gotten fed up and through the states have started legalizing it. Um-

Athena: [01:09:22](#) But there's no way to do research on it?

New Speaker: [01:09:22](#) But, but if we want, if we want federal money for a grant to study it, there's, there's some limited options. Um, Mississippi, I think University of Mississippi grows, um, with federal approval, grows marijuana, but it's like three or 4% THC. So it's nothing like what's actually being used in real world situations. [Athena agrees] Um, but so you can, you can apply and get that, um, marijuana only and administer it. Um, so there's a few studies that are going on, but it's not, it's not really that applicable to what's currently being used.

Athena:	01:09:56	So basically to even sort of figure out what the benefits might be-
Matt:	01:10:00	How to use it effectively, um, for benefit-
Athena:	01:10:04	It has to already be sort of called a substance that has medical benefits [Matt: Right.] in order to get federal money, to do research on what those benefits are. [Matt:Correct.] So that seems like it's a problem [Athena laughs.]
Matt:	01:10:19	So, um, like Colorado is one of the first ones to legalize recreationally and they're using state money to do some of this research. [Athena agrees] California is starting to do that. [Athena agrees] Um, my wife, Madeline Meier, this is her area is, um, marijuana. [Athena: Yeah.] Um, and so she's doing survey data, just talking to people and, and getting information about people that are using medicinally here in the state [Athena agrees], um, who also usually use recreationally. Um, but that's, so it's all these go arounds to try to get at some of this information. [Athena agrees]
Athena:	01:10:57	And so how about sort of more broadly with, you know, drug use? I mean, obviously there's lots of, you know, drugs, right? That are part of medicine practice, right? [Matt: Right.] And then there's drugs that are sort of substances that people can become addicted to that are, that are problematic and there's some overlap.
Matt:	01:11:16	Absolutely. I mean, opiates, [Athena: Yeah.] benzodiazepines, which are for anxiety, um, it's a sedative and it's, has a high abuse potential, and they've really tried to reign in how much that's prescribed because it does get diverted. Um, opiates have been, um, so restricted now that people that need it for chronic pain, can't get it [Athena: Yeah.] at the level that they need. So, um, and then you've got the, the ones that have no medicinal purposes, but I mean, there's, there's some studies on LSD that, um, show that may be effective for depression. Um, there's um, as well as PTSD, I think, [Athena agrees] so a lot of these substances when used in moderation [Athena: In the right context.], In the right context [Athena: Yeah.] can be beneficial. I mean, lots of people like having a drink after work to relax, and it's no big deal or, or to go out for happy hour and be socially, um, engaged. And it's not a problem. [Athena: Yeah.] So it's not to say that almost any of these drugs are all bad. [Athena: Yeah.] They can, they can serve a purpose that that causes no problems.

Athena: [01:12:30](#) I, I've just finished reading Michael Pollan's book, How to Change Your Mind, which is about LSD and, um, psycho bicillin. And he kind of makes an argument that, um, that these drugs almost have the potential to, uh, dezombify us. He doesn't use that term, but he's kind of arguing that, you know, we get stuck in patterns of thinking and, um, you know, and that can include depression. It can include existential anxiety. These kinds of things that these drugs might be able to help with.

Matt: [01:13:02](#) Wait, so I have not read that book yet, [Athena: Okay] but, um, the idea is that drugs can cause such a shift in perspective that you can just really get out of yourself and take a look at it differently and, and almost kind of just reset yourself. [Athena agrees] So same with, um, when we use shock treatment for depression, just zaps the brain kind of resets everything. Um, and, and just kind of, you get to start from scratch and, and look at things differently.

Dave: [01:13:37](#) Do they still do shock treatment?

Matt: [01:13:38](#) Oh, absolutely. Um, for people that are, have severe depression, um, that have been, um, treatment resistant to all the different meds then, um, ECT, electroconvulsive therapy, um, is very effective. I mean, it's just done in, um, day centers, medical centers now, um, you just go in and get zapped [Athena laughs] and the biggest side effect is a little bit of memory loss. [Athena laughs. Dave: Wow.] Um, and, but it really does seem to just kind of reset everything and can help them Um, for people that haven't gotten any kind of relief from other treatments.

