



# FORENSIC SCIENCE DRUGS PARTE

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# BELL RINGER

- If I calculate the differences from a pre-sample, and a post sample with the following results:
- Pre: 200 Grams
- Post: 175 Grams
- What is the change in composition?





# INTRODUCTION



- An odd, but not rare, form of substance abuse is the sniffing of volatile chemicals.
- The practice is also known as huffing.
- It begins with glue and gasoline but has spread to include naphthalene, toluene and trichloroethylene.
- Other commonly abused gases are gasoline, kerosene, and nitrous oxide.

# HUFFING AND SNIFFING

- When a person inhales the fumes of these volatile chemicals, he or she can experience giddiness, euphoria, dizziness, slurred speech, headache, nausea, and vomiting.
- With continued exposure, loss of consciousness, coma, and death may follow.
- Permanent damage to the brain, liver, heart, and kidneys can occur.
- Because these gases are volatile, they rapidly break down in the body or are quickly excreted through the lungs.





# FORENSICALLY SPEAKING....

- The toxicologist therefore may not be able to find them in the blood or tissue of the user.
- Often the toxicologist determines the chronic use of these dangerous chemicals by finding damage to the liver, lungs, and kidney of the user.



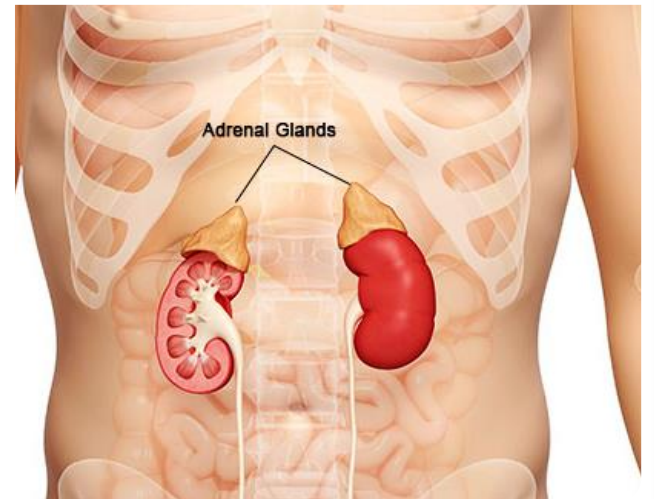
# BULKING UP

- The abuse of anabolic steroids has become epidemic among athletes.
- These hormones appear naturally in the body in very small amounts, and when taken in large amounts, they cause muscle growth, increased strength, and improved reflexes – exactly what an athlete needs to compete.
- But steroids are a double edge sword.
- They also cause hair loss, impotence, liver damage (including liver cancer), and can lead to aggressive behavior (called “steroid rage.”)



# BULKING UP: CONTINUED

- Users typically are easy to recognize – they're big, muscular, and athletic.
- The screening and confirmatory tests detect most synthetic steroid preparations, but unscrupulous chemists manufacture newer and more difficult to detect “designer” steroids.
- The forensic toxicologist continually searches for new testing techniques to find these banned drugs in athletes.





## CHECKING OUT FAMILIAR POISONS

- Though poisons aren't used for homicide as often as they once were, the forensic toxicologist is still confronted with cases of accidental, suicidal and homicidal poisoning.
- Cyanide: is one of the most lethal chemicals known. It can enter the body by inhalation, ingestion or through the skin by direct contact. Cyanide gas, or hydrogen cyanide (HCN), is used in executions.



# STRYCHNINE

- Plant-based component of some rat and mole poisons.
- It possesses an extremely bitter taste, which makes it difficult to disguise in food.
- Strychnine causes powerful convulsive contraction of all the body's muscles. The body adopts a posture known as Opisthotonos, which means the back is arched, and only the back of the head and heels of the feet touch the floor.
- Death occurs from asphyxia because breathing is impossible during such violent muscular contractions



