

Drugs and the Brain - Background Information

Alcohol sends "slow down" messages

The drug alcohol fits over the neurotransmitter G.A.B.A. and holds it in the receptor site. This sends more "slow down" messages.
G.A.B.A. is short for gamma-aminobutyric acid.

Alcohol affects:

- coordination
- balance
- brain stem
- social inhibitions
- attention
- thinking, planning
- perception
- learning
- memory
- vision

Alcohol was an ingredient in the original formula for Coca-Cola.

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

Alcohol affects the cerebellum, which controls coordination of movement and balance, very strongly because nearly all the neurons in the cerebellum use G.A.B.A. as the neurotransmitter.

When someone has a lot of alcohol to drink, they start to slur their speech, and they have trouble keeping their balance and coordination.

When someone has a lot of alcohol to drink, they may feel very happy one minute and very angry or upset the next minute. They may do silly things because the part of the brain that controls social inhibitions is slowed down.

People who are drinking alcohol have trouble paying attention for very long. They may pass out and sleep, but scientists have found that the kind of sleep they have is not normal and doesn't make them feel rested afterwards.

Learning and memory are slowed down when someone is drinking alcohol. With a long time and a lot of alcohol, the neurons for learning and memory become killed or damaged. Alcoholics usually have severe memory defects and "blackouts".

When someone has a lot of alcohol to drink, they lose body heat and may vomit or urinate a lot.

Alcohol plays a role in about half of all highway deaths. Studies in California show that 62% of the drivers and 40% of the pedestrians in fatal accidents had been drinking.

Scientists have found that certain people have neurons that become used to alcohol much easier than neurons of other people. These types of neurons usually run in a family, so if a person's parents are alcoholics, it may be easier for them to become an alcoholic.

Anyone can become an alcoholic if they drink a lot of alcohol for a long period of time.

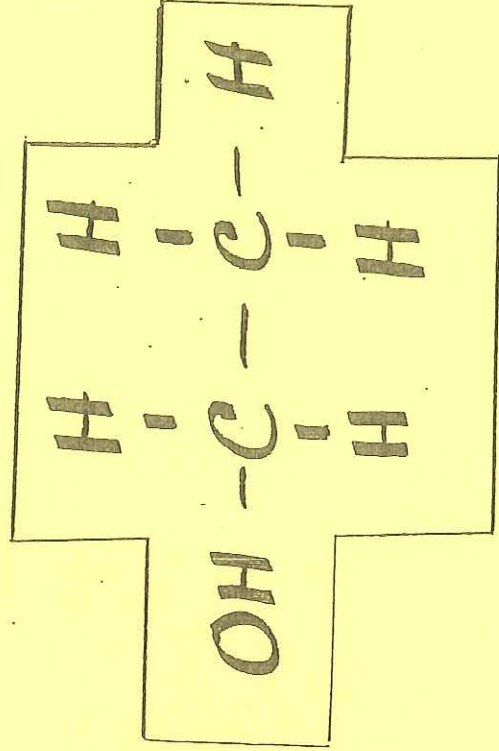
After someone drinks alcohol for a long time, their neurons get used to having it, and the same amount of alcohol doesn't make the person feel as good as the first time they used it. This makes the person try to drink more and more.

Receptor for the neurotransmitter,
G.A.B.A.
(gamma-amino butyric acid)

