OxyContin: What do you know? [1]

Dear Alice,

I was poking around your website because of simple curiosity, and I found that you have very little or no information about OxyContin, its availability, its effects or its dosages. Like, how much would it take to kill a person? -and- What is it, how is it recreational, and what are its origins? Just out of curiosity.

Thanks,

The Cat.

Answer

Dear The Cat,

Your curiosity is always welcome — thanks for perusing the site and noticing a gap in information on this topic! OxyContin is the brand name for a type of analgesic (meaning painkiller) called oxycodone hydrochloride, which is most commonly prescribed for individuals with severe and chronic pain. It was developed in the early 1900s, with its current appearance and dosage varying based on the manufacturer (more on this in a bit!). Recreationally, it’s often snorted or injected, but it can also be taken in high doses in order for users to achieve a “high” feeling. As you mentioned, it can be lethal, but what is considered a lethal dose is different for everyone. A number of manufacturers produce different formulations of oxycodone with names such as OxyContin, Percodan, Percocet, Roxicodone, and Roxicets. Oxycodone falls under the class of analgesics known as opioid agonists, which include morphine, heroin, methadone, and codeine. When oxycodone binds to opioid receptors located throughout the brain and spinal cord, a variety of bodily responses may occur, including pain relief, relaxation, slowed breathing, and feelings of euphoria. Most other analgesics have a threshold, or a dosage, at which the maximum effect is reached. However, opioids have an increasing effect with increased dosage, meaning the more a person uses, the “better” they feel. This makes opioids quite effective at managing pain, but also potentially highly addictive. Curiosity still got you? Read on!

Although it’s a controlled substance and requires a prescription to legally obtain, oxycodone is relatively widely available and its recreational use affects millions. The dosages, colors, and size
depend on the brand of the drug. As for the origins — interestingly, oxycodone was developed in 1916 in an effort to create a non-addictive opioid replacement for heroin. Oxycodone was introduced to the U.S. in 1939, but it wasn’t until about 30 years later that it became a Schedule II drug under the Controlled Substances Act [2]. Fast forward to the mid-1990s, a twelve-hour dose formulation of oxycodone was released with the hope that the slower absorption rate would deter abuse (compared to the existing four- or six-hour dose formulation). However, the change in formulation didn't have the intended effects and oxycodone is still frequently abused. In addition to a change in formulation of oxycodone, more prescriptions were being written during this time period. The rates for oxycodone addiction and overdoses dramatically increased into the 2000s, affecting millions of people. In recent years, efforts have been made to address this with abuse-deterrent reformulations, education, and new policies.

Before jumping into its effects and how much constitutes a legal dose, it may help to understand how opioids work in the body. In the nervous system, synthetic opioids (such as oxycodone) mimic endogenous opioids (produced naturally by the body, such as endorphins) and bind the same receptors to create an influx of dopamine, creating feelings of pleasure and reward. However, synthetic opioids activate nerve cells differently, which may lead to transmission issues across the nervous system. You asked what constitutes a lethal dose. Opioid overdoses usually cause death through breathing suppression, but the lethality of the dose itself depends on factors such as the individual's tolerance and the method of consumption. Therefore, it's difficult to say what a lethal dose might be. You bring up a good point about serious risks associated with using this medication. Knowing signs of overdose may mean the difference between life and death for some users. According to MedlinePlus [3], some signs someone is experiencing an overdose include:

- Cold, clammy skin
- Narrowing or widening of the pupils
- Excessive sleepiness
- Limp or weak muscles
- Difficulty breathing, including slowed or stopped breathing
- Seizures
- Fainting, loss of consciousness, or coma

Overdosing on oxycodone can be fatal. If a person does survive, they may also experience:

- Extreme drowsiness
- Low blood pressure (hypotension)
- Weak pulse
- Intestinal issues, such as spasms, constipation, nausea, or vomiting
- Shallow or no breathing
- Seizures
- Heart failure
- Coma

Oxycodone is time-released when taken as directed (as a tablet swallowed whole). Previously, recreational users were able to crush the tablet to snort or dissolve it in liquid to inject. These methods cause a more intense and immediate high as they allow the full dose to hit the system
at once. However, in an effort to deter abuse, a recent reformulation made the tablets more
difficult to crush, break, or dissolve. When placed in water, the drug turns into a thick gel that
makes drawing it into a syringe difficult. Despite these changes, abuse is still possible if a higher
dose than prescribed is ingested orally. Frequent use of the drug causes the user to build a
tolerance, thus requiring more and more of the drug to achieve the same high. Aside from being
easily addictive, oxycodone may lead to negative side effects, especially if taken in large dose.
Some of these are nausea, vomiting, constipation, drowsiness, dry mouth, and contraction of the
pupil. Some more severe side effects include hallucinations, difficulty breathing, rapid or irregular
heartbeat, and hyperalgesia, which is a condition in which the person taking opioids actually
develops more sensitivity to pain. If any of these more severe side effects are experienced, it's
best to seek immediate medical help.

Those who become dependent on oxycodone may experience severe withdrawal symptoms if
they stop using. These withdrawal symptoms may depend on the degree of dependence but can
include nausea and vomiting, dizziness, diarrhea, insomnia, severe headaches, and depression.
Additionally, those who go through the initial detoxification process and relapse put themselves at
a greater risk for overdose since their tolerance decreases when they stop taking the drug.
Therefore, if they take the same amount as they were accustomed to before they stopped, it may
be more than their body is able to handle. In addition, oxycodone, especially when combined with
other pain relievers such as acetaminophen, has the potential to damage the liver and lead to
various liver problems. A number of prescription formulations of the drug contain combinations of
these different types of pain relievers. Reading the information that is included with the
prescription will inform the users how to use the medication so that the risk of negative side
effects is reduced. Those who take oxycodone intravenously are also at risk for vein damage,
blood clots (from poorly dissolved oxycodone), heart and lung infections, tissue death, and
certain diseases (like HIV and hepatitis) from needle sharing.

Despite its risks and addictive potential, oxycodone has the potential to be an effective method
for pain management when used appropriately as prescribed. When oxycodone is prescribed, a
health care provider monitor use and once the medication is no longer needed for pain relief, will
gradually ease the patient off the drug, as suddenly stopping may be dangerous. If you’re still
curious to know more about oxycodone and other prescription opioid medications, check out the
National Institute on Drug Abuse (NIDA) [4].

Hope this cure at least some of your curiosity,

Alice!

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