

# Drugs in The Human Body



October 1<sup>st</sup>, 2019

# Drugs in The Human Body

What do they look Like?

How do people act?

Affected Physiology?

What's Going on in Bismarck/North Dakota?

Decontamination Procedures

# ADDICTION

“In a sense, addiction is a pathological form of learning,”

Antonello Bonci, a neurologist at the National Institute on Drug Abuse.



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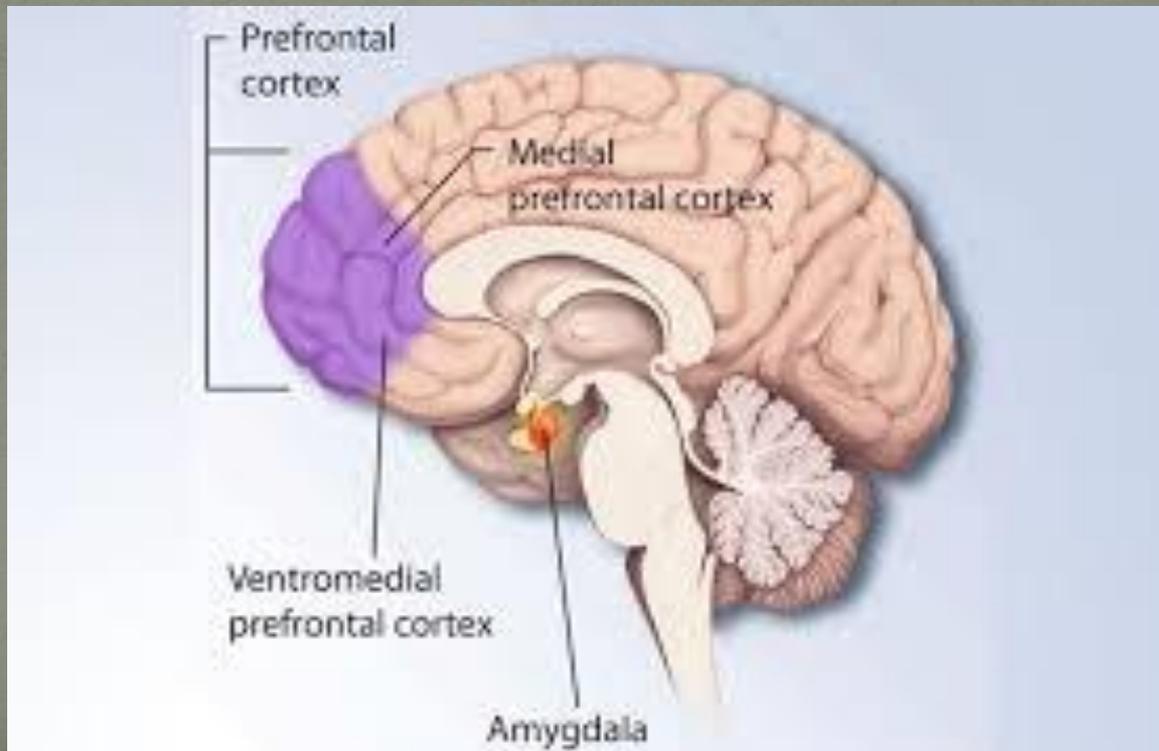
You Tube



By taking advantage of the brain's marvelous plasticity, **addiction** remolds neural circuits to assign supreme value to cocaine or heroin or gin or marijuana, at the expense of other interests such as health, work, family, or life itself.

# Prefrontal cortex

The amino acid glutamate, produced here, interacts with dopamine to spark visualizations that cue cravings.



# The Reward System

exists to ensure we seek what we need, and it alerts us to the sights, built for when survival depended on the ability to obtain food and sex before the competition got to them. **But** the system can trip us up in a world with 24/7 opportunities to fulfill our desires

The flow of dopamine heightens what scientists call **salience**, or the motivational pull of a stimulus—cocaine, for instance, or reminders of it, such as a glimpse of white powder. Each drug send dopamine levels soaring far beyond the natural range.



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in the morning.*



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# Seven Drug Categories

CNS Depressant

CNS Stimulant

Hallucinogens

Dissociative Anesthetics

Narcotic Analgesics

Inhalants

Cannabis

# CNS Depressants

## GENERAL INDICATORS

- Disoriented
- Droopy Eyelids
- Drowsiness
- Drunk-like Behavior
- Gait Ataxia
- Vasodilation