# MUSHROOMS



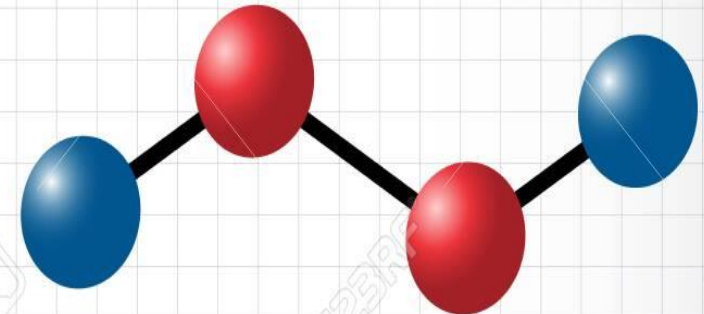
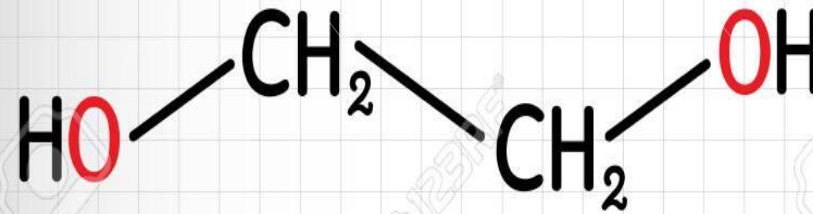
- Mushrooms of the Amanita family are far more deadly than the hallucinogenic variety.
- Death Cap and Death Angel Mushrooms as the names suggest are very poisonous mushrooms have been implicated in accidental, suicidal, and homicidal death.
- During an autopsy, the medical examiner will find severe liver damage, and the toxicologist may find low levels of sugar in the blood.



# ETHYLENE GLYCOL

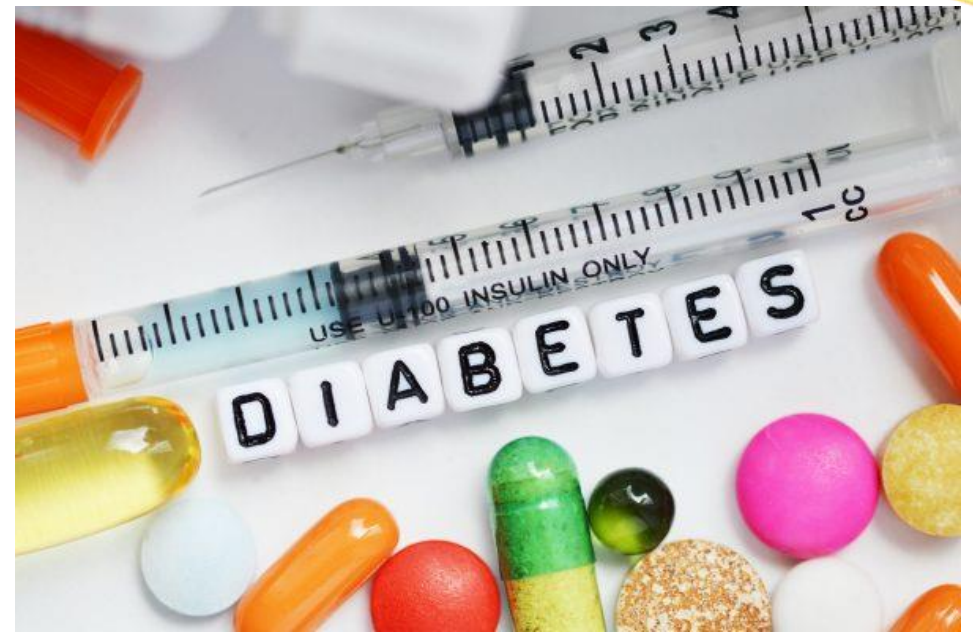
- Ethylene Glycol is a major ingredient in many antifreeze solutions.
- For some reason, it's a favorite beverage of alcoholics when they can't get ethanol.
- All too often, when the medical examiner is presented with the death of a homeless alcoholic, the search for the cause of death includes consideration of antifreeze ingestion.
- In the body, ethylene glycol breaks down into several compounds, the most important being Oxalic Acid, which causes Oxalate Crystals to develop in the brain and kidneys, resulting in irreparable damage and death.

## Ethylene glycol



# INSULIN

- Lifesaving substance for many diabetics. On occasion, however, Diabetics die from accidental overdoses of insulin.
- Insulin has been used in suicides and homicides.
- The injection of large doses rapidly decreases the blood sugar, and because the brain is very sensitive to changes in blood sugar, death can occur quickly.
- If an insulin level is found to high, the ME should look for a Insulin secreting tumor. If no tumor is identified, the possibility of homicide increases.







**THANK YOU  
FOR YOUR ATTENTION!**

**Questions and Comments**