Dave: [01:14:15](#) Interesting.

Athena: [01:14:17](#) Yeah. I dunno. My preferred method of getting a different perspective is like taking a vacation or something, as opposed to zapping myself,

Matt: [01:14:25](#) I mean, but, that's a completely different setting than tenure, tenure, tenure, and stress [Athena laughs. Athena: Yeah.] and work you are looking at it's completely different. You just shut your brain off from that perspective, you read for fun instead of for your [Athena: Yeah] job. And it's a, it's a way of resetting yourself.

Athena: [01:14:42](#) Yeah. And you like to go skiing right?

Dave: [01:14:45](#) In theory, I go skiing. Yes. [All laugh] Uh, so, uh, yeah. I mean, I do like a lot of times I just find that sort of going out and like,

like camping or something will uh, will have that sort of reset, I suppose. So, um, but uh-

Athena: [01:15:03](#) Yeah. Excellent. Well, I found that this whole conversation helped me to kind of reset my mind a little bit about drugs and addiction and [Dave: Alright. Laughs.] It differently. Definitely.

Matt: [01:15:18](#) So the, the goal is use it if it's not causing problems, but don't let it take over your life and zombify you.

Athena: [01:15:26](#) Right. And start letting your kids drink caffeine when they're the right size. [All laugh]

Dave: [01:15:31](#) There you go.

Matt: [01:15:34](#) Well, thank you for having me. This was a blast.

Athena: [01:15:36](#) It was awesome. Thank you so much for sharing your brains with us this episode.

Matt: [01:15:40](#) Yeah. I, hopefully I have enough of my brain left to get through the rest of the day. [Athena and Dave laugh.] Happy to share.

Dave: [01:15:48](#) Thanks, Matt.

Athena: [01:15:48](#) Awesome. That was great.

Outro: [01:16:08](#) [Psychological by Lemi]

Athena: [01:17:06](#) Zombified is a production of Arizona State University and the Zombie Apocalypse Medicine Alliance.

Dave: [01:17:12](#) That's right. And we would like to say thank you to everyone who helps make Zombified possible, including the department of psychology here at ASU.

Athena: [01:17:21](#) What do you have there, Dave?

Dave: [01:17:22](#) [Laughs.] You know, this was my tea and I was like, I'll get my tea, like after for the outro and then I could drink it, but it was in the freezer and now it's just- [Athena: It looks like it's frozen.] It's frozen solid. I can't even drink my tea, [Athena laughs.] I'm just looking at it. And so, we'll have a spoon, we might try to. [Spoon clinks on tea cup.] Oh, there we go. [Athena laughs] Here we go. I got it.

Athena: [01:17:43](#) All right. Well, while you drink that, let me thank the Interdisciplinary Cooperation Initiative and the President's office at ASU for their support.

Dave: [01:17:53](#) And also the Lincoln Center for Applied Ethics, uh,

Athena: [01:17:57](#) in the zombie apocalypse.

Dave: [01:17:58](#) That's right. [Dave laughs]

Athena: [01:18:00](#) All the brains that help make this podcast, especially Tal Rom who does our awesome sound,

Dave: [01:18:07](#) Neil Smith, who does all our illustrations, um, which you can see behind Athena [Athena: Yes.]

Athena: [01:18:13](#) Lemi, the creator of our song, "Psychological."

Dave: [01:18:17](#) And our Z-Team who does transcriptions and a lot of media outreach. There, there's a whole bunch of them and they do fantastic work.

Athena: [01:18:26](#) Yeah. Yeah. Thank you. Z-Team. You rock. We love you.

Dave: [01:18:30](#) Yeah. So, uh, and for people out there who like social media, you should check us out on all of them.

Athena: [01:18:39](#) Yes. [Dave laughs] All of the social media. [Dave laughs.] We're uh, on Twitter, Instagram, Facebook, uh, Spotify, TikTok, [Dave: TikTok.] and you can find links to all of our social media accounts from zombified.org.

