Alcohol or THC: Which is Worse?

15 MIN · YOUTUBE · HTTPS://WWW.YOUTUBE.COM/WATCH?V=SJL5BC6PHNU
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SUMMARY

Alcohol and THC, while often compared, affect the body and brain in fundamentally different ways. Alcohol acts as a central nervous system depressant, leading to slowed brain activity and potential organ damage, particularly to the liver. THC, on the other hand, interacts with the endocannabinoid system, altering signal processing in the brain and affecting cognitive functions without the same level of structural damage to organs.

- *Alcohol is absorbed primarily through the stomach and small intestine, leading to quick effects, while THC absorption varies significantly based on consumption method (inhalation vs. edibles).*
- *Alcohol enhances GABA activity, leading to decreased judgment and memory formation, while THC alters neuron communication, affecting hunger and mood.*
- *THC can lead to the "munchies," while alcohol lowers inhibitions, influencing eating behavior differently.*
- *Long-term alcohol use can cause direct organ damage and is classified as a carcinogen, increasing cancer risk, particularly for the liver.*
- *THC's long-term effects are more functional, impacting memory and attention, with less clear links to cancer risk, especially in non-smoked forms.*
- *Both substances can lead to tolerance and dependence, but alcohol withdrawal can be severe and life-threatening, while THC withdrawal symptoms are typically milder.*
- *The video emphasizes the importance of informed decision-making regarding substance use, highlighting the distinct physiological impacts of alcohol and THC.*

Nearly two billion people drink alcohol regularly and hundreds of millions use cannabis products. And these two substances are often compared to each other as if they're doing the same thing inside your body. People will sometimes debate which one is better and which one is worse. But the reality is although they share a few similarities, alcohol and THC affect your physiology in very different ways. So today, with the help of the bodies in the lab, we're going to compare alcohol and THC headto head.

We'll break down how each one gets absorbed, what they do to your brain and other organs, why one can cause blackouts while the other gives the munchies, and yes, we'll also get into the negative effects of each, including addiction and even cancer risk. It's going to be a mind-altering one. So, let's jump into this anatomical and physiological awesomeness. Alcohol, also known as ethanol, is a small molecule that can move easily through both the watery environments of your body and across cell membranes, which allows it to spread quickly throughout your bloodstream and into your brain. THC, short for tetrahydroanabanol, is highly fat soluble, which means it tends to accumulate in fatty tissues, including the brain, and sticks around much longer. But one of the biggest differences between these two substances starts with how they enter your body.

When you drink alcohol, it travels down the esophagus and into the stomach where about 10 to 20% of that alcohol is absorbed directly through the stomach lining that you can see here. The rest moves into the small intestine where most of the absorption occurs. If your stomach is empty, your blood alcohol levels can peak in about 30 to 60 minutes. If you've eaten, especially fats or proteins, that process slows down and can take closer to 1 to 3 hours. THC works differently because it depends on how you bring it into the body. If it's inhaled, it moves from the lungs and into the bloodstream within minutes. But if it's eaten, like with an edible, it has to go through the digestive tract and then to the liver before entering circulation, which makes the onset much slower. And you'll often hear that edibles don't just take longer to kick in, they also tend to hit harder and last longer. One of the main reasons for this is that in the liver, THC is converted into a compound called 11 hydroxy THC, which actually is more potent and contributes to those stronger, longerlasting effects.

Whereas, if you inhale it, it doesn't go directly to your liver. It can pass through multiple tissues before eventually getting there. So, already we see a key difference. Alcohol has a single fairly predictable route of absorption, while THC is highly route dependent and can be much more prolonged, especially when consumed as an edible. Now, once these substances enter your bloodstream, they both make their way to your brain. But what they do once they get there is very different. Alcohol is what we call a central nervous system depressant. It enhances the effects of GABA which is an inhibitory neurotransmitter and at the same time suppresses glutamate which is excitatory. So the overall result is that brain activity slows down in the prefrontal cortex. This leads to decreased judgment and impulse control which is why people often say and do things with alcohol that they might not normally do. In the hippocampus it disrupts memory formation. In the cerebellum it affects coordination and balance. And at higher doses, alcohol can even begin to suppress the brain stem, which controls breathing and heart rate. And this is what can make alcohol poisoning so dangerous. THC, on the other hand, works through your endocanabonoid system. It binds to CB-1 receptors located throughout the brain and alters how neurons communicate with each other. Instead of broadly slowing everything down, it changes how signals are processed and transmitted. In the hypothalammus, which you can see here, it alters how hunger signals are regulated, which contributes to the classic munchies. In other areas of the brain, it influences dopamine and endorphin pathways, which can lead to relaxation or euphoria. But in some individuals, it can lead to anxiety or even paranoia. So, a way you could think about this is that alcohol turns down the volume of the brain while THC changes the signal itself. Now, even though both of these substances affect the brain, the way they impact memory and cognition feels very different in real life. With alcohol, as doses increase, the brain can actually lose the ability to form new memories altogether. This is what leads to blackouts where a person may be awake talking and interacting, but later has no memory of what happened. THC doesn't shut memory formation down in the same way, but it does alter or interfere with how information is processed and organized. This can make it harder to focus, follow conversations, or keep track of what you were just thinking about. So, people often describe things like losing their train of thought, forgetting what they were about to say, or feeling mentally foggy. So, the key distinction here is that alcohol can suppress memory formation, while THC tends to distort cognitive processing.