G.A.B.A. sends "slow down" messages

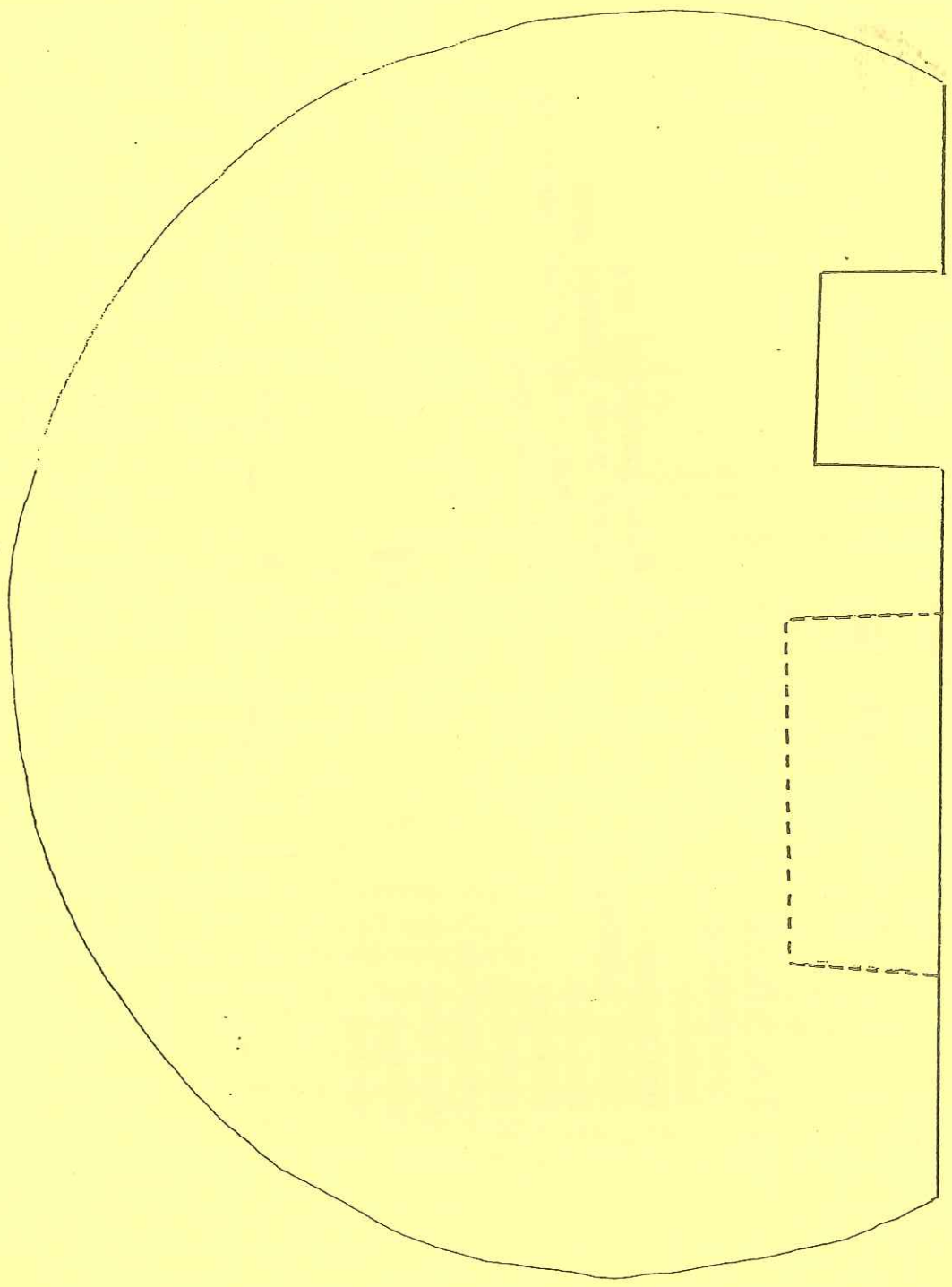
G.A.B.A. affects:
coordination
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vision

G.A.B.A. pathways are associated with balance and coordination, with social behavior, and with emotion.

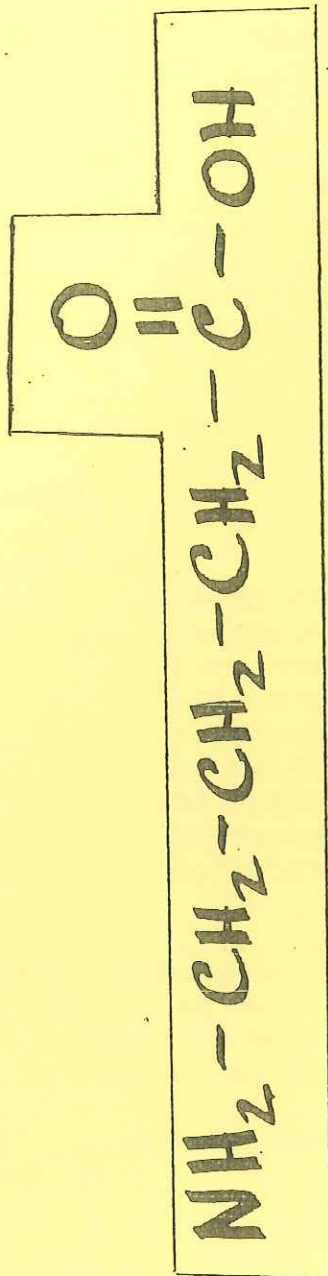


Drug:

ALCOHOL



Receptor for the neurotransmitter,
G.A.B.A.
(gamma-amino butyric acid)



Neurotransmitter:

GABA

gamma-aminobutyric acid

COVER STORY

Facing the Reality of Teen Drinking

By REBECCA WALLACE

West Menlo Park, then went to a party in Portola Valley, Sgt. O'Keefe said.