HOME / CULTURE /

# Drink, Drank, Drunk: These Are the Drunkest States in America

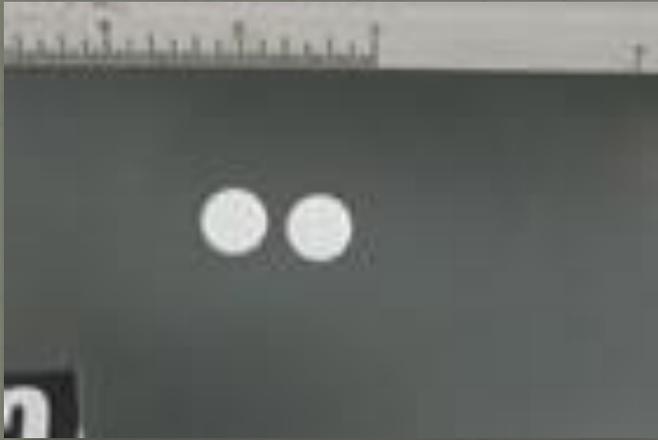
Sam Becker   | MORE ARTICLES

July 06, 2017



## 1. North Dakota





Anti-Anxiety Tranquilizers  
Anti-Depressants  
Anti-Psychotics

Valium

Prozac

Xanax

Soma

Alcohol

Date Rape Drugs

SSRI reuptake inhibitors

# Date Rape Drugs

- Rohypnol (Flunitrazepam)
- Gamma Hydroxy Butyrate (GHB)



A person under the influence of a **CNS Depressant** will look like a drunk, talk like a drunk, walk like a drunk, but they may not smell like a drunk.

- Wide variety of emotional behavior
- Reduced ability to divide attention
- Disoriented
- Sluggish
- Thick, slurred speech
- Drunk-like behavior
- Droopy eyes
- Fumbling

- Relaxed inhibitions
- Slowed reflexes
- Uncoordinated
- Drowsiness
- Unsteady/Staggering walk

# Overdose Signs and Symptoms

- Shallow breathing
- Cold/clammy skin
- Rapid / weak pulse
- Dilated pupils

# Medical Conditions That May Mimic Drug Impairment

- Extreme fatigue
- Very recent head injuries
- Diabetic reactions
- Hypotension (low blood pressure)
- Inner ear disorders
- Severe depression

# CNS Stimulants



# Widely Abused CNS Stimulants

- Cocaine
- Amphetamines
- Methamphetamine

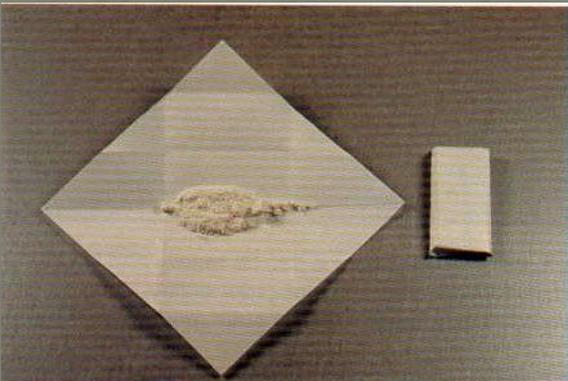


In 1859, Dr. Pablo Mantegazzo isolated **cocaine** from the coca leaf, and wrote about its wonderful powers to combat fatigue, depression, and impotence.



“Erythroxyton Coca”

