

Daily Life with Christ-78. Understanding brain addictions: opioids. The destructive and beneficial power of exogenous opioids (derived from poppy plants) vs. the blessed goodness of God-given endogenous opioids that are 18-500 times more powerful than morphine (and derived from loving God, loving others, exercise, lovemaking, and eating chocolates).

There are two kinds of opioids: external/exogenous opioids that are made outside of the body (by poppy plant) and internal/endogenous opioids that are made by the divinely designed human body. Both reduce pain and bring a sense of pleasure, happiness, or euphoria. But they have very different consequences. Let us first consider the exogenous opioids. Here is an overview:

Opioid Addiction



- Opioids affect the brain by stimulating the opioid receptors and flooding dopamine, a chemical that rewards you with happiness, causing a rush of euphoria and pleasant relaxation.
- Over time, however, a tolerance or resistance to the drug is built—forcing the user to use more or a stronger dosage in order to receive the “high.”
- The brain and body becomes used to the drug stimulation and begins depending on it for dopamine production. Without the drug, the user would experience physical and mental withdrawal.

Exogenous opioids are psychoactive drugs. Let us begin with the poppy plant. In addition to producing beautiful flowers and edible seeds, the poppy plant is also the source of opium and many drugs derived from opium. Among these drugs are medicines that have revolutionized the treatment of pain, such as codeine and morphine, as well as heroin, which is often considered to be the most harmful drug of abuse today. Although opioid drugs are very addictive, they are nevertheless very effective painkillers and are still widely used in medicine.

Opium is the milky fluid that is secreted by the poppy plant as a defense mechanism against insects trying to eat them. Opium is the latex secreted from the seedpod of an opium poppy. Raw opium contains about 10 percent morphine and about 2 percent codeine. These are the opiate drugs, which just means that they are products of the opium poppy. A number of other drugs, including heroin, are not contained in opium itself but are made from natural opiates or have very similar effects. These are sometimes called opioids.

The opiate drug morphine is among the most effective painkillers available today. Codeine has similar effects but is weaker than morphine. It's often used to treat minor pain and as a cough suppressant. Of course, opium and drugs derived from opium are also often used recreationally, because they can produce a dreamlike, euphoric state.

People have known about those effects for a very long time. In fact, there's evidence that the Sumerians knew about the psychoactive properties of the opium poppy plant as early as 3400 B.C. The Ancient Egyptians used opium medicinally. In the 1700s and 1800s, a mixture of alcohol and opium called laudanum became very popular and was widely used as a pain reliever, as a sleep aid, and to treat a variety of ailments. In the mid-1800s opium trade became a big business and even led to two wars, known as the opium wars, between the British and the Chinese.

In 1804, a German pharmacist isolated a pure alkaloid from opium and gave it the name morphine, after Morpheus, the Greek god of dreams. Morphine was more potent than opium or laudanum, and it became an invaluable tool to doctors in the treatment of pain. Morphine was administered to injured soldiers during the American Civil War.

In 1898, Bayer pharmaceutical company began selling a synthesized opioid that was one-and-a-half to two times more powerful than morphine, and it was marketed as a nonaddictive morphine substitute and cough suppressant—heroin. Bayer sold heroin for more than 10 years before its harmful effects were recognized and it was removed from the market. Heroin is now recognized to be among the most addictive drugs in the world.

Today, a wide variety of opioid medications are available as prescription painkillers. Vicodin, Percocet, Fentanyl, Methadone, and OxyContin are all examples of opioids that are used to relieve chronic pain, and they're prescribed a lot. Although these medications are extremely effective, they're also potentially addictive, and a large number of people who begin using them for pain relief eventually get hooked, which means that their brains become hijacked.

As far as effects of opioids on the brain, they reduce pain without eliminating sensation. They're distinguished from anesthetics, which reduce all sensation and often produce unconsciousness. Opioids also produce a dreamlike, euphoric state, which is what makes them attractive to recreational drug users, at least initially.

At low doses, pain relief is one of the main behavioral effects of opioids. And the fact that they block pain without eliminating sensation makes them the drugs of choice in the treatment of pain. Opioids are also very effective at reducing the cough reflex, which is why they are widely used as cough suppressants.

Some of the less-pleasant effects include nausea and constipation. In fact, constipation is one of the biggest problems in the long-term use of opioids to treat chronic pain. On the other hand, this means that opioids can also be used as a treatment for diarrhea.

At higher doses, opioids produce a rush of euphoria. But the nauseating effects can become more severe, and some people also experience anxiety and restlessness. The most dangerous effect is a significant suppression of breathing. In fact, in an opioid overdose, breathing can be suppressed to lead to death.

About 45 people in the United States die every day from overdosing on a prescription painkiller—that's more than the number of overdose deaths from heroin and cocaine combined. What's going on in the brain that might lead to addiction to opioids?