The man on the street buying alcohol for minors is not the only adult deemed responsible for teens drinking to excess and drunken driving.

Many fault the "don't ask, don't tell" attitude they see in parents who will not admit what their kids are doing. As a result of this attitude, teens often don't feel comfortable calling home for a ride after drinking.

This denial may be facilitated by parents not being around on weekends. They are usually out of town during teen parties, which may involve crowds of people and kegs of beer, said an M-A junior. "They don't want to know."

Afraid to speak out

It was common knowledge in the school community, even before the coroner's reports were completed, that Nico had been drinking heavily the night of his death.

But parents interviewed refused to go on record with their suspicions, even as some castigated The Almanac and other newspapers for reporting what the press had been told by the San Mateo County Sheriff's Office — that there was no sign of alcohol in the vehicle.

A few of Nico Cornil's friends came to school dressed in black on the Monday after the 17-year-old's death in an alcohol-related car crash.

The story buzzed around Menlo-Atherton High School, where Nico was a junior: he had crashed his Ford Bronco near his Portola Valley home on Friday, Nov. 15. And rumor had it that he was very drunk, later confirmed by the coroner's report.

"One of my friends said, 'It's really hard to look at those people and feel sorry for them,'" one M-A junior said of Nico's friends, some of whom had reportedly been drinking with him the night of his death. "I can't even imagine why no one stopped him from driving."

At almost the same time Nico died, Rocio Letona, a Woodside High School student, and Shannon Long, both 15, died in a car accident on the Bayshore Freeway. Toxicological tests revealed large amounts

of alcohol in their systems as well. The teen driver ran from the scene and was not apprehended until days later.

The friends of Nico, Rocio and Shannon are in mourning, some wearing black, others grieving less openly. Yet some teens have drunk the night after the three died, one of Nico's friends said.

And many still make heavy drinking the focus of their weekends, students said.

It is a problem that many people close their eyes to and wish would just go away.

Recent conversations with parents, school personnel, law enforcement officials and teens placed much of the blame for heavy drinking by high school students on the shoulders of parents and teens who have not come to terms with the gravity of the problem.

"What I see is denial (among students) that drinking or taking drugs has anything to do with these accidents," said an M-A teacher who had discussed Nico's death in class and found many students to be "fatalistic" in attitude.

"They say that kids will just go back to drinking again," she said.

Parents, too, may be reluctant to believe teen drinking can be fatal. Shortly after the coroner's report showed alcohol was involved in Nico's fatal accident, the teenager's mother was quoted in a local newspaper downplaying drinking as a cause of death. She said she will always believe Nico died because he swerved to

avoid an animal in the road, the newspaper reported.

Those interviewed criticized parents for denying the danger of their children's behavior: going out of town when it is clear their teens will hold parties in their absence, speaking of teen drinking as a problem in the abstract and not admitting their own children drink.

But despite agreeing firmly that teen drinking is a major problem and something needs to be done about it, all people interviewed were leery of speaking too candidly about the problem, lest they embarrass those involved — or defile the memories of young people killed by alcohol.

Even as they tiptoed around the details of the problem, those interviewed struggled to explain why drinking has become so popular with teens. Are they under more stress and in need of an outlet? Is there just nothing else to do?

"A lot of people drink to have fun, but it's deeper than that for some people," one teen said. "Some people have to drink to have fun."

It is indeed a complex problem that cannot be summed up neatly.

A few local groups are making efforts to combat teen drinking, but are largely in the initial stages.

Elizabeth Schwartz, M-A parent and co-chair of the PTA's drug and alcohol wellness committee, said the group's last meeting in December had a large turn-out of concerned people, but was just starting to come to grips with the problem's magnitude.

"There was a poignant acceptance of the fact that we are losing many of our youth," she said afterward.

'Don't ask, don't tell'

Nico Cornil was determined to have a blood alcohol content of 0.22 at the time of his death. According to a blood alcohol estimation chart from the Menlo Park Police Department, this equals about nine drinks for a person in Nico's weight range.

Adults with a content of 0.08 and above are considered to be driving under the influence of alcohol.