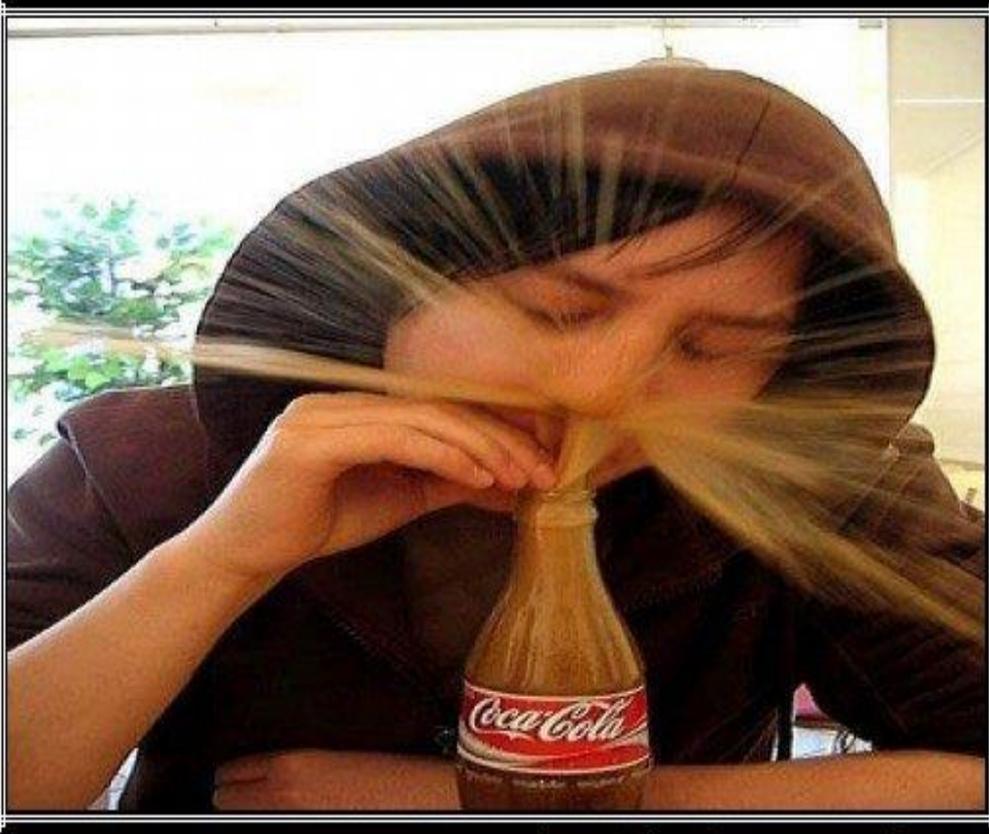
# Cocaine



# **ANNIE OAKLEY IS IN PRISON CELL**

**Famous Rifle Shot of Buffalo Bill's  
Show Steals a Negro's Trousers  
to Get Money Enough to Buy  
Cocaine.**

August 11, 1903

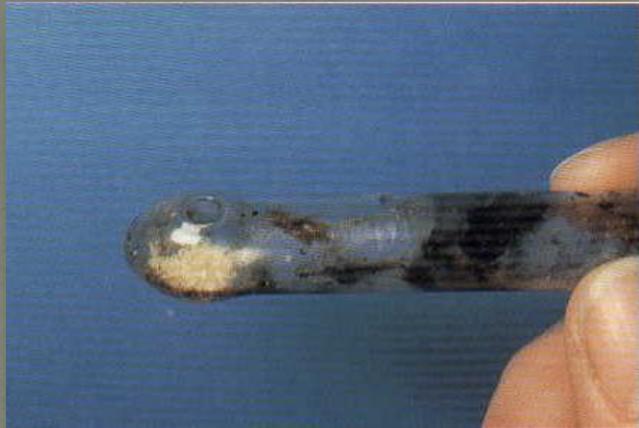


# NEVER AGAIN!

The First Time I Tried Snorting Coke  
I Damn Near Drowned!

Until 1903, "coke" contained 60 milligrams of cocaine per 8 ounce serving! After causing a number of deaths by overdose, it was outlawed in 1914.

# Methamphetamine Amphetamines



# Methamphetamine



# Effects of CNS Stimulants

- Euphoria – an extremely pleasurable sensation (while the drug is psychoactive)
- Opposite effect as the drug wears off

# Overdose Signs and Symptoms

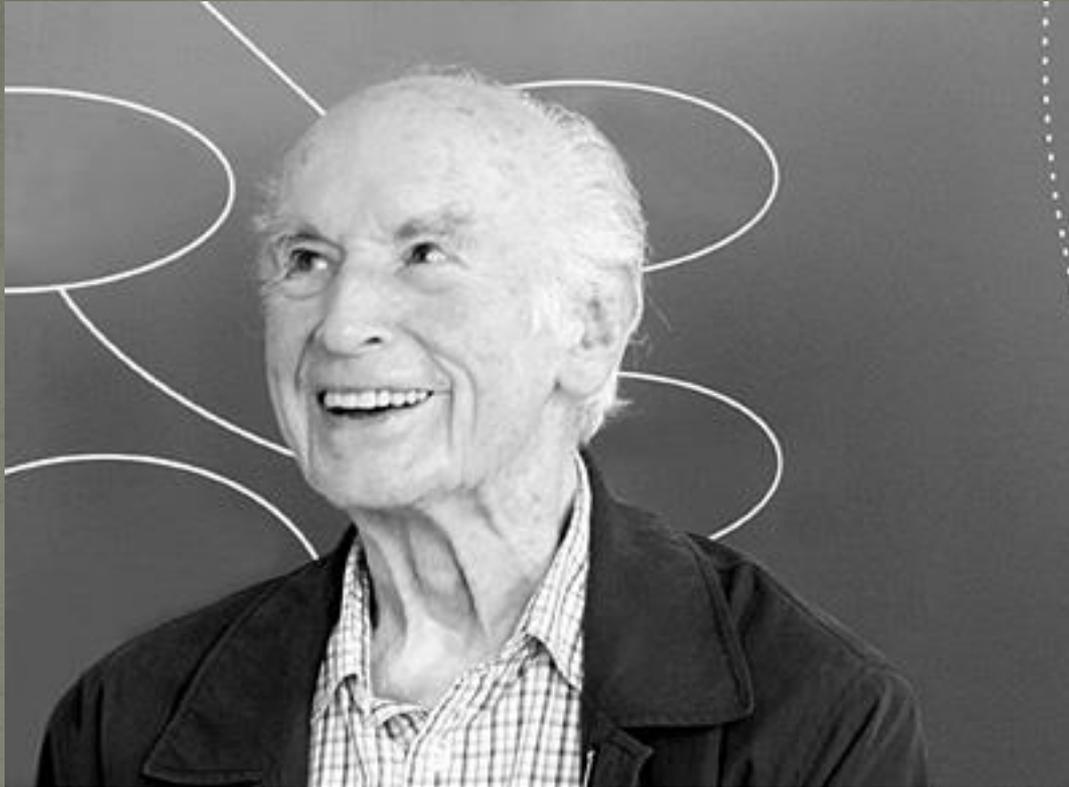
- Increase in heart rate and blood pressure
- Convulsions
- Increased body temperature
- Hallucinations