Similar to other drugs, opioids overstimulate the brain's reward circuit and trigger a large release of dopamine. The brain interprets that dopamine as a reward prediction error, or an indication that taking the drug was better than expected. That reward prediction error in turn backs up to environmental cues that are associated with drug taking, so when the user encounters those cues in the future, he or she experiences a very strong craving to use the drug.

Recall that the VTA is the part of the reward circuit that contains dopamine neurons. Scientists have found that injecting opioids into the VTA leads to increased dopamine cell firing and the release of dopamine into the nucleus accumbens.

As far as treatment, the detoxification is the first step to helping opioid addicts quit the habit. But detoxification can be a real challenge for opioid addicts because users experience very unpleasant withdrawal symptoms when they stop taking the drug. The symptoms are the mirror opposite of the effects produced by the drug itself: Instead of euphoria, withdrawal is characterized by depression; instead of pain relief, withdrawal leads to aches and pains; and instead of constipation, withdrawal produces diarrhea.

A common approach to treating opioid addiction is to administer a slower, longer-acting opioid, such as methadone, instead. In fact, methadone maintenance is the single most-common treatment for heroin addiction, and it has had significant success. For example, one study found that 80 percent of people who stick with a methadone maintenance program for a full year end up staying abstinent for one to three years afterward. In contrast, only 12 percent of people who drop out of methadone maintenance remain abstinent for that long.

However, breaking a drug addiction is tough, and breaking an addiction to an opioid is among the toughest challenges anyone will ever face. But as with all addictions, it's important to keep in mind that one relapse does not mean failure. It simply represents an opportunity for the addict to learn from the experience and hopefully be successful the next time.

Given that God designed endorphins to give us pleasure and happiness, I would like to include in this study the blessings of endorphins. **Endorphins is short for “endogenous morphine,”** which means they are created naturally within the body, unlike exogenous (“outside”) morphine.

Consider some of the differences between endogenous and exogenous morphine.

HOW DOES POTENCY DIFFER?	
ENDORPHIN	MORPHINE
Endogenous opioid.	Exogenous opioid
Powerful analgesic 18 to 500 times than morphine (B-endorphin is 80 times)	Less analgesic than endorphin
similar Molecular structure & Different chemical properties.	It also
Non-addictive	Addictive
Does not cause addiction	Side-effects : euphoria/ dysphoria, constipation, respiratory depression, nausea/ vomiting etc.
Receptors are : mu, kappa, delta	Receptors are : mu, kappa, sigma
Metabolized quickly	Metabolized slowly

at they bind to

Opioids work like other drugs in the receptors. As we noted with marijuana, which has natural endogenous receptors in the brain, there are also endogenous opioid receptors in the brain. There are three natural or endogenous opioids: dynorphins, enkephalins, and endorphins.

The enkephalins and the endorphins are both natural painkillers, but they are active in different parts of the body. When you're injured or in pain, your body releases these chemicals, and they help block the pain. Endorphins are morphine-like substances, but they originate in the brain itself. In addition to being released during pain, endorphins are also released during stress and strenuous exercise and when you're eating spicy food. For example, when you eat spicy foods, like hot peppers, to the point of pain, endorphins are released. When they're released, they activate the mu-opioid receptors, just like morphine does. They therefore relieve pain and produce a pleasurable high, basically the same symptoms as morphine.

God gave us the gift of endogenous endorphins to give us pleasure—to help us! God made endorphins to help us feel joy. These chemicals are produced in us naturally and they give us a sense of joy and related happiness when we engage in certain activities.

These activities include high thoughts of God, love for God, love for others, romance, lovemaking, exercise, eating chocolate, and laughing. As noted in the above chart, these endogenous opioids are metabolized quickly and have no negative physical consequences in themselves.

Consider exercise. Eric Liddle famously said that when he ran, he felt the pleasure of God. The physically induced euphoria was the release of endorphins by his brain into his bloodstream. This does not mean that he did not have a love for the Lord that would also produce endorphins, which would bring him great pleasure

When we engage in intensive training, levels of chemicals in the brain such as endorphins, adrenaline, serotonin, and dopamine, produce natural feelings of pleasure. God made our bodies, brains, and minds to feel pleasure through exercise. He made our bodies to be inextricably connected to our souls. God made us to be happier when we are active. It is when we get sedentary that we experience depression and become more susceptible to dangerous drugs and cravings. God has given us a built-in motivation for long-term benefits of regular bodily exertion.

Let us not forget that the Bible teaches that our bodies are for the LORD and the LORD is for the body (1 Corinthians 6:13, 19). God is so gracious to give us not only pleasure incentives within the body, He has also given us wonderful endogenous chemicals that bring our bodies and souls pleasure when we love God, love all others, exercise, and engage in true lovemaking.

Given that endorphins are created when we love, it is no surprise that the happiest people in the world are those who truly love God and love others unconditionally. Love always produces joy. Licit love produces licit joy, and illicit love produces illicit short-lived joy. Again, the happiest people in the world are those who love others unconditionally. God made us this way.

All because of His Love,

Pastor Don