

Forensic Science: Drugs PartC

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- Is the body more or less likely to absorb alcohol at a slower or faster rate with a full stomach?



- Why?

Introduction:

Down With Depressants And Up On Stimulants

- Opiates, Barbiturates, alcohol and other tranquilizers are central nervous system depressants that make you sleep and lethargic and thus are referred to as *downers*.



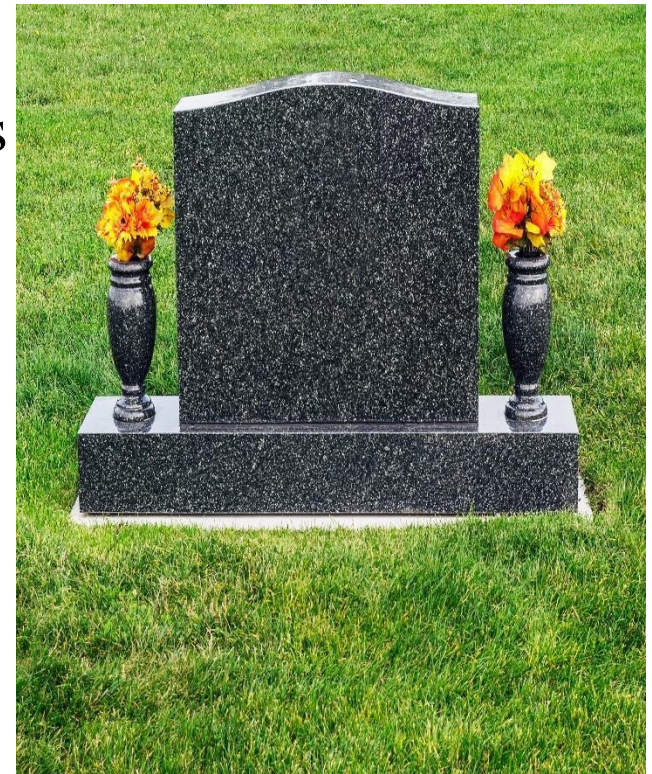
Opiates

- ❑ **Opiates** are chemicals derived from the sap of poppies and are divided into Natural, Semi synthetic, and synthetic, depending upon their source and method of manufacture.
- ❑ They are **narcotic sedative** (sleep producing) and **analgesics** (pain relieving) that produces euphoria, lethargy, and in larger doses coma and death from respiratory depression and asphyxia.
- ❑ You can take most either by mouth or injection; all come with a great risk of abuse and physical addiction.



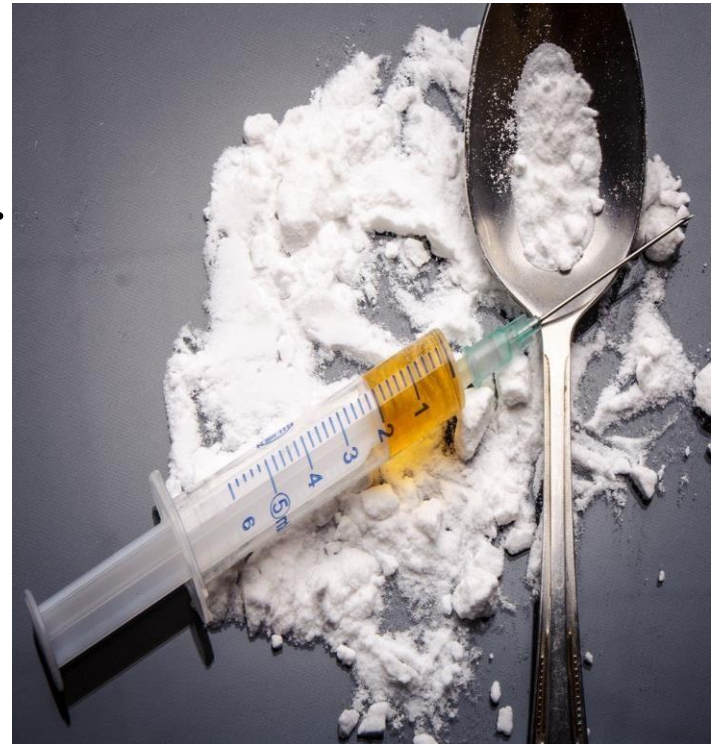
Death Results

- ❑ Death can occur because this class of drug suppresses the respiratory centers of the brain.
- ❑ The victim falls asleep, slips into a deep coma, stops breathing and dies from asphyxia.
- ❑ This reaction is even more common when an opiate is mixed with alcohol, which is also a brain depressant.



Natural Opiates

- Like morphine or codeine, comes directly from the poppy.
- Heroin actually is diacetylmorphine and is produced by combining morphine with acetic anhydride or acetyl chloride. Most commonly abused.