Now, if we zoom out from the brain and look at the rest of the body, both of these substances affect your cardiovascular system, but not in the exact same way. Alcohol causes your blood vessels to dilate, which can temporarily lower your blood pressure. In response, your body may increase your heart rate slightly to help maintain circulation. THC also causes vasoddilation, but it tends to produce a more noticeable and consistent

increase in heart rate, which is why some people become very aware of their heartbeat shortly after using it. And this helps explain one of the most recognizable effects of THC, red eyes. When the small blood vessels in your eyes dilate, more blood flows through them, giving that classic red appearance. Now, technically, alcohol can also cause some dilation of blood vessels in the eyes, but it's usually much less noticeable.

THC has a more direct effect on receptors in the eye, which makes that redness much more pronounced and consistent. Then there's dry mouth. That's largely an effect of THC. Your salivary glands, one of which you can see on this sagittal head dissection, contain cannabonoid receptors. And when THC binds to them, it reduces saliva production. So that dry mouth feeling isn't just dehydration. It's your salivary glands actually producing less saliva. And that naturally leads us into appetite. As we already mentioned, THC has a direct effect on how your brain regulates hunger. It interacts with areas of the brain that are involved with hunger, such as the hypothalammus, and it alters normal satiety signaling, essentially making food seem more rewarding and harder to resist. That's why people often experience the classic munchies, where they feel hungry even if they've recently eaten. Alcohol can increase appetite, but the mechanism is different. Instead of directly driving hunger signals, alcohol tends to lower inhibitions. So people may eat more not necessarily because they're physiologically hungry, but because they care less about how much they're eating or what they're eating. So while both substances can lead to increased food intake, THC is more likely to drive a true increase in hunger signaling, whereas alcohol is more like, meh, I guess I'll eat this. And with all this talk about certain substances altering brain physiology, let's talk about some other substances that can help the brain perform at its best. Now, it's not really a secret that creatine can improve exercise performance, but more and more research is showing that higher doses of creatine can help improve cognitive function, mental fatigue, and even sleep deprivation. Something else that is essential for brain function is electrolytes. Like, I'll often ask my students how they think neurons conduct electrical impulses. And the answer is they use electrolytes to create charge gradients. And so, electrolyte balance and hydration are essential for proper neuron function. And this is where Creat's new daily stack comes in. This daily stack combines their creatine gummies with their creatine and electrolyte mix into one system, giving you two different formats that make it easy to stay consistent. You can mix a stick pack in the morning for hydration and energy support, which gives you 5 g of creatine plus the electrolytes. And then what I like to do is use the gummies later in the day, specifically right after a workout. And I do this for two reasons. One, I get five more grams of creatine. And two, the gummies also have some carbohydrates which can help contribute to replenishing the glycogen stores that I just depleted during the workout. And with how simple this stack is, it is easy to stay consistent because with creatine, taking it regularly is what actually matters so that you can build up your creatine stores in your cells. And having multiple formats that are travel ready, easy to take, and require no prep makes it a lot easier to not miss a day. So if you're interested, go to trycrate.co/human /human anatomy and use our code human ananatomy to get 30% off your first order. That link will also be in the description below. And now, let's get back to the video. Now, if we shift our focus to long-term effects, this is where alcohol and THC begin to separate even more. With alcohol, the effects tend to show up as direct progressive damage to organs over time. The liver is the primary side of this since it's responsible for metabolizing alcohol. As alcohol is broken down, it forms acetalahhide, which is actually more toxic than the alcohol itself and can trigger inflammation and oxidative stress. Over time, this can lead to fat accumulation in the liver, inflammation, scar tissue formation, and eventually more advanced conditions like fibrosis and cerosis where the structure and function of the liver becomes significantly impaired. Alcohol can also affect other organs including the pancreas that you can see here as well as the inside lining of the stomach.

