

Alcohol, Hangovers & How to Cure a Hangover Based on Science | Dr. Andrew Huberman

Hangover is a constellation of effects ranging from headache to nausea to what's sometimes called anxiety which is anxiety that follows a day of drinking anxiety I think we can understand physiologically if we think about that process of alcohol intake increasing the amount of cortisol and the ratio of cortisol to some other stress hormones That well explains why some people wake up the day after or even the day the day after a night drinking and feel anxious and not well and stressed for reasons they don't understand So if you're somebody who experiences anxiety then again I refer you to the master stress episode that we put out uh some time ago And you can find that Huberman lab dot com tools to deal with anxiety tools to deal with stress ranging again from behavioral to nutritional supplement based et cetera That of course is not justification for going out and drinking so much that you get anxiety induced hangover But for those of you that are experiencing post alcohol consumption anxiety as it were that could be a useful resource because I certainly don't want anyone experiencing um uncomfortable amounts of anxiety And there are great tools and resources for that Now the other aspects of hangover such as the stomachache or headache or feelings of malaise or fogginess those could be related to a number of different things and probably are related to a number of different things First of all the sleep that one gets after even just one Yes Even just one glass of wine or a beer is not the same sleep that you get when you don't have alcohol circulating in your system and not trying to be a downer here But this was discussed in the lab podcast episode where I had Doctor Matthew Walker from UC Berkeley on and of course Doctor Walker is a world expert in sleep runs one of the pre eminent laboratories studying sleep and its effects wrote the incredible book Why We Sleep and so on Doctor Walker told me and it certainly is supported by lots and lots of quality peer reviewed studies in animals and in humans that when alcohol is present in the brain and bloodstream that the architecture of sleep is disrupted slow wave sleep deep sleep and rapid eye movement sleep all of which are essential for getting a restorative night sleep are all disrupted So for those of you that are drinking a glass or two of wine or having a uh hard liquor drink or a beer in order to fall asleep the sleep you're getting is simply not high quality sleep or certainly not as high quality as the sleep you'd be getting if you did not have alcohol in your system Of

course when we're talking about hangover we're talking generally about the consumption of more than just one or two drinks Of course for some people one or two drinks is probably sufficient to induce hangover But for most people it's gonna be having three or four exceeding the their typical limit as it's called again not the legal limit That's a whole other business But when one ingests too much alcohol for them one of the reasons they feel terrible the next day is because their sleep isn't really good sleep In fact it's not even sleep It's often considered pseudo sleep or at least that's what it's called in the sleep science field because people are in kind of a low level hypnotic kind of trance is not real sleep There are multiple bouts of waking up They may not even realize they're waking up multiple times Ok So there's the sleep induced effects Then there are the disrupted gut microbiome effects some of which we talked about earlier So now you understand the mechanism of alcohol destroying good healthy gut microbiota which then leads to leaky gut and things of that sort But one could imagine again could imagine And there is some evidence starting to support this that again ingesting low sugar fermented foods or maybe in prebiotic or probiotics to support the gut microbiome might assist in some of the gut related malaise associated with hangover In other words get those gut microbiota healthy again as quickly as possible or maybe even before you drink have those gut microbiota healthy I would hope that you do that I think everybody should be doing something to support their gut microbiome Whether or not it's the ingestion of low sugar fermented foods daily or at least on a regular basis or ingestion of probiotic or prebiotic The gut microbiome is so important for so many different things In terms of hangover and headache we know that that's caused by vasoconstriction The constriction of blood vessels that tends to occur as a rebound after a night of drinking alcohol can act as a vasodilator It can dilate the blood vessels Part of that is associated with the increase in so called parasympathetic tone We have an autonomic nervous system it's got a sympathetic component These are neurons that make us more alert and if they're very active they make us very stressed There's also the parasympathetic aspect of the autonomic nervous system This is all just fancy geek speak for the parts of your brain and body the nerve cells that make you very relaxed When you're very relaxed there tends to be vasodilation It allows for more movement of blood and other things through the bloodstream and alcohol tends to induce some vasodilation at least in some of the capillary beds And then when the alcohol wears off there's a vasoconstriction and people get brutal headaches That's why some people