# Medical Conditions That May Mimic CNS Stimulants

- Hyperactivity
- Nervousness
- Stress
- Fear
- Hypertension (high blood pressure)

# Hallucinogens





In 1938, Albert Hofman, a Swiss chemist, isolated a derivative of ergot which he called lysergic acid diethylamide -- LSD.





1692-1693, Salem Massachusetts.

# Hallucinogens

- Hallucinations are sensory experiences of something that does not exist outside the mind
- Synesthesia: or the transposition of senses

Some Hallucinogens occur naturally:

- **Peyote** is a species of cactus containing *mescaline*
- There are numerous mushrooms (**psilocybin**) capable of inducing hallucinations
- **Jimson weed** and **morning glory seeds**
- Toad (*Bufo Alvarius*) releases a hallucinogenic secretion when threatened



# Synthetically Manufactured:

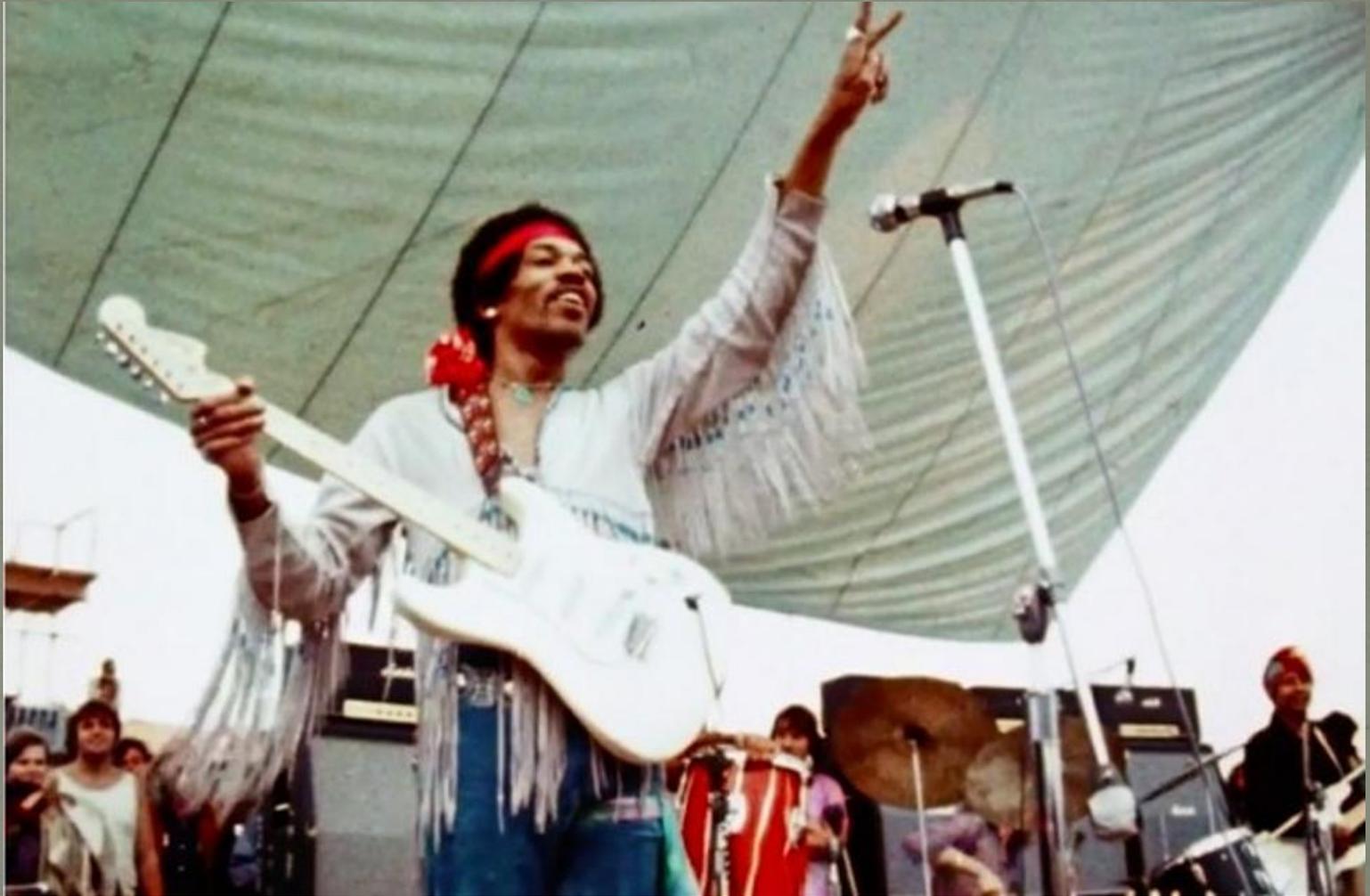
- Lysergic Acid Diethylamide
- 3,4-Methylenedioxymethamphetamine (MDMA) or Ecstasy or Molly or Sass