Dave: [01:18:57](#) That's right. And you should also check out our conference. Uh,

Athena: [01:19:01](#) Yes. The Zombie Apocalypse Medicine Meeting which is happening October 15th through 18th, it's all online. And it is going to be like no academic meeting you've ever been to.

Dave: [01:19:14](#) Yeah. Like, so it's online, but it's really, we're switching things up a lot. Like it's not just going to be people standing there talking we've got, well, we do have, we have everything ranging from talks to workshops, to television programs-

Athena: [01:19:30](#) Yeah. Yep. So if you want to learn how to eat well in the zombie apocalypse. Yeah. Eat, Prey, Run is a, is for you. Um, if you like zombie movies, you'll love Brain Dead Theater, where we talk about clips from zombie TV shows and zombie movies.

Dave: [01:19:50](#) That's a really fun one. It's [Athena: Yeah.] um, and, um, [Athena: Doctor Zed] That's right. You can learn how to survive. So-

Athena: [01:19:58](#) Yep. It's our, it's our doctor show for the zombie apocalypse. So things you might want to know, like how to treat a zombie wound, what to put in your go-bag, speaking of go-bags, our Go Bag Challenge.

Dave: [01:20:11](#) Oh, well, there's the Go Bag Challenge, which actually people can not only tune in for that during the conference, but now people can take a picture of their go bag, whatever you have that you have, like for, if the apocalypse strikes now, you're going to grab this and go. Take a picture, put it on Instagram. And uh, how did [Athena: Or Twitter] or Twitter, [Athena: Yeah] yeah, and then, [Athena: Yeah] how do they tag us?

Athena: [01:20:35](#) Go-Bag Challenge and ZAMApocalypse. So,

Dave: [01:20:37](#) All right. [Athena: Yep. Yeah.] And yeah, and then we're actually going to be picking people where we like their go bags. And then it's going to be like a little reality show where [Athena: Yep.] we'll give you like possibly little scenarios and you'll have to say how you'd survive. So I think it'd be a lot of fun.

Athena: [01:20:51](#) It's, it's going to be amazing. So we're really excited for it. We're going to be launching a lot of these shows during the conference, actually as part of the conference programming and then Channel Zed will live on afterwards until the zombie apocalypse gets the best of all of us.

Dave: [01:21:07](#) That's right. But the people who register for the conference, they get access to some exclusive workshops, which I think are really cool. [Athena: Yep] They also get a t-shirt, an exclusive t-shirt, that's, that's fairly gross, but not as gross as some. [Dave laughs]

New Speaker: [01:21:21](#) It's not that gross anymore [Dave laughs] [Dave: No] You wanted it to be so gross.

Dave: [01:21:26](#) I wanted it to be super gross, [Athena: Yeah] but it's pretty gross. Oh, [Athena and Dave laugh] it's still, it's a great t-shirt. And, uh, what, then we also do have other t-shirts at zombified.org, right? [Athena: That's right] Uh, in our merchandise store. So you can [Athena: Yeah] just go straight there. You should get both and you can start putting together a wardrobe, [Athena: Yep] so-

Athena:	01:21:46	Yeah, or a sticker. Uh, I've got some of them right there. [Dave: That's true.] Floating head stickers. So-
Dave:	01:21:52	So, um, yeah. Stick them on your t-shirts. [Athena: Or floating head shirts.] Yeah. So.
Athena:	01:21:56	You could put it on your head or wherever so-
Dave:	01:21:57	That's right, so, or you can put it on your coffee mug. Yeah, so-
Athena:	01:22:02	That's actually a Mason jar.
Dave:	01:22:05	I call it a coffee mug. [Athena and Dave laugh] Alright, um, anything else we should let people know?
Athena:	01:22:18	No, just check out, uh, zombiemed.org, ChannelZed.org and you will find everything you ever wanted to know about how to survive the apocalypse while being entertained.
Dave:	01:22:30	All right. So cool. Well, thanks.
Athena:	01:22:32	Yeah. Thank you for listening to Zombified, Your Source for Fresh Brains.
Outro:	01:22:37	[Psychological by Lemi]