

Exogenous Opioids: Dual Edged Pharmaceuticals

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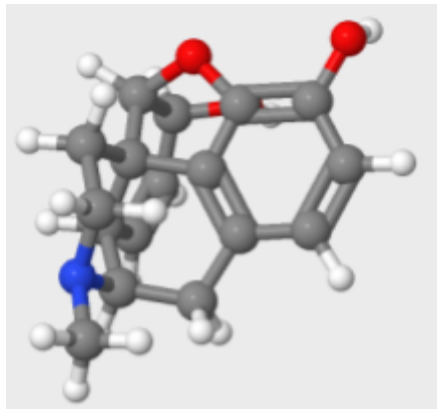
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Exogenous opioids is a broad category containing both pharmaceuticals and illicit drugs depending on the specific opioid in reference. Exogenous opioids mimic the effect of endogenous opioids found naturally in the body and activate the receptors found in the central nervous system that regulate the brain's reward circuit. Exogenous opioids share structural similarities with endogenous opioids such as an aniline ring and an amide group, both being vital as these features are the foundation for all opioids to bind to opioid receptors and thus deriving the definition of opioid.



Morphine

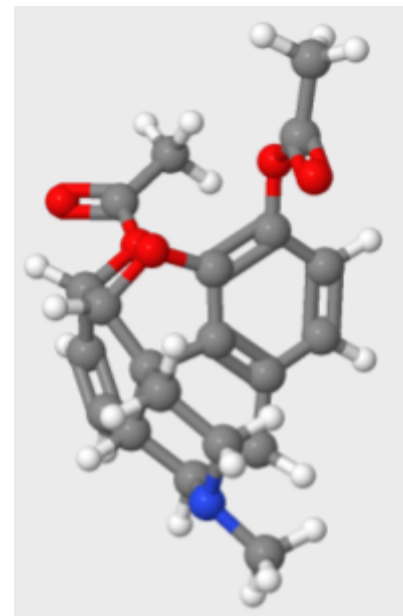
The presence of exogenous opioids causes a chemical imbalance in between neurons as the influx of opioids cause the continuous release of dopamine at a rate the neuron does not match in reabsorbing therefore causing a remaining pocket of dopamine that is acting outside of normal regulatory systems. This influx of dopamine causes for a continuous euphoric feeling that will become increasingly dulled as the body's regulatory system causes the removal of receptors to tame this overloading of sensory systems.

Morphine isolated from the poppy plant in the early 1800's has become a vital drug for treating a wide range of pain from labor to injured soldiers. It can be administered intravenously, intramuscular or in close proximity to the spinal cord. Morphine has become the base for creating other synthetic opioids becoming

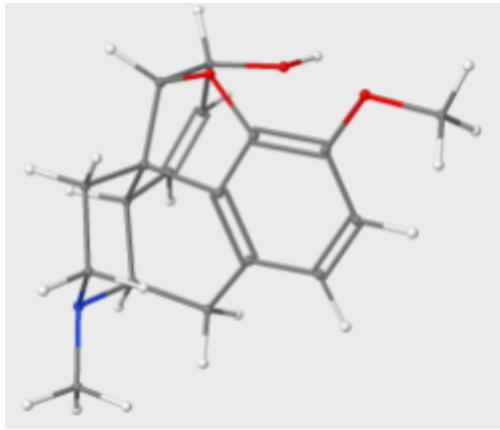
the precursor for stronger opioids that are altered to have a higher affinity and efficacy for treating stronger pain or to react faster upon introduction to the central nervous system.

Heroin or diamorphine is used primarily for recreational use. It differs from morphine as it reacts faster and effects from heroin last longer as well. Heroin, noted for its strong effects, is used mainly as an illicit drug that is highly addictive and overdosing remains an innate threat at first use due this. Heroin addiction like all opioid addictions can be treated with opioid replacement therapy where opioids with lower efficacies are used as substitutes for stronger opioids to minimize the effect of the exogenous opioids while making withdrawal symptoms manageable.

Codeine is used primarily as cough medicine and is broken into morphine by the liver. Its peak effectiveness is at about two hours and lasts for a quarter of a day. This can be dangerous as the user may think that codeine was ineffective after use and take larger doses only to endure the full effectiveness after two hours of the larger dose which can lead to overdose.

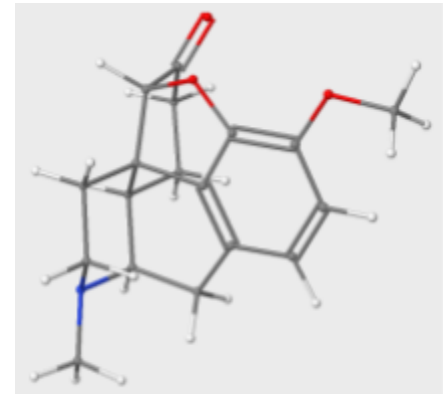


Heroin



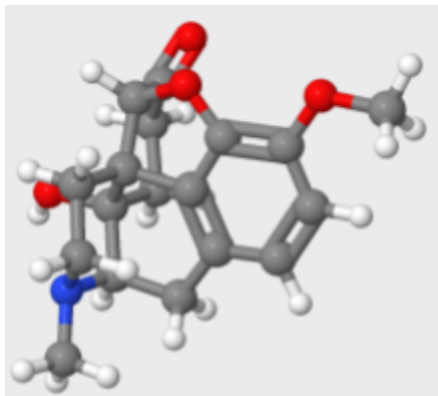
Codeine

Hydrocodone, similar to codeine, is used as a cough suppressant for adults and has effects that take hours to induce a full effect. Hydrocodone is very similar to codeine in structure and is the reason why the two drugs have such a similar purpose and effect.



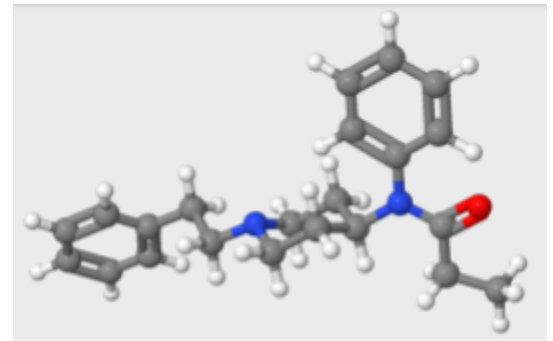
Hydrocodone

Oxycodone or under brand name “OxyContin” is present in both immediate release and controlled release versions both taken by mouth. Oxycodone varies from morphine in that it targets the kappa opioid receptor that while is similar in effect are located in different sections of the nervous system.



Oxycodone

Fentanyl is one of the strongest opioids and is able to be administered via injection, absorbed from patches in contact with skin and nasal. Fentanyl is the cause of many overdose deaths in the ever growing opioid crisis which has caused a national emergency that has affected all demographics and all areas in the United States. The opioid crisis has



Fentanyl

also disrupted the previously steady increase in life expectancy and is difficult to fix. After pharmaceutical companies sold opioids to a majority of U.S. doctors, the opioid crisis has become a series of individual incidents each with their own story and abuses of opioids that were mismarketed as an ultimate and simple solution to pain and suffering.

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