

# Central Nervous System (CNS) Stimulants

Officer Jaren Zech




1

## Learning Objectives

- Overview
- Identify types of CNS Stimulants
- History and Origin
- Identify methods of administration
- Explain typical onset and duration of those effects
- Describe signs and symptoms
- Discuss potential indicators of impairment
- Poly-category considerations
- DRE face sheet breakdown


2



## Stimulant Overview

- Stimulants are among the most widely used and abused illegal substances in the United States
- Stimulants are known for “speeding up” the body.
- Commonly referred to as “uppers”
- Known to boost energy and suppress appetite

3




## Subcategories of CNS Stimulants

### Cocaine

- Derived from the coca plant (*Erythroxylon Coca*)
- Naturally derived CNS stimulant extracted from the leaves
- Grown primarily in the Andean Region of South America. Also- India, Africa, and Indonesia.
- Created by drying out the leaves, stomped on to extract the alkaloid.
- Results in coca paste which turns into cocaine hydrochloride
- Cocaine can be turned into Crack when its heated and combined with a cutting agent such as baking soda

### Amphetamines

- Amphetamines are synthetic drugs
- Consist of both pharmaceutical drugs and illicit drugs
- Common Pharmaceutical drugs include:
  - Desoxyn (methamphetamine hcl)
  - Adderall
  - Dexedrine
- Illicit Drugs
  - Methamphetamine (speed, crank, ice, meth)



4



## Subcategories Cont.

- Ritalin
- Ephedrine
- Cathinone (Khat)
- Caffeine
- Nicotine

5

## History and Origin

- Amphetamines were first synthesized in 1887 and became popular in the 1920s to treat colds
- First sold as an OTC inhaler in the 1930s which was the first instance of abuse.
- Given to soldiers during WWII to combat fatigue and improve mood.
- Injecting amphetamines became popular in the 1960s which led to crackdown on the drug production. This led to underground labs (meth labs) which were primarily run by outlaw motorcycle clubs.
- During the 1990s crystal methamphetamine began to grow in popularity. In 1995 Mexican based trafficking groups entered the market and have dominated it since.

- Earliest archaeological evidence of use of the coca plant (*Erythroxylon coca*) is around 5,000 years ago in South America
- Cocaine was first derived from the coca plant in the mid-nineteenth century. First prescribed for medicinal purposes in 1883
- "Coca-Cola" first entered the market in 1886 as a medicinal syrup and contained a small amount of cocaine as an ingredient until 1906 when it was outlawed by the Pure Food and Drug Law.
- Harrison Narcotic Act of 1914 outlawed Cocaine in the U.S.
- Cocaine reemerged as a popular drug in the 1970s through glamorization by the US media.
- Claims of being non-addictive made until the emergence of crack cocaine in 1985

6



## Methods of Administration

- Insufflated
- Smoked
- Injected
- Orally

7

## Onset and Duration of Symptoms

- Cocaine Onset
  - Snorted – Immediate
  - Injected – 15-30 seconds
- Cocaine Duration
  - High typically lasts between 15-30 minutes
  - Indicators of use may decline rapidly as Cocaine metabolizes quickly
  - DRE may not see enough to call CNS Stimulant and may have to rely on arresting officers' observations
- Methamphetamines Onset
  - Smoked – Immediate
  - Injected – Immediate
- Methamphetamine Duration
  - Full effects may last between 4 to 8 hours after use
  - Residual effects can last up to 12 hours
- Caffeine Onset
  - Oral consumption – 15-60 minutes
- Caffeine Duration
  - 2 to 12 hours depending on individual
  - Half-life of about 5 hours

8

## Signs and Symptoms

### Signs

- Inability to sit still
- Body tremors
- Exaggerated reflexes
- Bruxism
- Insomnia
- Dry mouth
- Redness around nasal area if insufflated

### Symptoms

- Euphoria
- Intense happiness or excitement
- Feelings of super strength and absolute self-confidence
- Relaxed inhibitions
- Lack of fatigue or tiredness
- Anxiety or paranoia

9

## Indicators of Impairment

### Vehicle in Motion

- Speeding
- Aggressive driving
- Following too close
- Failure to maintain lane

### Interview of Driver

- Fidgety or unable to sit still
- Eyes wide, rapid movements
- Body tremors
- Difficulty manipulating DL
- Rapid speech
- Paranoia

10

Pre-Arrest Screening (SFSTs)

- HGN- None\*
- Walk and Turn
  - Rigidity in posture and walking
  - Balance issues
  - Restlessness
  - Inability to follow instructions
- One Leg Stand
  - Balance issues
  - Rapid counting
  - Rigidity
- Modified Romberg Balance
  - Body tremors
  - Eyelid twitching
  - Clenching
  - Rapid pulse
  - Rapid estimation of 30 seconds

11

## DRE Clinical Indicators of Impairment

- HGN: None
- VGN: None
- LOC: None
- Pupil Size: Dilated
- Reaction to Light: Slowed
- Pulse Rate: Up (greater than 90BPM)
- Blood Pressure: Up (greater than 140 / 90)
- Temperature: Up (greater than 99.6)
- Muscle Tone: Rigid

