

Drugs and the Brain - Background Information

Cocaine and amphetamines send "speed up" messages

The drugs cocaine and amphetamines fit into the same receptor site as the neurotransmitter NOREPINEPHRINE.

Cocaine and amphetamines also block the recycler, so the neurotransmitter stays in the receptor site longer and sends more messages.

Cocaine and amphetamines affect:

brain stem

reward

thinking

planning

learning

memory

happy

touch

movement

Cocaine is also called "coke" or "crack".

Amphetamines are also called "speed" or "crank".

Someone who has taken cocaine or amphetamines has faster heartbeat and breathing. They do not feel sleepy or hungry, even if they have not eaten or slept for days.

After someone uses cocaine, their neurons get used to having it, and the same amount of cocaine doesn't make the person feel as good as the first time they used it. This makes the person try to take more and more.

Anyone can become addicted to cocaine if they use it. This can happen even after only trying it one time because there is such a powerful effect on the reward part of the brain. This makes the person want to take more cocaine to make them feel good again.

The drug cocaine can have different effects on different people. There is no way to know ahead of time how the particular person will react to it.

After using cocaine or amphetamines for a long time, people start to feel like bugs are crawling under their skin. They start to feel like everyone is against them or trying to kill them. They start to hear voices inside their heads.

Scientists have found that neurons are killed or damaged when someone uses cocaine or amphetamines for a long time.

When cocaine sends "speed up" messages, the brain sends its own "slow down" messages to try to keep everything equal. When the cocaine wears off, the brain's "slow down" messages make the person feel depressed, sleepy, and irritated - just the opposite of how they felt when the cocaine was sending "speed up" messages.

When someone uses cocaine, their heart speeds up. Sometimes it speeds up so much that the person has a heart attack and dies. Doctors cannot predict which person will have a heart attack and which person won't.

Cocaine is usually inhaled or "snorted" as a powder or smoked as a crystal ("crack" cocaine). People use "crack" cocaine because it gets to the brain faster. That means more "speed up" messages get to the brain faster, but the cocaine also wears off faster and the person is much more depressed afterwards.

Cocaine comes from Erythroxylon coca leaves. It has been used for at least a thousand years by the Incas and other South American natives who live at high altitudes.

Cocaine was an ingredient in the original formula for Coca-Cola. When people found out how harmful cocaine was, Coca-Cola changed the formula.

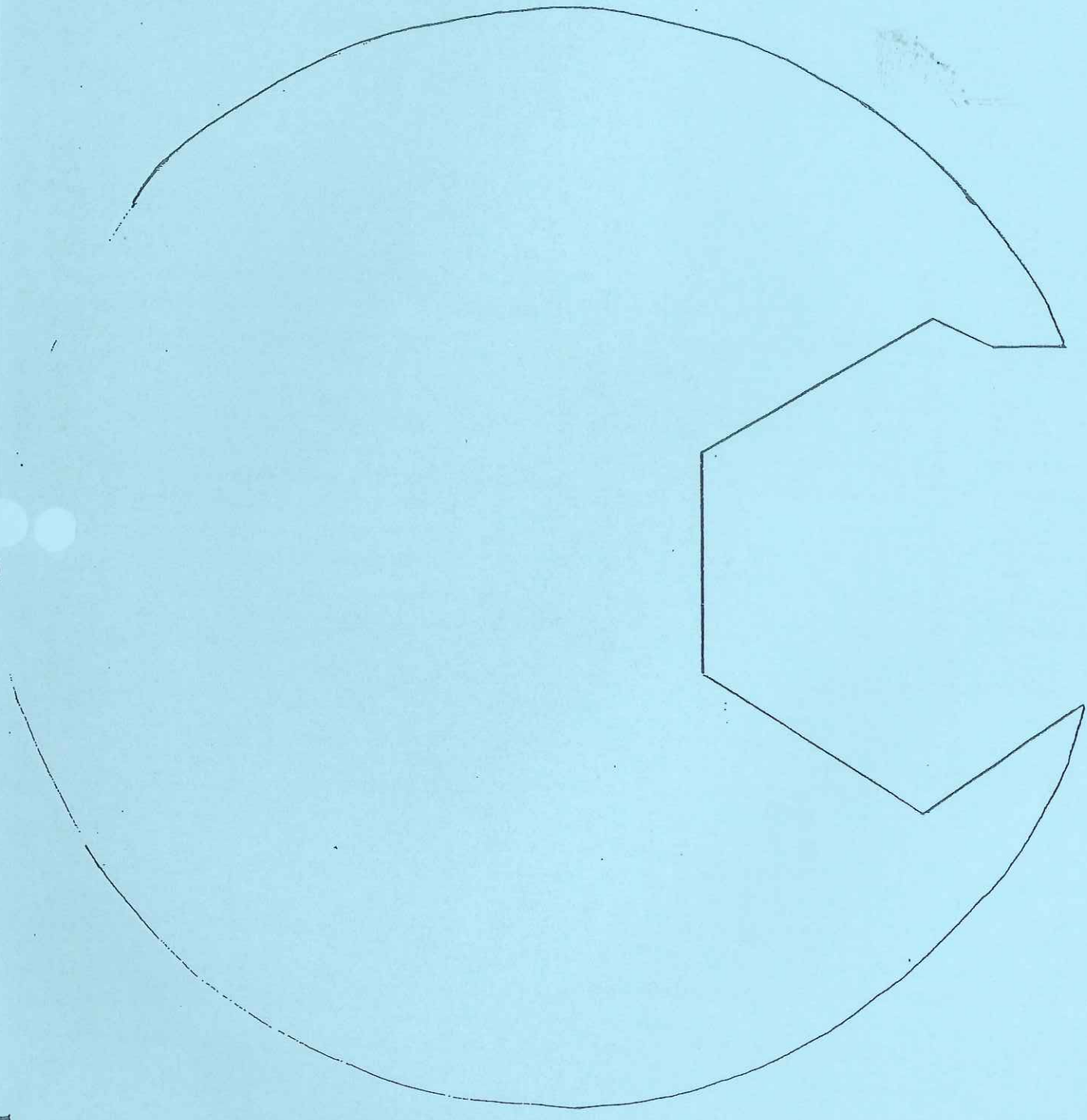
Receptor for the neurotransmitter,
NOREPINEPHRINE