Rocio Letona and Shannon Long reportedly had blood alcohol contents of 0.12 and 0.17, respectively. None of the teens was found to have consumed other drugs.

At least some of the alcohol Nico drank the night of his death was bought for him by a man he met in front of a Redwood City liquor store, one of Nico's friends told San Mateo County Sheriff's Sgt. Don O'Keefe.

Nico and his friend then took the 40-ounce beer and the wine cooler and drank them outdoors in

Dismayed parents told tales of ongoing heavy drinking by teens, even after Nico's death; other people's kids calling in the middle of the night for rides home; and one teen checking into a drug rehabilitation program because she was reportedly so shaken by the tragedy.

But then they caught themselves: "Oh, don't put that in. Leave that part out. People might know who it was."

The attitude seemed to be, "This is a major problem, but I don't want to be the one to point fingers."

"We are really turning our heads," Geri Nicholas, an M-A parent who leads student support groups, said of parents. "There is fear in parenting," she said. "Parents want their kids to have a good time, be part of a group. They don't want to intrude."

And sometimes parents are ready to provide that good time by hosting parties for their teens and providing a place for revelers to sleep afterward. Many expressed concern that these parents are setting a bad example.

Denial of mortality

Shortly after Nico's death, an I-A teacher put up a newspaper article in her classroom which said that Nico had been drinking the night of his death. A student quickly tore it down.

"Students think that they're damaging their memory and their love of Nico by saying anything negative," the teacher said.

While I can respect that, I think it's very dangerous to deny (that alcohol was involved) and open it up to more death and destruction," she

most all interviewed said they

thought teens saw themselves as immortal: "It won't happen to me." And this keeps many students from using a designated driver, the teacher said. She said she didn't think Nico's death would change that.

A friend of Nico, who had been at Stanford Hospital when Nico's mother told his friends "he didn't make it," said Nico's death had some effect on teens who party, but not enough. "One of my friends stood up to someone who had just (driven under the influence), and said, 'You can't do that anymore,'" she said.

But teens are not in the habit of taking inebriated friends' car keys away, she said: "I think people do ask if you're OK to drive. But you never really know if they are OK."

The feeling of invincibility is so dangerous because it encourages destructive behavior to continue, said M-A parent Barbara McCandless. "The more they do it, the more they think they can get away with it."

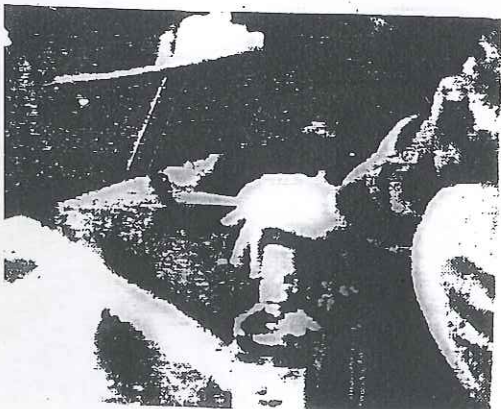
School officials recommend that teens or parents with alcohol-related problems contact the following organizations:

****Alcoholics Anonymous at 573-6811. For anyone with an alcohol problem.**

****Alateen at 592-7935. For teens with alcoholic family members.**

****Belmont Hills Hospital at 593-2143. For those with emotional problems that interfere with their lives.**

****School nurses or guidance advisers at high schools.**



Drugs and the Brain - Background Information

Heroin and morphine send "slow down" messages

The drugs heroin and morphine fit into the same receptor sites as the neurotransmitter ENKEPHALIN.

Heroin and morphine affect:

brain stem

pain

sad

attention

touch

movement

thinking

planning

Heroin and morphine relieve pain by changes in brain's perception of pain - patients report that they can still "feel" the pain, but that it doesn't "bother" them.

Heroin and morphine only relieve slow, aching pain, not fast, sharp pain.

Heroin and morphine are very addictive, with severe withdrawal pains. When someone who is addicted to heroin tries to stop taking it, they feel very sick to their stomach for several days. They also feel depressed, and any small touch feels very painful.

Morphine and heroin are found in the extract of poppy plants, and have probably been used longer than any other drug except alcohol. Morphine and heroin were used as early as 4000 BC to treat pain.

During the Civil War, many soldiers used morphine as a way to stop pain when they were injured. Several of them became addicted to morphine, and it was very difficult and painful for them to stop taking it after they came home from the war.