# Lysergic Acid Diethylamide (LSD)



# Lysergic Acid Diethylamide (LSD)





Are Raves a new thing.....

.....NOT!!

1968 Universal  
Films

# Effects of Hallucinogens

- The drug generally intensifies the mood of the user at the time of ingestion.
- If the user is depressed – you could observe a deeper depression
- If the user is feeling pleasant – you could see a heightened pleasure

# Effects of Hallucinogens

- Hallucinogens can uncover emotional flaws in the user
- Therefore, the user may expect a pleasurable “trip,” but end up instead with a bad “trip”

# General Indicators

- Hallucinations
- Paranoia
- Nausea
- Perspiring
- Dazed appearance
- Flashbacks
- Body tremors
- Uncoordinated
- Poor perception of time and distance

# General Indicators

- Disoriented
- Memory loss
- Synesthesia (transposition of the senses)
- Difficulty in speech

# Medical Conditions That Mimic Hallucinogen Impairment

- High fever
- Mental illnesses

# Dissociative Anesthetics



# Dissociative Anesthetics

- PCP- Phencyclidine
- Analogs
- Ketamine
- Dextromethorphan



# Effects of Dissociative Anesthetics

- Cut off or distort the brain's perception of the rest of the body's senses (Dissociate)
- Increase the user's pain threshold (Anesthetic)

# General Indicators

- Perspiring
- Blank stare
- Cyclic behavior
- Chemical odor
- Incomplete verbal responses
- Warm to the touch
- Slurred and repetitive speech
- Hallucinations

# General Indicators

- Confused
- Possibly violent
- Difficulty with speech
- Disoriented
- Early angle of nystagmus
- Non-communicative
- Sensory distortions

# Overdose Signs and Symptoms

- Deep coma lasting up to 12 hours
- Seizures and convulsions
- Respiratory depression
- Magnification of pre-existing cardiac conditions
- Possible psychosis

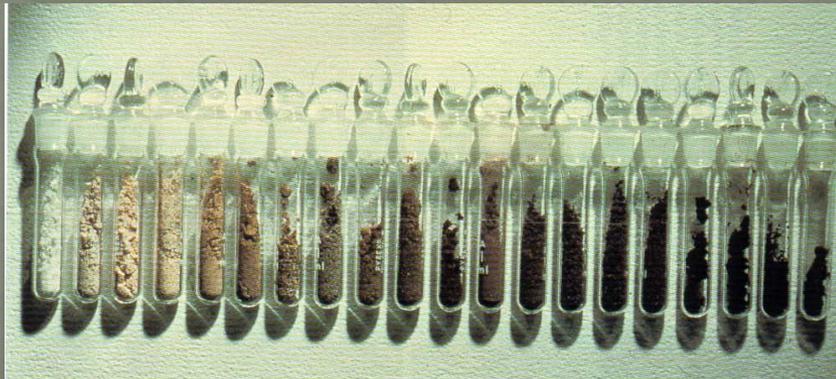
# Narcotic Analgesics



## Narcotic Analgesics:

- Relieve pain
- Induce euphoria, alter moods, and produce sedation
- Known for physically addicting properties and severe withdrawal symptoms

# Heroin



# Heroin



# Fentanyl



# Fentanyl





Purple Kush

Produ

FAQS



Beautiful AAA PK, caked in crystal. Nice colour, distinctly  
Close trimmed fluffy fat buds. Pungent kush aroma and fla

# HOW TO FIND ANYTHING ON THE DARK WEB

- Hydrocodone
- Vicodin
- Lortab
- Tylenol 3 (with codeine)
- Buprenorphine
- Morphine
- Oxycontin

# Effects of Narcotic Analgesics

- Usually very addictive
- Addicts who stop using may suffer physical withdrawal symptoms
- Users may develop a tolerance to the drug (Each time the drug is taken, a larger dose is required to achieve the same feeling)