will take Aspirin or Tylenol or Advil or things like that They're sort of non steroid anti inflammatories I should mention there is a lot of literature coming out that some of these non steroid anti inflammatory drugs are not good for us for a number of different reasons and way they impact the liver the way they impact the immune system and no surprise the way they impact the gut microbiome So I'm not one to tell you what medications to take or not take but you certainly would want to do a quick web search of effects of non steroid uh anti inflammatories um and aspirin before you start taking those or stop taking those for that matter Generally they will alleviate headache but they can often have other issues including liver issues and keep in mind the night after drinking your liver is already taken a beating because of the need of the liver to convert alcohol from acetyl aldehyde into acetate which is now a pathway that you well understand So I'm not certain and in fact I believe it's not the greatest idea to burden your liver further through the use of things um that are going to cause it to have to work harder and metabolize things If the goal is simply to alleviate a headache there's a lot of kind of lore um old school lore about how to relieve a hangover We already talked about how eating food won't do that but eating food will prevent the rapid absorption of even more alcohol into the bloodstream There's the lore that one should simply ingest more alcohol What terrible advice that is that's just gonna delay an even worse hangover However I'd be remiss if I didn't say that the reason that that myth came to be or that I should say that truth came to be because indeed ingesting more alcohol will alleviate a hangover But then a worse hangover will show up The reason that came to be is because ingestion more alcohol will cause those constricted vessels They are giving the headache to dilate again But of course ingesting more alcohol to relieve a hangover is simply a bad idea Just don't do it I think this is called the Hair of the Dog approach Maybe someone can put in the show note captions on youtube why it's called the Hair of the dog I can come up with a few ideas but um they're not gonna be very good ones and um some of them would probably even be outright ridiculous So do not ingest more alcohol simply to try and recover from a hangover I know many people have tried that one before but that's a terrible idea Now one thing that you'll also hear out there is that deliberate cold exposure for instance taking a cold shower might relieve hangover I find this one particularly interesting because we've done episodes on the benefits of deliberate cold exposure We have an entire episode about that You can find it again Huberman lab dot com There are direct links to some of the tools related to deliberate cold exposure And we

have an entire newsletter on deliberate cold exposure protocols You can find on Huberman lab dot com go our neural network newsletter So these those of you that are interested in ice baths and cold showers and ways to leverage those you can find that there what you won't find There is a description of how to use deliberate cold exposure for sake of treating hangover But here I went into the literature and I found something kind of interesting There is some evidence that increasing levels of epinephrine in the bloodstream can actually help with alcohol clearance That was very surprising to me And I want to point out this is not a large and robust literature but there's some evidence pointing to the fact that when levels of epinephrine adrenaline are raised in the brain and bloodstream that some of the components of alcohol metabolism can be accelerated and some of the inebriating effects of alcohol can be reduced So maybe this old school lore of taking a cold shower actually has something to it So in thinking about the use of deliberate cold exposure in order to reduce the effects of hangover or to more rapidly clear alcohol from the brain and bloodstream I want to be very clear And I want to emphasize your safety The way to do that is to understand that alcohol lowers core body temperature Ok It can make people slightly hypothermic It's gonna drop core body temperature So if you were inebriated and you went and got into a body of water right A pool or a lake or something first of all that's extremely dangerous to do while you're inebriated right People drown all the time People drown they die as a consequence of doing that So please don't do that But also if it's a very cold water your core body temperature is gonna drop even further Now if you've heard the episodes that I've done on deliberate cold exposure previously I've talked about how normally when people are not ingesting alcohol they get into an ice bath or a cold shower and their body temperature initially dips but then it rebounds and increases That's a process that's going to occur when people do not have alcohol in their system when you have alcohol in your system One of the reasons that you become hypothermic is because there's a disruption in those hypothalamic brain areas in particular the brain area called the medial preoptic area that regulates core body temperature So it's not so much that alcohol makes you cold it's that alcohol disrupts the central command centers of the brain that control temperature regulation and that leads you to be slightly hypothermic So if you then go get into a very cold lake or you get into even a cold shower or an ice bath There's the possibility of you going very very far down the ladder into very hypothermic territory and that can be very dangerous Now in terms of dealing with hangover when the alcohol has