Compare heroin to morphine. They are similar, but heroin works faster because it gets to the brain quicker.

Heroin was first marketed by Bayer, the aspirin company in 1898 to relieve pain. At that time, doctors thought that heroin could stop pain without making the person addicted. But it was soon clear that heroin was very addictive, and anyone who started taking it couldn't stop.

After someone uses heroin for a long time, their neurons get used to having it, and the same amount of heroin 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.

People who use heroin or morphine usually get red eyes, constricted (smaller) pupils, itching, and slower breathing.

Heroin and morphine can have different effects on different people. There is no way to know ahead of time how one particular person will react to them.

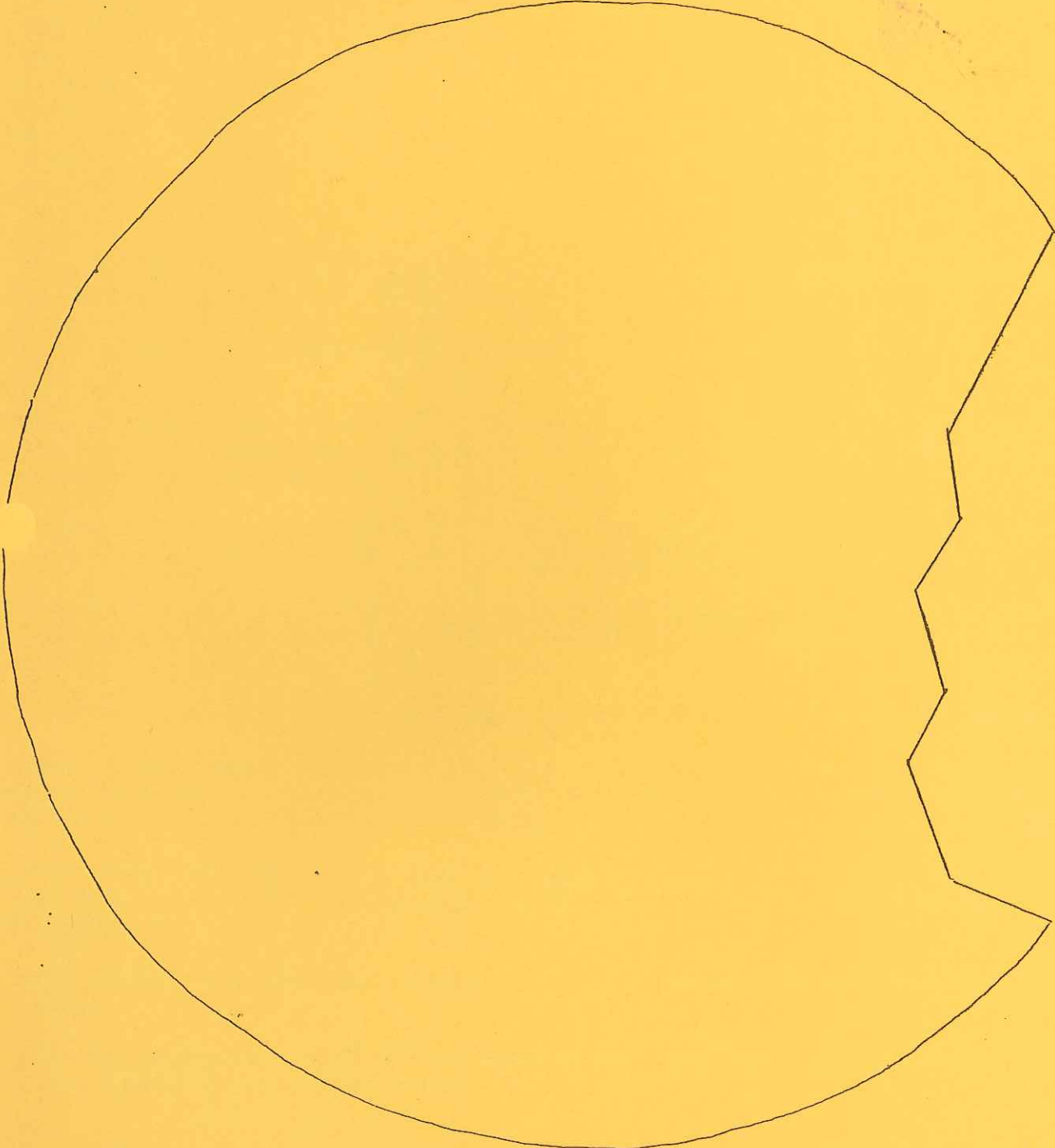
Receptor for the neurotransmitter,
ENKEPHALIN