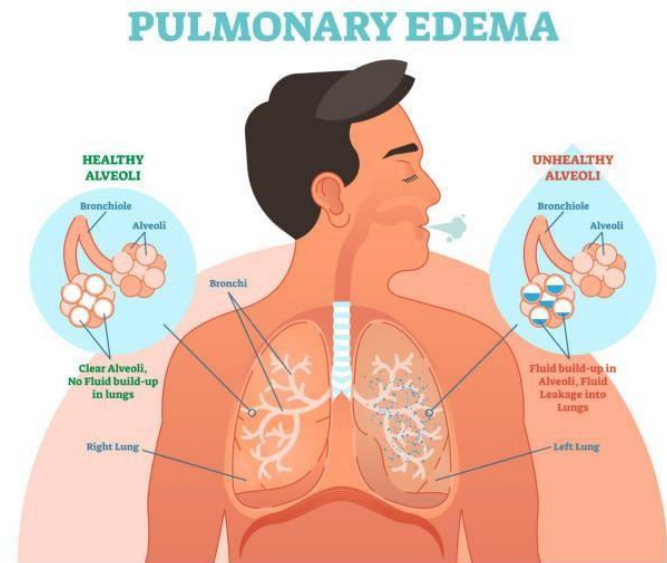
Testing

- In the living, the toxicologist uses the **Marquis Test** to screen samples for the presence of morphine and other opiates.
- During an autopsy, the ME collects a blood sample for the toxicologist to analyze to determine whether the deceased used Heroin.



During an Autopsy

- ❑ Autopsy findings in individuals who die from heroin overdoses are fairly consistent.
- ❑ The ME usually finds evidence of **Pulmonary Edema**, or water in the lungs; however, that isn't always the case.
- ❑ Curiously, the lungs often show evidence of talc crystals and cotton fibers because those substances are used respectively to cut and filter the heroin.
- ❑ When the drug is intravenously administered, blood carries these crystals and fibers through the heart, and then they



filter the blood and become trapped in the lungs.

Barbiturates

- Derived from barbituric acid, and people use them as hypnotics, or sleeping pills.
 - Among the five barbiturates commonly used in the past (Phenobarbital, Amobarbital, Secobarbital, butobarbital and Phenobarbital), only Phenobarbital is used widely today.
- The others have been replaced with newer and safer hypnotics. Still, these old forms of drugs are available and frequently abused.
- Because both barbiturates and alcohol can suppress respiration and even cause cessation of breathing, their combination



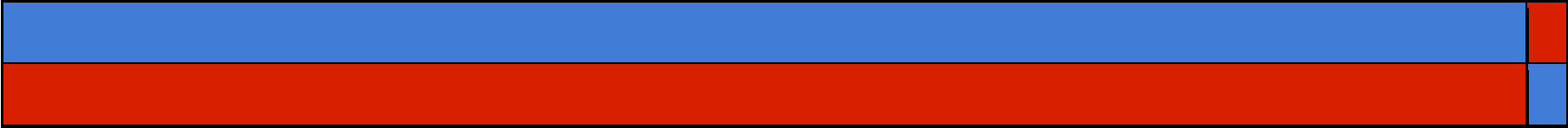
is particularly dangerous and may lead to coma and death from asphyxia.

- **A Color Test is used to screen for the presence of Barbiturates in biological tissues (Blood, Urine and Tissue).**

Hopping Up: Stimulants

- The most commonly used stimulants, or uppers, are **amphetamines and cocaine**. They increase alertness, lessens fatigue, and suppress appetite.



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- With continued use, they cause irritability, anxiousness, aggressive behavior, paranoia, fatigue, and depression.

Stimulants

- Stimulant users often develop tachyphylaxis, which means the body gets use to them, thus lessening their effects.

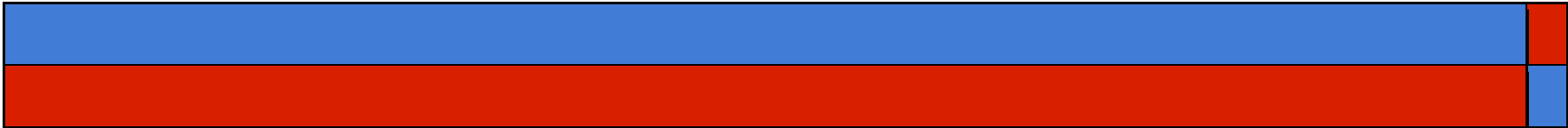
- ❑ People who abuse stimulants must take ever –increasing amounts to get the same effect.
- ❑ One cause of **Tachyphylaxis** is that the body produces more of the enzymes that metabolize these drugs, so they are destroyed and eliminated at faster rates.



Amphetamines



Highly addictive, widely abused, and easily manufactured in garage labs. Because abuse of these



compounds is common and widespread, testing for amphetamines is part of virtually every hospital and crime lab toxicology screen. □ In the bloodstream, Cocaine is converted to methyl ecgonine and benzoylecgonine. Urine

tests target the later of these two compounds and can find traces for up to three days after the last use.

- Toxicologists may use both the immunoassay and the **Scott Color Test** as a screening tool for cocaine.

Thanks For Your Attention



- Questions and
Comments