been largely cleared from your system Well that's where some of this kind of old lore combines with some of the modern science and says well if you can spike adrenaline and certainly getting into an ice bath or getting into a cold shower or any kind of cold body of water provided you can do that safely that will sharply increase your adrenaline And I should say your dopamine that's been shown And we've talked about this on the podcast before you get these long extended increases several hours of increases in dopamine from deliberate cold exposure It's well documented in humans by the way So one could imagine using deliberate cold exposure as a way to accelerate the recovery from hangover provided that's done safely I think uh there's no reason to not explore that And if you wonder what safely is and what temperatures to use please check out the episode on deliberate cold exposure cold showers therefore might actually be one way to at least partially relieve hangover Certainly the science from various places in the literature converged to say that But again be careful please please please be careful not to get into cold water when you are inebriated it's absolutely dangerous for all the obvious reasons and it's dangerous also for the non obvious reasons Not the least of which is the dramatic decreases in core body temperature that could make you dangerously hypothermic Now how would you go about using deliberate cold exposure to accelerate recovery from hangover Well there I would look to the kind of standard protocols of you know 1 to 3 minutes or maybe even six minutes if you can tolerate it If you're really cold adapted if you do seven or 10 minutes in a cold shower although that could be a lot most people are going to experience a sharp increase in epinephrine and adrenaline and a long lasting increase in dopamine from 1 to 3 minutes of deliberate cold exposure Ideally done immersion up to the neck again Do this safely please please please Or a cold shower where you're getting under the shower as much as possible How cold Well that's gonna vary person to person I suggest making it as cold as is uncomfortable especially you really want to get out But then you know you can stay in safely without for instance give yourself a heart attack because if the water is really really cold of course you can give yourself a heart attack Most showers won't go that cold Although probably some will Again please use caution spike your adrenaline spike your dopamine with deliberate cold exposure safely Other components of hangover that could be good targets for trying to alleviate hangover And here I hope you are getting the picture because it is accurate to say that hangover is a multifaceted phenomenon It's not like one molecule and one receptor It's a bunch of things happening in the brain and body But

is the dehydration associated with alcohol Alcohol is a diuretic for multiple reasons It causes people to excrete not only water but also sodium Sodium is an electrolyte critical for the function of neurons So making sure that you have enough sodium potassium and magnesium so called electrolytes is going to be important for proper brain function body organ function even for people that have just had one or two drinks the night before it's likely that your electrolyte balance and your fluid balance is going to be disrupted And that's because alcohol also disrupts the so called vasopressin pathway I talked a lot about vasopressin and the way that it interacts with and controls different aspects of water retention and water released from the body in the form of urine in the episode on salt So you again I'm referring to Huberman lab dot com as the site where you can find that episode on salt balance and ways to restore electrolyte balance Having your electrolytes at the proper levels before you drink is ideal Some people will say for every glass of alcohol that you drink you should drink one glass of water I would say better would be two glasses of water given the dehydrating effects of alcohol and even better would be water with electrolytes That certainly would set you up for a better day the next day And if you don't manage to do that because I suppose it's kind of geeky walking around with electrolyte packets out at the bar or what or what not Although you know um geeky in my book is a good thing The next day you could take some electrolytes upon waking uh maybe even some before you go to sleep uh at the night of drinking So hangovers made worse by disturbed sleep made worse by disrupted gut My bio made worse by disrupted electrolytes made worse by the depletion of epinephrine and dopamine That's why replenishing the microbiome with fermented foods low sugar fermented foods That is that's why using safe deliberate cold exposure for spiking adrenaline and for increasing dopamine And that's why consuming electrolytes are all going to be beneficial