Enkephalin sends "slow down" messages

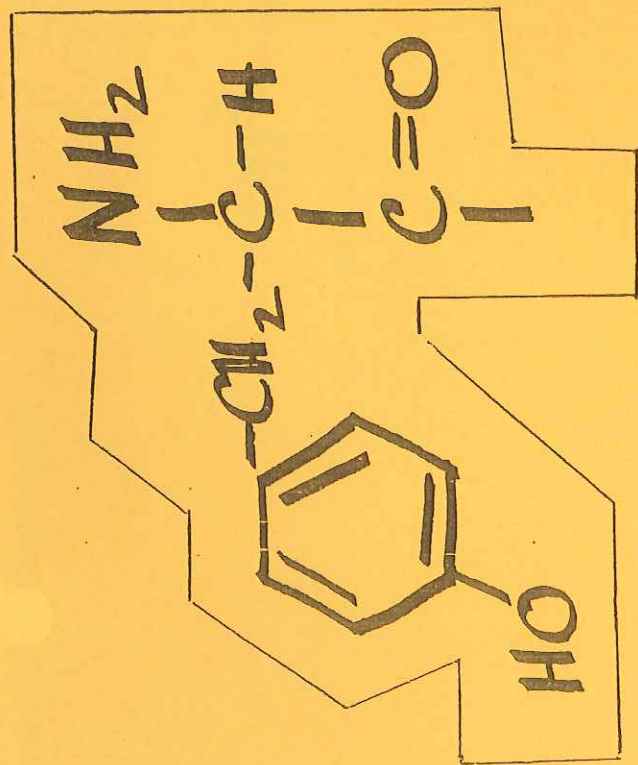
Enkephalin affects:

- brain stem
- pain perception
- emotions
- attention
- touch
- movement
- thinking
- planning

Enkephalin pathways are associated with the perception of pain and with the control of emotional states.

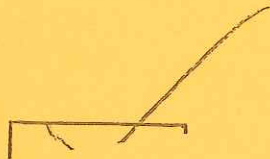
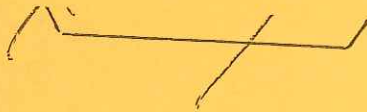


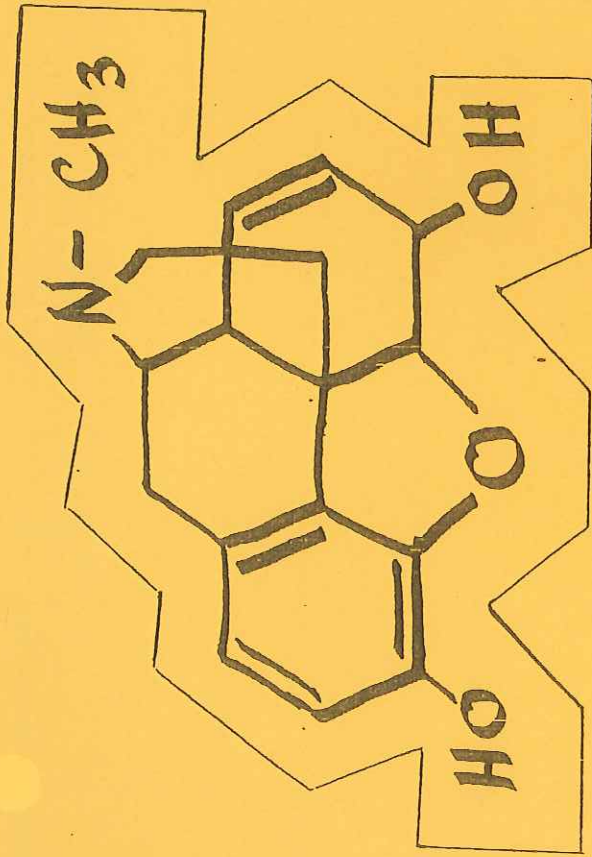
**Receptor for the neurotransmitter,
ENKEPHALIN**



Neurotransmitter:

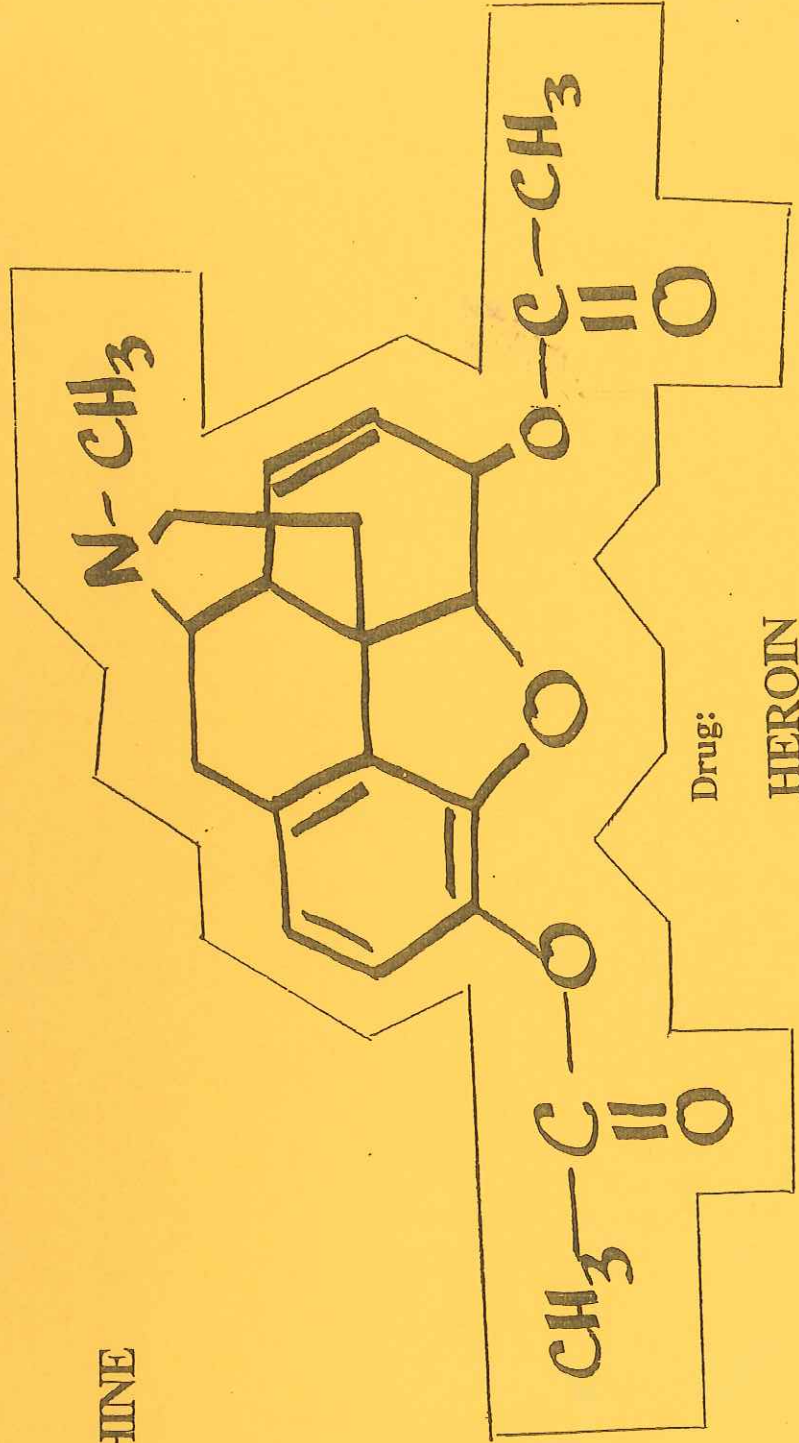
ENKEPHALIN





Drug:

MORPHINE



Drug:

HEROIN

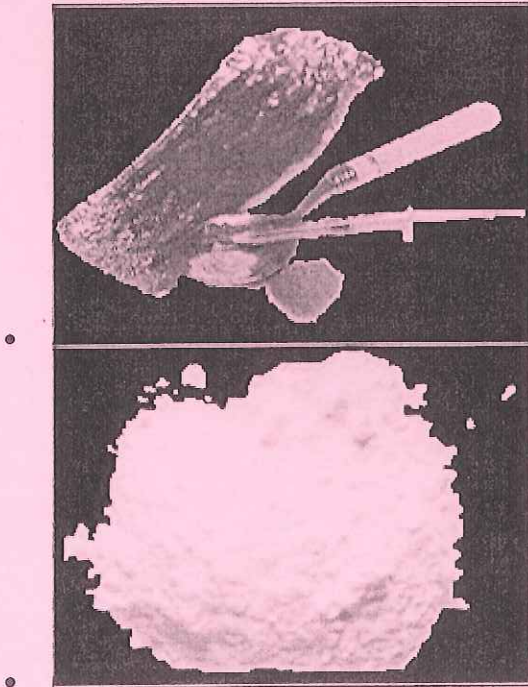
Heroin

Heroin is a highly addictive drug that produces a euphoric effect and relieves pain (analgesic effect). Street heroin (often containing other substances) can range from off-white to dark brown in color. There is also a "black-tar" variant that is popular in Indiana. Very often, users are not aware of precisely what they are putting into their bodies... Heroin dealers often add substances such as sugar, starch, quinine, and powdered milk to heroin to increase profits. Users are generally unaware that this is done, which increases the risk of overdose or death.

Typical Street Names

- Black Tar
- Brown Sugar
- Junk
- Smack
- Skag

Pictures



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



What is heroin?

Heroin is a highly addictive and rapidly acting opiate (a drug that is derived from opium). Specifically, heroin is produced from morphine, which is a principal component of opium. Opium is a naturally occurring substance that is extracted from the seedpod of

the opium poppy

What does it look like?

The appearance of heroin can vary dramatically. In the eastern United States, heroin generally is sold as a powder that is white (or off-white) in color. (Generally, the purer the heroin the whiter the color, because variations in color result from the presence of impurities.) In the western United States, most of the heroin available is a solid substance that is black in color. This type of heroin, known as black tar, may be sticky (like tar) or hard to the touch. Powdered heroin that is a dirty brown color also is sold in the western United States.

Who uses heroin?

Individuals of all ages use heroin--data reported in the National Household Survey on Drug Abuse indicate that an estimated 3,091,000 U.S. residents aged 12 and older have used heroin at least once in their lifetime. The survey also revealed that many teenagers and young adults have used heroin at least once--76,000 individuals aged 12 to 17 and 474,000 individuals aged 18 to 25.

Heroin use among high school students is a particular problem. Nearly 2 percent of high school seniors in the United States used the drug at least once in their lifetime, and nearly half of those injected the drug, according to the University of Michigan's Monitoring the Future Survey.

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How is heroin abused?

Heroin is injected, snorted, or smoked. Many new, younger users begin by snorting or smoking heroin because they wish to avoid the social stigma attached to injection drug use. These users often mistakenly believe that snorting or smoking heroin will not lead to addiction. Users who snort or smoke heroin at times graduate to injection because as their bodies become conditioned to the drug, the effects it produces are less intense. They then turn to injection--a more efficient means of administering the drug--to try to attain the more intense effects they experienced when they began using the drug.

What are the risks?

Both new and experienced users risk overdosing on heroin because it is impossible for them to know the purity of the heroin they are using. (Heroin sold on the street often is mixed with other substances such as sugar, starch, or quinine. An added risk results when heroin is mixed with poisons such as strychnine.) Heroin overdoses--which can result whether the drug is snorted, smoked, or injected--can cause slow and shallow breathing, convulsions, coma, and even death.

All heroin users--not just those who inject the drug--risk becoming addicted. Individuals who abuse heroin over time develop a tolerance for the drug, meaning that they must use increasingly larger doses to achieve the same intensity or effect they experienced when they first began using the drug. Heroin ceases to produce feelings of pleasure in users who develop tolerance; instead, these users must continue taking the drug simply to feel normal. Addicted individuals who stop using the drug may experience withdrawal symptoms, which include heroin craving, restlessness, muscle and bone pain, and vomiting.

Heroin users who inject the drug expose themselves to additional risks, including contracting human immunodeficiency virus (HIV), hepatitis B and C, and other blood-borne viruses. Chronic users who inject heroin also risk scarred or collapsed veins, infection of the heart lining and valves, abscesses, pneumonia, tuberculosis, and liver and kidney disease.

What is it called?

Street Terms for Heroin

Big H	Dead on arrival	H	Mud
Boy	Diesel	Hell dust	Poppy
Capital H	Dope	Horse	Smack
China white	Eighth	Junk	Thunder
Chiva	Good H	Mexican horse	Train
			White junk

Is heroin illegal?

Yes, heroin is illegal. Heroin is a Schedule 1 substance under the Controlled Substances Act. Schedule I drugs have a high potential for abuse and serve no legitimate medical purpose in the United States.