# General Indicators

- Droopy eyelids
- “On the nod”
- Drowsiness
- Depressed reflexes
- Dry mouth
- Slow, low, raspy

# General Indicators

- Euphoria
- Puncture marks
- Itching
- Nausea
- Slowed breathing
- *Constricted Pupils*

# Overdose Signs

- Slow and shallow breathing
- Clammy skin
- Coma
- Convulsions

# Medical Conditions That May Mimic Narcotic Analgesic Impairment

- Fatigue
- Very recent head injuries
- Diabetic reactions
- Hypotension (low blood pressure)
- Severe depression

## Inhalants

- Vary widely in terms of chemicals involved and specific effects
- One of the most accessible and inexpensive substances of abuse due to legitimate applications
- Relatively inexpensive and readily available in the home, school, or work environment

# Inhalants

- Volatile solvents
- Aerosols
- Anesthetic gases

# Volatile Solvents

- Gasoline
- Paint thinners
- Fingernail polish remover
- Cleaning fluid
- Liquid Correction Fluid
- Paint
- Various glues

# Aerosols

- Hair sprays
- Deodorants
- Vegetable frying pan lubricants
- Insecticides
- Glass chillers

# Aerosols

These are usually inhaled from a secondary source such as a:

- Soaked rag
- Paper bag
- Plastic bag

# Anesthetic Gases

- Ether
- Amyl nitrite
- Butyl nitrite
- Isobutyl nitrite
- Nitrous oxide  
Whipped cream  
(gas)



## Effects of Inhalants

- The effects of Inhalants will vary widely depending on the substance inhaled
- Typically the Inhalant abuser will generally appear to be intoxicated on alcohol



## General Indicators

- Confusion
- Flushed face
- Intense headaches
- Bloodshot, watery eyes
- Lack of muscle control
- Odor of inhaled substance

# General Indicators

- Non-communicative
- Disoriented
- Slow, thick speech
- Possible nausea
- Residue of substance around mouth and nose

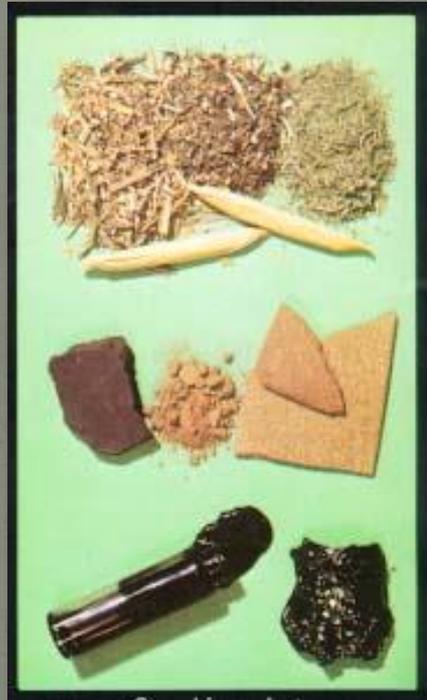
# Overdose Signs and Symptoms

- Coma
- Sudden sniffing death

# Medical Conditions that May Mimic

- Severe Head Injuries
- Inner Ear disorders/Equilibrium

# Marijuana

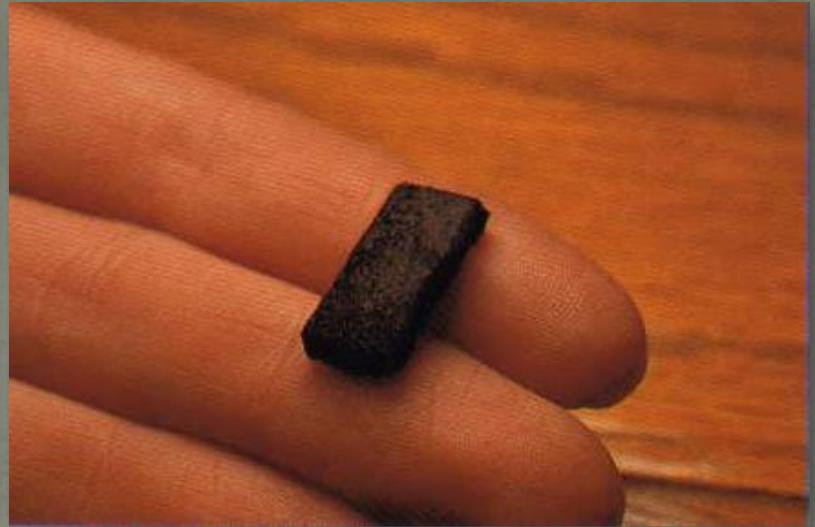


# Marijuana

- Category derived primarily from various species of plants
- This category has the most widely abused illicit drugs
- Delta-9 Tetrahydrocannabinol (THC) is the primary psychoactive ingredient in Cannabis