12

# Poly-Category Considerations

- Speedball – most common drug combination involving a CNS Stimulant
- Cannabis – goes with everything
- Fentanyl
- Xylazine

## Poly-Category Effects

- Additive – DA / Cannabis / Hallucinogens / Inhalants\*
- Antagonistic – Narcotic Analgesics



13

DRUG INFLUENCE EVALUATION					
Evaluator <b>Trooper Scott Kedenburg</b>	DRE # <b>16507</b>	Rolling Log # <b>22-005-0039</b>	Evaluator's Agency <b>New York State Police</b>	Case# (Session X - #1)	
Recorder/Witness <b>Deputy Brandon Flicker, Livingston Co. S.O.</b>	Crash: <input checked="" type="checkbox"/> None <input type="checkbox"/> Fatal <input type="checkbox"/> Injury <input type="checkbox"/> Property		Arresting Officer's Agency <b>Wyoming County S.O.</b>		
Arrestee's Name (Last, First, Middle) <b>Rocke, Crystal</b>	Date of Birth <b>07/10/1987</b>	Sex <b>F</b>	Race <b>W</b>	Arresting Officer (Name, ID#) <b>Sgt. Aaron Chase #25141</b>	
Date Examined / Time / Location <b>02/08/22 / 2215 / Wyoming Co. S.O.</b>	Breath Test: Results: <b>0.00</b>	Test Refused <input type="checkbox"/>	Instrument # <b>41460</b>	Chemical Test: Urine <input type="checkbox"/> Blood <input checked="" type="checkbox"/>	Test or tests refused <input type="checkbox"/>
Miranda Warning Given Given by: Sgt. Chase	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	What have you eaten today? <b>"Couple of candy bars"</b>	When? <b>About 8 pm</b>	What have you been drinking? How much? <b>Water</b>	Time of last drink? <b>N/A</b>
Time now Actual <b>11 pm? / 2218</b>	When did you last sleep? <b>Yesterday</b>	How long? <b>2 or 3 hours</b>	Are you sick or injured? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are you diabetic or epileptic? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Do you take insulin? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Do you have any physical defects? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are you under the care of a doctor or dentist? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Are you taking any medication or drugs? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Answered "Nothing" then laughed		Attitude: <b>Cooperative, Animated</b>	Coordination: <b>Jerky movements, Exaggerated</b>
Speech: <b>Talkative, Dry mouth</b>	Breath odor: <b>Rancid</b>	Face: <b>Acne, Open sores, Sweaty</b>			
Corrective Lenses: <input checked="" type="checkbox"/> None <input type="checkbox"/> Glasses <input type="checkbox"/> Contacts, if so <input type="checkbox"/> Hard <input type="checkbox"/> Soft	Eyes: <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Bloodshot <input type="checkbox"/> Watery	Blindness: <input type="checkbox"/> None <input type="checkbox"/> Left <input type="checkbox"/> Right	Tracking: <input checked="" type="checkbox"/> Equal <input type="checkbox"/> Unequal		
Pupil Size: <input checked="" type="checkbox"/> Equal <input type="checkbox"/> Unequal (explain)	Resting Nystagmus <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Vertical Nystagmus <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Able to follow stimulus <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Eyelids: <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Droopy	
Reflex Time 1. <b>102 / 2220</b> 2. <b>106 / 2232</b> 3. <b>104 / 2262</b>	HGN Lack of Smooth Pursuit None Maximum Deviation None Angle of Onset None	Left Eye None Right Eye None	Convergence None Right eye None Left eye	40/30 One Leg Stand (40/30)	42/30
Modified Romberg Balance Approx. Approx. 2" 2" 2" 2"	Walk and Turn Test M M S Cannot keep balance: <b>2</b> Starts too soon: <b>2</b> Stops walking: <b>1</b> Misses heel-toe: <b>2</b> Stops off line: <b>2</b> Uses arms: <b>2</b> <b>1</b> Actual steps taken: <b>9</b> <b>9</b>	Quick steps. Rigid movements		L R <input checked="" type="checkbox"/> Sways while balancing <input checked="" type="checkbox"/> Uses arms for balance <input type="checkbox"/> Hopping <input checked="" type="checkbox"/> Puts foot down	Jerky movements. Counted quickly.
Time Estimation 22 estimated as 30 seconds	Describe turn <b>Quick, spun around</b>	Cannot do test (explain) <b>N/A</b>		Type of footwear: <b>Boots</b>	
Finger to Nose (Draw lines to spots touched)	PUPIL SIZE: Room light (7.5 - 8.5) Darkness (5.0 - 8.5) Direct (2.0 - 4.5)		Nasal area: <b>Clear</b>		
	Left Eye <b>7.5</b>	Right Eye <b>7.5</b>	Oral cavity: <b>Red</b>		
	Rebound Dilation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Reaction to Light <b>Slow</b>		

14



# Questions?

Officer Jaren Zech

[Jzech@edinamn.gov](mailto:Jzech@edinamn.gov)

952-833-9539

