

How caffeine and alcohol affect your sleep - Video transcript

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00:00 Many of us like to start the day with a cup of **coffee** and perhaps end the day with a glass of wine or some other kind of alcoholic drink. But it turns out that these two substances, **alcohol** and **caffeine**, can have surprising impacts on our sleep.

00:16 [Sleeping with Science]

00:19 (Music)

00:21 Let's start with **caffeine**. **Caffeine** is in a class of drugs that we call the **psychoactive stimulants**. And everyone knows that **caffeine** can make them more alert. It can wake them up.

00:35 But there are at least two additional, hidden features of **caffeine** that some people may not be aware of. The first is the duration of action of **caffeine**. **Caffeine**, for the average adult, will have what we call a **half-life** of about five to six hours. What that means is that after about five to six hours 50 percent of that **caffeine** that you had is still circulating in your system.

00:03 What that also means is that **caffeine** has a **quarter-life** of about 10 to 12 hours. In other words, let's say that you have a cup of **coffee** at 2pm in the evening. It could be that almost a quarter of that **caffeine** is still swilling around in your brain at midnight. And as a result, it can make it harder for an individual to fall asleep or even stay asleep soundly throughout the night. So that's the first feature of **caffeine**.

00:35 The second issue with **caffeine** is that it can change the quality of your sleep. Now some people will tell me that I'm one of those individuals who can have an espresso with dinner, and I fall asleep fine, and I can stay asleep. But even if that's true, it turns out that **caffeine** can actually decrease the amount of **deep, non-rapid eye movement sleep** that we have, stages three and four of **non-REM sleep**. That's that sort of restorative **deep sleep**.

02:06 And as a consequence, you can wake up the next morning, and you don't feel refreshed, you don't feel restored by your sleep. But you don't remember waking up, you don't remember struggling to fall asleep, so you don't make the connection, but nevertheless you may then find yourself reaching for two cups of **coffee** in the morning to wake up rather than one.

02:28 So that's **caffeine**, but now let's move on to **alcohol**, because **alcohol** is perhaps one of the most misunderstood sleep aids out there. In fact, it's anything but a sleep aid. And it can be problematic for your sleep in at least three different ways.

02:47 First, **alcohol** is in a class of drugs that we call the **sedatives**. But **sedation** is not sleep. And studies teach us that those two things are really quite different. **Sedation** is a case where we're simply switching off the firing of the brain cells, particularly in the cortex. And that's not **natural sleep**.

03:10 In fact, during **deep non-rapid eye movement sleep**, for example, the brain has this remarkable coordination of hundreds of thousands of cells that all of a sudden fire together, and then they all go silent, and then they all fire together, and then they go silent, producing these big, powerful brainwaves of **deep non-REM sleep**. And so that's the first way in which **alcohol** can be problematic. We're mistaking **sedation** for **deep sleep**.

03:40 The second problem with **alcohol** is that it can actually **fragment your sleep**. **Alcohol** can actually trigger and activate during sleep what we call the **fight or flight branch of the nervous system**, which will therefore wake you up more frequently throughout the night. And **alcohol** can even increase the amount of alerting chemicals that are released by the brain, once again **fragmenting your sleep**.

04:06 The third and final issue with **alcohol** and sleep is that **alcohol** can actually block your **rapid eye movement sleep**, or your **dream sleep**. And as we'll learn in subsequent episodes, **REM sleep**, or **rapid eye movement sleep**, **dream sleep**, provides a collection of benefits, things such as your emotional and mental health, even creativity.

04:30 Now I'm not here to tell anyone how to live. I don't want to be puritanical. I'm just a scientist. What I want to try and do is provide you with the information about the relationship between **caffeine** and **alcohol** on your sleep so then you can make an informed choice as to how best you want to live your life when you're trying to prioritize your sleep health.