Norepinephrine sends "speed up" messages

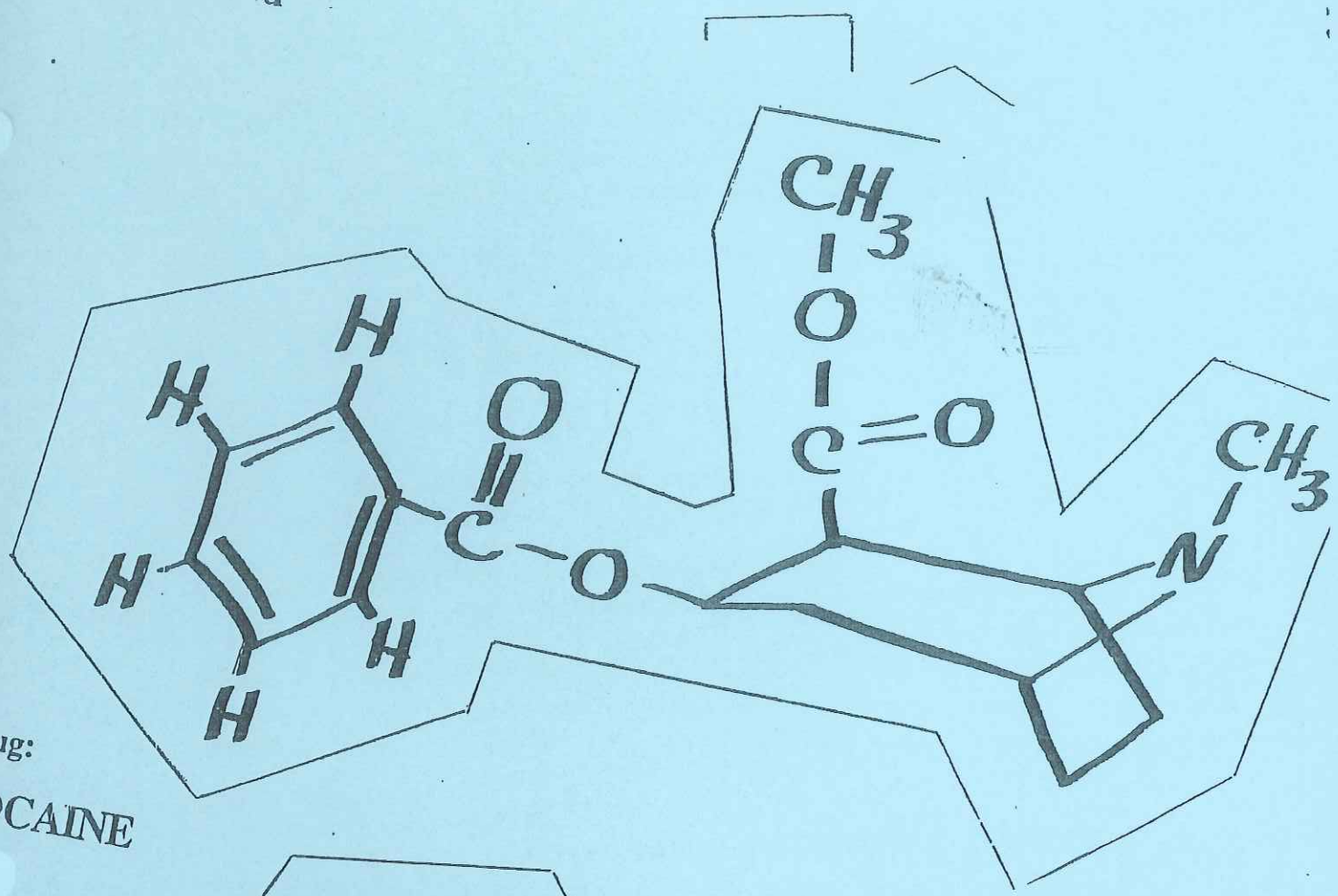
Norepinephrine affects:

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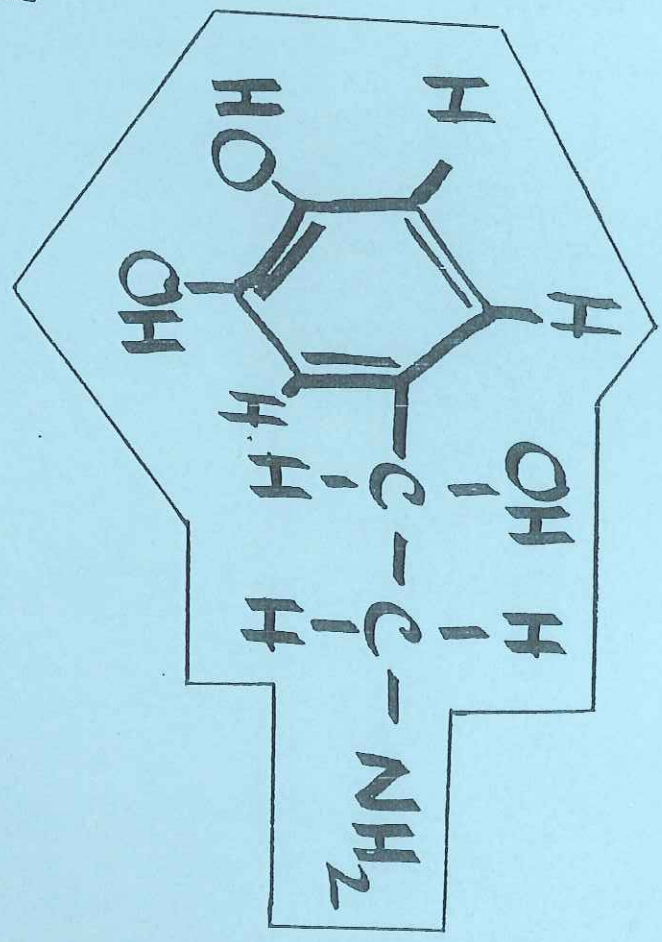
Norepinephrine pathways are associated with emotional response, with sleep and arousal, with regulation of body functions such as heartbeat and breathing, and with the "reward" center of the brain.



**Receptor for the neurotransmitter,
NOREPINEPHRINE**



Drug:
COCAINE



Neurotransmitter:
NOREPINEPHRINE

Cocaine

Cocaine is a highly addictive stimulant. It appears as a white powder that can be smoked, snorted, or injected. The user feels a euphoric high that can last from a few minutes to a few hours. During this high, the user may experience:

- Increased energy and heart rate
- Insomnia
- Anxiety

The user may also experience more severe symptoms that can occur even during the first use, such as:

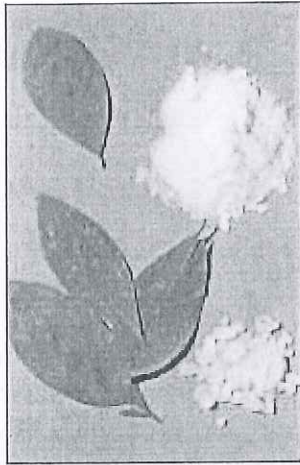
- Cardiac arrest
- Overdose
- Addiction

According to the Department of Health and Human Services (2004), 14.4% of U.S. adults nationwide have used cocaine at least once in their lifetime. The number of people seeking treatment for cocaine addiction has increased over the last two decades. There are currently no medications used to treat this type of addiction; however, behavioral therapy (the process of breaking old habits) is a popular and effective means of treating addiction. Those seeking treatment of help with a drug problem should call 1-800-662-HELP or visit <http://findtreatment.samhsa.gov>.