# Marijuana

- Hashish
- Hash oil
- Synthetic drugs, such as  
Dronabinol and Marinol
- Other forms of Cannabis







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# Synthetic Cannabinoids

- Olive colored herbs
- Combination of herbs
- Plant materials



# Effects of Marijuana

- Brief Attention Span
- Divided Attention Impairment
- Paranoia
- Exaggerated Reflexes
- Memory Impairment
- Non-consequensial

# Effects of Marijuana And Driving

Even small amounts of marijuana can double chances of motor vehicle crash

Larger doses can triple

Risk for automobile crash almost 2.7 times higher among Marijuana users

# Effects of Marijuana And Driving

2015 – 57% of all fatality crash victims had psychoactive THC in their blood system

Number of driving fatalities because of marijuana impairment has doubled in marijuana permissive states

# General Indicators

- Euphoria
- Bloodshot eyes
- Odor of marijuana
- Marijuana debris  
in the mouth
- Body tremors
- Increased appetite

# General Indicators

- Relaxed inhibitions
- Disoriented
- Possible paranoia
- Altered time and distance perception
- Eyelid tremors
- Sedation

# Long Term Medical Concerns

- Cognitive Development/IQ
- Memory Loss
- Cardiac Disease
- Cancer
- Tremors
- Sedation

# Additional Concerns

- Acute Psychosis
- Schizophrenia
- Poorer mental and Physical Health
- More Relationship Problems
- Work/School Performance
- Accidents/injuries

# FENTANYL<sup>†</sup>

## SAFETY RECOMMENDATIONS FOR FIRST RESPONDERS

<sup>†</sup> For the purposes of this document, fentanyl, related substances, and synthetic opioids (herein after referred to as fentanyl<sup>†</sup>) includes fentanyl analogues (e.g., acetylfentanyl, acrylfentanyl, carfentanil, furanylfentanyl), novel synthetic opioids (e.g., U-47700), and other drugs that may be laced with these substances.

- ▶ **The abuse of drugs containing fentanyl<sup>†</sup> is killing Americans. Misinformation and inconsistent recommendations regarding fentanyl<sup>†</sup> have resulted in confusion in the first responder community.**
- ▶ You as a first responder (law enforcement, fire, rescue, and emergency medical services (EMS) personnel) are increasingly likely to encounter fentanyl<sup>†</sup> in your daily activities (e.g., responding to overdose calls, conducting traffic stops, arrests, and searches).
- ▶ This document provides scientific, evidence-based recommendations to protect yourself from exposure.

### WHAT YOU NEED TO KNOW

- ▶ Fentanyl<sup>†</sup> can be present in a variety of forms (e.g., powder, tablets, capsules, solutions, and rocks).
- ▶ Inhalation of airborne powder is MOST LIKELY to lead to harmful effects, but is less likely to occur than skin contact.
- ▶ Incidental skin contact may occur during daily activities but is not expected to lead to harmful effects if the contaminated skin is promptly washed off with water.
- ▶ Personal Protective Equipment (PPE) is effective in protecting you from exposure.
- ▶ Slow breathing or no breathing, drowsiness or unresponsiveness, and constricted or pinpoint pupils are the specific signs consistent with fentanyl<sup>†</sup> intoxication.
- ▶ Naloxone is an effective medication that rapidly reverses the effects of fentanyl<sup>†</sup>.

#### Actions to take . . .

##### To protect yourself from exposure

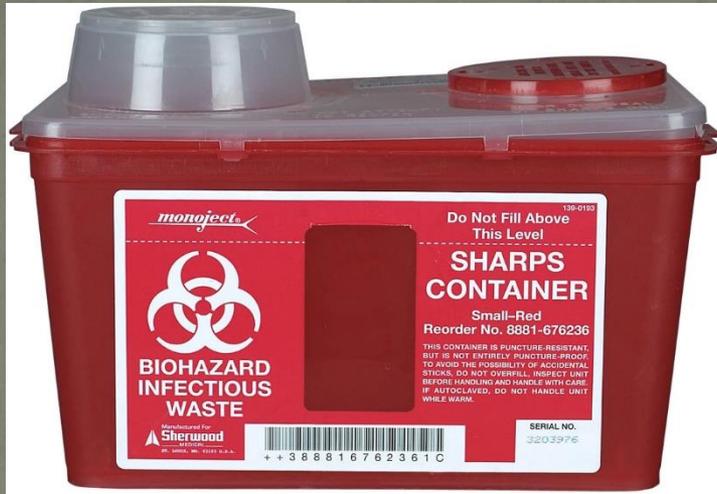
- ▶ Wear **gloves** when the presence of fentanyl<sup>†</sup> is suspected.
- ▶ **AVOID actions that may cause powder to become airborne.**
- ▶ Use a properly-fitted, NIOSH-approved **respirator ("mask")**, wear **eye protection**, and minimize skin contact when responding to a situation where small amounts of suspected fentanyl<sup>†</sup> are visible and may become airborne.
- ▶ Follow your department guidelines if the scene involves large amounts of suspected fentanyl<sup>†</sup> (e.g., distribution/storage facility, pill milling operation, clandestine lab, gross contamination, spill or release).