contributing to conditions like pancreatitis and gastritis. THC is also processed by the liver, but it does not produce the same toxic metabolites or lead to the same progressive breakdown of organ structure at typical doses. Instead, many of its long-term effects are related more to how the brain and body function, especially with repeated or heavy use. Over time, this can lead to more persistent changes in memory, attention, and learning along with the development of tolerance, meaning you need more to achieve the same effect with heavier or more frequent use. Some individuals may also experience increased anxiety, mood changes, or even a reduced ability to feel motivated or engaged. And while some people use THC to try to manage anxiety or depression, others may actually notice those symptoms becoming more pronounced over time. And it's also worth noting that THC use has increased over the years, not just in frequency, but in potency.

In the 1990s, typical THC content was around 3 to 5%. Whereas more recent cannabis flowers can range from 10 to 20% or more, which can amplify many of these effects, especially with frequent use. That said, some of THC's effects also depend on how it's used. For example, when cannabis is smoked, the lungs are exposed to combustion byproducts, which can lead to irritation and inflammation over time. And with vaping, especially with products from informal or unregulated sources, certain additives like vitamin E acetate have been linked to a condition known as ivali or ecigarette or vaping use associated lung injury. So, while both substances can have long-term effects on the body, alcohol is more strongly associated with direct progressive damage to organ structure, whereas THC's effects tend to be more functional or dependent on the route of use. Another important difference between these two substances is their relationship to cancer risk. Alcohol is classified as a carcinogen. It has been linked to an increased risk of several types of cancer. Liver cancer is obviously going to be one of the most well-known, but it is also linked to cancers of the mouth, esophagus, breast, and colon. One of the main reasons for this is the production of acetalahhide during alcohol metabolism, which can damage DNA and contribute to cancer development.

Chronic inflammation and oxidative stress also play a role. And organizations like the World Health Organization emphasize that there is no completely risk-free level of alcohol consumption when it comes to long-term health and that even moderate intake can contribute to cancer risk over time. THC and cannabis are more complex. When cannabis is smoked, it does expose the lungs again to those combustion byproducts which can irritate the respiratory system. However, the link between cannabis use and cancer, especially compared to substances like tobacco, is less clear and not as strongly established. When it comes to THC itself, particularly in non-smoked forms like edibles, there is currently no strong evidence showing that it directly causes cancer at typical levels of use. Some compounds in cannabis are even being studied for potential anti-cancer properties in lab settings.

But that's very different from saying cannabis prevents cancer in real world use. So the key takeaway here is that alcohol has a wellestablished and dose dependent relationship with cancer risk. Whereas THC's relationship to cancer is less clear and depends more on how it's used. Another important difference between these two substances is their potential for tolerance, dependence, and addiction. With alcohol, repeated use can lead to tolerance, meaning a person needs to consume more to achieve the same effect. Over time, this can progress to physical dependence where the body begins to rely on alcohol to function normally. And this is where alcohol becomes particularly dangerous because withdrawal can be severe and even life-threatening with symptoms ranging from tremors and anxiety all the way up to seizures in more extreme cases. THC can also lead to

tolerance independence, but the pattern tends to be different. With repeated use, the brain can become less responsive to its effects, which can lead people to use higher amounts over time. Some individuals may also develop what's known as cannabis use disorder, where use becomes more habitual or difficult to control. When people stop using THC after regular use, they can experience withdrawal symptoms such as irritability, sleep disturbances, reduced appetite, and mood changes. And although those symptoms are real, they are typically less severe and not considered medically dangerous in the same way that alcohol withdrawal can be.

So, when you compare alcohol and THC, it's not as simple as asking which one is better or which one is worse. They're doing fundamentally different things inside your body. Again, alcohol slows brain activity and over time is more likely to cause direct progressive damage to the organs, especially the liver and has a clear relationship with cancer risk. THC, on the other hand, changes how signals are processed in the brain and tends to have effects that are more functional rather than structural.

But with repeated or heavy use, those changes can still have real consequences, including effects on memory, attention, learning, and even anxiety. Now, this video was not an indictment on anyone that uses these substances, so hopefully the tone of the video didn't portray that. It was to give you as much scientific information as possible so that you could make your own informed decisions. And so, I hope we accomplish that with this video. And thank you for watching and supporting the channel as always. And we'll see you in the next one.