Typical Street Names

- coke
- lines
- yeyo
- blow
- cola
- nose candy
- snow
- smack
- bump

Pictures



<http://www.drugs.indiana.edu/drug-info-cocaine.html>

What is crack cocaine?

Crack cocaine is a highly addictive and powerful stimulant that is derived from powdered cocaine using a simple conversion process. Crack emerged as a drug of abuse in the mid-1980s. It is abused because it produces an immediate high and because it is easy and inexpensive to produce--rendering it readily available and affordable.

How is it produced?

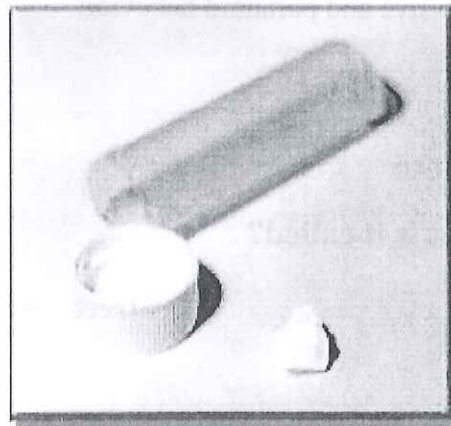
Crack is produced by dissolving powdered cocaine in a mixture of water and ammonia or sodium bicarbonate (baking soda). The mixture is boiled until a solid substance forms. The solid is removed from the liquid, dried, and then broken into the chunks (rocks) that are sold as crack cocaine.

What does it look like?

Crack typically is available as rocks. Crack rocks are white (or off-white) and vary in size and shape.

How is crack abused?

Crack is nearly always smoked. Smoking crack



DEA

cocaine delivers large quantities of the drug to the lungs, producing an immediate and intense euphoric effect.

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Who uses crack?

Individuals of all ages use crack cocaine--data reported in the National Household Survey on Drug Abuse indicate that an estimated 6,222,000 U.S. residents aged 12 and older used crack at least once in their lifetime. The survey also revealed that hundreds of thousands of teenagers and young adults use crack cocaine--150,000 individuals aged 12 to 17 and 1,003,000 individuals aged 18 to 25 used the drug at least once.

Crack cocaine use among high school students is a particular problem. Nearly 4 percent of high school seniors in the United States used the drug at least once in their lifetime, and more than 1 percent used the drug in the past month, according to the University of Michigan's Monitoring the Future Survey.

What are the risks?

Cocaine, in any form, is a powerfully addictive drug, and addiction seems to develop more quickly when the drug is smoked--as crack is--than snorted--as powdered cocaine typically is.

In addition to the usual risks associated with cocaine use (constricted blood vessels; increased temperature, heart rate, and blood pressure; and risk of cardiac arrest and seizure), crack users may experience acute respiratory problems, including coughing, shortness of breath, and lung trauma and bleeding. Crack cocaine smoking also can cause aggressive and paranoid behavior.

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What is it called?

Street Terms for Crack Cocaine

24-7	Devil drug	Hard ball	Product
Badrock	Dice	Hard rock	Raw
Beat	Electric kool-aid	Hotcakes	Rock(s)
Candy	Fat bags	Ice cube	Scrabble
Chemical	French fries	Jelly beans	Sleet
Cloud	Glo	Nuggets	Snow coke
Cookies	Gravel	Paste	Tornado
Crumbs	Grit	Piece	Troop
Crunch & munch	Hail	Prime time	

Is crack cocaine illegal?

Yes, crack cocaine is illegal. Crack cocaine is a Schedule II substance under the Controlled Substances Act. Schedule II drugs, which include PCP and methamphetamine, have a high potential for abuse. Abuse of these drugs may lead to severe psychological or physical dependence.

<http://www.usdoj.gov/ndic/pubs3/3978/index.htm#Top>