##### When exposure occurs

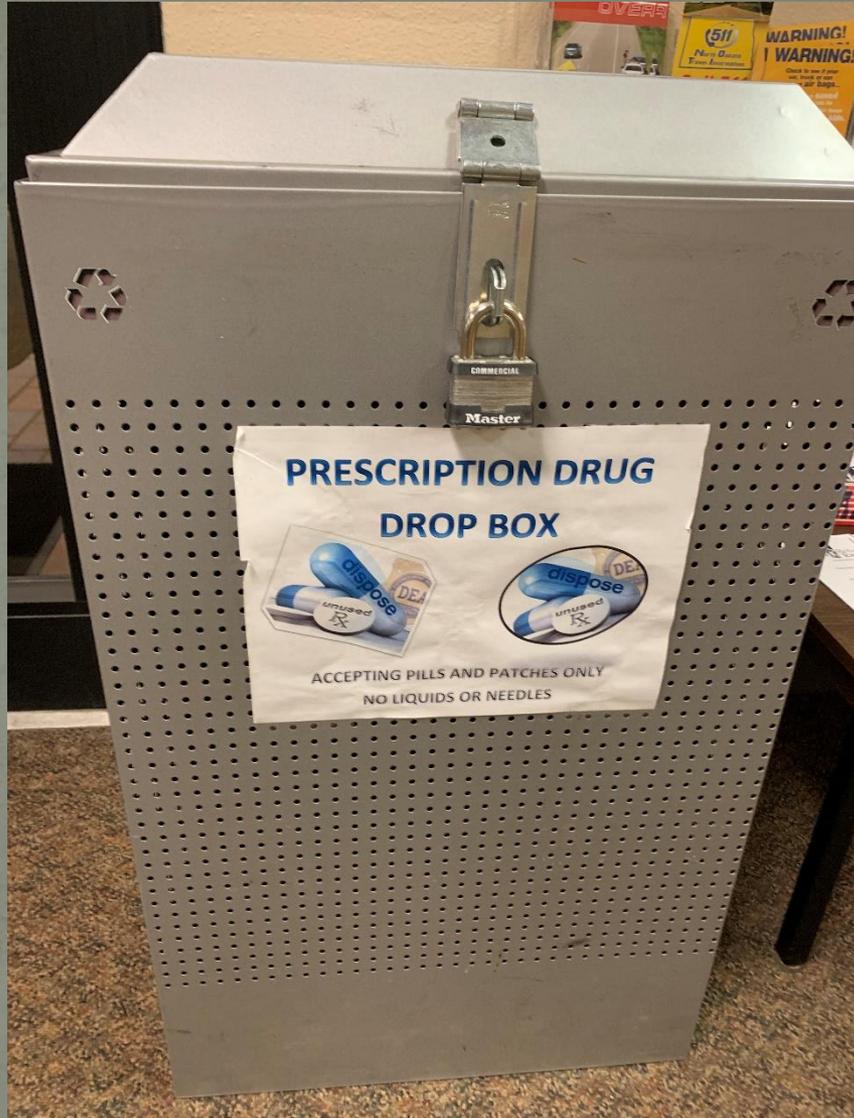
- ▶ Prevent further contamination and notify other first responders and dispatch.
- ▶ Do not touch your eyes, mouth, nose or any skin after touching any potentially contaminated surface.
- ▶ Wash skin thoroughly with cool water, and soap if available. **Do NOT use hand sanitizers as they may enhance absorption.**
- ▶ Wash your hands thoroughly after the incident and before eating, drinking, smoking, or using the restroom.
- ▶ If you suspect your clothing, shoes, and PPE may be contaminated, follow your department guidelines for decontamination.

##### If you or other first responders exhibit

- **Slow Breathing or No Breathing**
- **Drowsiness or Unresponsiveness**
- **Constricted or Pinpoint Pupils**
- ▶ Move away from the source of exposure and call EMS.
- ▶ Administer naloxone according to your department protocols. Multiple doses may be required.
- ▶ If naloxone is not available, rescue breathing can be a lifesaving measure until EMS arrives. Use standard basic life support safety precautions (e.g., pocket mask, gloves) to address the exposure risk.
- ▶ If needed, initiate CPR until EMS arrives.







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Where  
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